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Comment: Ravi Kanbur

Left Field Observations on the Information Revolution in Economics

There is no question that an information revolution has occurred in economics. And there is no question that Joe Stiglitz is a revolutionary leader. The classic papers in this literature bear the names of Stiglitz, Rothschild-Stiglitz, Stiglitz-Weiss, Shapiro-Stiglitz, Grossman-Stiglitz, Greenwald-Stiglitz, Newbery-Stiglitz, and so on.

And there is no question that development economics is closely entwined with the information revolution. The development context provided the spur for the theorizing and conceptualizing of Stiglitz, Akerlof, and others. The information revolution in turn has implications for development economics and development policy, including, for example: (1) share cropping and agrarian relations; (2) credit rationing, moneylenders, and microfinance; (3) asymmetric information and efficiency wages; (4) migration models; (5) commodity price stabilization; and (6) free trade and uncertainty, and many other topics.

So what can you say after Joe Stiglitz has given his account of the information revolution in economics? It is a bit like critiquing Fidel Castro's account of the Cuban Revolution, or taking issue with Dwight Eisenhower's narration of the D-Day landings. Commentary is particularly difficult when you agree with the revolution and the revolutionary on almost everything, and consider yourself to have been a foot soldier, having fought in the "risk taking and inequality" detachment of the revolutionary brigades.[1] So,

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1. See, for example, Kanbur (1979).

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what to do? To make the commentary somewhat interesting, I will come at the revolution from left field and pose some methodological questions for myself, for Joe, and for all of us to ponder.

Expected Utility Analysis

The core analytical tool in the information revolution armory has been expected utility (EU) analysis. As we all know, questions have been raised about the independence axiom that undergirds the EU representation of preference orderings. It is this axiom that allows the representation to be separable in a specific way between the utility of an outcome with certainty and the probability of that outcome. But individuals do not appear to behave according to this axiom, with research on this going back at least as far as the Allais paradox.

At one level, it is remarkable that so many features of the real world, like credit rationing or insurance market failures, can be explained with models in which agents are assumed to behave in a manner that they do not actually behave like in practice. And it may not matter methodologically, so long as the predictions of the models are not falsified by observations. But it does raise the question: How exactly would the iconic results of the classic models in the revolution survive without EU?

In all of the well-known exercises that establish the iconic results of the imperfect information revolution, we use EU. For example, in the classic Rothschild and Stiglitz (1976) paper on insurance, when we show that a pooling equilibrium can be broken by a separating insurance contract, and a separating equilibrium can be broken by a pooling contract, we use EU comparisons. In another classic (Stiglitz and Weiss 1981), when we show that credit rationing is an equilibrium for lenders, we use EU. And so on.

Could we construct these equilibria, or show nonexistence of equilibrium, if agents did not behave according to EU? My instinct is that we could. In the insurance context, for example, non-EU preferences might allow a wider range of contract offers, which could break an existing equilibrium. But the twist is that the candidate equilibrium would first have to be described in a non-EU frame. This is an open and interesting area for research. And note that it is not enough to argue, as Machina (1982) does in a famous paper, that EU works locally as a linearization—many of the results require global comparisons.

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Radical Uncertainty and Behavioral Economics

EU analysis, the foundation of Stiglitzian imperfect information analysis, is also confined to risk, where probabilities of outcomes are well defined and known, as opposed to uncertainty, where this is not the case (also known as Knightian uncertainty). Such radical uncertainty was well described by Keynes (1937, 213–214), in an article that introduced the conceptual foundations of the General Theory to American audiences:

> By "uncertain" knowledge, let me explain, I do not mean merely to distinguish what is known for certain from what is only probable. The game of roulette is not subject, in this sense, to uncertainty. … The sense in which I am using the term is that in which the prospect of a European war is uncertain, or the price of copper and the rate of interest twenty years hence. … About these matters there is no scientific basis on which to form any calculable probability whatever. We simply do not know.

Keynes (1937, 214–215) then goes on to develop the argument further, especially the implications of such radical uncertainty for behavior. Summarizing somewhat:

> How do we manage in such circumstances to behave in a manner which saves our faces as rational, economic men? We have devised for the purpose a variety of techniques, of which much the most important are the three following :(1)…… (2)….. (3) Knowing that our own individual judgment is worthless, we endeavor to fall back on the judgment of the rest of the world which is perhaps better informed. … Now a practical theory of the future based on these three principles has certain marked characteristics. In particular, being based on so flimsy a foundation, it is subject to sudden and violent changes. … At all times the vague panic fears and equally vague and unreasoned hopes are not really lulled, and lie but a little way below the surface.

