

Environmental productivity in the Mediterranean countries: A decomposition analysis based on the Malmquist-Luenberger index

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Abstract:

The present paper examines the environmental productivity in the Mediterranean countries over the period 2009-2014. To do so, we use the Malmquist-Luenberger productivity index (MLPI) that can handle undesirable outputs within Data Envelopment Analysis (DEA). We decompose the MLPI index into technical efficiency, technological change and scale efficiency change in order to determine the source of productivity changes. Results reveal that Mediterranean countries experienced environmental productivity gain of 0.35% on average. Furthermore, we find that technological progress is the main source of productivity growth. Consequently, Mediterranean countries need a considerable effort on R&D to optimize the potential for technical development and enhance the environmental efficiency levels.

Keywords: Productivity, DEA, Malmquist-Luenberger productivity index, Mediterranean Countries, CO2 emissions.