

Energy Demand Continued: Energy Use by Individuals and Households

Lecture 9

Monday, Economics of Energy Demand

- Demand for energy is derived from demand for products and services that consume energy, thus **mediated or derived**
- Variations in derived demand depend on fixed capital investments as well as short run and long run expectations
- Income and price elasticities are generally limited– constraining ability to maximize with efficient responses
- People do not always optimize their decisions – lots of possible efficiencies not pursued, **Amory Lovins \$\$ on the sidewalk: imperfect information; riskiness, uncertainty of future savings**
- Overinvest in energy efficiency, which turns out to be not economically efficient
Prius example, extra cost will not be recouped by reduced energy consumption

Why do we see economically non-optimal decisions?

The \$64,000 question.

How do people act? Why do people do what they do?

The mission of all of social science.

The division of labor in social science:

- psychology: what goes on in one mind
- sociology: what happens when two or more minds/persons interact, patterns of aggregation of action
- economics: coordination of production and distribution of goods and services through markets (exchanges of self-interested actors)
- political science: coordination through organized collective action and force; the state as the monopoly of force
- anthropology: the system of circulating signs, symbols, values that is culture; practices producing and enacting culture

Contributions from basic social science: Individuals and households Outline for today

- How do people make decisions: variations and vocabularies of motive
- Cognitive Science and the sociology of decision-making
- Experimental evidence concerning energy decisions
- Ironies of individualism and popular psychology

Future classes: organizations/firms, states (public policies)

How do people make decisions?

General model of human action

A set of concepts – terminology used to describe observable phenomena

Theories – integrated concepts, not all quantified

Quantified model/ theory:

$$E=a(Pe)-e(e)e-1$$

Conceptual model/theory:

$$F_{sc}=1/I_{sc}$$

formal social control is inversely related to informal social control

Theories and concepts/language derivations often tacit

Social science: to make explicit and describable through systematic, transparent, empirical observation what is unseen, tacit, unspoken in human action

How do people make decisions? What accounts for the variations in motivated/ social action?

(C. Wright Mills, Situated Action and Vocabularies of Motive, 1940)

1. Motives as subject states - produced inside the person

arguments from 'nature', not nurture

Different kinds of persons

biology (blood, dna)

personality, psychology, evolutionary biology

'man makes history'

Unique and independent individuals, society as aggregate of
Individual wills, desires, interests, Locke, JS Mill, Hayek, Friedman

2. Motives as accounts of expectations, consequences anticipated (sociology, historicism, pragmatism)

arguments from 'nurture' not nature

situated action (Dewey, CW Mills)

culturally learned and deployed (Bourdieu, habitus)

A. Smith, Theory of Moral Sentiments

'history makes the man'

Personhood, identity, will, desire interests produced
contingent, conditional opportunities, constraints
Weber, Durkheim, Polanyi, Marx, Rousseau

How do people make decisions: variations and vocabularies of motive

Social action: when a person or group takes account of other
How are others taken account of? (Max Weber, 1913, Economic Sociology)

- rational orientation to a system of discrete ends;
expectations as to behavior of objects in the external situation and other persons, making use of these expectations as conditions or means for achieving the actor's ends/goals
 - economic rational actor
- rational orientation to an absolute value; involving conscious belief in some ethical, aesthetic, religious or other form of behavior entirely for its own sake and independent of prospect of external success –
 - virtue, conserve energy, environmental sustainability
- affect or emotion, feelings, sensations of the actor
 - status, honor, being seen, celebrity
- tradition, through habit and long practice
 - built environment, suburbs, automobiles, habituated preferences
e.g. political systems, individualism

Cognitive Science and the sociology of decisions

Distinguish automatic cognition from deliberate cognition

Automatic cognition: rapid effortless, unintentional thought,
allows quick processing of information without extended review

Fundamental schema: age, gender, race (US)

Habitual, tacit.

Outside consciousness, more often under stress

Deliberate cognition: slow, considered and measured thought,
can reject or override schemas and actively search for
characteristics, connections, relations and expectations
rather than assuming them.

Triggered by disruption of routines

Some empirical examples of automatic and deliberate cognition:

1. Levels of routinization along a continuum, Heimer (2001).
2. Uncertainty and risk, Auyero and Swistun (2008, 2009).
3. Political auto-pilot, Martin and Desmond (2010).
4. Social movements, language and metaphors:
5. Communication sequences, narrative structure.

