Sustainable growth with renewable and fossil fuels energy sources: a DSGE approach

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Abstract

How to control climate change and to spur clean energy are among the most important challenges facing the world today. Governments are active player in solving the problems associated with pollution. We doubt the effectiveness of current policies to implement renewable based on the use of a flow of monetary subsidies: such a short-run policy leads investment in renewables to be suboptimal since investors do not perceive climate change policies as a long lasting government commitment. The aim of this paper is to show, through a DSGE model, the effectiveness of an incentive mechanism based both on a carbon tax and a stock of public capital which captures intensity of government long term commitment to support new technology developments in renewable energy, instead of a flow of monetary subsidy to renewables. Our key findings show that alternative measures of public support in the renewable energy sector based on a stock of public capital may produce better effects on implementation of renewables on the long run than a monetary subside. Finally, we simulate the model under a shock on the stock of public capital and on human capital to evaluate the dynamic behavior of the key variables .

JEL codes: D58, O44, Q48.
Keywords: economic growth, energy, innovation