

# LMDI decomposition analysis of energy consumption in Andalusia (Spain) during 2003?2012: the energy efficiency policy implications

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The aim of this paper is to analyse the changes in final energy consumption in Andalusia through logarithmic mean Divisia index (LMDI) decomposition analysis during the period 2003?2012. The results lead us to conclude that a reduction of final energy (FE) consumption of 1 % took place as a result of a diminishing in structural effect by 11 % and an increase in the activity effect and intensity effect by 7.4 and 3.5 %, respectively. Chain-linked LMDI decomposition shows the existence of two sub-periods, with a turning point in 2008. The first period, coinciding to a great extent with the Andalusian Energy Plan 2003?2006 (PLEAN), showed an increase in final energy consumption, mostly due to the activity effect but also to the intensity effect. The second period, coinciding with the implementation of the Andalusian Sustainable Energy Plan 2007?2013 (PASENER), shows a reduction in the activity, structure and intensity effects. The results allow us to conclude that many of the energy efficiency measures, implemented through the PASENER, are related to sectors that experienced a decline in energy consumption due to the intensity effect, such as transport, primary and service sectors. Additionally, although they were included in PASENER, more policy attention should be given to the energy transformation, residential and industrial sectors which increased the demand for energy due to the intensity effect during this period. Finally, the energy-saving behaviour of economic agents due to the economic downturn should also be considered as an explanation for the diminishing in energy consumption during this sub-period. © 2015, Springer Science+Business Media Dordrecht.

Energy efficiency

Energy intensity

Energy policy

LMDI decomposition analysis

Energy conservation

Energy policy

Energy utilization

Public policy

Decomposition analysis

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Efficiency measure

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Andalucia

Spain