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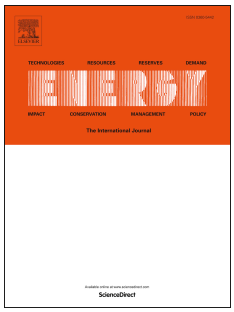

Labour productivity growth and energy in Europe: A production-frontier approach

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Labour productivity growth and energy in Europe: a production-frontier approach*

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Abstract

Energy use has gained increasing attention when assessing economic growth and convergence of countries. Indeed, recent policy and regulatory implementations require a reduction of non-renewable energy use (to decrease greenhouse gas emissions) and a rise in renewable energy use. As such, many studies have tried to understand the contribution of energy on growth and convergence. In this paper, we propose to use a production-frontier approach to tackle this question. The distinguishing features of our methodology are: no assumptions about the growth process are required, and it isolates the impact of non-renewable and renewable energy. We apply our methodology to the case of the European countries from 1995 to 2015. We find that renewable energy changes cause a divergence, while non-renewable energy changes cause a convergence. We also find that the impact of both types of energy on economic growth, while small, is not negligible and increases with time. Next, we identify two groups: Eastern and central Europe and EU12, and show that the impact of both types of energy is different for each group. Finally, we relate our findings to several variables. This last part reveals important patterns and policy implications.

Keywords: growth; convergence; production-frontier; energy; Europe.

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