

Biofuels public support and technological specialization in the energy sector

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Abstract

The aim of this paper is to apply a gravity equation model in order to investigate if public support devoted to the biofuels sector has a negative impact on the technological path, by diverting public and private investments from other renewable energies and energy savings technologies. By using a gravity equation it is possible to investigate the role of distinct demand and supply policies for supporting biofuels on the export flows of the energy technologies different from those adopted in the biofuels sector. As export flows could be considered as a measure of the competition strength at the international level (in the form of comparative advantages), thus the gravity model allows understanding if support to biofuels has been depressing competitiveness of new energy technologies. At this purpose, several alternative policy variables have been tested to underline which policies have the major impacts on the technology path, separating fuel mandates, excise tax reductions and tariffs on import flows with data on bioethanol and biodiesel. A further complex policy variable has been calculated by aggregating all the policy instruments for bioethanol and biodiesel separately and more generally for biofuels. Results from first estimates clearly show that policies related to mandates and excise tax reductions for biodiesel are responsive for negative effects on comparative advantages mainly in the energy saving technologies sector. This confirms the research hypothesis, drawing some doubts on the win-win effects related to policies implemented by many industrialized economies, and particularly the EU, concerning biofuels production and consumption support. In order to reduce possible biases deriving from the induced technical change hypothesis when the energy sector is explored, a step ahead is represented by the formulation of a system of two equations estimated by using a two stages least squares estimator. In this way it is possible to control for endogenous technical change driven by energy price trends (that could be influenced by energy policy as well), while separating the net effects related to policy alternatives which have not direct effect in the market (and on energy price), as for instance the fuel mandates that artificially create a domestic market for biofuels without direct impacts on final energy price (at least in the short-medium term). The policy advice of this analysis is a strong warning on public policies which will be difficult to be removed in the future continuing to distort energy markets, rather than achieving competitiveness and security of energy supply. Recalling the Lisbon Strategy and the necessity to improve a European knowledge-based society, the current policy orientation in this specific sector seems to be hardly conflicting with a possible win-win outcome.

Keywords: Biofuels, Environmental Policy, Energy Sector, International Competitiveness.

J.E.L. classification: F18; H23; Q42; Q48; Q55; Q56

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