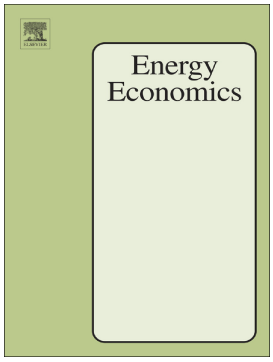

Human capital and energy in economic growth – Evidence from Chinese provincial data

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Human capital and energy in economic growth

– Evidence from Chinese provincial data

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Abstract: This paper investigates the cointegration and Granger causal relationship between economic growth and total energy consumption as well as disaggregate energy such as coal, coke, crude oil, petroleum products, natural gas and electricity in China for a period of 1995-2014. Different from limited existing provincial studies on China, we use a multivariate framework that considers per capita human capital on top of physical capital in the neoclassical production function and advanced panel econometric methodologies such as Cup-FM estimators and bootstrapped panel Granger causality tests that allow for cross-sectional dependence and provincial heterogeneity. Our results suggest that human capital exerts 2-3 times the effect of physical capital on the economy and energy also plays a significant role. Furthermore, the rich bootstrap panel Granger causality test results for both the panel and individual provinces provide substantial insights and suggest that it is important to examine the causal effects of both the total energy use and various disaggregate energy consumption before local governments make specific energy and economic policies.

Key words: energy-growth nexus, human capital, cross-sectional dependence, China, provincial panel

JEL classification codes: Q43, Q40, C50

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