



Household-Level Responses to the European Energy Crisis

Lassi Ahlvik, Tuomas Kaariaho, Matti Liski and Iivo Vehviläinen

Russia's invasion of Ukraine in February 2022 triggered a significant energy price shock across Europe. This event offered a unique opportunity to study how households adjust their behavior—across energy consumption, labor supply, financial distress, and broader consumption—when faced with price hikes. Our study links Finnish administrative data with electricity contracts and court-reported payment defaults, to discover all major channels through which households respond to the electricity price shocks.

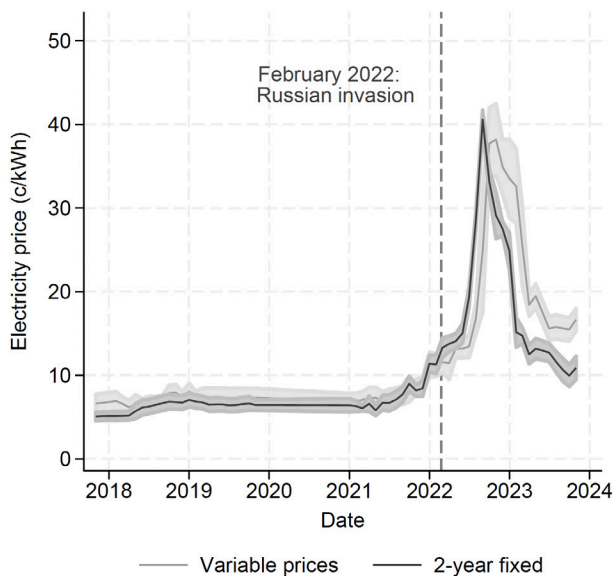


Figure 1: Mean electricity contract prices in Finland.

High energy prices—driven by supply disruptions, renewable energy intermittency, and climate policies—have become central to policy discussions. A key concern is the financial burden that high energy prices impose on households. Assessing whether this concern is justified requires understanding households' capacity to adjust to elevated energy costs. The European Energy Crisis created a natural experiment to study how households respond when energy prices rise unexpectedly.

To identify causal effects of high energy prices, we exploit a natural experiment based on the quasi-random expiration dates of two-year, fixed-price electricity contracts. Households whose contracts expire during the peak of the crisis suddenly faced large, overnight price increases (the “treated” group), while those with contracts ending later still paid their lower, pre-crisis rates (the “control” group). Using a stacked difference-in-differences research design, the study identifies significant differences in households' ability to respond. When energy prices double, the households respond as follows:

- 1. Electricity Use:** Households reduce their electricity consumption by about 18.4% in response to a doubling of the electricity price. Higher-income households are more responsive, likely because they can afford efficiency upgrades or have more discretionary usage to cut back.
- 2. Labor Earnings:** Households overall increase labor earnings by about 1.4% in response to doubling electricity costs. This effect is strongest among middle-income groups. Low-income households often have weaker labor-market attachments, limiting their ability to earn more.

3. **Financial Distress:** We find about a 0.4 percentage-point rise in default probability (roughly a 4% overall increase) follows a price doubling. Low-income and heavily indebted households are at the highest risk, while high-income households avoid serious financial distress.
4. **Residual Consumption:** Using the administrative data, we can impute households' residual consumption and savings. On average, we find that households reduce residual consumption by 4.5%. Low-income lack other adjustment channels and must cut back spending more, amplifying inequality.

Beyond the direct effects, our setting allows us to study anticipation effects. By observing behavior in the months leading up to contract expiration, we find that households are forward-looking and reduce electricity consumption several months before their contracts expire. We do not find similar effects for households whose electricity retailer abruptly

goes bankrupt during the crisis. Also, similar anticipation effects are not observed for earnings. A longer anticipation period alleviates some negative effects of the energy price increase, but does not completely remove them.

Beyond the energy crisis, the estimated household-level responses teach us about impacts of other policies that influence energy prices, such as climate policies. We use the estimated behavioral effects to simulate household-level responses to a hypothetical €100/tCO₂ carbon price; shown in Figure 2. Our results identify three channels through which low-income households are affected by carbon pricing: (i) they spend a larger share of disposable income on electricity, (ii) they have lower demand elasticity, and (iii) they are less able to increase earnings. These response channels help medium- and high-income households to reduce their cost burden by around one half, but low-income households only by less than one fourth. As a result, the low-income households face a higher risk of default, and they are forced to reduce their already low residual consumption further.

