Economics After Neoliberalism

Economics needs to embrace a transdisciplinary approach.

MARCH 19, 2019

COMPLEXITY ECONOMISTS*

**Editors' Note: This response was cowritten by Eric Beinhocker, W. Brian Arthur, Robert Axtell, Jenna Bednar, Jean-Philippe Bouchaud, David Colander, Molly Crockett, J. Doyne Farmer, Ricardo Hausmann, Cars Hommes, Alan Kirman, Scott Page, and David Sloan Wilson.*

We welcome Naidu, Rodrik, and Zucman's contribution and the debate it has inspired. We share much of their agenda for an economics "beyond neoliberalism," in particular their emphasis on more empiricism, greater policy relevance, an increased focus on economic inclusion, and a broader notion of prosperity. We are also heartened by their calls to turn away from "market fetishism"; to reintroduce concerns about economic, social, and political power; and to take a more systemic, less siloed view of the economy.

What we call "the economy" is in fact a highly complex, multi-level system. It must be studied as such.

Nonetheless, we believe that Naidu, Rodrik, and Zucman do not go far enough in their calls for reform. The vision they paint is still focused on the discipline of economics and anchored in the core ideas of neoclassical theory that dominated the field in the twentieth century. We believe that in order for economics to progress, it needs to fully embrace a transdisciplinary approach and modernize a number of its key concepts.

Our backgrounds are in economics, political science, psychology, anthropology, physics, computer science, evolutionary theory, and complex systems theory. To us, the phenomenon called "the economy" is a highly complex, multilevel system that encompasses human biology, human behavior, group behavior, institutions, technologies, and culture, all mutually entangled in networks of nonlinear, dynamic feedback. Each of these levels in the system is subject to learning, adaptation, evolutionary, and coevolutionary processes, which means that the system is constantly changing, self-creating, and never at rest. These dynamics in

turn create system-level emergent behaviors, including economic growth, inequality, and financial booms and busts. The whole system, in turn, is deeply embedded in the physical processes of our planet.

This transdisciplinary perspective, sometimes referred to as "complexity economics," differs in a number of significant ways from the traditional perspective of economics. We will give three examples.

First, Naidu, Rodrik, and Zucman correctly note that the behavioral economics critique of the rational actor model has become mainstream. Yet despite this, much economic modeling, including much policy modeling, continues to use rational choice assumptions. There remains a perception that rational choice is a "good enough approximation" and that there is no acceptable alternative model—as economist George Stigler said, "it takes a model to beat a model." But if economists widened their view to include neuroscience, cognitive science, anthropology, social psychology, evolutionary biology, computer science, and philosophy, they would see that, over the last few decades, there has been a revolution in behavioral science that should have a major impact on economics.

The picture that this work paints of *Homo sapiens* looks almost nothing like *homo economicus*. Instead of asocial, transactional, self-regarding utility maximizers, real humans are intensely social, highly cooperative, and other-regarding creatures who make decisions inductively, heuristically, mimetically, and through group reasoning. Evolution has given us a repertoire of tools to help us successfully navigate life in groups: these include hormonal responses that trigger caring instincts; neural capacities that vicariously experience the welfare of others; and behavioral strategies for reciprocity, cooperation, and punishment of those who violate group norms. These emotions and behaviors have in turn coevolved with cultural norms, including our moral norms.

Economics needs to embrace what other fields have learned about behavior, networks, institutions, culture, evolution, and non-equilibrium systems.

A large body of empirical and experimental work shows that moral and social considerations strongly shape economic and political preferences. These preferences often do not align with standard economic views about self-interest, incentives, and "rationality." For example, many progressives have been stumped as to why so many of Donald Trump's voters would take

positions that appear to be against their so-called self-interest. Yet, to researchers studying moral psychology, Trumpian narratives on social spending, immigration, trade, and climate change all use a common frame of reciprocity violations that stimulates moral outrage and motivates collective behavior. The typical progressive strategy of appealing to self-interest (cuts in social spending will hurt you, immigration and trade are good for the economy, climate change is bad) is thus doomed to fail because people are not processing these issues in narrow self-interested cost-benefit terms, but rather as issues of moral fairness. Only when progressives begin addressing issues in those terms will they stand a chance of reconnecting with these voters.

