

Present bias reshapes the cost efficiency of solar support policies

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Extended Abstract

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Abstract Summary

European governments spend billions of euros annually to support residential solar photovoltaics, yet a key question remains: are support budgets used efficiently if policymakers do not anticipate household present bias? If households disproportionately value immediate incentives, delayed payment schemes such as feed-in tariffs may yield lower investment responses per euro of public spending than upfront grants. We examine this question by integrating hyperbolic discounting into a European energy system model and comparing equivalent subsidy designs until 2050. We find that present bias accelerates solar PV deployment but fundamentally alters subsidy performance. Under hyperbolic discounting, upfront grants induce higher capacity additions than feed-in tariffs with identical discounted value. Failing to anticipate present bias would require increasing feed in payments by up to 30% to achieve investment incentives comparable to those provided by an equivalent upfront payment. Conversely, aligning policy design with household time preferences could reduce discounted support expenditures while maintaining decarbonization targets.

Presenting Author Biography

Mensur Delic is a research assistant at the Chair of Energy Economics at FernUniversität Hagen, Germany. His research interests include energy system modelling, sustainable energy development, and the participation of private households in the energy transition. Since April 2024, he has been working on his PhD, focusing on how behavioural economic approaches can influence interactions within the energy systems.