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Why Economics Should Be Considered a Science

By Robert Shiller

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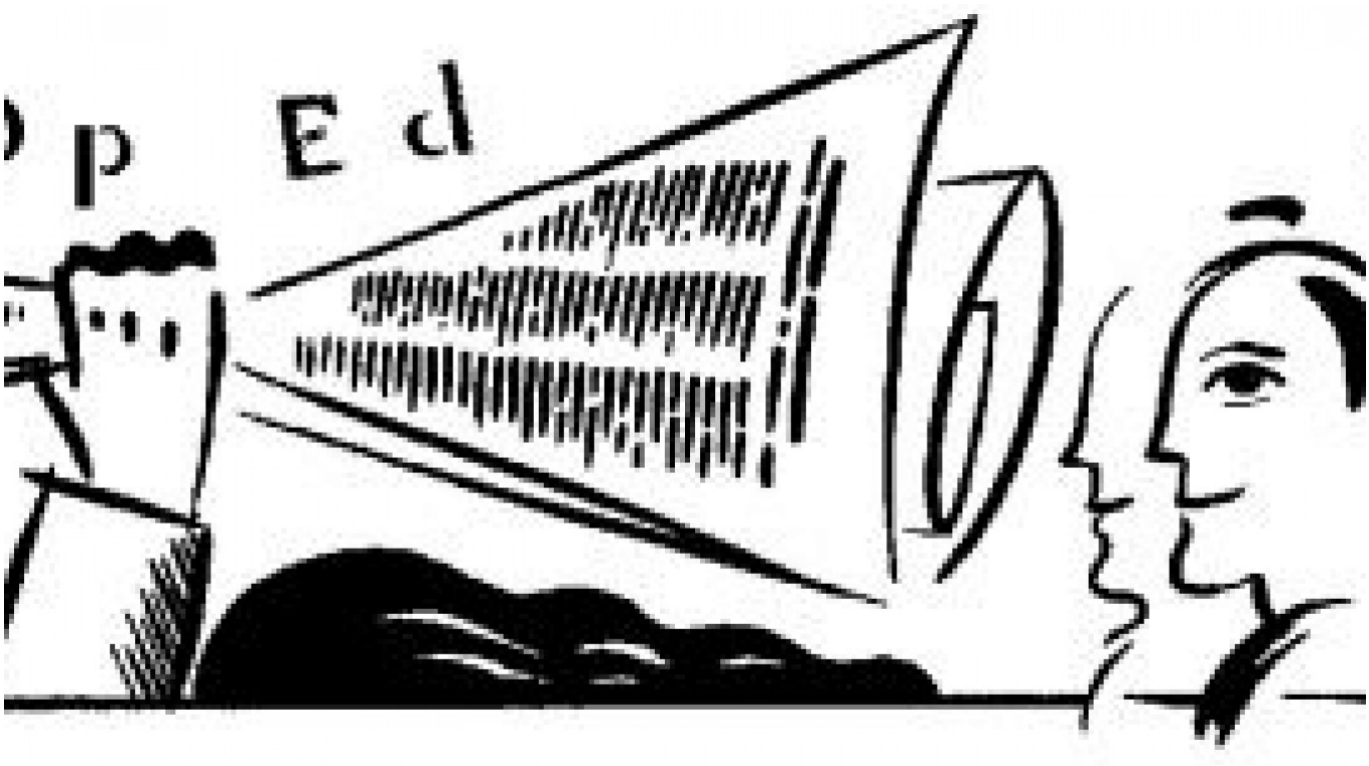

I am one of the winners of this year's Nobel Memorial Prize in Economic Sciences, which makes me acutely aware of criticism of the prize by those who claim that economics — unlike other Nobel Prize disciplines such as chemistry, physics or medicine, — is not a science. Are they right?

One problem with economics is that it is necessarily focused on policy, rather than discovery of fundamentals. Nobody really cares much about economic data except as a guide to policy: economic phenomena do not have the same intrinsic fascination for us as the internal resonances of the atom or the functioning of the vesicles and other organelles of a living cell. We judge economics by what it can produce. As such, economics is rather more like engineering than physics, more practical than spiritual.

