

EFFECT OF ECONOMIC POLICY UNCERTAINTY ON AIR POLLUTION: EVIDENCE FROM CHINA

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Overview

Global economic development is challenged by the de-globalization trend, COVID-19 pandemic, and international trade disputes. Governments in countries around the world implemented a series of economic policies to boost economic development. The frequent implementation of economic policies also increases the uncertainty of economic policies faced by the economy (Daleng Xin and Liguoxin, 2022). The effects of economic policy uncertainty (EPU) vary greatly not only in the economy, but also in regional environment protection.

Air pollution, especially PM_{2.5} pollution, is closely related to economic development. With insisting on the “Air Pollution Prevention and Control Action Plan” and “Blue Sky Protection Campaign”, China has achieved remarkable results in air pollution control. But PM_{2.5} concentration is still stuck in seasonal fluctuation in key areas, which complicate air pollution control in China.

EPU certainly affects the external business environment of economic entities, which in turn affects the decision-making of economic entities. Some studies have explored the impact of EPU on environmental pollution in various countries around the world with the limitation of data resources(Xiulin Qi et al., 2021; Ying Chen et al., 2021; Daleng Xin and Liguoxin, 2022). The regional-differences effects in one country have not been explored yet. Thus, this paper uses the panel regression model and mediating effects model with the sample of Chinese provincial panel data from 2006-2017, trying to answers the following questions: (1) how EPU influences PM_{2.5} pollution in China? (2) are there heterogeneous effects in regions? (3) what are the mechanisms of this effect?

Methods

Panel data regression is used to analyze the benchmark effect and regional heterogeneous effect of EPU on PM_{2.5} concentration. The mediation effect model is used to explore the mechanism of the effect of EPU on PM_{2.5} concentration.

Results

(1) The benchmark regression results show that the effect of EPU on PM_{2.5} concentration is negative with statistically significant at the 1% level. Each unit increase in EPU reduces PM_{2.5} concentrations by 0.020%.

(2) The effect of EPU on PM_{2.5} concentration is significant in the eastern and central regions, where each unit increase in EPU decreasing by 0.026% and 0.039%, respectively. The effect in the western region is not significant.

(3) The high-level of the uncertainty of economic policies increases the overall energy consumption in China. Conversely, the change in energy consumption factors reduces the effect of EPU on PM_{2.5} pollution by 0.179%.

(4) As for the control variables, factors such as urbanization rate, environmental absorption capacity, and energy consumption have significant effects on PM_{2.5}.

Conclusions

The increase in EPU will eventually reduce PM_{2.5} pollution emissions, and the effects vary widely across regions. Frequent changes in economic policies have made air pollution control more effective, but over-frequent changes in policies bring the fluctuation in energy consumption, which will in turn reduce the effect of air pollution control. The effect of EPU on environmental pollution needs to be further explored.

References

Chen, Ying; Shen, Xiaoqian and Wang, Li. "The Heterogeneity Research of the Impact of EPU On Environmental Pollution: Empirical Evidence Based On 15 Countries." *Sustainability*, 2021, 13(8), pp. 4166.

Qi, Xiulin; Wang, Xin; Jin, Xiao; Wang, Zhenyu M.; Zhang, Beibei and Wen, Chuanhao. "Will Policy Uncertainty Deteriorate Haze Pollution? A Spatial Spillover Perspective." *International Journal of Environmental Research and Public Health*, 2021, 18(19), pp. 10229.

Xin, Daleng and Xin, Ligu. "The Impact of Economic Policy Uncertainty On PM_{2.5} Pollution—Evidence From 25 Countries." *Environmental sciences and pollution research*, 2022.