

3rd World Congress and Expo on

GREEN ENERGY

September 28-29, 2017 Berlin, Germany

Is there energy efficiency a driver of energy consumption changes in Spain: an LMDI approach

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The analysis of the effects that explain the final energy consumption changes in Spain in the period 2000-2013 using the LMDI-I method has been the aim of this paper, distinguishing between the energy consumption by the productive sectors and households (residential and private transport). The consumption changes in the productive sectors and households have been decomposed in five effects that are, the intensity, the inverse of labour productivity, the structural, the standard of living and the activity effects. The energy intensity effect has been defined from a physical-thermodynamic perspective in order to eliminate the possible effects provoked by causes unconnected to the energy process (evolution of the market, variation of productivity, etc.) that usually affect to the energy intensity indicator measured from a macroeconomic perspective. The results show that the activity and the living standard effects are those that contribute most to the increase of energy consumption in this period, whereas those of the inverse of labour productivity, structure and intensity in private transport contribute to reducing the final energy consumption. The results obtained for the sectoral intensity (except for non-private transport) and residential intensity effects lead us to recommend that it is necessary to approach a more effective and intensive policy in the matter of energy efficiency in Spain than that developed in the period of analysis.

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