Experimental evidence concerning energy decisions

Goldstein, Cialdini and Griskevicius (2008)

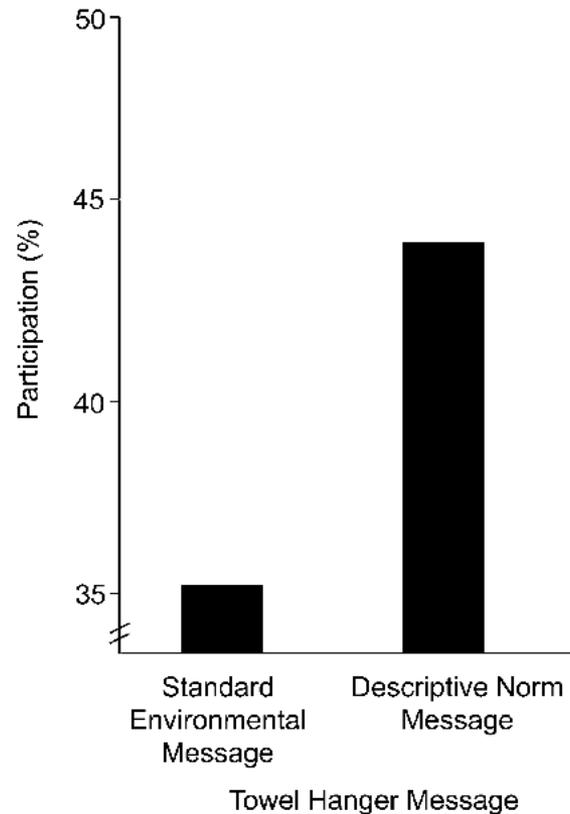
“A room with a viewpoint: using social norms to motivate environmental conservation in hotels”



From Goldstein, Noah, Robert B. Cialdini, and Vlas Griskevicius. “A Room with a Viewpoint: Using Social Norms to Motivate Environmental Conservation in Hotels.” *Journal of Consumer Research* 35, no. 3 (2008): 472-82. © University Of Chicago Press. All rights reserved.

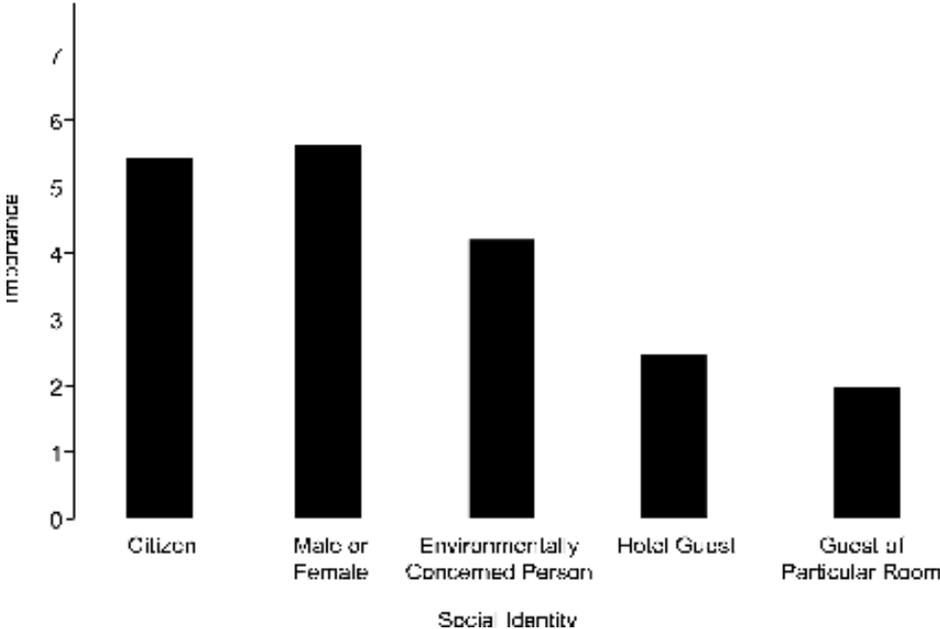
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Towel Reuse Rates as a Function of Sign in Room Experiment 1

