ExpEcon Methods: Vernon's Precepts

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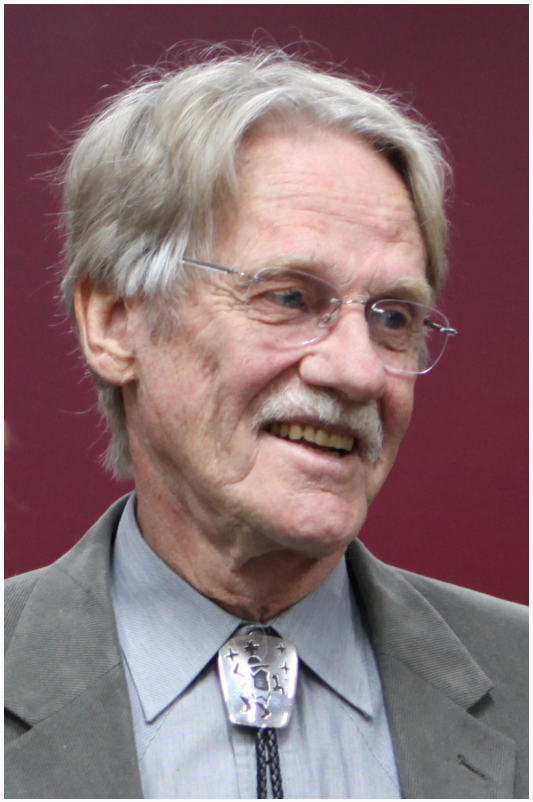
Vernon Smith



Vernon Smith
2002 Nobel Prize

Other early pioneers: Plott, Kagel, Battalio, Williams... many

Why Vernon?

The 2002 Nobel Prize

- Vernon Smith & Charlie Plott: pioneered market experiments
  - $\rightarrow$ “experimental economics”
- Kahneman & Tversky: Prospect Theory
  - $\rightarrow$ “behavioral economics”
  - Tversky passed away in 1996

- Smith elucidated the theory of incentivized experiments
  - “Experimental Economics: Induced Value Theory” (1976)
  - “Microeconomic Systems as an Experimental Science” (1982)

Induced Value Theory (1976)

Experiments are important because

1. They are a *pretest* of economic theory
    - *Prior* to the use of field data
    - Using field data to modify models is flawed since it's in-sample. "Any test of significance now becomes hopelessly confused"
        - Discuss: Do you agree?
    - Model $\rightarrow$ expm'nt $\rightarrow$ new model $\rightarrow$ expm'nt $\rightarrow$ new model $\rightarrow$ ...
2. (Presumed) parallelism between lab and field
    - Physics: "As far as we can tell, the same physical laws prevail everywhere."
    - Smith: "The laboratory becomes a place where real people earn real money for making real decisions about abstract claims that are just as "real" as a share of General Motors.
        - Discuss: Do you agree?

Micro Systems as Experimental Science (1982)

The precepts of induced value theory:

1. "Non-satiation" (monotonically increasing utility)
    - Monetary reward: $M(a)$ for action a
    - Utility for money: $u(M)$, $u' > 0$
    - $\arg\max_a u(M(a)) = \arg\max_a M(a)$
    - If multiple actions (eg, $a = (x, y)$), MRS is the same:

$$\frac{\partial u(M(x,y))/\partial x}{\partial u(M(x,y))/\partial y} = \frac{u'}{u'}\frac{\partial M/\partial x}{\partial M/\partial y} = \frac{\partial M/\partial x}{\partial M/\partial y}$$

    - Assumes choice is costless
    - Assumes selfish money maximization
        - Vernon was really just focused on market expmnts
        - Vernon is a libertarian...

Micro Systems as Experimental Science (1982)

The precepts of induced value theory:

2. "Saliency" (actions map to rewards)
    - Action profiles a map into rewards $M(a)$
    - This mapping is known and understood
    - Example: If you win an auction, you earn v_i
    - Example: Show-up fee is not salient
        - Warning: Not the same as Shliefer *et al.* notion of salience

Micro Systems as Experimental Science (1982)

The precepts of induced value theory:

3. “Dominance” (sufficiently large rewards)
    - The reward structure dominates any subjective costs or values
    - Example: Cognitive costs, effort
    - Example: Paying a commission for each transaction to offset effort costs
    - Discussion: Do we want to rule out other-regarding preferences?

Micro Systems as Experimental Science (1982)

The precepts of induced value theory:

4. “Privacy” (only know your own payoff)
    - Subjects can only see their own payoffs
    - Goal: own-reward maximizers
    - Removes social preferences
    - Removes “tournament incentives” (desire to come in first)
    - Discussion: social preferences?

Micro Systems as Experimental Science (1982)

The precepts of induced value theory:

5. “Parallelism” (aka “external validity”)
    - Lab results apply to non-lab settings
    - Not required if only testing theories in the abstract
    - “the same physical laws prevail everywhere” (Harlow Shapley 1964)
    - How to test parallelism? Comparison studies
    - Who has the burden of proof?
    - My view (following Roth):
        - Experiments provide provocative examples
        - We can’t guarantee parallelism, but our results are at least worth considering in the field

Micro Systems as Experimental Science (1982)

What else this paper does:

- Experiments as game forms $\Rightarrow$ mechanism design
  - Mount-Reiter diagram (Fig. 1)
- Classifications of experiments
  - Vary environment vs. vary institution
  - Methodological:
    1. Establishing laws of behavior
    2. Heuristic/exploratory experiments
    3. Boundary/extreme experiments
- List of “stylized facts” (robust results)