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ENVIRONMENTAL EVALUATION OF URBAN AIR POLLUTION ABATEMENT BASED ON DEA AND TOPSIS METHODS

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Abstract

Air pollution problems such as substandard industrial pollution emissions, substandard energy combustion emissions, and industrial construction dust have not only affected ecological environment, but also restricted the growth of social economy. At present, each country has introduced relevant pollution control laws and regulations, and continuously explored the green patterns and strategies to get the goal of carbon peak or carbon medium peak. This paper proposes a method to help national or local governments understand the effectiveness of current air pollution control patterns and control strategies. Specifically, the method first establishes an index system for input-output evaluation of the control effectiveness. Secondly, the DEA model is introduced to evaluate the efficiency of each city's control effectiveness. Furthermore, the TOPSIS method is combined to compare the control effectiveness of each city with the optimal effectiveness and the worst effectiveness, so as to find out the effectiveness of each city's governance patterns and strategy. Finally, the effectiveness and verifies of the proposed method is evaluated for 11 prefecture-level cities in Zhejiang Province, China, and provides a reference model for evaluating the effectiveness of urban air pollution control.

Key words: air pollution, DEA, TOPSIS