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Economics in Transition

Andrew Lo, *Adaptive Markets: Financial Evolution at the Speed of Thought*, Princeton University Press
Richard Bookstaber, *The End of Theory: Financial Crises, the Failure of Economics, and the Sweep of Human Interaction*, Princeton University Press
Roderick Floud, Santhi Hejeebu, and David Mitch, eds., *Humanism Challenges Materialism in Economics and Economic History*, University of Chicago Press

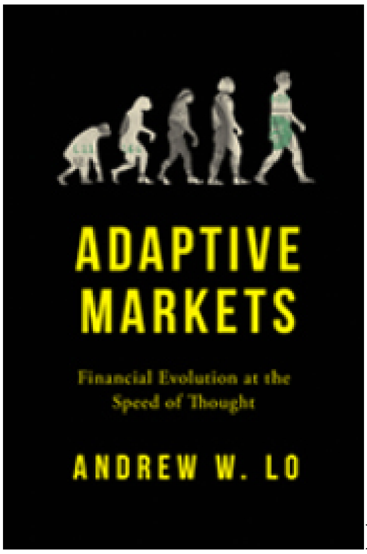
MANCHESTER – There seems to be no end to the tide of books criticizing economics, and – as I am an economist – it must make me something of a masochist that I keep reading them. The exercise is all the more wearisome as the criticisms are both repetitive and increasingly misdirected.

Not that everything about the state of economics is fine; far from it. But only if today's critics of economics pay more attention to what economists are actually doing will they be able to make a meaningful contribution to assessing the state of the discipline.

A Royal Doubt

Ten years on from the financial crisis of 2007-2008, two of the most recent books criticizing economics and economists start with the question posed by Queen Elizabeth II on a 2008 visit to the London School of Economics: "Why did nobody see it coming?" (Indeed, almost all the recent examples of this literary genre start the same way.) The essays edited by Roderick Floud et al, *Humanism Challenges Materialism*, and Richard Bookstaber's *The End of Theory* use Queen Elizabeth's royal puzzlement to insinuate that the entire subject of economics is fundamentally flawed: "If economists couldn't predict the biggest financial crisis in decades, what are they good for?"

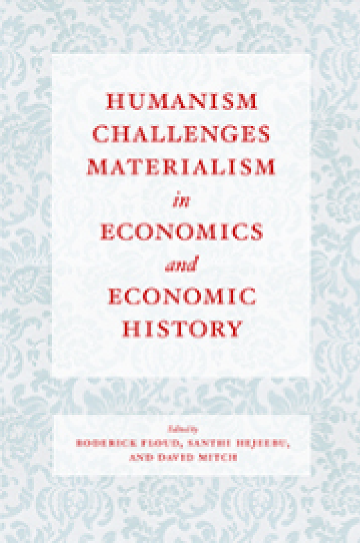
It’s a fair question, if posed as a challenge to the small minority of economists who try to forecast macroeconomic outcomes (like growth and inflation) and financial markets. Even so, a decade after the crisis, it might cross a critic’s mind to wonder if anything has changed.



It has. *Adaptive Markets*, by MIT’s Andrew Lo, gives a superb and fascinating account of thinking on the frontier of economics about financial markets; what’s more, Lo demonstrates exactly the kind of approach rooted in biology and psychology that Richard Bookstaber, who manages risk for the University of California’s $100 billion portfolio, advocates in the final part of *The End of Theory*, and exactly the kind of humanism and clarity celebrated in *Humanism Challenges Materialism*, a set of essays about the renowned economic historian Deirdre McCloskey.

Lo (a classmate of mine in graduate school) is a particularly gifted economist, but many others are doing work far removed from the version of the subject – prevalent in the 1980s – so often attacked by critics. Yes, economics needs to change, but it *is* changing – and has been since some time before the financial crisis.

To be fair, the introduction to *Humanism Challenges Materialism* acknowledges this: “Economics has taken on a much more behavioral turn,” the editors point out, and “something deeper is stirring.” The essays offer a range of perspectives on the work of McCloskey, long a dissident in economics for her insistence on the importance of values and norms in economic development, and on the role of rhetoric in economics itself.



