

Do Eco-Innovations Harm Productivity Growth through Crowding Out? Results of an Extended CDM Model for Italy

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Abstract

This paper discusses the results for Italy of an extension of the standard CDM model (Crepon et al, 1998) used to evaluate innovation (with a focus on environmental innovations) and productivity patterns. The particular nature of environmental innovations, especially as regards the need of government intervention to create market opportunities, is likely to affect the way through which they are pursued (innovation equation within the CDM model) and their effect on productivity (productivity equation).

Here I test two main hypothesis: (i) to what extent polluting firms rely on own innovations to improve their environmental performance? (ii) do the pursue of environmental innovations reduce the likelihood of obtaining other profitable innovations (crowding out)? Preliminary results show that innovation efforts of polluting firms and sectors is significantly biased towards environmental innovations which, differently from other types of innovations, do not significantly improve productivity nor for polluting or non-polluting firms and sectors.

I employ administrative data, namely the AIDA database by Bureau Van Dijk with balance sheet and income statement information further extended with patent applications from PATSTAT and information on emissions contained into the European Pollutant Release and Transfer Register. Administrative data allow to increase dramatically the size of the sample and to reduce the selection bias of innovation surveys. However, administrative data are characterized by serious limitations in terms of definition of the variable of interest and measurement errors. The empirical approach used in the current paper aims at reducing those biases.

Keywords: patents, CDM model, eco-innovation, crowding out

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