

Projection Bias in Durable Goods Investment: Evidence from Solar Panel Adoption in Norway

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Extended Abstract

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Abstract Summary

This paper investigates household investment responses to the electricity price shocks triggered by the European energy crisis. Exploiting the sharp regional price divergence within Norway during 2022–2023, we employ a difference-in-differences and spatial regression discontinuity design to estimate, using aggregate data at the municipality level, the causal effect of the electricity price shock on rooftop solar adoption. We find a massive behavioral response: treated municipalities saw an approximate 500% increase in solar capacity and a 300% increase in installations relative to control regions. Despite Norway's unfavorable geographical conditions for solar energy, investment surged, a disconnect suggesting that factors beyond purely rational economic calculation drove the boom. To partially explain this over-investment, we analyze projection bias, the tendency to over-extrapolate current conditions. Results suggest households weight current prices at 70% when evaluating long-run profitability. During the 2022–2023 price shock, projection bias led households to overestimate the NPV of a representative solar system. A back-of-the-envelope calculation suggests that the associated cost, driven by projection bias, amounts to €110–€212 million. Our findings demonstrate that behavioral biases can dominate rational investment criteria during crisis periods, with implications for microeconomic theory, household finance, technology adoption, and the transmission of macroeconomic shocks.

Presenting Author Biography

Massimo Filippini is Full Professor of Economics with a joint appointment at ETH Zurich and the Università della Svizzera Italiana (USI) since 1999. He is Director of the Centre for Energy Policy and Economics (CEPE) at ETH Zurich and a member of the Center for Economic Research (CER-ETH). He coordinates the international research network *Empirical Methods in Energy Economics* (EMEE) and serves on the Board of Country Representatives of

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