

# *The Influence of the Green Economy on the Structure of Industries*

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**Abstract:** This research examines the impact of the green economy on industrial structure, focusing on the viewpoints of enterprises, consumers, and the government, and provides comprehensive evaluation of the trends in reform and development within China's environmentally friendly sector. The study reveals that the green economy has a significant influence on optimizing the industrial structure. Encouraging companies to adopt green production practices can lead to a shift towards resource-efficient and environmentally friendly production methods, promoting the transformation of the industrial structure towards green industries. Guiding consumers towards green consumption can stimulate the demand for green industries, thereby driving the transformation of the industrial structure towards green consumption-driven. Strengthening the government's environmental responsibilities can tilt the industrial structure towards environmental industries and foster the advancement of the eco-friendly economy. By optimizing the arrangement of industries, the green economy contributes to achieving sustainable development, providing important references for encouraging the environmentally conscious enhancement of industrial structures and building an environmentally friendly economic system.

**Keywords:** green economy, industrial structure, green production, green consumption

## 1. Introduction

With the increasing severity of global environmental issues, the green economy has attracted widespread attention as a sustainable development model. Studying the impact of the green economy on industrial structure holds substantial theoretical and practical importance for exploring the green transformation of industries, promoting sustainable development, and constructing an economically efficient system that is mindful of resources and the environment. The green economy emphasizes achieving economic growth by improving resource utilization efficiency, reducing environmental pollution, and ecological damage. Its objective is to realize harmonious development between economic progress and safeguarding the environment. This optimization of industrial structure not only reduces dependence on limited resources and environmental pressures but also engenders fresh catalysts for economic growth and avenues for employment. The objective of this study is to investigate the influence of the green economy on industrial structure through the guidance of companies towards green production, the guidance of consumers towards green consumption, and the strengthening of the government's environmental responsibilities. It also combines data analysis with

the reform, development, and trends of China's green industry to provide new insights and research paths for understanding the relationship between the green economy and industrial structure.

The subsequent sections of this paper are organized as follows: Section 2 delves the influence mechanism of the green economy on the industrial structure. Section 3 concentrates on the reform and advancement of China's green industry. Finally, Section 4 presents an analysis of the developmental trajectory of the green industry in China.

## **2. Mechanisms of the Impact of Green Economy on Industrial Structure**

Developing a green economy requires the establishment of incentive mechanisms for environmental protection, including incentives for environmental institutional arrangements in enterprises, green consumption, and government green guidance.

### **2.1. Guiding Companies Towards Green Production**

China's strategic blueprint for the 14th Five-Year Plan underscores the prioritization of green finance, the encouragement of innovative green technologies, and the facilitation of the eco-friendly transformation of critical industries and significant sectors [1]. The high-level framework for China's green finance and green technological innovation is progressively evolving. In 2021, the State Council issued the "Guiding Opinions on Accelerating the Establishment of a Robust Economic System that Promotes Green, Low-carbon, and Circular Development," explicitly affirming the necessity of establishing a market-oriented system for green technological innovation and fostering the advancement of green and low-carbon technologies, alongside expediting technology commercialization [1]. Green finance can effectively allocate financial resources and curb capital investment in industries with high pollution and energy consumption. It encourages financial institutions and social capital to increase investment in green projects and provide financial support, thereby enabling energy-saving, environmentally friendly, and green enterprises to access sufficient funds for continuous expansion. Furthermore, the development of green finance can drive the transformation and enhancement of the industrial structure, thus impacting the quality of economic development [2]. Green finance, through credit allocation and adjustment of financing leverage, lowers the financing costs for green enterprises, enhances their market competitiveness, and simultaneously increases the financing costs for polluting enterprises, thereby restraining their development. This redirection of resources from industries characterized by high pollution and energy consumption towards green sectors necessitates the transformation of these industries and fosters the refinement and modernization of the industrial structure [3]. To summarize, by guiding companies towards green production and fostering the growth of high-tech industries, the industrial structure can be advanced, and the resulting "structural dividend" further enhances the efficiency of the green economy [4].

### **2.2. Guiding Consumers Towards Green Consumption**

"Consumption" usually represents human needs and desires, and the development of a green consumption pattern that satisfies both human needs and aligns with ecological civilization and sustainability is a trend of the times [5]. In January 2022, a set of directives titled the "Action Plan for Advancing Environmentally Friendly Consumption" was released by seven government bodies, including the National Development and Reform Commission and the Ministry of Industry and Information Technology. This plan outlines objectives to be achieved by 2025 [6]. Green consumption refers to a mode of consumption where consumers prioritize ecological protection and sustainable development throughout the processes of purchasing, using, and disposing of goods, minimizing negative environmental impacts caused by consumption [7]. The demand for green

products in green consumption not only maintains people's physical health but also avoids significant economic losses to the country caused by environmental pollution [8]. Green consumption is an important way to drive the economy and optimize the industrial structure. It induces changes in demand scale and structure, thereby influencing industrial upgrading. At the same time, industrial upgrading generates high-quality products and service supplies, creating and leading to new green consumption demands among residents, ultimately achieving a beneficial interaction between green consumption and industrial structure upgrading [9].