McCloskey mocks what she calls “Max U” economics, which reduces individual humans to nothing more than maximizers of utility or profit – and cloaks the aridness of this approach in mathematics and spurious tests of statistical significance. At the same time, as the essay by her former pupil Steven Landsburg points out, McCloskey is a rigorous Chicago-trained economist whose laser-like logic can cut through woolly reasoning just as easily when it is expressed in stylish prose.

In their sympathetic chapter, Peter Boettke and Virgil Henry Storr claim McCloskey as an Austrian School economist because of her appreciation for markets as social institutions, embodying human interactions, rather than as abstract mechanisms fully knowable from algebraic models. Their point – that many economists ignore the fact that markets are a social phenomenon – is reasonable, though it seems worth pointing out that many economists who are not so blind do not label themselves as “Austrians.” Spend any time doing anti-trust work, for example, or working on design mechanisms for something like a spectrum auction, and you cannot fail to appreciate the human and social dimensions of markets.

Less appreciatively, Stephen Engelmann argues in his essay that, despite her (correct) awareness of the way economics uses rhetoric to disguise the importance of ethics and culture, McCloskey is as much a “neoliberal” as any Chicago fundamentalist. Indeed, Engelmann defines as neoliberal anyone who insists on economics or any social science as a practical rather than a theoretical (and hence ideological) discipline.

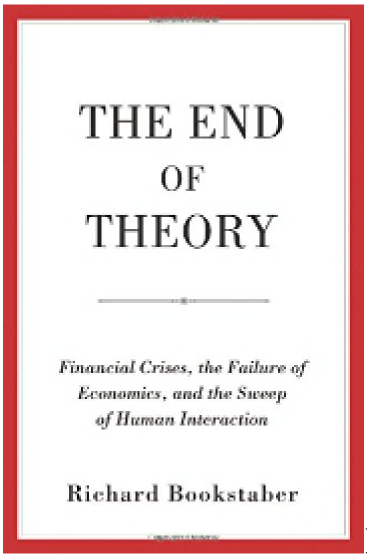
This of course makes *all* economists, from Paul Krugman to Eugene Fama, neoliberals, so it is hardly surprising that economists have no patience for the discourse of neoliberalism. Rather like Freudians who interpret any resistance to their perspective as a Freudian reaction in itself, political theorists like Engelmann see any resistance to their analytical framework as a manifestation of neoliberalism.

Within economics, interest in history and the role of culture and institutions has been growing for the past 20 or 30 years. It is now positively fashionable terrain. After years of being regarded as a maverick, McCloskey's standing is high, and her monumental *The Bourgeois Era* trilogy is generally acclaimed. Yes, many economists still think of institutions too abstractly – as a black box rather than a social reality – and economic history certainly must be restored to undergraduate and graduate curricula. But there has been a huge shift away from the reductionism of an older generation.

History Ignored

It is a shift to which Bookstaber has paid little attention. His critique is partly valid, at least as applied to macroeconomics and finance. Macroeconomic models in wide use before the 2008 crisis excluded financial institutions and relied on the fiction of "representative agents." This is changing all too slowly. The field is full of normative terminology, about "optimal" outcomes, for instance, without ever analyzing the implied value judgments. Mainstream macroeconomists are unwilling to admit there is little hard science in what they do – a stance that, in the name of promoting economics in public opinion, has undermined the profession's credibility.

Bookstaber is also right to point out that much macroeconomic modeling ignores the fact that economic time series are non-ergodic (a technical way of saying that their characteristic behavior can be completely different in different contexts or periods). History matters. While economists are well aware of this in theory (the possibility of structural change in the economy is usually labeled the "Lucas Critique"), the dirty realism of forecasting means that it is largely ignored in practice (although practice in this regard is improving).



But *The End of Theory* goes on to charge that economics has ignored behavioral psychology. In fact, behavioral economics is one of the most popular areas of the discipline now, among academics and students alike. Bookstaber also asserts that economists ignore the reality of complexity theory, network theory, and agent-based modeling. While these latter areas are not mainstream, not least because most established researchers have never learned the research techniques needed to apply these conceptual frameworks, they, too, are increasingly popular among younger academics.

Bookstaber himself is a practitioner of agent-based modeling as applied to financial markets, and his description of this approach in the latter part of his book is its most interesting section. Agent-based modeling involves computer simulations of economies made up of many individual "agents" behaving according to different specified rules or "heuristics." The model is given a set of starting values, and in each time period the many individual agents react to their new environment.

