Measuring energy poverty in Spain with the new EU expenditure-based indicators

Judit Mendoza Aguilar[1], Francisco J. Ramos-Real[1], Alfredo J. Ramírez-Díaz[2]

[1]Departament of Economics, Accounting and Finance, Universidad de La Laguna, Spain, [2]Energías Sin Fronteras, Canary Islands section, Spain.

Abstract

This paper analyzes energy poverty in Spain between 2016 and 2021, using the new European primary indicators that relate household income to their energy expenditure, called expenditure-based indicators. The objective of the study is to determine the characteristics of the households most vulnerable to energy poverty in Spain, that is, with a greater probability of incurring in this situation. The determinants that influence energy poverty are identified through machine learning models: logistic regression using bootstraping and random forest using repeated cross-validation. The problem addressed is key in the current economic and regulatory context of the energy transition, and it is essential to provide tools to measure its impact and analyze the causes.

***Keywords:** energy poverty; logistic regression, primary indicators; machine learning; random forest.*