### **2.3. Strengthening the Government's Environmental Responsibilities**

Through the implementation, promotion, and popularization of effective measures, the government influences the industrial structure by advancing green consumption. On the one hand, the government should employ various means, including direct, indirect, administrative, legal, economic, and information guidance, to promote green consumption, thereby helping consumers develop green consumption concepts [10]. On the other hand, the government should encourage, support, and guide companies in green production to meet consumers' demand for green consumption and ultimately promote the upgrading of the industrial structure. Advocating green consumption is conducive to the transformation and upgrading of enterprise production structures. It encourages enterprises to expand their scale of green production, innovate, and introduce new green products, thereby actively promoting the upgrading and reform of the industrial structure [11]. To this end, the government provides appropriate support and subsidies to lower the production costs of green products, reduce their prices, and improve their quality. In the short term, subsidy policies play a crucial role in the production and diffusion of green products, but such intervention strategies are costly and have short-lived effects. In the long term, it requires companies' research and development personnel to develop better green products, enhance product functionality, and improve production efficiency to lower production costs [11]. Therefore, by guiding consumers towards green consumption and companies towards green production, the government ultimately promotes the upgrading of the industrial structure.

## **3. Reform and Development of China's Environmentally Friendly Sector**

### **3.1. Historical Review of China's Environmentally Friendly Sector Reform**

Green industry is not a new concept in China. As early as the 1980s, scholars proposed that China should vigorously develop the green industry. Over the course of the 70 years since the establishment of the People's Republic of China, particularly within the past four decades of reform and opening up, the understanding of the green industry in China has been continuously changing, and significant changes have taken place. Based on the characteristics of different stages, this article roughly divides it into the following four historical stages [12]:

#### **(1) Initial Stage of Green Industry (1949-1979)**

When the People's Republic of China was founded, due to the impact of continuous wars, the natural environment in China suffered severe damage, with forest coverage reaching only 8.6%. Comrade Mao Zedong, in response to this situation, called for afforestation and greening the motherland. In the "Common Program of the Chinese People's Political Consultative Conference" in 1949, the principle of "protecting forests and developing forestry in a planned manner" was clearly stated [13].

#### **(2) Enlightenment Stage of Green Industry (1980-1999)**

To foster the advancement of the environmentally friendly sector, it was imperative to facilitate the expansion of reform and opening-up, given that the growth of the green industry had emerged as

a global phenomenon. For example, the shift to green manufacturing in industrial products, the shift from an agricultural economy to a green economy, the transformation of technological innovation into green technology, and the shift to green consumption in consumer culture, etc. During this stage, China also initially established institutions and regulations related to the green industry and green products. For example, on May 17, 1994, the China Environmental Labeling Product Certification Committee was formally established, officially commencing the certification work for the “China Environmental Label,” and so on [12].

(3) Stage of Emphasizing the Green Industry (2000-2009)

The strategic concept of scientific development was introduced at the 16th National Congress of the Communist Party of China, which required the integration of human development, coordinated development, and sustainable development. Since then, various regions have combined their local resources to vigorously promote the eco-friendly conversion of traditional industries and the growth of the green industry, achieving some results. During this stage, the country implemented a series of policies aimed at promoting industrial transformation, upgrading, and the advancement of the green industry, such as the “Catalog of Industries, Products, and Technologies Encouraged by the State for Current Development (Revised in 2000),” the “Catalog for the Elimination of Outdated Production Capacity, Processes, and Products (Third Batch),” the “Law on the Promotion of Cleaner Production,” the “Law on the Prevention and Control of Solid Waste Pollution,” and so on. The implementation of these laws and regulations played a supportive role in expediting the transformation and enhancement of China’s traditional industries and promoting the development of green industries, providing norms and standards for the development of “low-energy consumption, low-pollution” green industries across the country.

