Scrap the lot and start again

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Abstract: In the wake of the recent financial crisis heterodox economists have taken up a time-honored refrain and proposed to abandon the axiomatic method. The present paper argues that this proposal is self-defeating.

An economic crisis is always a crisis of economic theory – of mainstream economics, to be sure – and the latest financial crisis is no exception. This is the day of reckoning for the heterodox camp and, of course, rightly so for quite different reasons. The heterodox economists, though, have a crisis of their own design. That there must be something better than current mainstream economics, all are agreed (including the neoclassical economists), but this consensus is accompanied by a bookshelves-filling disagreement about diagnosis and remedy. Regrettably the better theory is not available when the next crisis hits. Let us take Keynesianism as a case in point.

The Keynesian Revolution was intended as both, a radical change of economic policy and a groundbreaking paradigm shift (Coddington, 1976). Keynes left no doubt about the scientific scope of the *General Theory*:

> The classical theorists resemble Euclidean geometers in a non-Euclidean world (…). Yet, in truth, there is no remedy except to throw over the axiom of parallels and to work out a non-Euclidean geometry. Something similar is required to-day in economics. (Keynes, 1973 p. 16)

Keynes's main concern was not market or policy failure but theory failure. He envisioned nothing less than a 'complete theory of a monetary economy' (Keynes, 1973 p. 293). While clearly aware that this at the same time required a consistent set of some kind of non-Euclidean axioms, Keynes had no desire that the particular forms of his 'comparatively simple fundamental ideas (…) should be crystallized at the present state of the debate' (cited in (Rotheim, 1981 p. 571)).

There remained a huge gap between Keynes's verbalized theory and its formal basis. His conceptual groundwork consists in the main of the well-known equations $Y=C+I$ and $S=Y-C$ (Keynes, 1973 p. 63). This formal basis is too small and on no account general. The palpable incongruence left too much room for interpretation and precipitated the lengthy dispute about 'what Keynes really meant'. Some observers felt that this question was beside the point:

> L'intuition de Keynes lui a fait sentir où se trouvaient les difficultés, mais son insuffisance logique ne lui a pas permis de résoudre les problèmes que son intuition lui avait fait entrevoir. (Allais, 1993 p. 70), see also (Laidler, 1999 p. 281)

Whatever the reasons, the Keynesian camp failed to rectify the incongruence in a satisfactory manner. What we had, then, before the latest financial crisis occurred, was, roughly expressed, a perfectly formalized neoclassical theory with no real-world content on the one hand and an assortment of plausible down to earth approaches with no sound − not to speak of a common − formal basis on the other.

Referring to the crisis Leijonhufvud summed up:

The most important lesson from the life and work of John Maynard Keynes may be that the macroeconomist should start from the important problems of the day. (…) There are some things that Keynes would not have us do. He would not have us try to deduce how the world works from a small set of doubtful 'axioms' about tastes and technologies. (Leijonhufvud, 2009 pp. 741-742)

True enough, Keynes, and most economists since the Middle Ages, started from the problems of the day. But Keynes was aware that his policy proposals were already popular in the economic literature of the 1930s (Laidler, 1999 p. 10) and that without a theoretical foundation his pleas for the alleviation of unemployment would not be essentially different from a soap-box speech. Reinforcing the methodological consensus since Adam Smith (Hollander, 1977), (Stigum, 1991 p. 4) Keynes aimed at the premises of orthodox economics:

> For if orthodox economics is at fault, the error is to be found not in the superstructure, which has been erected with great care for logical consistency, but in a lack of clearness and of generality in the premises. (Keynes, 1973 p. xxi)

True again, Keynes rejected the orthodox set of axioms; but not the axiomatic method. The *General Theory* is the attempt to reconstruct economic theory from entirely new premises and the lesson from this unfinished venture is that it is not self-evident how to replace a small set of doubtful axioms. It needs more than a start from the problems of the day.

From the fact that something went wrong with neoclassical axiomatization (Hudson, 2010 p. 54) it does not logically follow that:

> Economics can't be a "Euclidean" science. It reduces it to a logical axiomatic system in applied mathematics, with little bearing on real economies. (…) It is better to admit there are "things we don't know we don't know" and that therefore the future is uncertain in ways we don't know. (Pålsson Syll, 2010 pp. 43, 47)

Lack of knowledge had been a serious concern since Socrates; and Euclid was not much occupied with predicting the future. But all this did not inhibit the utilization of his method from 300 BC onwards. It not always met with success, to be sure. The crucial point is not axiomatization *per se* but the choice of axioms. As Clower put it:

> My opinion continues to be that axiomatics, like every other tool of science, is no better than its user, and not all users are skilled. (Clower, 1995 p. 308)

As things stand now neither neoclassical nor Keynesian economics possess a qualified axiomatic basis. The point at issue is the real-world content of axioms and a realistic understanding of what the axiomatic method can accomplish.

For a paradigmatic case let us briefly return to Euclid and the Pythagorean Theorem. With a known baseline and two known angles one can calculate the unknown and not directly measurable distance to the moon. In physics a theorem is used as a calculating device (Georgescu-Roegen, 1971 p. 332). The usefulness of theorems is beyond question.

The *application* of a theorem, however, implicitly introduces a new claim. The first claim is that the Pythagorean Theorem is $true_1$, i.e. formally correct. By applying it to calculate the distance to the moon it is tacitly assumed that earth and moon are located in Euclidian space which is quite *another* claim that may or may not be $true_2$. While $true_1$ refers to the axioms, $true_2$ refers to reality. Only when the properties of the space that is formally given with

the axioms happen to be those of real space will the calculation of the distance yield the correct result. By innocently applying the Pythagorean Theorem we therefore implicitly make the really strong claim that the Euclidean axioms capture reality. If this happens to be the case, and as far as we know it does in the earth's vicinity to a satisfactory degree, then $true_1$ and $true_2$ amalgamate. Under this condition a theorem can be applied as a calculating device that enables valid inferences from known facts to unknown facts. The process is cumulative.

From this follows that rationality, perfect foresight, or individualism cannot be declared as axioms (Kirman, 2009 p. 81). The axiomatic method is neither a device for the prediction of human behavior nor for the production of infallible truth. The 'garbage in, garbage out' rule applies and this conservation principle is the reason why the axiomatic method is indispensable. At the very least it helps to impede policy proposals that are *logically* defective. $True_1$ is necessary but, of course, for an empirical science this is not sufficient. $True_2$ is also required. The axiomatic method does not entail the promise of a free lunch.

J. S. Mill clearly enunciated the question that stands at the beginning of any and every scientific inquiry:

> What are the propositions which may reasonably be received without proof? That there must be some such propositions all are agreed, since there cannot be an infinite series of proof, a chain suspended from nothing. But to determine what these propositions are, is the *opus magnum* of the more recondite mental philosophy. (Mill, 2006/1843 p. 746), original emphasis.

Axioms are no dogmata, neither are they arbitrary. The specifics of the subject matter determine the specifics of the tool. Methodology does not compel anybody to accept vacuous behavioral assumptions as axioms. Heterodox economists are free to 'scrap the lot' (Joan Robinson quoted in (Harcourt, 2010 p. 50) be it neoclassical or Keynesian or, yes, heterodox. This, however, is only the preliminary part of the opus magnum.

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