



Environmental and Governance and Environmental Performance

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Abstract

Along with the continuous development of the global economy, environmental deterioration has been widely recognized as a pressing issue nowadays, bringing environmental governance to the forefront of human survival. Asia, the largest continent in world in terms of both landmass size and population, has long been facing the exhaustive challenge of environmental pollution. We empirically prove that the level of environmental governance, proxied by government expenditure on environmental protection as a share of gross domestic product (GDP), exerts significant impacts on environmental conditions among Asian countries. For Asian countries, basically three main conclusions can be drawn that may be useful for improving the condition of environmental quality: (i) the authority should increase the share of government expenditure on environmental protection, since it contributes significantly to the reduction of CO₂ emissions and the promotion of energy efficiency; (ii) the government should make an effort to control the overheating economic growth, since excessive economic growth is detrimental to the environment, and increasing GDP per capita leads to increasing CO₂ emissions, decreasing energy efficiency, and decreasing comprehensive environmental performance; and (iii) although foreign direct investment has no impact on CO₂ emissions and Environmental Performance Index, it exerts a significantly negative impact on energy intensity and thus promotes an effect on energy efficiency; therefore, we recommend that the government should implement relevant policies to attract more foreign investment.

Keywords: *environmental performance, environmental governance, government expenditure*

Introduction

Human demand on raw materials has continuously increased since the beginning of the Industrial Revolution, leading to an inevitable depletion of natural resources. As Karl Marx stated in his book *Capital*, the entire development of both civilization and industry has always been destructive to the forests, and by contrast, the effect of cultivation and



production on the forests can be considered negligible. The environmental problem sourced from this predicament has gained momentum and finally resulted in a series of environmental pollution incidents. For instance, the most notorious air pollution incident, the Great Smog, happened in London in the winter of 1952. Large amounts of soot, dust, ash, and exhaust accumulated at that time and hung like a vast pall over London; the pollutant load of noxious gases, such as sulfur dioxide (SO₂) and suspended particulate matters (SPMs), surged to 300% of their normal value; and approximately 12,000 people died because of respiratory disease.

Focusing principally on the relationship between environmental governance and environmental performance in Asia, Section 2 looks at the history of environmental governance and presents a literature review on the relationship between government expenditure and environmental performance. Section 3 briefly reviews the environmental conditions in Asia and analyzes the evolution of environmental governance in representative Asian countries. Next, we discuss the data and empirical results in Section 4. Finally, Section 5 presents the conclusions drawn.

Definition of Environmental Governance

Following economic theory, the law of value is an essential element in governing human behavior, and people are likely to pursue the maximization of benefits, that is, people prefer to generate greater profit at lower cost. Moreover, people won't subjectively or proactively consider the negative externalities of their behaviors, indicating that enterprises tend to dump waste materials directly into the environment because of the low treatment costs. That was the main reason for calling on the state government to take responsibility for environmental governance in the early. In recent years, environmental governance has become a rapidly growing field in both academia and business due to its significant implications for conservation practice.

The Evolution of Environmental Governance

The ecological environment possesses characteristics of non rivalrous consumption and non-excludability, which are the typical features of public goods.¹ Environmental pollution is regarded as an inevitable by-product generated from human economic and social activities, and environmental governance is thus an essential function and responsibility of both national and local governments. Looking back at and reviewing the history of environmental governance, it has experienced three main eras, namely the centralized "command-and-control" regulation, the intervention of a market-oriented economic approach, and the hybrid partnerships among the state and other actors.



After the initial stage of the successful construction of the state-dominated environmental governance pattern in the 1960s and 1970s, more and more stakeholders began to criticize the failure of government to prevent environmental risks and resolve environmental degradation. Just like market failure in the business field, there also exists government failure in the governance process, and people gradually realized that government alone may fail to resolve the environmental problem. Moreover, corporations' abilities to respond to environmental governance are relatively weak at the beginning of "command-and-control" regulation. Faced with severe environmental problems and enormous social pressure, most corporations can only be regulated passively and struggle to meet the emission standards at high costs. Nevertheless, corporations have gained more and more speaking rights in the process of environmental governance over time, and they have made alliances against the government, requesting the government to consider the huge cost of pollutant treatment and emission control.

Literature Review on the Relationship between Environmental Governance and Environmental Performance

As explained before, environmental protection is generally regarded as a public good, which is widely considered to be the responsibility of the government. And there is a strand of research that linked environmental performance with environmental governance, proxied by government expenditure on environmental protection. classify government expenditure into two categories, namely expenditure on public goods and expenditure on private goods. The former includes expenditure on pure public goods as well as expenditure to mitigate the impact of market failure, while the latter refers to expenditure that cannot be justified on these grounds. For example, expenditure on public goods includes environmental protection, health and social transfers, research and development (R&D), and subsidies to households through education; expenditure on private goods includes subsidies on energy consumption, fossil fuel production, and government grants to corporations.