(4) Stage of Green Industry Practice Takeoff (2010-present)

Following over four decades of reform and opening up, China has achieved remarkable strides. However, the swift pace of economic growth has taken a toll on the environment, resulting in ecological damage and rapid resource depletion. While the country has actively promoted the phasing out of outdated production capacities, adjustments in industrial structure, and the facilitation of industrial transformation and upgrading since 2000, the pursuit of GDP-driven economic development has often overshadowed the green industry. The report from the 19th National Congress of the Communist Party of China explicitly outlined the need to expedite the reform of the ecological civilization system, foster green development, establish legal frameworks and policy directions for green production and consumption, and establish a robust economic system that promotes green, low-carbon, and circular progress. The congress also presented the historic mission of building a “Beautiful China.” Despite the recent challenges posed by both domestic and international economic conditions and mounting pressure for industrial transformation and upgrading, China has vigorously advanced supply-side structural reform, firmly tackled the “battle for blue skies,” and made notable strides in green development [12].

### 3.2. Analysis of the Development Trends of China’s Green Industry

(1) Green Consumption

Table 1: Trends in green consumption from 2005 to 2020.

Green Consumption	2005	2010	2015	2020
Per Capita Daily Water Consumption (liters)	204.1	171.40	174.50	179.40
Urban Sewage Treatment Rate (%)	52	82.3	91.9	97.5

Table 1: (continued).

Urban Gas Coverage Rate (%)	82.1	92	95.3	97.9
Harmless Treatment Rate of Urban Solid Waste (%)	51.7	77.9	94.1	99.7
Coverage Rate of Green Space in Built-up Areas (%)	32.5	38.6	40.1	42.1

Table 1 shows the changing trends in the level of green consumption from 2005 to 2020. Overall, China has made significant progress in green consumption. Firstly, there has been remarkable improvement in environmental governance. Per capita daily water consumption has decreased annually, from 204.1 liters in 2005 to 179.4 liters in 2020. This indicates that people have become more efficient and conservative in their use of water resources in their daily lives. Additionally, over the years, there has been a consistent increase in the rates of urban sewage treatment, gas coverage, and harmless treatment of urban solid waste. The urban sewage treatment rate has witnessed a significant rise, progressing from 52% in 2005 to 97.5% in 2020. Likewise, the gas coverage rate has experienced notable growth, surging from 82.1% in 2005 to 97.9% in 2020. Furthermore, the harmless treatment rate of urban solid waste has exhibited remarkable advancement, escalating from 51.7% in 2005 to an impressive 99.7% in 2020. These data demonstrate the effective implementation of urban environmental governance measures, reducing environmental pollution and health risks. Secondly, the achievements of urban environmental governance are also reflected in the improvement of green space coverage within developed areas. The coverage rate has witnessed growth, rising from 32.5% in 2005 to 42.1% in 2020, indicating an expansion of green areas in urban regions. These green areas not only beautify the urban landscape but also provide fresh air and ecosystem services. Urban residents can enjoy better environmental quality and pleasant living environments. Finally, these data indicate significant progress in sustainable development in cities. Through the reduction of water consumption, improvement of sewage treatment rates, promotion of gas utilization, and enhancement of waste management, urban environments have been improved. These measures not only benefit residents' health and quality of life but also lay the foundation for long-term sustainable urban development. However, continuous efforts and effective policy measures are still needed for ongoing urban environmental governance to ensure the coordination of environmental protection and economic development and provide a better foundation for future sustainable urban development.

## (2) Green Production

To measure the development of green production, this paper constructs the index of industrial exhaust emission intensity, as follows:

$$\text{Industrial Exhaust Emission Intensity} = \frac{\text{Industrial Exhaust Emissions}}{\text{Industrial Value Added}} \quad (1)$$

This index measures the amount of industrial exhaust emissions produced per unit of industrial value added. The relevant indicators for measuring green production are shown in Table 2.

Table 2: Trends in green production from 2005 to 2015.

Year	Industrial Exhaust Emissions (hm <sup>3</sup> )	Industrial Value Added (100 million yuan)	Industrial Exhaust Emission Intensity (m <sup>3</sup> /100 million CNY)
2005	268988	77958.3	3.45
2010	519169	165123.1	3.14

Table 2: (continued).

2015	685190	234968.9	2.92
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Table 2 shows the changing trends in industrial exhaust emissions, value added, and emission intensity from 2005 to 2015 in China. Overall, there has been an increasing trend over the past 10 years, indicating that the expansion of industrial production has exerted a certain pressure on the environment. From 2005 to 2015, China's industrial exhaust emissions significantly increased from 268,988 hm<sup>3</sup> to 685,190 hm<sup>3</sup>, while industrial value added rose from 77,958.3 billion yuan in 2005 to 234,968.9 billion yuan in 2015. Furthermore, by calculating the industrial exhaust emission intensity, it can be observed that the emission per unit of industrial output decreased from 3.45 m<sup>3</sup>/100 million CNY in 2005 to 2.92 m<sup>3</sup>/100 million CNY in 2015. Despite the increase in industrial exhaust emissions, the growth rate was slower compared to industrial value added, reflecting China's commitment to environmental preservation and sustainable progress. Measures have been taken to reduce the intensity of industrial exhaust emissions, with the goal of achieving a mutually beneficial scenario for both economic growth and environmental conservation.

