

Defining and measuring energy poverty in Poland

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The EU Member States are obliged to assess the scale of energy poverty in their respective national contexts. In this report, we focus on improving the measurement of energy poverty by identifying a set of the most appropriate indicators for Poland, and by proposing a policy-relevant definition. We take stock of the recommendations of the EU Energy Poverty Observatory.

Our set of indicators includes two expenditure-based indicators that can be used to identify energy-poor households and target social support, and three self-reported indicators that can be used to measure the severity of energy deprivation. The former group of indicators includes a version of Low Income High Cost, and an indicator based on the share of actual energy expenditures in income. The latter group of indicators includes measures of financial capability, the physical condition of the dwelling, and the subjective level of thermal comfort.

The most important conclusions and recommendations from our analysis are as follows:

- The issue of energy poverty is gaining recognition across the EU Member States, as it has recently been added to the official policy agenda of the European Union. Almost all of the countries in Europe recognise energy poverty as an important problem both in academic and political debate.
- We recommend using a general definition of energy poverty for the purposes of national policy planning, and a more specific definition of energy poverty for local administration. This would strengthen the process of policy planning and capture the relevant Polish context of energy poverty. Various combinations of all of the indicators can be used depending on to the aim of the policymakers and the specific context of energy poverty in the Polish regions.
- Our definition of energy poverty is: “Energy poverty occurs when a household is unable to afford the energy needed to provide its members with adequate warmth, cooling, lighting, and appliance use due to a combination of factors, which may include having a low income, high energy expenditure requirements, and a home with low levels of energy efficiency. For a household to be classified as energy poor, it has to meet two criteria simultaneously: i.e., it must have high required energy costs (above the national median level) and a low income (residual income below the official poverty line). Specifically, the household’s share of actual energy expenditure in income needs to be higher than twice the median of this value in the population. The severity of energy poverty, or the level of the severity of deprivation, is indicated by self-reported measures of the financial capability of the household (measured by the ability to pay utility bills), the physical structure of the dwelling (measured by the presence of rot or damp), as well as the household members’ subjective level of thermal comfort”.
- We suggest using two indicators to identify energy-poor households: Low Income High Costs; and Twice the median share of energy expenditures.

- We recommend three indicators to measure the severity of energy deprivation: Inability to pay utility bills on time; Living in a dwelling with a leaking roof; damp walls, floors, or foundations; or rot in the window frames or floors; and Inadequate thermal comfort in winter.
- Based on the analysis of the descriptive statistics of the set of indicators in 2017, we draw the following conclusions
 - energy poverty mainly affects households living in detached dwellings built before 1980;
 - coal, wood, and oil stoves are the main heating sources in energy-poor households; and
 - retirees and people relying on other social benefits are the most vulnerable social groups.
- According to the expenditure-based indicators, eastern voivodships lubelskie, podkarpackie, and podlaskie are at highest risk of energy poverty. The result may be attributed to affordability problems in the regions, high unemployment, low average incomes and high risk of income poverty.
- Taking into account self-reported measures, inhabitants of western voivodships face higher risk of energy poverty. It is mostly due to the fact that the share of old buildings with low energy efficiency levels is particularly high in those regions.
- In order to quantify the relative roles of the various factors that contribute to the variation in the incidence of energy poverty at the household level, we have estimated five logistic regressions. The most important results are:
 - All five indicators show that the older the dwelling is, the higher the risk of energy poverty is.
 - The expenditure-based measures show that households living in detached houses have higher energy poverty rates than households living in multifamily buildings, the thermal comfort indicator shows the opposite relationship.
 - Households living in dwellings without central heating are at a higher risk of energy poverty, according to all self-reported indicators.
 - Retirees and pensioners are found to face a higher risk of energy poverty, according to the expenditure-based measures. The opposite relationship is observed for the self-reported indicators.

The complete results of our research are published in the report:

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