Lecture Notes for March 12, 2009

From the lecture notes of January 8, 2009:

What does mathematical general equilibrium theory do? Tries to put microeconomics on same basis of logical precision as algebra or geometry. Axiomatic method: allows generalization; clearly distinguishes assumptions from conclusions and clarifies the links between them.

  Four ideas about writing an economic theory:

  Ockam's razor (KISS - Keep it simple, stupid.), improves generality

  Testable assumptions (logical positivism), avoids vacuity

  Link with experience, robustness, Solow "All theory depends on assumptions which are not quite true. That is what makes it theory. The art of successful theorizing is to make the inevitable simplifying assumptions in such a way that the final results are not very sensitive. A "crucial" assumption is one on which the conclusions do depend sensitively, and it is important that crucial assumptions be reasonably realistic. When the results of a theory seem to flow specifically from a special crucial assumption, then if the assumption is dubious, the results are suspect. "   (Contribution to the Theory of Economic Growth, 1956)

  Precision, reliable results, Hugo Sonnenschein: "In 1954, referring to the first and second theorems of classical welfare economics, Gerard wrote 'The contents of both Theorems ... are old beliefs in economics. Arrow and Debreu have recently treated these questions with techniques permitting proofs.' This statement is precisely correct; once there were beliefs, now there was knowledge.

  "But more was at stake. Great scholars change the way that we think about the world, and about what and who we are. The Arrow-Debreu model, as communicated in *Theory of Value* changed basic thinking, and it quickly became the standard model of price theory. It is the 'benchmark' model in Finance, International Trade, Public Finance, Transportation, and even macroeconomics. ... In rather short order it was no longer 'as it is' in Marshall, Hicks, and Samuelson; rather it became 'as it is' in *Theory of Value*." (remarks at the Debreu conference, Berkeley, 2005).

Clower: "The essential art of economics … is to tell a good story in a persuasive way." (*Money and Markets,* Cambridge University Press, 1984).

But see the marginal cost pricing controversy. Those are top minds: Ruggles, Arthur Lewis (Nobel laureate), Hotelling. What do we learn from the marginal cost pricing controversy?   There are persuasive good stories on all sides of an issue. That's why we need models --- to sort out the issues with precision on common ground.

This is an old fight. Nobody ever 'wins' religious wars.

Methodenstreit (late 19th centrury) Austrian School (Carl Menger) vs. German Historical School (Gustav von Schmoller).   Theory based on general principles (including marginalism) [Menger] vs. Institutional analysis and historical generalization [Schmoller].

Gibbard and Varian: Modelling as approximation – a caricature vs. a photo. Focus on a small number of essentials, to keep our thinking straight.   Robustness of results is essential.

Mc Closkey: Economics needs math, but not too much. Samuelson's problem is too much math. Samuelson's fallacy – 'Economics is not an experimental science, so formal models are needed to analyze relations and forecast effects.' McCloskey's refutation --- 'there's abundant data; if the reason for doing math models is that there's not enough data, that's mistaken.' Theorist's reply: 'the data is not experimental. Econ is like geology and meteorology. You need a model to formalize your observations.'

McCloskey's prescription: Observe reality!!

Samuelson's theories (that apparently help to understand reality): Public goods, random character of financial market prices.

McCloskey's indictment of pure theory: they're only in it for the math!!

McCloskey's Metatheorem on Theorems: The A-Prime, C-Prime Theorem: For each and every set of assumptions A implying a conclusion C, and for each alternative conclusion C′ arbitrarily far from C (for example disjoint from C) there exists an alternative set of assumptions A′ arbitrarily close to the original assumption A such that A′ implies C′.

If the metatheorem is true, then logical theorizing is non-robust.