

Investigating The Determinants of The Growth of The New Energy Industry: Using Quantile Regression Approach

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China is now the largest coal producer and consumer all over the world. Statistics show that in 2019, China's coal production and consumption are 3.85 billion tons and 4.86 billion tons, respectively. The use of a large amount of coal will inevitably lead to a rapid increase in CO₂ emissions. Since 2006, China has become the world's largest CO₂ emitter.

Expanding the supplies of new energy can not only reduce CO₂ emissions, but also alleviate energy shortage. This paper applies the quantile regression to investigate the new energy industry in China. The results show that economic growth exerts the greatest effect on the new energy industry in the lower 10th quantile province. This is because these provinces have the developed economies, demand for a higher ecological environment and new energy resources. Foreign energy dependence has a minimal impact on the new energy industry in the 25th-50th quantile province, due to their minimal oil importation. The contribution of technological progress to the upper 90th quantile province is the lowest, because their R&D capabilities are the weakest. The impact of energy consumption structure decreases in steps from the lower 10th quantile provinces to the upper 90th quantile provinces. The agricultural sector promotes the new energy industry in most provinces.

Unlike most existing studies, this paper uses the quantile regression method to examine the new energy industry. The quantile regression can estimate the impacts of the explanatory variables on the dependent variable at different quantiles. The mean models can only give the average effects of the explanatory variables on the explained variable, which is equivalent to giving the effects of the 50th quantiles in the explained variable. The objective of this paper is to investigate the overall impact of influencing factors on China's new energy industry using a quantile regression model. The empirical results can provide support for local governments to formulate targeted industrial policies.

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