

The role of energy efficiency in assessing the progress towards the EU energy efficiency targets of 2020: Evidence from the European productive sectors

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Abstract

Energy efficiency is considered to be one of the most reliable ways of addressing some of the most pressing global challenges, such as energy independence and the fight against the negative effects of climate change. It is widely recognised that the EU path towards decarbonisation has to be accompanied by energy efficiency improvements. Focusing on the EU28 from the year 2000 onwards, this analysis aims at identifying the main driving factors behind the energy consumption changes at the global and sectoral level. Concretely, our focus on the productive sectors (responsible for 41% of total consumption) is due to the importance that these sectors have in reaching the overall EU targets. The novelty of this paper is that index decomposition analysis (concretely, LMDI-I) is applied considering: i) the alternative effects to the traditional ones; ii) different degrees of disaggregation and iii) new methodological approaches according to the most recent research literature on this topic. The results suggest that there have been important energy efficiency gains during the period studied. Without these gains the progress achieved towards the EU energy efficiency targets would have been difficult to attain. Despite this, the physical-based analysis shows that the energy efficiency gains are of a lower magnitude compared to the monetary-based analysis. The results provide some energy policy recommendations related to the effectiveness of past energy efficiency measures and shed light on key sectors for which there is still room for improvement. © 2021 Elsevier Ltd

Author keywords

Decomposition analysis; Energy efficiency; Energy efficiency policy; EU2020 targets; Productive sectors