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INVESTIGATING THE DRIVERS OF ENERGY POVERTY IN GREEK HOUSEHOLDS USING QUANTILE REGRESSION APPROACH

Abstract:

Energy poverty has drawn a lot of attention in research lately, especially after the energy crisis that stemmed from geopolitical tension in parts of the world. As indicated in current research, energy poverty is extensive in many countries. According to the EU survey on Income and Living Conditions estimates that, in 2022, 9.9% of the EU population were unable to keep their home adequately warm. In the case of Greece, where a long and serious economic crisis have greatly deteriorated living conditions, this number reached 18.7%, being the third country after Bulgaria and Cyprus.

The main objective of this paper is to investigate the key factors affecting household energy expenditure in Greece with a special focus on the impact of household income levels on energy expenditure, using the latest 2022 Greek Household Expenditure Survey. The factors examined are household's socio-economic attributes (income, number of members, type of residence, employment, etc.) and dwelling's characteristics (surface area, year of construction, type of house, heating method, etc.).

Based on evidence of energy inequality across households with different income levels, a quantile regression approach is used to better capture the heterogeneity of determinants of energy poverty across different levels of energy expenditure. This estimation method produces consistent and efficient estimates with this type of microdata, with frequent outliers and heteroscedasticity, compared to classical regression. Moreover, quantile regression estimates produce different coefficients for the same explanatory variables depending on the referred quantile, allowing for coefficients for the lower part of the household energy expenditure distribution, that is the poorest population in danger of energy poverty.

The results illustrate some interesting findings about the relationship between household income and energy poverty and allow for more accurate policies that take attention from price reductions and focus on direct income support for the vulnerable. Finally, all other covariates used, that is household's socio-economic attributes and dwelling's characteristics, can help to structure energy poverty policies in a more analytical and successful way.

Keywords:

Energy Poverty, Quantile Regression, Economic Policy

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