A second example of how the complexity economics perspective differs is in its views on heterogeneity. Through most of the twentieth century, economics was primarily concerned with aggregate data such as GDP, productivity, and national income, and the resulting macro-economic models assumed that all of the households and firms in the economy can be summed up as "representatives." These models, which are still in use today, simply ignore heterogeneity. Differences are assumed to come out in the wash, while aggregates and averages are prioritized. Under this view, issues such as economic inequality might matter for social justice reasons, but not for economic reasons. It is not surprising then that both academics and policymakers were blindsided by the tectonic effects of the U-turn in U.S. inequality that began in the 1970s, and its eventual contributions to the 2008 financial crisis. Naidu, Rodrik, and Zucman correctly note that there has been a recent renaissance in work on inequality and many of the Economists for Inclusive Prosperity (EfIP) have made important contributions to this research. Yet much of this work is coming three decades after the fact, looking backward empirically and asking, "what happened?" Economics has yet to grapple with the harder question of how to integrate heterogeneity into its theoretical core and into the models used by policymakers to better answer the questions "why did it happen?" and "what do we do?"

In contrast, explicitly modeling heterogeneity is central to the complexity economics agenda. Borrowing tools widely used in physics, biology, and computer science (e.g., agent-based modeling, network theory, and techniques using micro-level data), researchers are able to model economic systems from "the bottom up"—starting with individual households or workers, fully capturing their key dimensions of difference. For example, how might a policy impact a low-income single mother of two who pays rent, versus a dual-earner, middle-income family with a child in college and a mortgage? And how might the same policy impact the overall macroeconomy? Such approaches have the potential not only to give deeper

insights into the causes of phenomena such as inequality, but also to bring political economy back into the heart of economics in a rigorous way.

With the standard economic view of climate change, we may optimize our way to mass extinction.

Finally, a third area of difference is the systems-level view of the economy. Economics has historically assumed that the economy is an equilibrium system—a system at rest. This is a legacy of the ideas and tools economists had available to them in the late nineteenth and early twentieth centuries, but we can do better in the twenty-first. Leading up to the 2008 crisis, for example, central banks used models that operated from the assumption of equilibrium, which made it far less likely that they would see the potential for disaster. In contrast, complex systems approaches can help identify endogenous systemic instabilities and inherent fragilities that can arise in competitive markets. Since the crisis, a number of central banks have been at the forefront in experimenting with non-equilibrium approaches for policy analysis.

An even more disturbing example is climate change. The standard economic view is to see climate change as a cost-benefit problem to be solved using optimization models that "internalize the externality" through carbon prices. This framing has led to an inbuilt bias for cautiousness and delay; as one physicist put it, we may optimize our way to mass extinction. Complexity economics provides an alternative framework. Instead of portraying the environment as an externality, it depicts it as a complex system embedded within the larger complex system of the environment. And it portrays the shift to a zero-carbon economy not as marginal, but as an epochal system transformation on par with the Industrial Revolution or the shift from hunting and gathering to agriculture. It is a problem that requires extremely rapid responses that go far beyond what the standard optimization models even consider, including major changes in our technologies, institutions, behaviors, and cultures. This is the mother of all disequilibrium problems and will require economists to work closely with other disciplines and be open to radically different ways of thinking.

Our point is to encourage the field to go further, faster.

While economists today do use a variety of models, they have historically been drawn from a fairly narrow methodological and conceptual toolbox. Naidu, Rodrik, and Zucman have already done much to broaden the bounds of this toolbox. Our point is to encourage the field

to go further, faster. Economics needs to embrace what other fields have learned about behavior, networks, institutions, culture, evolution, and non-equilibrium systems. To date the infrastructure of the economics profession—journals, funding bodies, hiring and tenure committees— has been largely closed to these ideas and approaches. If economics is to reform and move beyond neoliberalism, this needs to change. Only then will we witness the "creative ferment" that Naidu, Rodrik, and Zucman call for.