There is no Nobel Prize for engineering, though there should be. True, the chemistry prize this year looks a bit like an engineering prize, because it was given to three researchers — Martin Karplus, Michael Levitt, and Arieh Warshel — "for the development of multiscale

models of complex chemical systems" that underlie the computer programs that make nuclear magnetic resonance hardware work. But the Nobel Foundation is forced to look at much more such practical, applied material when it considers the economics prize.

The problem is that once we focus on economic policy, much that is not science comes into play. Politics becomes involved, and political posturing is amply rewarded by public attention. The Nobel Prize is designed to reward those who do not play tricks for attention, and who, in their sincere pursuit of the truth, might otherwise be slighted.

Why is it called a prize in "economic sciences," rather than just "economics"? The other prizes are not awarded in the "chemical sciences" or the "physical sciences."

Endeavors that use "science" in their titles tend to be those that get masses of people emotionally involved and in which crackpots seem to have some purchase on public opinion. These fields have "science" in their names to distinguish them from their disreputable cousins.

The term "political science" first became popular in the late 18th century to distinguish it from all the partisan tracts whose purpose was to gain votes and influence rather than pursue the truth. "Astronomical science" was a common term in the late 19th century, to distinguish it from astrology and the study of ancient myths about the constellations. "Hypnotic science" was also used in the 19th century to distinguish the scientific study of hypnotism from witchcraft or religious transcendentalism.

There was a need for such terms back then, because their crackpot counterparts held much greater sway in general discourse. Scientists had to announce themselves as scientists.

In fact, even the term "chemical science" enjoyed some popularity in the 19th century — a time when the field sought to distinguish itself from alchemy and the promotion of quack nostrums. But the need to use that term to distinguish true science from the practice of imposters was already fading by the time the Nobel Prizes were launched in 1901.

Similarly, the terms "astronomical science" and "hypnotic science" mostly died out as the 20th century progressed, perhaps because belief in the occult waned in respectable society. Yes, horoscopes still persist in popular newspapers, but they are there only for the severely scientifically challenged or for entertainment; the idea that the stars determine our fate has lost all intellectual currency. Hence there is no longer any need for the term "astronomical science."

Critics of "economic sciences" sometimes refer to the development of a "pseudoscience" of economics, arguing that it uses the trappings of science, like dense mathematics, but only for show. For example, in his 2004 book "Fooled by Randomness," Nassim Nicholas Taleb said of economic sciences: "You can disguise charlatanism under the weight of equations, and nobody can catch you since there is no such thing as a controlled experiment."

But physics is not without such critics, too. In his 2004 book "The Trouble with Physics: The Rise of String Theory, The Fall of a Science, and What Comes Next," Lee Smolin reproached the physics profession for being seduced by beautiful and elegant theories, notably string theory, rather than those that can be tested by experimentation. Similarly,

in his 2007 book "Not Even Wrong: The Failure of String Theory and the Search for Unity in Physical Law," Peter Woit accused physicists of much the same sin as those mathematical economists are said to commit.

My belief is that economics is somewhat more vulnerable than the physical sciences to models whose validity will never be clear, because the necessity for approximation is much stronger than in the physical sciences, especially given that the models describe people rather than magnetic resonances or fundamental particles. People can just change their minds and behave completely differently. They even have neuroses and identity problems, complex phenomena that the field of behavioral economics is finding relevant to understanding economic outcomes.

But all the mathematics in economics is not, as Taleb suggests, charlatanism. Economics has an important quantitative side, which cannot be escaped. The challenge has been to combine its mathematical insights with the kinds of adjustments that are needed to make its models fit the economy's irreducibly human element.

The advance of behavioral economics is not fundamentally in conflict with mathematical economics, as some seem to think, though it may well be in conflict with some currently fashionable mathematical economic models. And, while economics presents its own methodological problems, the basic challenges facing researchers are not fundamentally different from those faced by researchers in other fields. As economics develops, it will broaden its repertory of methods and sources of evidence, the science will become stronger, and the charlatans will be exposed.

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