

## **Assessing the evolution of energy and CO2 intensities in the EU**

Topic: Productivity and efficiency analysis I

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Sustainability has been traditionally focused in the three pillar model - Economy, Ecology and Society - all considered to be interconnected and mutually enforcing pillars. One of today's major challenges is to tune environmental sustainability with economic growth and welfare by decoupling resources use and environmental degradation from the growth of the economy. However, the continuous growing demand for energy and resources - to sustain human needs and economic growth - and corresponding consequences on climate change are challenging this objective.

The main aim of this work is to assess these energy-economy-environment interactions by focusing on the analysis of energy and CO2 emissions intensities through a comparative examination of their recent progress in the EU countries, using data from the World Input Output Database (WIOD). The analysis of the progresses achieved in these indicators will be performed both by assessing whether resources use and/or environmental degradation are decoupling from the growth of the economies, and by the decomposition of the overall rates of change of energy and CO2 emissions into the different explanatory effects contributing to such progression (using a LMDI Logarithmic Mean Divisia Index approach).

One of the major contributions expected from this work is to derive policy recommendations from the analysis of energy and CO2 emissions intensity trends, with a greater geographical and temporal focus than prior studies (by exploiting the international dimension of the WIOD database).