Philosophy of economics

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In this monograph, Don Ross argues for a highly original view on economics vis-à-vis its immediate neighboring disciplines, that is, psychology and sociology. Ross develops his view on economics as a discipline distinct from and irreducible to psychology (Chapter 4), and argues to the effect that instead economics should be seen and practiced as unified with sociology or social science in general (Chapter 5). This focus on interdisciplinarity is motivated by the author’s particular view on the naturalized philosophy of science (Chapter 1), and his proposal is supported by the analysis of the historical and contemporary developments in economic theory, methodology, and technology (Chapters 2 and 3). Because covering the whole of his overwhelmingly rich discussion would go beyond both the word limit and my expertise (mostly in behavioral economics), this review highlights the main line of arguments concerning the interdisciplinary relations between economics on the one hand, and psychology and sociology on the other. I will comment on specific points as I go along, but I hope these comments won’t distract the reader’s attention too much.

In Chapter 1, ‘Philosophy of Economics as Philosophy of Science,’ Ross confronts head on questions that bother any conscientious philosopher of science who regards herself as a naturalist: What is philosophy of science for? What added value can a philosopher of X create that a scientist in discipline X cannot? The author concludes that ‘There is no useful mission for the philosopher of economics to perform that an economist could not in principle perform at least as authoritatively’ (p. 6), based on his discussion on the futility of conceptual analysis of scientific theories in general. Ross then identifies a cognitive niche that philosophers of science can still occupy. That is a job of providing ‘a general picture of how the innumerable kinds of processes in the world . . . “fit together” into a coherent whole’ (p. 6), which many people want – ‘why shouldn’t we want that?’ (p. 12) – but which specialized scientists as well as historians of science lack incentives and skills to offer in a systematic manner. Hence, his characterization of the ideal philosopher of science as ‘a speculative, forward-looking historian of science with a special focus on interdisciplinary unification’ (p. 13). (Note that Ross talks specifically about interdisciplinary unification. His unification problem here is of epistemic, not ontological, kind.) This is in effect what he does in the rest of the book.

In Chapter 2, ‘Economics and Its Neighbors before 1980,’ Ross provides an internal, historical overview of the development of modern economic theory, primarily as a separation from the psychology of individual valuation, in order to prepare for one of the main theses of the book, namely, that the primary subject matter of economics is markets, distinctly aggregate-scale phenomena irreducible to individual decision-making. In this chapter, Ross points out two problems of external critics of economics such as some psychologists and philosophers of economics. One is that they tend to identify economics with what Ross calls ‘high theory’ that aims at discovering general properties of abstract model markets, without paying due attention to ‘varying purposes to which economic
theory and analysis are put’ (p. 76). The author points out that this causes a confusion in
the discussion of revealed preference theory (RPT), where the mathematical exercise of
applying the strong axiom of revealed preference (SARP) to hypothetical patterns of
infinite choice data is conflated with the empirical application of the generalized axiom of
revealed preference (GARP) to finite choice data (Ross credits Hands (2013) for noticing
this). Another example is a similar one of failing to distinguish the formal proof of the
general equilibrium result by Arrow-Debreu from economists’ applications of partial
equilibrium analysis to concrete markets. Ross tries to correct this bias by discussing
various versions and uses of equilibrium analysis in economics. The second problem is
that critics base their criticism of economics on their common-sense understanding of
notions such as preference as an inner mental state and choice as a deliberate decision-
making process, whereas the scientific notions of preference and choice in RPT are not
grounded on or reducible to such folk notions, and should not be (see also Section 4.8).
Ross points out that this ethnocentrism causes critics to spend too much time analyzing
and criticizing \textit{homo economicus}, ‘the supposed star player of neoclassical economics’
(p. 61) who is not proportionally featured in the majorities of economists’ practice. These
two objections to critics of economics – namely the exclusive focus on ‘high theory’ at the
cost of ignoring actual scientific practice, and the ethnocentrism of folk concepts – show
that Ross advocates the recent movement called \textit{philosophy of science in practice},
although he does not mention it anywhere in the book.

