



IAERE

Italian Association of Environmental
and Resource Economists

IAERE10 Tour

16 November 2022, 12:30

Organizer(s): Pier Luigi Marchini and Marco Magnani, Università degli Studi di Parma

Venue: Dipartimento di Scienze Economiche e Aziendali, Università degli studi di Parma Via Kennedy n.6, Parma (PR) - ITALY

Speakers: Massimiliano Mazzanti (University of Ferrara and SEEDS)

Title: Modelling Green Knowledge Production and Environmental Policies with Semiparametric Panel Data Regression models.

Abstract: Innovation is a primary engine of sustainable growth. This paper provides a new semiparametric econometric policy evaluation framework and estimates a green knowledge production function for a large, 30-year panel dataset of high income countries. Because of the high degree of uncertainty surrounding the data-generating process and the likely presence of nonlinearities and latent common factors, the paper considers semiparametric panel specifications that extend interactive fixed effects fully parametric models such as the multifactor error model and the random trend model. It also adopts a recently proposed information criterion for smooth model selection to compare these semiparametric models and their parametric counterparts. The results indicate that (1) the semiparametric additive specification with individual time trends is the preferred model, (2) threshold effects and nonlinearities are relevant features of the data that are obscured in parametric specifications, and (3) the effect of environmental policy is significant and clearly heterogeneous when modelled as a nonparametric function of certain knowledge inputs. The evidence shows a relevant nonlinear policy inducement effect occurring through R&D investments.

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