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Bart J. Wilson

Chapman University, bjwilson@chapman.edu

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How We Think about Economics

Bart J. Wilson*

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There is no more light in a genius than in any other honest man – but he has a particular kind of lens to concentrate this light into a burning point.

~ Ludwig Wittgenstein

If there is a favorite sentence that encapsulates Vernon Smith's contribution to how I think about economics, it is the first one in the second footnote of his Nobel lecture: "Doing experimental economics has changed the way I think about economics" (reprinted in Smith, 2003; p. 465). He elaborates further:

There are many reasons for this, but one of the most prominent is that designing and conducting experiments forces you to think through the process rules and procedures of an institution. Few, like Einstein, can perform detailed and imaginative mental experiments. Most of us need the challenge of real experiments to discipline our thinking (p. 465).

By training and self-selection, economists are deep-seated consequentialists, methodological positivists, and serial nominalizers. What matters to us are the outcomes of an economic experiment: double auctions are 90 to 100% efficient without complete information on the conditions of supply and demand; Dutch and first-price sealed bid auctions are theoretically, but not behaviorally isomorphic; asset markets reliably bubble and crash in the laboratory even with common knowledge of the dividend distribution; the solution concept of a subgame perfect Nash equilibrium rather poorly organizes actual play in two-person games; etc.

We tend to treat such outcomes in part as having learned something objective about the world. We positivistically reject the assumption of complete information for a market to clear, appending our discipline's mantra of "Incentives matter" with the phrase "because institutions matter." We also positivistically reject the assumption that common priors make asset markets efficient, and we positivistically reject the assumption that people always prefer more money to less. Our inclination is to explain these findings in terms of what Levitt and List (2007) call "deep structural parameters," some nouns for which include risk aversion, fairness, reciprocity, inequality aversion, ambiguity aversion, overconfidence, overoptimism, to name but a few.

* Smith Institute for Political Economy and Philosophy & Economic Science Institute, Chapman University; Email: bartwilson@gmail.com

From my casual observation, many economists were surprised at the content of Vernon's Nobel lecture on ecological and constructivist rationality in economics. Having been awarded the prize "for having established laboratory experiments as a tool in empirical economic analysis, especially in the study of alternative market mechanisms," I think many expected him to catalogue the major findings of experimental economics in his prize lecture.¹ David Porter has described Vernon as a live, interactive version of the *Journal of Economic Literature*. But Vernon Smith is no cataloguer. He is a synthesizer, and he synthesizes acutely aware that scientific inquiry is not wholly objective, that he himself is part of the scientific process. In his book, *Rationality in Economics*, Vernon quotes the Goethean scholar of science Henri Bortoft in the epigraph to chapter 10:

Science believes itself to be objective, but is in essence subjective because the witness is compelled to answer questions *which the scientist himself has formulated*. Scientists never notice the circularity in this because they hear the voice of "nature" speaking, not realizing it is the transposed echo of their own voice (Bortoft, 1996; p. 17).

As a reader of the chemist and philosopher of science Michael Polanyi, Vernon might push back a little on Bortoft and say that science is neither wholly objective, nor wholly subjective. Rather, science is personal. In so far as science establishes contact with the external world, like in a laboratory experiment, it is not subjective; but in so far as our inquiry is guided by individual passions to learn something, it is not objective either (Polanyi, 1956; p. 315). Designing and conducting economic experiments is, as Ludwig Wittgenstein says of philosophy, "really more a working on oneself. On one's own interpretation. On one's way of seeing things. (And what one expects of them)" (1980; p. 16e).

What do I mean by that? Consider Vernon's first economic experiment published in the *Journal of Political Economy*, the now canonical double auction experiment (1962). As I have heard him say many times, Vernon conducted his experiment in the spring of 1956 with the expectation that the results would deviate from the competitive equilibrium. Note how it was personal. His priors, his way of thinking about the world, were that the competitive equilibrium would fail to organize the data with private information, but he was curious to see what might happen. He had a passion to explore his own interpretation of his economics training. Nature wasn't speaking to him. The transposed echo of his own voice led him to formulate the question and experiment.

He was surprised then when the first session converged so readily and efficiently to the competitive equilibrium. That was not, as he has said, what his "Harvard education" had taught him would happen. In case it was fluke, he ran another session with the same result. Then he started tinkering with the parameters: inducing unequal surplus for buyers and sellers, shifting

¹ http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/2002/

the demand curve, and changing the elasticity of supply at the competitive equilibrium. And the markets continued to converge to the competitive equilibrium (Smith, 1962). With Arlington Williams he continued pushing the boundaries of the environment such that one side of the market would have zero surplus at the competitive equilibrium, and he experimented with different types of institutions such as posted offer, posted bid, and sealed bid-offer auction (Smith and Williams, 1982 and 1990).

Similarly, when Vernon and his co-authors, Gerry Suchanek and Arlie Williams, applied the double auction institution to their famous asset market experiment, they expected to establish a baseline with no bubbles (1988). What they found was that transparency was not sufficient to prevent bubbles. Again, he made changes to the experiment, adding short selling and conducting it with professional traders, and still the markets bubbled. The subjects disabused him (his often-used word) of his way of seeing things.

The result of the double auction research program was more than a nuanced understanding of the dynamic paths to the competitive equilibrium. In an article published in *Economic Inquiry* twenty years after his first double auction paper appeared in print, Vernon was still thinking about how the double auction experiment had changed how he thought about markets (1982). The point of the double auction experiment is not simply that participants find the point at which supply and demand cross, thereby objectively validating what we teach in principles of microeconomics. The point of the double auction experiment, or “the most significant fact about this [price] system,” as Hayek famously puts it, “is the economy of knowledge with which it operates, or how little the individual participants need to know in order to be able to take the right action” (Hayek, 1945, pp. 526-7). In the form of bids and asks, the institution communicates all the information about everyone else that an individual needs to know. The problem that society faces—and that a double auction market amazingly solves in a mere few minutes—is how to aggregate and utilize the dispersed knowledge of the participants so as to secure the most efficient use of resources.

If we suspend our own beliefs about what we need to know to solve our models or teach a graph, and listen to what our participants say through their actions, the double auction experiment changes how we think about the price system. The problem is not just about how we think about equating marginal costs with marginal revenue, but how real people think and go about *their* very real problem of buying and selling. To sincerely listen to our laboratory participants means to take seriously the notion that our participants may not see the problem *as we see the problem*, which is rather humbling. To quote Wittgenstein again, “The edifice of your pride has to be dismantled. And that is terribly hard work” (1980; p. 26e).

Vernon, though, makes it look easy. He is one of the most self-effacing scholars I know; he sets a high bar both in the laboratory and in everyday life. And it is that genuine modesty and

honesty with himself and others that comprises the lens by which he has made a career of burning points, the most significant of which is his example of how a model scientist and human being thinks about economic science.

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