It is human nature to dislike change and risk, particularly in markets. But a relatively young field, experimental economics, helps us to understand these concerns, allowing economists to test alternate models in a systematic manner. If we can demonstrate the possible outcomes of a change, and show that the change need not be disastrous, we can create value and economic opportunities for people and industries.

Vernon Smith, professor of economics and law at George Mason University, has won this year’s Nobel Prize in Economics for his pioneering work in experimental economics. Mr. Smith will share the Nobel with Daniel Kahneman of Princeton, whose behavioral work integrates psychology, particularly the way people make decisions in the face of uncertainty, into economics.

Mr. Smith’s experimental economics uses real economic agents facing real choices -- and with the potential to earn real money payoffs -- to create data on economic choices and incentives. One fundamental concept in experimental economics is the idea of testing postulates that are often taken as given in economics, such as individual preferences, and how and why humans turn those preferences into market exchange.

Experimental economics also enables testing of the extent to which we behave in accordance with neoclassical economic assumptions. Do you see what I see, and do you interpret it and respond to it in the same way? These questions are difficult to answer in real time in a non-laboratory setting, and, by exploring them, experimental economists have generated important new knowledge about how we make choices when confronted with tradeoffs and incomplete information.

One perennial headache in economics is data. Traditionally, economics has been confronted with a Henry Higgins-style “Why can’t a woman be more like a man/why can’t economics be more like physics?” question, particularly regarding data quality. Humans, unlike particles, behave and make choices based on conscious thought, and are therefore sometimes unpredictable. Humans also can behave strategically. Yet Mr. Smith does not take this as an argument for why laboratory rigor is impossible in economics. Quite the opposite; laboratory tests on humans, with profit incentives, can generate consistent, high-quality data gathered for the precise purpose of testing scientific hypotheses -- superior to that gathered by other sources.

Experimental economics has established that institutions matter because rules matter, and rules matter because incentives matter. This has contributed to the study of institutions, organizations and contracts, called new institutional economics. It has also revealed that sometimes humans respond to incentives in ways that our standard models would predict, but sometimes not at all. For example, informal rules and social norms can influence our choices, and testing for these effects is much more productive in a laboratory than in real time.

Economic experiments give us insights into how buyers and sellers interact to create a market. Take a double oral auction, where the experiment leader gives participants an identity (buyer or seller) and asks how much they are willing to pay to buy or willing to receive to sell. Each participant has only his own information, and this replicates a central feature of exchange -- diffuse, personal knowledge.

Even in this auction with as few as four buyers and four sellers, the interaction of the information they acquire through bidding leads to a competitive outcome, where they create all of the possible value from trading. In an experimental environment, as in reality, this market process occurs in the context of rules. When participants know in advance that they have full property rights to whatever they buy or sell, trading is brisk. When property rights are not so well-defined, trade is more sluggish. Furthermore, the laboratory setting allows for changes in the institutions, such as the imposition of a price cap or a change in auction rules, to explore how market participants will change their interactions in response...
Laboratory experiments have been used to analyze interactions as simple as two people dividing a dollar (not as simple as it sounds) and as complex as restructuring electricity regulation and creating new electricity markets. In electricity experiments that Mr. Smith has done, some retail customers could choose whether and when to shift their demand in response to price changes. That demand response interacted with supply-side incentives and limited the ability of electricity-generating suppliers to exercise market power. These experiments have powerful policy implications, both for encouraging regulators to move away from regulated retail rates and for harnessing demand-side consumer response to provide "market monitoring" functions instead of relying on regulatory institutions to do it.

Experimental methodology improves upon standard economics in reflecting tacit knowledge -- when we make choices, including social interaction choices like market exchange, we are not always conscious of all of the information that we bring to bear in making them. Experiments with real people facing real incentives create an environment in which the effects of tacit knowledge are not assumed away to solve the equations on the blackboard.

As in other fields, experimental economics has limitations in its assumptions and hypotheses. Another challenge is designing the experimental environment so that the researcher can be sure that the results mean what we think they mean. That said, experimental economics has increasing relevance in the debates on institutional change. Two network industries, electricity and telecom, are in the midst of regulatory institutional changes, and the decisions made in those processes will affect consumers for a very long time. For example, the Federal Energy Regulatory Commission is considering institutional change to create standard market rules in wholesale electricity markets. Using laboratory experiments to test different institutional environments can help head off disastrous choices at the pass, and can contribute to an environment rich with opportunities for value creation.

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Ms. Kiesling is director of economic policy at the Reason Foundation and senior lecturer of economics at Northwestern University.

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(See related letter: "Letters to the Editor: Psychologist Economists" -- WSJ Oct. 23, 2002)