

Integrated resource efficiency: measurement and management

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Abstract

Purpose

Drawing on the systems theory and the natural resource-based view, the purpose of this paper is to advance an integrated resource efficiency view (IREV) and derive a composite “integrated resource efficiency index” (IRE-index) for assessing the environmental, economic, and social resource efficiencies of production economies.

Design/methodology/approach

Using sub-national input-output data, the IRE-index builds on the human development index (HDI) and the OECD green growth indicators by including functions for environmental resource efficiency, energy, and material productivity. The study uses multiple regressions to examine and compare the IRE-index of 40 countries, including 34 OECD nations. The study further compares the IRE-index to similar composite indicators such as the human sustainable development index (HSDI) and the ecological footprint.

Findings

The IRE-index reveals a discrepancy between social development and resource efficiency in many of the world’s wealthiest production economies. Findings also show that material productivity has been the key driver for observed improvements in IRE over time. The

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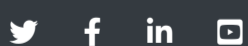
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