

Sunspots that matter: behavioral biases in solar technology adoption

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This Paper

- Looks at the relationship between weather shocks and household investments in solar rooftop in Germany
 - Evidence that deviations from long-term mean in sunshine predict new installations
 - A standard deviation sunshine shock leads on average to one additional solar installation per county (10% of new installations)
- Attributes this as evidence that demand for renewable energy is shaped by projection bias (Loewenstein-O'Donoghue-Rabin, 2003)
 - Perform several robustness/falsification checks

Comments

- 1 Is it really projection bias?
- 2 What does this imply for energy policy?

Is it Really Projection Bias?

- The theory of projection bias is well suited for certain consumption decisions
 - Tastes change over time and misprediction of future tastes
- Does this framework fit with (subsidized) investments in solar energy?
 - People don't directly enjoy sunshine, but its returns in terms electricity production
 - The monetary equivalent of sunshine shocks is only 0.5% of the total investment
 - One time vs. multiple buying opportunities

Is it Really Projection Bias?

- Most theoretical predictions/pieces of evidence are indeed consistent with a variety of alternative explanations
 - Timing of uptake increases roughly coincide with average installation time (2 months)
 - Both positive and negative deviations from the long-term sunshine mean impact investment decisions
 - Temperature and other weather events do not affect installation decisions
- In general, it is very hard to test one behavioral theory against others without ad-hoc experimental data (lab or field)

What Does this Imply for Energy Policy?

- Regardless of the specific behavioral channel, what can we learn out of these findings for understanding adoption of energy-efficiency technology?
 - Not even one reference on that in the paper (!)
- How can we design incentives/nudges in order to increase demand for these types of products?
 - Awareness campaigns about returns to green technology, installation costs, etc.
 - Financial incentives (Germany)