

Evaluation of the Winter Pollution Mitigation Policy in China

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Motivations: The rapid industrialization of China over the past 30 years has led to substantial increases in local air pollution. In response to this environmental crisis, the Chinese government declared a “war on pollution”, issuing the Air Pollution Prevention and Control Action Plan in 2013. As part of this effort, the Winter Pollution Mitigation Policy, hereafter the “winter policy”, was issued in 2017 to reduce pollution emissions in the winter in Beijing, Tianjin, Hebei and neighboring regions. While a large body of existing work has studied the health costs of air pollution in China, relatively little work has quantified the benefits and public expenditures associated with air pollution *policies* in China.

Research Methodology: This study quantifies the health benefits and public expenditures associated with the Winter Pollution Mitigation Policy of 2017. The policy was implemented to control pollution emissions in the winter months in Beijing, Tianjin, Hebei, and neighboring regions. It included mandates that polluting firms and households reduce pollution levels, which were supported by subsidies from the government. The study used a difference-in-differences approach to analyze the impact of the winter policy on fine particulate concentration levels (i.e., PM_{2.5}). In addition, the authors calculated the public expenditures associated with the winter policy in 2017, comparing the implementation-cost-effectiveness of the Winter Policy to that of the Air Pollution Prevention and Control Action Plan from 2013–2017.

Main Conclusions and Policy Implications: The paper concluded that the Winter Pollution Mitigation Policy reduced PM_{2.5} concentration levels by an average of 14 µg/m³ or 18% in the Beijing-Tianjin-Hebei region and neighboring areas in the winter of 2017. This reduction in pollution levels led to approximately 19,400 fewer premature deaths due to fine particulate exposure in 2017. The monetized mortality benefit of the winter policy was estimated to be roughly 12 billion USD, and the policy’s implementation cost was at least 8 billion USD in 2017. The study found that the ratio of public expenditures to lives saved was significantly lower for the winter policy compared to the overall Air Pollution Prevention and Control Action Plan. This relative implementation-cost-effectiveness may be due to the policy’s focus on the most polluted region of China during the season with the highest pollution levels. The winter policy was expanded to include other regions in 2018 and remained in effect as of 2021, suggesting a continued investment in this targeted approach to pollution control in China.

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