# Research on the Relationship between Economic Growth and Environmental Pollution in Jiangsu Province

Qianya Sun

College of Statistics and Mathematics, Nanjing Audit University, Nanjing, Jiangsu, 211800, China

## Abstract

The Jiangsu Statistical Yearbook from 1990 to 2017 and the data of eight environmental pollution indicators were selected. According to the environmental environment Kuznets curve proved by the American economists Grossman and Kruger, the following is abbreviated as the ecc curve theory. Screen out three indicators that meet the criteria, establish an economic model and analyze the results.

## Keywords

Ecc curve; total output of Jiangsu; industrial wastewater discharge; sulfur dioxide emissions; general industrial solid waste production.

## 1. Introduction

The convening of the report of the 19th National Congress has clarified that the goal of China's socialist modernization struggle has been further expanded from a "rich, powerful, democratic, civilized and harmonious socialist modernized country" to a "social modernized country with rich, strong, democratic, civilized, harmonious and beautiful. "General Secretary Xi Jinping also pointed out that our development, "not only Jinshan Yinshan, but also green mountains and green mountains." This shows that environmental issues have become a new issue that must be carefully considered and governed in the development of various regions. This paper aims to find a way to promote the balance between economic and environmental relations through the analysis of the relationship between economic growth and environmental pollution, and to alleviate the contradiction between current economic development and environmental pollution.

## 2. Model establishment and solution

### 2.1 Selection of indicators

This paper follows the principles of relevance, measurement, comparability, objectivity and availability of indicators. At the same time, the economic development status, wastewater discharge status, exhaust gas discharge status and solid waste production status are used as the main basis for evaluating the development level of Jiangsu Province, and the various environmental pollution indicators and economic development indicators of Jiangsu Province are returned.

### 2.2 Regression of various environmental pollution indicators and economic development indicators in Jiangsu Province

Select 2011~2016, the relevant data of each indicator, through the spss software, for graphical inspection:

According to Park Jinquan, Ma Mintao, and Liu Zhangqiang's analysis of Jiangsu's environmental arguments, in 2015, Jiangsu Province was in the third stage of the ecc curve 1 and referenced Li Yanming's indicator for Nanjing's economic analysis. Two indicators were selected: industrial wastewater discharge, Carbon dioxide emissions and general industrial solid waste generation, representing the elimination and output of waste, wastewater and waste.

| years | Jiangsu total output (ten thousand yuan) | Industrial wastewater discharge (100 million tons) | Urban domestic sewage discharge (100 million tons) | Centralized treatment facilities sewage discharge (10,000 tons) | Chemical oxygen demand emissions (10,000 tons) | Ammonia nitrogen emissions (10,000 tons) | Sulfur dioxide emissions (10,000 tons) | NOx emissions (10,000 tons) | General industrial solid waste production (100 million tons) |
|---|---|---|---|---|---|---|---|---|---|
| 2016 | 23.415582 | 17.94 | 43.68 | 400 | 74.65 | 10.28 | 57.01 | 93.03 | 1.164853 |
| 2015 | 21.806009 | 20.64 | 41.45 | 400 | 105.46 | 13.77 | 83.51 | 106.76 | 1.070101 |
| 2014 | 20.106635 | 20.49 | 39.59 | 300 | 110 | 14.25 | 90.47 | 123.26 | 1.092473 |
| 2013 | 18.44327 | 22.06 | 37.35 | 300 | 114.89 | 14.74 | 94.17 | 133.8 | 1.085587 |
| 2012 | 17.095028 | 23.61 | 36.18 | 300 | 119.7 | 15.31 | 99.2 | 147.96 | 1.022444 |
| 2011 | 15.742113 | 24.63 | 34.63 | 200 | 124.62 | 15.72 | 105.38 | 153.57 | 1.04755 |

## 2.3 Making a scatter plot

In order to make the economic modeling more accurate, the data of the above three indicators from 1990 to 2016 are selected, and the scatter plots of Y and X2, X3 and X4 are produced by the EViews 6.0 version software.
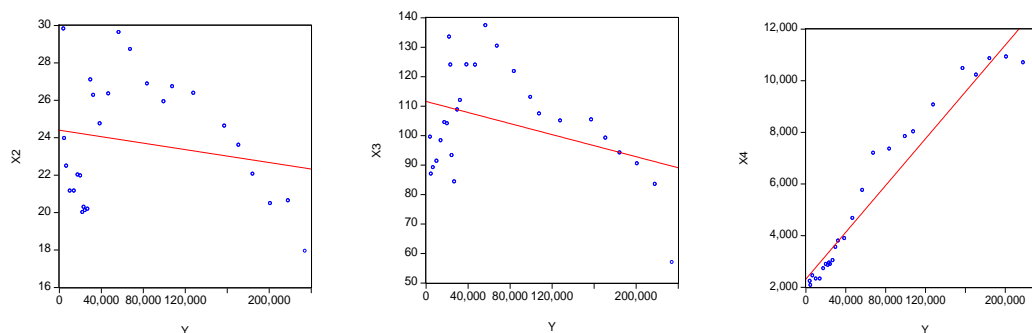


It can be seen from the scatter plot that the industrial wastewater discharge and sulfur dioxide emissions and economic growth show a "u"-type development curve of the kec curve, while the general industrial waste production and economic growth show an unstable "n". Type development trend.

## 3. Model analysis

Through the study of the relationship between industrial wastewater discharge, sulfur dioxide emissions and general industrial solid waste production and total output in Jiangsu Province from 1990 to 2016, the total industrial solid waste production in Jiangsu Province and Jiangsu total output are shown. An unstable "n" curve is presented, and the industrial wastewater discharge and sulfur dioxide emissions show a significant "u"-shaped curve with the total Camellia female in Jiangsu. It shows that although Jiangsu is in the third stage of the ecc curve development theory, economic development is inseparable from the natural demand and development, and economic development is still limited by environmental pressure. Therefore, this paper proposes the following four recommendations:

1) Accelerate the transformation of the structural reform of the industry and vigorously develop the tertiary industry.

The traditional economic development is driven by the secondary industry, which is bound to increase pollution to the environment. The tertiary industry does not need to rely too much on the development of the ecological environment. Therefore, it promotes the optimization of industrial structure, increases the proportion of the tertiary industry, reduces dependence on the environment and development, and thus reduces environmental pollution.

2) Strengthen government control and supervision of highly polluting enterprises.

The market's competitive mechanism will make many entrepreneurs pay more attention to profits, and will not actively care about the protection of the environment. Therefore, the government's macro

measures are needed to regulate and prevent the escalation of contradictions between economic development and environmental protection.

3) Improve the law on environmental protection and strengthen the enforcement of environmental protection laws.

Although the Environmental Protection Law has been implemented in China, in real life, the law enforcement of the Environmental Protection Law is not tough.Only by insisting on the principle that "there must be law, the law enforcement must be strict, and the law must be punished", "Jinshan Yinshan" and "Green Water Mountain" can live in harmony.

4) Vigorously promote environmental awareness.

Although the amount of industrial "three wastes" is very large, the proportion of urban domestic wastewater waste cannot be ignored.Only by mobilizing the masses, let the masses have the sense of ownership, and the participation of the whole people to reduce pollution to the environment, the effect of environmental protection can be better manifested.

## References

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