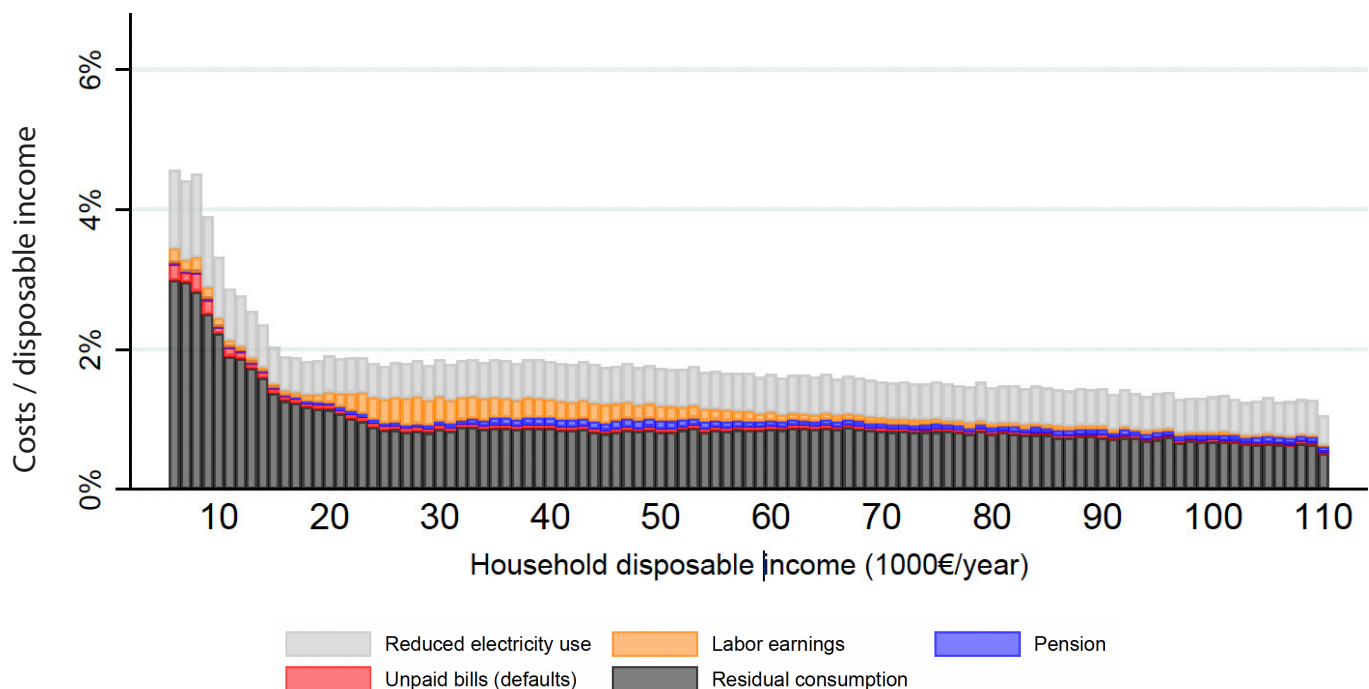


Figure 2: Incidence and response channel to a hypothetical €100/tCO₂ carbon price.



About the Center for Energy and Environmental Policy Research (CEEPR)

Since 1977, CEEPR has been a focal point for research on energy and environmental policy at MIT. CEEPR promotes rigorous, objective research for improved decision making in government and the private sector, and secures the relevance of its work through close cooperation with industry partners from around the globe. CEEPR is jointly sponsored at MIT by the MIT Energy Initiative (MITEI), the Department of Economics, and the Sloan School of Management.

References

Link to the full working paper discussed in this brief:

Ahlvik, L., T. Kaariaho, M. Liski, and I. Vehviläinen (2025), "Household-Level Responses to the European Energy Crisis," [MIT CEEPR Working Paper 2025-08](#), April 2025.

About the Authors



Lassi Ahlvik is a professor in environmental economics at the Department of Economics and Management, University of Helsinki and an adjunct associate professor at the University of Stavanger. Ahlvik holds a PhD in Economics from Aalto University and has previously worked as an assistant professor at the Norwegian School of Economics (NHH). This research is a part of Ahlvik's ERC Staring Grant project "Green Tax Reform for a Just Climate Transition" that focuses on climate policies and inequality.



Tuomas Kaariaho is a doctoral researcher in environmental economics at the University of Helsinki. He specializes in applied empirical work, focusing on the distributional impacts of climate and energy policies. Before starting his PhD journey, Tuomas was a senior statistician at Statistics Finland, where he worked with the System of Environmental-Economic Accounting.



Matti Liski is a professor of economics at Aalto University School of Business. His other affiliations include Helsinki GSE, University of Cambridge EPRG, CEPR CESifo Munich, MIT- CEEPR, and Toulouse School of Economics. Matti focuses on applied microeconomics, both theoretical and empirical, with industrial organization, public policy, energy markets, and climate change.



Iivo Vehviläinen (PhD) is a Senior Research Fellow at Aalto University. Adjunct to his academic interests he has worked in the energy industry for the past 20 years, providing expert services to utilities and public authorities. His current focus is on the market equilibrium impacts of the ongoing energy transition.



About the Center for Energy and Environmental Policy Research (CEEPR)

Since 1977, CEEPR has been a focal point for research on energy and environmental policy at MIT. CEEPR promotes rigorous, objective research for improved decision making in government and the private sector, and secures the relevance of its work through close cooperation with industry partners from around the globe. CEEPR is jointly sponsored at MIT by the MIT Energy Initiative (MITEI), the Department of Economics, and the Sloan School of Management.