

Explaining the Energy Paradox

American Economic Association

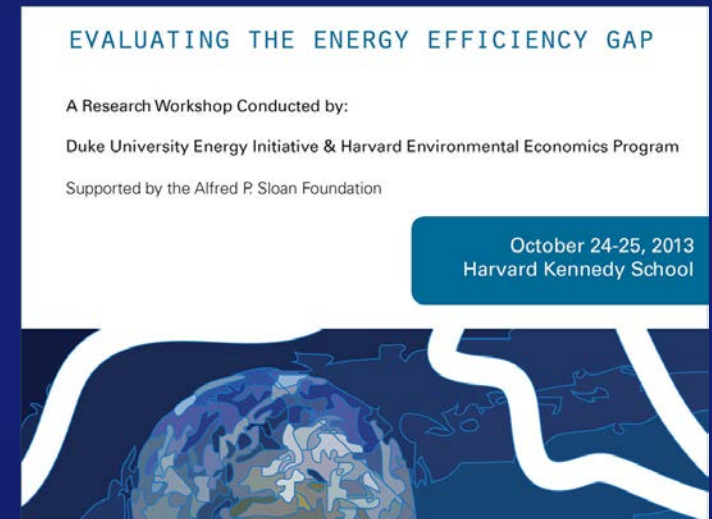
Allied Social Science Association Annual Meeting

Boston, Massachusetts

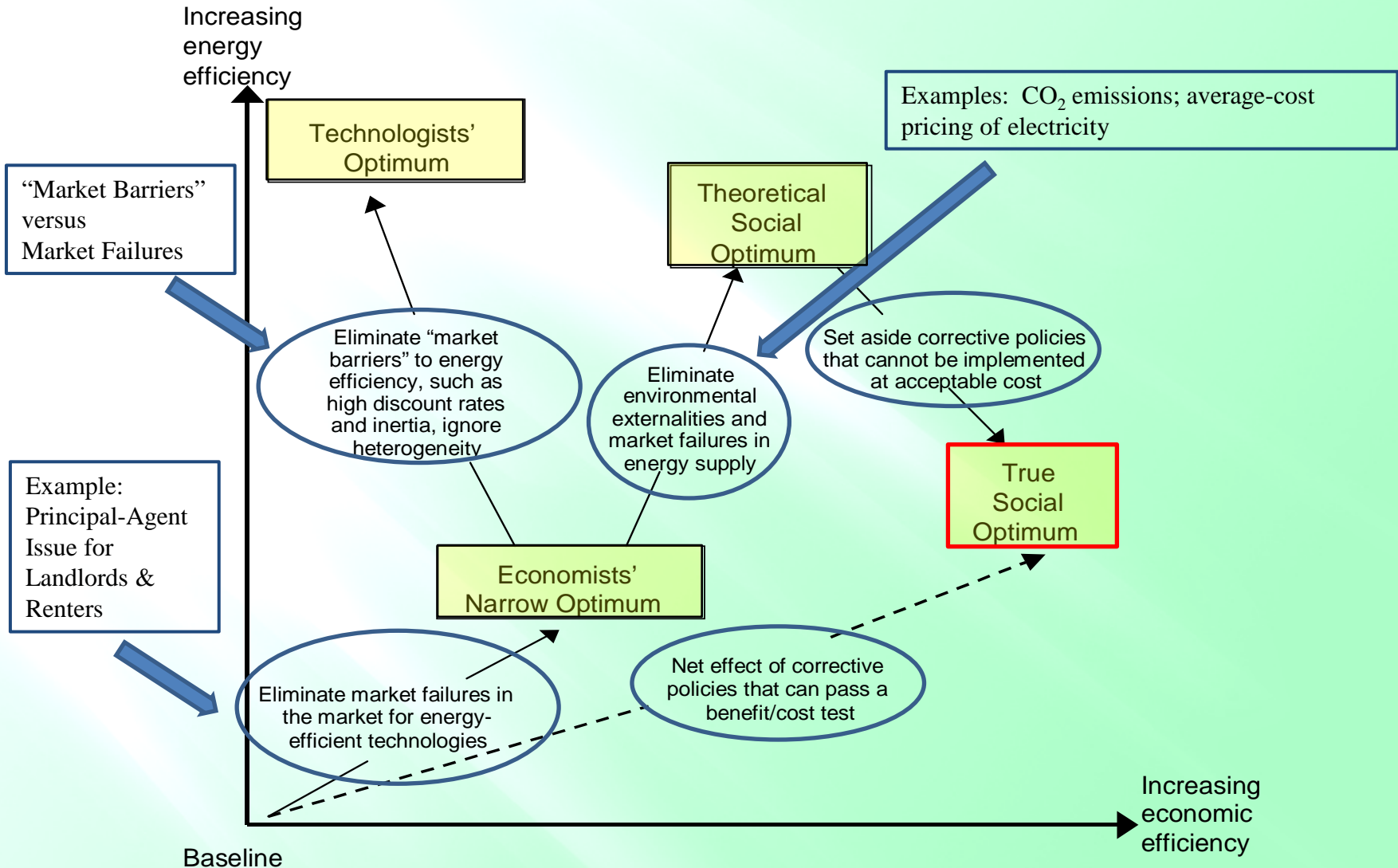
January 3, 2015, 2:30-4:30 pm

Background and Motivation for this Session

- *Builds upon* a joint project of the Duke University Energy Initiative and the Harvard Environmental Economics Program, “Evaluating the Energy Efficiency Gap”
- *Global energy consumption* is on a path to grow 50% over next 25 years
 - increased CO₂ emissions, local air pollution, and oil consumption
- *Energy efficiency improvements* are mechanism for decreasing energy use (account for nearly one third of CO₂ cuts globally in cost-effective scenario)
- But a key – and contentious – issue surrounding energy efficiency markets and policies
 - is the “energy paradox” or “energy efficiency gap”
- There are multiple interpretations of the “gap” ...



Alternative notions of the gap



Deconstructing the Energy Efficiency Paradox/Gap

- **Basic definition (energy *paradox*):** the *apparent* reality that some energy-efficiency technologies that would pay off for adopters ... are *not* adopted
- **Broader definition (energy-efficiency *gap*):** apparent reality that some energy-efficiency technologies that would be *socially efficient* are not adopted
- **Why** are such technologies **not adopted**? What explains the paradox/gap?
- Answers have very important policy implications.
- We sort potential explanations into three categories ...



Potential Explanations of the Paradox/Gap

- **Market-Failure Explanations**

- Information problems (principal-agent issues, asymmetric information)
- Energy market failures (externalities, average-cost electricity pricing)
- Capital market failures (liquidity constraints, particularly in LDCs)
- Innovation market failures (R&D spillovers)

- **Behavioral Explanations**

- Inattentiveness/salience issues
- Myopia/short sightedness
- Prospect theory/reference point issues
- Bounded rationality & heuristic decision-making
- Systematically biased beliefs

- **Model and Measurement Explanations**

- Understated costs of adoption & ignored product characteristics
- Overstated benefits of adoption
- Incorrect discount rate
- Uncertainty, irreversibility, & option value
- Heterogeneity in benefits & costs across potential adopters

For More Information

Harvard Environmental Economics Program

www.hks.harvard.edu/m-rcbg/heap

Website

www.stavins.com

Blog

<http://www.robertstavinsblog.org/>

Twitter

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