They point out that increasing government expenditure on public transportation has a certain substitution effect on private transportation, while the former has less energy demand and fewer pollutant emissions than the latter. Another channel indicates that a higher level of investment in research and development contributes to the promotion of energy-efficient and energy-saving appliances.

Greenhouse Effect in India

Human beings have been keen to aggressively exploit natural resources ever since the



Industrial Revolution, which brought the direct consequence that exhaust gases and waste materials have been unscrupulously released into the environment. The increase in CO₂ in the atmosphere resulting from the burning of fossil fuels, such as coal and oil, is creating a so-called “greenhouse effect” and consequently raising the world’s average temperature. Although the greenhouse effect has been part of the earth’s workings since its earliest days, a runaway greenhouse effect may in turn make the earth a hostile environment for living things due to its soaring temperatures. Recent statistics reveal that the average global temperature has increased by 0.6 degrees centigrade since meteorological observation records began. Global warming and climate change have already resulted in alarming shifts all over the world, bringing about natural disasters such as melting glaciers and rising sea levels.

Environmental Governance in Representative India

This section presents a simple but clear retrospect on the path of the environmental governance of Asian countries, represented by Japan and the PRC. These two countries have experienced different path of economic growth, environmental pollution and environmental governance.

Japan, as one of the few developed countries in Asia, also experienced severe environmental pollution in the early 1960s; yet, as shown in the ranking of the latest released EPI, the environmental quality of Japan is at the forefront of Asian countries. The improvement in the environmental quality of Japan is more or less obvious, which makes its process of environmental governance worth learning. The environmental pollution problem of Japan arose right after World War II, approximately from the mid-1950s to the mid-1970s, when Japan was in the postwar period and its economy was enjoying a blistering catch-up growth. The Japanese government energetically developed heavy industries, such as the steel, electricity, and petrochemical industries, which consumed a huge amount of natural resources and further resulted in several typical environmental pollution incidents. Suffering the directly adverse impact of environmental pollution, the local residents spontaneously organized campaigns against environmental pollution, and finally evolved into a national protest campaign. Benefiting from the unremitting effort of the public, the Japanese government eventually enacted an official environmental protection act in 1968, namely the Atmospheric Pollution Prevention Law. Later on, the government gradually formulated a series of environmental policies aimed at fighting against various kinds of environmental pollution, including laws and acts on air, water, and ocean pollution, energy conservation, and resource recycling. Nowadays, the environmental quality of Japan has enjoyed a comprehensive



improvement compared to a half century ago, which has mainly benefited from the ever-improving environmental legislation system and through the government and authorities being focused on environmental governance.

Conclusion

With the interaction between humans and the environment existing throughout the entire development of society, humans' devastating influence on the environment has continued to escalate in the last few centuries. There is no doubt that environmental pollution has become an extremely severe problem in today's world, and the authorities and all stakeholders are believed to have the responsibility to take strong and effective measures to deal with this problem. Looking back through the history of environmental governance, although the actions of modes, policy instruments, and even the actors involved have changed over the last few decades, people have never stopped pursuing a better ecological environment.

We empirically demonstrate the significant impacts of governments' environmental expenditure on environmental quality for Asian countries, while the impact is insignificant for European countries. We highlight several conclusions for Asian countries as follows:

- (i) a greater scale of government expenditure on environmental protection contributes to a reduction of CO₂ emission and the promotion of energy efficiency;
- (ii) excessive economic growth is detrimental to the environment, and increasing GDP per capita leads to increasing CO₂ emission, decreasing energy efficiency, and decreasing comprehensive environmental performance;
- (iii) Although FDI has no impact on CO₂ emission and the EPI, it exerts a significantly negative impact on energy intensity and thus has an effect on energy efficiency. For European countries, all estimations present similar conclusions, that is, a higher level of urbanization, greater trade openness, and a lower proportion of industrial value added are beneficial for the environment through lowering CO₂ emission, improving energy efficiency, and promoting environmental quality.

Compared with developed economies such as those in the European area, most Asian economies are still located in the left half of the Environmental Kuznets Curve, which indicates that rapid economic development of these developing and emerging countries would seriously exacerbate the environmental pollution problem. It is imperative that Asian emerging economies balance the pros and cons of both economic development and environmental conservation. Empirical estimation shows that foreign direct investment benefits the energy intensity in Asian countries and does not exert a detrimental effect on CO₂ emission and



environmental quality, suggesting that Asian economies should implement relevant policies to attract more foreign investment. Although the level of urbanization, industrial value added, and trade openness don't have any significant impact on the environment in Asia, we observe from the case of Europe that these indicators may still exert a certain influence along with the development of the economy.

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