Chapter 3, ‘The Expansion of the Economic Toolbox,’ continues the historical
narrative about the internal development of economic theory, starting where it ended in
Chapter 2. The basic story is that the crises in economic theory caused by the stagflation in
the 1970s gave rise to the lasting controversies on rationality and microfoundations of
macroeconomics. But instead of a Kuhnian revolution that would have thrown RPT and
equilibrium analysis into the historical bin, decision theory and game theory deepened
these approaches, respectively. That is, they provided economists with general theoretical
foundations and technical apparatuses for studying markets’ role of processing
information at aggregate scales, and more generally institutions’ role of coordinating
expectations and behaviors of agents with asymmetric information (Hayek is depicted as
the first economist who, preceding these developments, clearly articulated the workings of
markets as the main subject matter of the discipline). Ross carefully distinguishes
individualistic and non-individualistic interpretations of decision theory and game theory,
trying to show that the latter interpretation is more consistent with their applications in
economics. Regarding decision theory, he points out that economists use Savage’s
decision theory as a statistical theory of incentivized choice in varying market structures,
while philosophers’ and psychologists’ interests lie in its use as a theory of individual
decision-making under risk. Ross also distinguishes game theory as a study of the
unintended consequences of individual choices, from it as a model to represent
information asymmetries at multiple scales of agent aggregation, and demonstrates in
detail how it is successfully used in the latter way (Sections 3.6, 3.8–3.11). These sections
provide a condensed but informative introduction to the recent developments in game
theory as a technology to study markets and institutions, rather than as a formal normative
theory of strategic rationality that philosophers are more familiar with. In the discussion of
expected utility and risk preferences (Section 3.7), Ross provides crucial evidence for the
non-individualistic use of decision theory in a particular practice by economists. That is,
when estimating a given population’s risk attitudes, economists can treat aggregate pooled
choice data, rather than sets of choices associated with different individuals, as the data
against which models are estimated. They can also assume more than one utility function
(e.g., rank dependent expected utility function in addition to the standard expected utility function) in the data generating processes, and statistically estimate the distribution of these functions in the population with maximum likelihood. Crucially, this measurement practice does not assume that a person is a utility function because not only does the model allow different people to have different risk attitudes, but it also allows the same individual to manifest different risk attitudes across different contexts. In other words, the (mixed) utility functions represent data generating processes at an aggregate scale irreducible to individual persons as utility maximizers (the same point is revisited in the discussion of intertemporal choice in Section 4.7). Although this is an important counterexample to the view of economics as a study of individual decision-making, it seems undeniable that many behavioral economic studies are more compatible with the individualistic view. Ross’s response is that those behavioral economists are engaging in the psychology of individual valuation, not economics. But isn’t this simply a terminological or sociological problem of interdisciplinary demarcation?

The answer defended extensively in Chapter 4: ‘How Economics and Psychology Differ’ is No, it’s an issue of substantial normative methodology. Ross first sets the ground by formulating the argument sketch by ‘anti-establishment’ behavioral economists and neuroeconomists as follows: (1) economists have historically based their models on the assumptions of rational individuals (consistent, far-sighted, motivated by material gains, with full computational capacity, etc.); (2) but new psychological and neuroscientific evidence shows that most people are boundedly rational or irrational; (3) this descriptive gap explains economists’ failure to anticipate the recent economic crisis, and thus calls for a radical revision of the entire economic theory (end of the sketch). Given this argument, it seems that mainstream economists cannot escape the accusation of dogmatism if they do not at least explicitly incorporate bounded rationality in their models of choice. Ross, however, argues that this does not follow for both empirical and methodological reasons. First of all, he tries to undermine the empirical grounds of premise (2) by pointing out methodological flaws in experimental and statistical designs that cast serious doubt on the validity of some of the most celebrated results in behavioral economics such as loss aversion and hyperbolic discounting (Sections 4.3 and 4.7). Second, the variables economists should be interested in are aggregate data – such as market prices and manufactured exports – that are sensitive to changes in relevant incentives (e.g., shifts in opportunity costs). This in effect defines the economic concept of ‘choice’ as necessarily consistent such that its aggregate patterns are discernible with revealed preference techniques such as GARP. Importantly, however, Ross’s methodological stance is self-consciously distinct from that of behaviorists (e.g., Gul and Pesendorfer), who deny the relevance of latent psychological processes such as various cognitive biases by assuming a priori that these biases will be cancelled out at the aggregate scale so that economists can conveniently ignore them. On the contrary, Ross’s stance – which he calls neo-Samuelsonian – acknowledges causal relevance of latent psychological processes, but allows them in a model only to the extent that they can be represented as a statistical distribution of variations of expected utility functions. This methodological dictum is based on the mixture of practical and theoretical considerations: Ross claims that this aggregate scale of representation is better suited for both understanding and intervening in markets than the psychologist’s scale of analysis, which instead performs better at explaining and changing behavior of particular individuals. Here the reader might complain that the author doesn’t properly address the possibility that behavioral (i.e., non-utility function based) explanations of and interventions in various anomalies at aggregate scales such as nudges can be successful and effective where people’s cognitive biases for
example are sufficiently homogeneous in a given target group, be they India’s poor farmers or college students in developed countries. Perhaps this suggests that a more important reason for Ross to demarcate economics and psychology as he does is theoretical generality. He states as follows in the discussion of frugal heuristics:

if we conceptualize economics as the enterprise of seeking general knowledge about markets, then it is difficult to see how we might be led to more powerful economics by basing it on a research track within cognitive science that explores a problem which likely lacks even a relatively general solution, either theoretical or instantiated [i.e. the frame problem of how a cognitive agent chooses the frame that specifies the relevant problem domain]. (p. 214)

But this makes me wonder if the practical choice of scale of analysis might be in itself a special instance of the frame problem. What I mean by this is that, although Ross rightly identifies both ends of the scales of social reality, namely socially isolated individuals (or even brain parts or neurons) on the one end and the whole economies on the other, there is a wide range of scales in the middle that practitioners can choose from. It also has to be mentioned that it is behavioral economists, not typically psychologists, who refine the latent psychological processes as stylized utility maximization models, which are needed for neo-Samuelsonians to econometrically estimate the heterogeneity with respect to these functions. This way behavioral economists function as mediators who translate psychological models of cognitive processes underlying individual valuation into utility models that economists can integrate into their analysis of markets. I see here a cognitive division of sub-disciplinary labor rather than rival paradigms’ competition for the right way of doing economics.

Chapter 5, 'Economics as a Social Science,' continues the theme on the irreducibility of economic phenomena to individual decision-making. Ross first draws on Hildenbrand’s (1994) model in which the law of demand (monotonicity of demand functions) is implied by the population-scale property (increasing spread of household demand) alone, which illustrates Ross’s point that economic models can be completely devoid of individual-scale elements, although some models usefully incorporate psychological elements (Section 5.1). Ross goes further on to claim that no adequate model of an economic phenomenon is devoid of aggregate-scale elements. Although the necessity of aggregate-scale elements in any economic model is more difficult to demonstrate than the possibility of an economic model without individual-scale elements, it is the former thesis that is the main focus of this chapter. And this concern naturally leads to the discussion of macroeconomics, or more specifically business cycles, the topic Ross suggests philosophers haven’t paid due attention preoccupied with an analytic theory of demand aggregation (Section 5.2). He first forcefully criticizes Akerlof and Shiller’s (2009) explanation of the recent economic crisis as the manifestation of individual irrational psychology. Ross then offers his favorite game-theoretic explanation, in line with Frydman and Goldberg (2007, 2011), that asset markets periodically crash because of the coordination asymmetry between risk-averse and more risk-tolerant investors. This example again illustrates how a specific kind of heterogeneity (of risk attitudes in this case), not individual psychology, is responsible for aggregate-scale market results. Ross, however, then makes an important concession that, while it is sometimes possible to model an economic phenomenon without individual psychology, economic models alone are unlikely to capture the whole aggregate-scale causal factors, such as population demographics and technological changes. These two factors are preconditions for the regularities in capitalist economies that economists model (Section 5.3), which means that they are causally relevant to economic phenomena but exogenous to economic models. The good news though, Ross continues, is that these two factors that have traditionally been studied by sociologists and other social scientists with a
distinctively narrative approach can now be studied with more scientific rigor, thanks to
the developments of more powerful computers and econometrics. And this and other
technological advancements end the contingent methodological divide between
economics and sociology, finally unifying them as a social science. Ross addresses
sociologists’ two concerns. First, isn’t economics narrowly about markets of equal
exchange while sociology deals with broader social phenomena including relations with
power inequality? Ross’ reply is that economists’ notion of ‘exchange’ covers unequal
exchange outside markets and that in any case game theory does not presuppose players
with equal power. Second, doesn’t economics deal with actions based on narrowly defined
self-interests, while sociology with rule- and norm-based behavior? Ross denies this
dichotomy by highlighting recent theoretical developments that enable economists to
model group-oriented choice within game theory, namely Sugden-Bacharach theory of
team reasoning and Stirling’s (2012) theory of conditional games (Section 5.5). The author
favors the latter for its formal congruence with equilibrium analysis and revealed
preference approach, criticizing the former as a model of individual reasoning
processes. Although this contrast is probably more nuanced than he emphasizes given the recent
developments in the theory of team reasoning (see Tan and Zizzo 2008; Smerilli 2012;
Capraro 2013), the discussion painstakingly illustrates another case where the distinction
between individualistic and non-individualistic interpretations of game theory becomes
relevant in scientific practice (mostly theoretical here).