### (3) Environmental Governance Investment

Table 3: Trends in environmental governance investment from 2005 to 2015.

Year	Total Investment in Environmental Governance (100 million yuan)	Percentage of Environmental Governance Investment to GDP (%)
2005	2565.20	1.37
2010	7612.20	1.84
2015	8806.4	1.28

Table 3 shows the investment arrangements made by the Chinese government for environmental governance from 2005 to 2015, indicating several key features. Firstly, the total investment in environmental governance in China increased from 25,652.0 billion yuan in 2005 to 88,064.0 billion yuan in 2015, demonstrating the government's increasing attention and investment in environmental pollution control. Secondly, the percentage of environmental governance investment to GDP showed a fluctuating trend. In 2005, it was 1.37%, increased to 1.84% in 2010, but declined to 1.28% in 2015. Lastly, in order to achieve environmental protection and sustainable development goals, China should reasonably allocate investment in environmental pollution control, maintain investment stability and continuity, and ensure effective governance of environmental pollution.

## 4. Changes in China's Industrial Structure

Table 4: Changes in China's industrial structure from 2005 to 2020.

Year	Percentage of Primary Industry's Contribution to GDP (%)	Percentage of Secondary Industry's Contribution to GDP (%)	Percentage of Tertiary Industry's Contribution to GDP (%)
2005	5.2	50.5	44.3
2010	3.6	57.4	39
2015	4.4	39.7	55.9
2020	10.4	43.3	46.3

Table 4 illustrates the changing trends in China's three industrial sectors from 2005 to 2020, highlighting several key characteristics. To begin, there was a shift in the percentage of total GDP that was contributed by the primary industry. The percentage it contributed fell from 5.2% to 3.6% between 2005 and 2010, making the reduction occur during those years. On the other hand, it climbed back up to 4.4% in 2015 and is projected to reach 10.4% in 2020. On the other hand, the contribution that the secondary industry made to GDP followed a declining trend. The percentage contribution steadily fell from 50.5% in 2005 to 43.3% in 2020, with a gradual decline along the way. Notably, the contribution was at its peak level of 57.4% in the year 2010, and then it gradually decreased to 39.7% in the year 2015. Even if there was a little bit of an increase in 2020, it is still going to be lower than it was in 2010. On the other hand, the contribution that the tertiary industry makes to GDP has been on an upward trajectory. In 2005, the percentage of its overall contribution was 44.3%, while in 2010, the percentage was 39.0%. Nevertheless, it rose to 55.9% in 2015 and is projected to reach 46.3% in 2020. The secondary industry is playing less of a role as time goes on, but the tertiary industry is becoming increasingly important, which indicates a progressive move toward the service sector and high-tech industries. During this transition, the function that the green economy plays in improving the efficiency of the industrial structure is critical. Certain traditional businesses that are associated with high levels of pollution and energy consumption have encountered limits and changes as a result of the growing environmental consciousness. This has led to a drop in the contribution that these industries make to the GDP. Emerging industries such as green industries and clean energy have thrived at the same time, which has propelled the growth of the tertiary industry and made it possible to alter and update the industrial structure. In addition, the growth of the green economy has encouraged environmental technology and innovation, which has provided new impetus for the optimization and upgrading of the industrial structure, which has contributed to an industrial framework that is more environmentally friendly and sustainable.

## 5. Conclusion

This investigation into the influence mechanism of the green economy on the industrial structure, as well as the reform and growth of green industries in China, lends this work substantial theoretical and practical value. Through the investigation of the impact mechanism of the green economy, it is possible to reveal the underlying logic behind the development of the green economy as well as the function that the green economy plays in the enhancement of the industrial structure. In addition, this study performs a detailed analysis of the reform and development of green industries in China. It does so by investigating the influence that government policies, market dynamics, and technical advancement have had on the advancement of these businesses. The development of the green economy has had a beneficial effect on the optimization of the industrial structure, which has offered new impetus for the continued expansion of the economy and its capacity for sustainability. This research can be used as a helpful reference for establishing a harmonious link between economic development and environmental preservation; encouraging the growth of green industries; advancing economic sustainability; and promoting the advancement of economic sustainability.

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