

# Do Spanish energy efficiency actions trigger JEVON'S paradox?

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This paper explores whether the changes in energy intensity in Spain have led to improvements in the energy consumption levels or to a backfire effect offsetting the expected decrease. Jevon's paradox or backfire effect happens when a rebound higher than 100% causes energy efficiency improvement to raise energy consumption. To test Jevon's paradox or the backfire effect caused by energy efficiency actions, a Logarithmic Mean Divisia Index I (LMDI-I) is used for the Spanish economy. The period under consideration ranges from 2000 to 2015, when three national action plans were implemented. The main methodological novelty of this paper consists on to block the economic activity effect in a second decomposition round to better explore the effect of energy efficiency on energy consumption. As a whole, our results do not support Jevon's paradox for the sectors analyzed. However, they do warn about a possible backfire effect in the industry, transport and service sectors. Major findings follow these same findings when the activity effect is blocked. ©

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Backfire effect

Energy efficiency

Jevon's paradox

LMDI

Rebound effect

Economics

Energy utilization

Backfire effect

Economic activities

Energy consumption levels

Energy efficiency improvements

Jevon's paradox

LMDI

Logarithmic mean

Rebound effect

Energy efficiency

action plan

economic activity

energy efficiency

energy intensity

energy market

energy use

Spain