Philosophers interested in interdisciplinarity might complain that Ross provides no
clear analysis of the concepts such as ‘integration’ and ‘unification,’ and he sometimes
indeed seems to mean different things by these terms in different contexts. But the author’s
strategy to exemplify these notions in concrete and detailed cases, instead of analyzing
them, fruitfully produced a highly original philosophical defense of economics as a social
science against the recent popular behavioral economics discourse. In doing so, Ross has
set the new standard for those philosophers of economics who want to take scientific
practice seriously. The book also implicitly poses a methodological challenge for the
philosophy of economics in practice, namely, how can a philosopher systematically and
reliably gain deep insights into economic practice without being a practicing economist
herself like Ross is? Although Ross does not offer concrete methods for this, he proposes a
couple of precepts. The first one is what philosophers call a principle of humanity:
a philosopher ‘should ask herself whether she can construct a more defensible alternative
motivation for the economist’s practice’ (p. 114) when the economist defends it based on a
philosophically naïve metaphysics (or epistemology). The second is analogous to the Latin
maxim: ‘Any philosopher accusing a scientist of confusion always holds an extremely
demanding burden of argument, to which she should expect the criticized scientist to hold
her responsible’ (ibid). I think we should adopt these precepts before jumping on the
behavioral bandwagon to ridicule economists’ practice.

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References

Bowles and Gintis have written an excellent book that collects many years of work on an exciting topic. Even if much of the material has been presented elsewhere before, the synthesis offered here makes for an exciting read, for a number of reasons. First, the hypotheses the authors defend are controversial, ranging from their claim that genuinely altruistic motives are important determinants of contemporary human behaviour, to their hypothesis that the origin of these altruistic motives lies in Pleistocene inter-group conflicts. Second, the authors largely proceed through modelling, using a wide range of templates from economics and biology. Thus, although the topic of this book falls somewhat outside of the traditional domain of economics, its methods are of strong interest to economic methodologists. Third, these methods get even more interesting because the authors are serious about evidential support for their hypotheses, despite the obvious difficulties in providing evidence for prehistoric social properties. They draw on a wide range of interdisciplinary data, and show great ingenuity both in integrating this data as well as in finding ways to relate it to their isolating and idealizing models. Consequently, this book should be required reading for any economic methodologist working on modelling or evidence integration.

Social preferences

In many interactions, people exhibit behaviour that seemingly contradicts assumptions about their exclusively self-regarding motivations: proposers in the ultimatum game typically offer 50%; participants in public goods games repeatedly contribute on average about half their private account in round one and observers of the dictator game punish selfish proposers at their own cost. Bowles and Gintis take these observations as evidence