

Energy consumption and economic growth in big cities of China: The cases of Beijing, Shanghai, and Guangzhou

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Abstract

This paper focuses on the relationship between energy consumption and economic growth in Beijing, Shanghai and Guangzhou, which are the three biggest cities in China. The literature on energy–GDP for country level is already large; hence, another study focus on big cities might be of little value. On the other hand, varying results of existing literature motivates us to investigate the actual relationship in Beijing, Shanghai and Guangzhou rather than the whole country.

This paper reviews main findings and methods of famous studies on the relationship between energy consumption and economic growth nexus. After that, unit root test, co-integration test and Granger causality test have been done for the 3 cities and over 1985-2010 based on the official data. We used the total energy consumption as well as coal consumption, oil consumption, natural gas consumption and electricity consumption to check its impact on economic growth. Detail comparisons are made between these cities since our result shows the relationship differs from one city to another. We wish this research will put some new light to the researches of energy-economic nexus as well as find out some truth of big cities in China, especially for Beijing, Shanghai and Guangzhou.

Key words: energy consumption, economic growth, big cities, China.

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