

Rising Energy Costs of Private Households: Analysis of Efficient Relief Measures for the Case of Germany

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Abstract

Energy prices have risen significantly in recent months. Most recently, the war in Ukraine caused a further increase in the already very high energy prices. Private households are directly affected by the energy price increases. Whereas households in Germany spent an average of around 7.0% of their income on energy (including car fuel) before the Corona crisis, this figure has now risen to 9.4%. Although the rise in energy prices significantly reduces the purchasing power of all private consumers, individual households are likely to be affected to different degrees.

In our study, we examine the expected income and consumption effects for private households as a result of the price increases for the respective energy carriers electricity, natural gas, heating oil, gasoline, and diesel. For our analyses, we use economic models and simulations based on the representative microdata of the currently most recent data sample of the income and consumption sample (ICS) of the Federal Statistical Office in Germany. The ICS covers about 0.2% of all households in Germany (about 60,000 households). The reaction of households to energy price increases is modeled using short-term consumer price elasticities of energy demand and simulated based on the ICS microdata.

Across all income classes, households are experiencing a significant increase in the financial burden caused by higher energy prices. However, low-income households are affected most relative to their income. Since January 2020, they spend on average an additional 3.2 percent of their income to pay their energy bills, compared with an additional 1.3 percent for high-income households. The results of our simulations show an increase in the Gini coefficient and thus in income inequality as a result of increased energy prices. According to our research results, around 600,000 additional households in Germany slip below the at-risk-of-poverty threshold as a result of the significant rise in energy prices alone. Furthermore, our results show that higher energy prices are already leading to a measurable reduction in private energy consumption.

We analyze three types of household relief measures: (1) Targeted government payments to households that are particularly affected, (2) flat-rate government payments that are paid out equally to all households, and (3) price discounts (e.g. through tax reduction) that reduce the retail price per unit consumed. In terms of their distributional impact, we see price discounts and tax relief as the most inefficient measures if the goal is to relieve those households that are particularly affected by energy price increases. While price discounts and tax relief provide relief to all households, they increase social inequality, as they have a greater impact on households that consume more energy. In addition, price discounts are most likely cushioning energy savings as lower prices will stimulate consumption. Accordingly, even flat-rate government payments are preferable to price discounts and tax reliefs. Flat-rate government payments, when related to household income, have a stronger effect the lower the income. The most efficient measures with regard to the use of funds for relieving the burden on households at risk of poverty are targeted government payments.