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Perspectives

ECONOMICS:

Homo experimentalis Evolves

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The fundamental challenge in the social sciences is how to go beyond correlational analysis to provide insights on causation. Economists have long used precise models and econometric techniques to answer causal questions using variations in naturally occurring data (1). Increasingly, insights on causation are also gained through the use of controlled experimentation. In this approach, causation is usually identified through randomization, much like controlled experiments used in drug trials.

In economics, laboratory experiments have been used to meaningfully test theories, lend important qualitative insights, and provide a first glimpse at what can happen in an economic system. To complement lab and naturally occurring economic data, studies that gather data via field experiments have become more frequent during the past decade. Such experiments are a useful marriage between laboratory and naturally occurring data in that they represent a mixture of control and realism usually not achieved in the lab or with naturally occurring data.

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Economists use three main types of field experiments to sample various populations and situations (2). Artifactual field experiments share many of the qualities of conventional lab experiments but use a subject pool from the population of interest. Framed field experiments account for important situational features of the market of interest by embedding decisions in their natural context, and therefore making decisions much less abstract. Yet the subjects remain aware that they are part of an experimental study. Framed field experiments are a cousin of social experiments of the 20th century such as employment programs and housing allowances (3). Finally, in a natural field experiment, the analyst manipulates

experimental conditions in a natural manner, whereby the experimental subjects are unaware that they are participating in an experiment. This approach combines the most attractive elements of the laboratory and of naturally occurring data: randomization and realism.

Each of these field experiment types is a means of collecting data. In the sciences, data are generally collected for three purposes: to provide enough facts to help construct a theory, to test the predictions of a theory, and to measure key parameters. Field experiments in economics can also be a useful tool for each of these data purposes.

For example, Anderson and co-authors (4) have used a natural field experiment to collect facts useful for constructing a theory about consumer reactions to advertisements. Working with a retail catalog merchant, the authors manipulated the frequency of catalog advertising sent to randomly selected customer samples. Over an 8-month period, one set of consumers received 17 catalogs, whereas another set received 12 catalogs. The increased frequency positively influenced sales among the consumers who purchase infrequently, but the effect on the company's highly valued consumers was negative in the long run. The results pinpoint important roles for both brand-switching and how advertisements affect consumers balancing current consumption against future consumption.

In another recent natural field experiment, Reiley and Katkar (5) used Internet-based auctions to test the theory of reserve prices in auctions. The authors designed a field experiment to compare outcomes in auctions with secret versus public reserve prices, two common approaches used to auction goods on the Internet. They auctioned 50 matched pairs of Pokemon trading cards on eBay: one with a minimum bid of 30% of the card's book value, and one with a minimum bid of $0.05 and a secret reserve price equal to 30% of the card's book value. Keeping the reserve price secret reduced the probability of selling any card, the number of serious bidders in an auction, and the amount of the winning bid. Thus, contrary to the beliefs of many eBay sellers and to the predictions of models of rational bidder behavior, using secret reserve prices instead of public reserve prices actually lowers a seller's expected returns.

An example of a natural field experiment designed to measure key parameters of a theory is (6), where parameters associated with why people give to charities are estimated. In this study, Karlan and I worked with a private charity to explore the effects of different matching rates on charitable giving by soliciting contributions from more than 50,000 supporters. In one group, solicitees were informed that for every dollar contributed, an outside donor would match the contribution 1:1. A control group received no match, and other groups received more generous matching rates (such as 2:1 or 3:1). Simply announcing that a match is available increases the revenue per solicitation by 19%. In addition, the match offer increases the probability that an individual donates by 22%. These estimates shed light on a key parameter for fundraisers: how sensitive contributions are to the "price" of giving.

In the examples above, I have focused on natural field experiments; similar examples can be found for artifactual and framed field experiments. The various field experimental approaches, lab experiments, and econometric methods using naturally occurring data should be thought of as strong complements--much like theory and empiricism. Combining insights gained from each methodology will permit scholars to develop a deeper scientific understanding. For example,

economists have shown that there is much to be gained from gathering data from a variety of settings, both controlled and uncontrolled. In those cases where behaviors are robust, the advice to policy-makers can be unequivocal. In other instances, behaviors might differ systematically, and developing theory to explain such discrepancies deepens our economic understanding. Similar gains can accrue within the sciences more broadly.

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