Thus, this approach places history and social influence at the core of its analysis. Such models do not produce forecasts of the kind central banks or investors use, but they do allow for realistic stories. In agent-based models, in contrast to the traditional kind, financial crises can happen.

The Mind of the Market

Andrew Lo's *Adaptive Markets* is a masterly synthesis of the traditional, rationality-based approach and new approaches based on psychology and neuroscience, evolutionary theory, and techniques such as computer simulations and artificial intelligence.

One of the most effective points made by advocates of Fama's now-notorious Efficient Markets Hypothesis is that it is in fact difficult to beat the market; profit-making opportunities are swiftly arbitraged away. And, indeed, Lo argues that when financial markets are stable enough for long enough, the rationality-based model is appropriate. But the moment there is any instability, human fear, greed, culture, behavioral norms, storytelling, and imagination kick in. The environment determines the way market participants behave.

As the title hints, *Adaptive Markets* sets economic behavior firmly in the context of the human sciences. Lo insists that economic theory must be consistent with evolutionary biology and neuroscience.

Lo agrees with many critics of economics that the discipline became trapped by physics envy in the second half of the twentieth century. Economists such as Herbert Simon, who suggested that humans "satisfice," or follow rules of thumb which normally work out fine (what would now be termed heuristics), lost out to Paul Samuelson, whose clean, abstract, elegant mathematics shaped the mainstream of economics for a couple of generations.

Perhaps future critics will single out "biology envy" as a trap, as well. In fact, what Lo advocates is a back-to-the-future turn. He points out that there has been great mutual influence between economists (Malthus, Marx, Veblen) and biologists (Darwin, Fisher, Haldane) in the past.

The test of the adaptive markets approach, though, must be how it helps to predict, avert, or respond to financial crises. McCloskey would surely approve of Lo's answer: the approach helps tell different stories. And the stories themselves will help shape behavior.

Financial markets need to be viewed – by investors and regulators alike – as an ecosystem. The lesson from biology is that systems require feedback loops in order to regulate themselves. Some researchers have lighted on economic examples: countercyclical fiscal policy is one; the new "macroprudential" tools, such as capital requirements that vary over the course of the business cycle, is another. Lo urges regulators to think of these feedback loops – literally – systematically, and proposes using network theory to map the whole of the financial regulatory system. Not surprisingly, the outcome of this exercise for the United States is not reassuring.

Lo has been advocating an evolutionary approach since 1986; in the book, he recalls a mid-1980s workshop at which he was savaged by fellow economists wedded to efficient market theory. Other evolutionary economists – as well as other mavericks who are now gaining a more respectful hearing – have also spent a long time in virtual exile within the profession. Yet their approach, along with other new tools and cross-disciplinary insights, is becoming increasingly widespread.

Redefining Mainstream Economics

Behavioral psychology, complexity theory, agent-based modeling and the like, along with historical narratives, an emphasis on institutions, methods such as randomized control trials and now big data and AI, are by no means a coherent new mainstream. It takes time to change curricula, and institutional inertia makes new approaches too risky and difficult for young economists seeking academic jobs and promotions.

Practicing economists outside universities do not keep up with the research frontier – although even here, useful tools such as behavioral economics, complexity theory, market design, and network theory are making significant inroads. Still, the economics taught in university departments, practiced in financial firms, and applied by policymakers remains heavily reliant on old-fashioned reductionist rational-choice models.

One might wish for faster change, for colleagues to turn away from their statistical packages and read more economic history, and for policymakers to appreciate that they are acting within a time warp. But the long era of hegemony for mainstream neoclassical economics is over. McCloskey's emphasis on ideas and values, as explored in *Humanism Challenges Materialism*, and the agent-based modeling advocated in Bookstaber's *The End of Theory*, are attracting growing interest in economics, along with a range of other approaches and techniques.

Lo's *Adaptive Markets* moreover, is a splendid example of the types of insights this healthy intellectual ferment can produce. Perhaps it will all be distilled into a new mainstream. In the meantime, critics of economics should drop their fixation with the past and maybe even cautiously welcome the uncertainty of the discipline’s future.

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