These "behavioral considerations," as they would now be called, are not present in Rothschild-Stiglitz, Stiglitz-Weiss, Grossman-Stiglitz, and so forth. In all of those models, agents are rational choice EU maximizers with risk rather than uncertainty. This leads to a set of questions.

Does it matter that the models that describe so well outcomes in actual markets have models of individual behavior that are so far removed from reality? How different would the outcomes of those models be if agents in them followed the precepts of recent developments in behavioral economics rather than rational choice EU analysis? And would it matter for policy? I believe these are open questions for research and debate.

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Keynesian Interventionism or Burkean Conservatism?

Does imperfect information, particularly of the radical uncertainty variety ("We simply do not know"), make one tend towards Keynesian interventionism or Burkean conservatism? Keynes himself was greatly influenced by Edmund Burke. In an as yet unpublished[2] undergraduate essay (Keynes, 1904, 4–15), he lauds Burke's conservatism in considerations of war and other momentous decisions:

> Burke ever held, and held rightly, that it can seldom be right … to sacrifice a present benefit for a doubtful advantage in the future …; we should be very chary of sacrificing large numbers of people for the sake of a contingent end, however advantageous that may appear. … We can never know enough to make the chance worth taking.

The direct descendant of this line of thinking is Keynes's famous 1923 statement from his *Tract on Monetary Reform*: "But this *long run* is a misleading guide to current affairs. *In the long run* we are all dead." (Keynes, quoted in Skidelsky, 2013).

Skidelsky (2013) argues that "Keynes would have rejected the claim of today's austerity champions that short-term pain, in the form of budget cuts, is the price we need to pay for long-term economic growth. The pain is real, he would say, while the benefit is conjecture."

So far, so good. Radical uncertainty appears to favor such progressive positions as caution in launching wars and austerity programs. But from Burke's prudence principle also flowed an institutional conservatism, as made clear in a famous passage (quoted in Edlin 2017, 50) from Burke's *Reflections on the Revolution in France*:

> You see, Sir, that in this enlightened age I am bold enough to confess that we [the English] … instead of casting away all our old prejudices, we cherish them … and, to take more shame on ourselves, we cherish them because they are prejudices; and the longer they have lasted, and the more generally they have prevailed, the more we cherish them.

A modern version of this argument for conservatism is provided by Edlin (2017, 49):

> Decision makers suffer from switcher's curse if they forget the reason that they maintained incumbent policies in the past and if they naively compare rival and

2. Brief extracts from it are published in Skidelsky (2016).

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> incumbent policies with no bias for incumbent policies. I find that conservatism emerges as a heuristic to avoid switcher's curse. The longer a process or policy has been in place, the more conservative one should be. On the other hand, the more conservative were past decision makers, the more progressive one should be today.

Keynes (1904, 15) interpreted the Burkean recoil from revolution in his 1904 undergraduate essay: "We can never know enough to make the chance worth taking, and the fact that cataclysms in the past have sometimes inaugurated lasting benefits is no argument for cataclysms in general. These fellows, says Burke, have 'glorified in making a Revolution, as if revolutions were good things in themselves'."

This is not the place to develop the argument, and others have developed it as well, that an institutional conservatism was also deeply ingrained in Keynes, who wanted to save capitalism, not end it. Actually, what Keynes really wanted was to save the world of late Victorian and Edwardian England, which came to an end in 1914.

Conclusion

So, imperfect information in the form of radical uncertainty, and its consequent undermining of EU analysis, opens up a wide area of research, asking whether the classic Stiglitzian propositions will still hold in this brave new world.

Further, radical uncertainty can be the basis for either Keynesian interventionism or Burkean conservatism or, in Keynes's mind, both! In any event, so far as Joe Stiglitz is concerned, to paraphrase Keynes on Burke, "This fellow has glorified in making a revolution, as if a revolution was a good thing in itself." And there is no question that the information revolution has indeed been a good thing in itself. As a foot soldier in the information revolution, I salute our leader!

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The State of Economics, the State of the World

Edited by: Kaushik Basu, David Rosenblatt, Claudia Sepúlveda

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