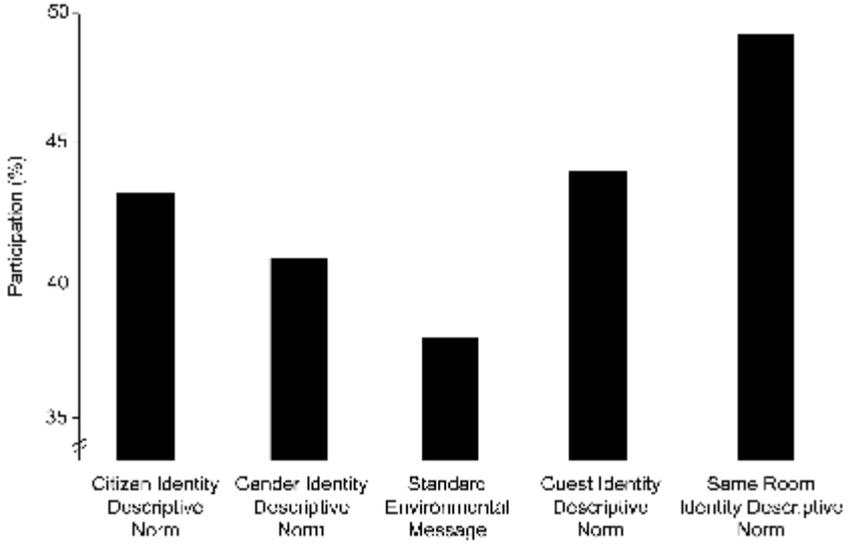


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Measures of social identity



Towel reuse as a function of Social identity on sign in room



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Take away messages:

People follow norms of others with who feel associated, even if association not meaningful.

In some circumstances, individuals follow norms of a meaningless and unimportant identity rather than meaningful and important if connection is based on uncommon characteristic.

If had a sign with important and uncommon characteristic may have been most effective.

Other social norm and incentives for energy efficient decisions

Suggestions?

- Use peer influence, associates, Ash experiments
- Make information visible, feedback

Compare this vehicle to others in the **FREE FUEL ECONOMY GUIDE** available at the dealer.

CITY MPG
23

Fuel Economy Information

HIGHWAY MPG
30

Actual Mileage will vary with options, driving conditions, driving habits and vehicle's condition. Results reported to EPA indicate that the majority of vehicles with these estimates will achieve between 19 and 27 mpg in the city and between 26 and 35 mpg on the highway.

1993 CANARY 2.0 LITER
L4 ENGINE FUEL INJECTED
AUTO 3 SPD TRANS CATALYST
FEEDBACK FUEL SYSTEM

Estimated Annual Fuel Cost:
\$850

For Comparison Shopping, all vehicles classified as **COMPACT** have been issued mileage ratings ranging from 1 to 31 mpg city and 16 to 41 mpg highway.

EPA Label that applies to vehicles before the 2008 model year

EPA Fuel Economy Estimates

These estimates reflect new EPA methods beginning with 2008 models.

CITY MPG
18
Expected range for most drivers
15 to 21 MPG

Estimated Annual Fuel Cost
\$2,039
based on 15,000 miles
at \$2.80 per gallon

HIGHWAY MPG
25
Expected range for most drivers
21 to 29 MPG

Combined Fuel Economy
This Vehicle
21
10 ——— 31
All SUVs

Your actual mileage will vary depending on how you drive and maintain your vehicle.

See the **FREE Fuel Economy Guide** at dealers or www.fueleconomy.gov

EPA Label that applies to 2008 through 2012 model year vehicles

Other social norm and incentives for energy efficient decisions

Suggestions?

- Use peer influence, associates, Ash experiments
- Make information visible, feedback
- Mandatory messages; Disclosure statutes

Regulation takes many forms – should not be undifferentiated concept. To speak with undifferentiated concept is to speak normatively, with political purpose, not analytically.

Ironies of individualism and popular psychology

Unanticipated consequences??

Information helps but alone does not work; financing also not sufficient.

Single action bias: small steps can backfire.

Language: using words 'audit' and 'retrofit' do not work, loss rather than gain; comfort and wellbeing, self-reliance, health, join your neighbors

Strategies: find early adopters, create leaders, celebrity, trusted opinion leaders, modelers, peer contact, local control

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Spring 2012

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