

# The limits of the scientific method in economics and the world

By Roger Martin | November 10, 2011

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*The opinions expressed are his own.*

*This is part one of this essay.*

As the economy teeters and the capital markets gyrate, I can't get out of my mind the evening of May 19, 2009. We were near the stock market nadir and fears were cresting that we were heading straight into the next Great Depression. I was invited to a dinner along with half a dozen tables of guests to hear a very prominent macroeconomist opine on the state of the economy and the path to recovery.

The economist held forth with a detailed, analytical account of what had caused the economic meltdown in the second half of 2008 and the path that he predicted recovery would take. I was struck by how scientific he was, spewing myriad statistics, employing technical terms by the boatload, and praising his econometric model. It was 'very sophisticated'. Given the nods and encouraged looks in the room, it seemed as though he had provided great comfort to the guests; they could go to bed confident that thanks to his science, they could trust that this man knew where we were headed.

I wasn't quite so confident. Being the curious sort, before coming to dinner I had checked his forecast from a year earlier, mere months before the crash. His spring 2008 forecast for the second half of 2008 was for modest positive economic growth for America. This was not unusual; no credible economist predicted anything less rosy for the back half of 2008, although many now claim that they did. I don't blame or ridicule him for being cautiously optimistic mere months before the worst economic downturn in 80 years. Economic forecasting is fraught with peril.

For me, the striking thing about the evening was that nothing changed about his models after they were shown to be hopelessly wide of the mark. He just loaded up the equations, dumped in the latest numbers and started crunching away. I asked him whether he had altered his models in the wake of his dreadful forecast of 2008; stunningly, he hadn't thought of the question.

It struck me then and still does that this dinner is illustrative of a fundamental blind spot in modern science. It has ventured far afield of its natural limits and is both creating problems and inhibiting progress.

The roots of the problem can be traced right back to Aristotle, the father of modern science, who around

400 B.C. laid down the first formal conception of cause and effect. While there have been numerous advances to his thinking methodology, his fingerprints all still on everything a modern scientist does.

But as my Aussie philosopher friend, Tony Golsby-Smith has pointed out to me, as much as Aristotle was a proponent of his scientific logic, in the best scientific tradition, he established boundary conditions for his theory. It was for the part of the world in which *things could not be other than they are*. An oak tree is an oak tree and cannot be something else. A piece of granite is a piece of granite and can't be something else. For this world, Aristotle laid out the seminal scientific method and argued that it was the optimal way for understanding that part of the world.

As he laid out his scientific method for the part of the world that *cannot be other than it is*, he also cautioned that there is another part of the world that *can be other than it is*, and there was another method that needed to be used to understand it. The scientific method would be wholly inappropriate.

That part of the world consists of people – of relationships, of interactions, of exchanges. In this part of the world, relationships can be good, bad or indifferent; close, distant or sporadic. They change – they can be other than they currently are. For this part of the world, Aristotle said that the method used to develop our understanding and to shape this world is rhetoric; dialogue between parties that builds understanding that actually shapes and alters this part of the world.

I would argue that as the modern scientific world has embraced Aristotle's science, it has utterly ignored his boundary condition and routinely pushes the scientific method far past the limits for which it was designed. Ironically, we have adopted Aristotle's tool and then ignored Aristotle's user manual.

In this respect, the economist's behavior is completely unsurprising. In what he imagines to be proper Aristotelian fashion, he treats the economy as if it *cannot be other than it is* and predicts a future that is based on the past. And when it is anything but, he returns to the same tools to do it again, believing that in doing so he is being meritoriously scientific. He is joined in this behavior in great numbers by people across the natural and social sciences, even some in the humanities.

Science advances our knowledge of the world in which things *cannot be other than they are*. But the modern practice of applying science to the vast tract of the world where things *can be other than they are* is unhelpful, as demonstrated by the unreflective economist. Extrapolating the future to be a straight-line projection of the past is neither accurate, nor is it helpful in creating better understanding and newer ideas.

As much as it is helpful to the world to create, test and prove out novel new hypotheses about things that *cannot be other than they are*, I would argue it is more critical to the world to create novel new hypotheses for things that *can be other than they are* – like economic growth, environmental sustainability, and peace and security.

To do so, we have to break the iron grip of science on the part of our world that for which mere

extrapolation of the past is ineffectual, for which the creation of a better future must be the goal. Part two of this column will introduce the American philosopher who provides a blueprint for a better way.