

Chicago Approaches to Empirical Economics

Lessons from Past Debates for Current Practice

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Milton Friedman



- Friedman created a Chicago tradition and a Chicago approach to empirical work.
- He reacted strongly and negatively to Cowles econometrics, which is also known as “structural econometrics.”
- His objection was not the same as objections from treatment effect economists.

*“The ultimate goal of science in any field is a theory—an integrated ‘explanation’ of observed phenomena that can be used to make valid predictions about **phenomena not yet observed**. Many kinds of work can contribute to this ultimate goal and are essential for its attainment: the collection of observations about the phenomena in question; the organization and arrangement of observations and the extraction of empirical generalizations from them; the development of improved methods of measuring or analyzing observations; the formulation of partial or complete theories to integrate existing evidence.”*

– Friedman, 1950 (Wesley Clair Mitchell as an Economic Theorist)

“The ultimate goal of a positive science is the development of a ‘theory’ or ‘hypothesis’ that yields valid and meaningful (i.e., not truistic) predictions about phenomena not yet observed. Such a theory is, in general, a complex intermixture of two elements. In part, it is a ‘language’ designed to promote ‘systematic and organized methods of reasoning.’ In part, it is a body of substantive hypotheses designed to abstract essential features of complex reality.”

– Friedman, 1953 (Methodology of Positive Economics)

Continuing

- There is of course no sharp line between the empirical scientist and the theorist. We are dealing with a continuum, with mixtures in all proportions, not with a dichotomy.

➤ *“The most reckless and treacherous of all theorists is he who professes to let facts and figures speak for themselves.”*
—Marshall, 1885

- And, one might add,

➤ *“The most reckless and treacherous of all empirical workers is he who formulates theories to explain observations that are the product of careless and inaccurate empirical work.”*
—Friedman, 1950

(Wesley Clair Mitchell as an Economic Theorist)

- Distinguished between the transient—what is popular with mass appeal, the intellectual fads, and what gets into newspapers and makes for bestsellers—from what is enduring.
- What lasts—what is true science—and what addresses truly big questions.
- The hallmark of his work was long-term empirical research projects, carefully executed, that integrated economic theory and empirical work, and that confronted and digested a wide range of empirical evidence, using a variety of methods to sift and sort the evidence.

- Friedman long term projects:
 - Monetary History (1948-1982)
 - Consumption Fn. (1951-1957)
- Collected new data, created new theoretical frameworks, tackled important policy problems:
 - a. Effect of monetary policy on the economy.
 - b. Role of fiscal stabilizers and the multiplier, and the sources of economic development.
- Emphasis on rigor and deep understanding, and a self-critical posture that learned from his critics.

“You cannot be sure that you are right unless you understand the arguments against your views better than your opponents do.”

– Friedman 1974 (The Indispensable Milton Friedman)

➤ Use economic theory to learn from and interpret data—and to revise the theory in the light of the data.

- Learning from data and revising theory in light of the data.
- A cumulative process of knowledge—hypothesis—confirmation or rejection—if rejection—new hypothesis, etc.

- No clear separation of the formulation of a model from tests of it.

“The two stages of constructing hypotheses and testing their validity are related in two different respects. In the first place, the particular facts that enter at each stage are partly an accident of the collection of data and the knowledge of the particular investigator. The facts that serve as a test of the implications of a hypothesis might equally well have been among the raw material used to construct it, and conversely. In the second place, the process never begins from scratch; the so-called “initial stage” itself always involves comparison of the implications of an earlier set of hypotheses with observation; the contradiction of these implications is the stimulus to the construction of new hypotheses or revision of old ones. So the two methodologically distinct stages are always proceeding jointly.”

– Methodology of Positive Economics (1953)

- For him the proper test of a theory was using new data or previously-unused features of current data to test the validity of any model or hypothesis.

- Found the Cowles Commission discussion of the identification problem problematic.

Their Approach:

- Define models (a priori).
 - Identify models in principle.
 - Isolate which (if any) are consistent with the data (estimation and inference).
- For Friedman, this was an artificial process.
 - Rejected the rigid separation of model formulation and model testing.

- A theory should not be judged by the “realism” or “elegance” of its assumptions but by its power to predict phenomena.

“It was the battle cry of institutionalism and the closely related emphasis on extensive statistical studies of economic phenomena; it is a major source of the naive yet recurring notion that the progress of positive economics depends critically on the progress of psychology; it has been manifested most recently in the belief that a theory can be tested by asking questions of the consumers, producers and the like.”

– Friedman, *The Relevance of Economic Analysis to Prediction and Policy* (1952)

Friedman on Abduction

- Commenting on H. Schultz's *The Theory and Measurement of Demand* (1938): extols its care and attempt to put empirical content into a pre-existing theory.
- Excluded it from a list of scientific studies in economics because there is no reverse influence of the empirical work on the theoretical structure, Schultz took the theory as fixed and given and tried to measure what he thought were the essential functions in the theory. He imposed extremely high standards of care and thoroughness in the measurement process—but nowhere attempted what seems to me the fundamentally important task of reformulating the theory so it would generalize[sic] the observable data; He always tried to wrench the data into a pre-existing theoretical scheme, no matter how much of a wrench was required.
- Source: Letter to Wilson from Friedman

- Friedman walked a tightrope balancing the empiricism of the institutionalists with the demands of economic theory that distilled wisdom from the data and at the same time learned from the data. He never formalized his theory of learning from data—instead he gave two empirical examples of it (*The Theory of the Consumption Function and Monetary History*).
- Bayesianism was too tight a straightjacket because it does not allow for the discovery of unanticipated events—new facts, leading to new theories.

Measurement Without Theory Debate
Koopmans: Measurement Without Theory
(*Review of Economics and Statistics*, August 1947)

- a) Burns and Mitchell: (***Measuring Business Cycles*, 1946**)
- b) Friedman vs. Koopmans
- c) Launched an **implicit** running debate

Intrinsic Contrast Between Friedman's Abductive Style and Cowles' Deductive-Popperian Style

Friedman Methodology

- a) Create theory
- b) Test theory
- c) Revise theory
- d) Iterate
- e) **Give and take** (model of knowledge creation)

Cowles Methodology

- a) Theory: Model A Priori
- b) Identification (what classes of models are admissible?)
- c) No guidance on hand to proceed if theory is rejected

Each approach has its problem

Tjalling Koopmans



Arthur Burns



W.C. Mitchell



Rutledge Vining



John von Neumann

In discussing mathematical models,

“I think that it is a relatively good approximation to truth — which is much too complicated to allow anything but approximations — that mathematical ideas originate in empirics. But, once they are conceived, the subject begins to live a peculiar life of its own and is... governed by almost entirely aesthetical motivations. In other words, at a great distance from its empirical source, or after much ‘abstract’ inbreeding, a mathematical subject is in danger of degeneration. Whenever this stage is reached the only remedy seems to me to be the rejuvenating return to the source: the reinjection of more or less directly empirical ideas.”

— “The Mathematician”, in *The Works of the Mind* (1947) edited by R. B. Heywood, University of Chicago Press, Chicago

