



UNIVERSITÀ
DEGLI STUDI
DI PADOVA

DIPARTIMENTO DI SCIENZE
ECONOMICHE E AZIENDALI
"MARCO FANNO"

via del Santo 33
I – 35123 Padova, Italy
CF 80006480281
P. IVA 00742430283

Massimiliano Mazzanti (Univ.di Ferrara)

"Recycling, Endogenous Technology and Waste Policy. Evidence from the EU" (with Francesco Nicolli)

Abstract

Notwithstanding the role of consumption style changes and the reuse of materials, technological innovation is still a crucial factor to achieve sustainability. We here focus on EU waste performances and policy. We bring together two pieces of the puzzle and study the policy – innovation – waste chain integrated effects in a quantitative manner. Through the construction of an original waste-economic-policy-technology dataset for the EU27, we introduce the key role of technology as an endogenous factor into the framework in a substantive way, a factor which is often hidden or omitted in empirical waste studies. On the one hand, we assess the effectiveness of environmental policy with regard to its effects on invention: EIONET based waste policy/regulation (stringency) indicators are used to test induced policy effects. For this purpose we have compiled an index which collects all possible information regarding the national implementation of waste related policies (MSW, biodegradable solid waste, packaging waste, end of life vehicles, etc.), and a country knowledge stock based on patent data, which represents the technological frontier in each field. We analyse recycling performances as key dependent variable. SURE econometric analyses provide evidence that three effects are relevant: the direct effect of policies on invention (stock of patents), the direct effect of invention on recycling performances, and finally the indirect and composite effect of waste policies on waste management (through invention). In a nutshell, higher policy commitment enhances waste-related inventions, which is a significant driver of increased recycling performances. Given the lack of absolute decoupling regarding waste generation, recent EU waste policies have begun defining policy settings within which waste generation (per capita) targets are defined. This is scope for further research.