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Review of Andrew M. Yuengert's *Approximating prudence: Aristotelian practical wisdom and economic models of choice*. Palgrave Macmillan, 2012, 246 pp.

RICARDO F. CRESPO
IAE (Universidad Austral) and Universidad Nacional de Cuyo

Although it may sound paradoxical, this is a *positive* book about the *limitations* of economics. All sciences necessarily simplify. Sciences try to think deeply about their subjects, and to think we need to put away the details and concentrate on the essence of our subject. However, we do not tend to think about what we have put away. This is important because it can happen that, forced by the requirements of tractability, we put away relevant 'details'. Yuengert shows in this book that economic modeling undertakes only a partial analysis of economic action, because it 'puts away' interesting features of its subject that deserve to be taken into account. He proposes adopting the Aristotelian account of human action—more specifically, of practical wisdom—as the benchmark against which to consider economic modeling. He maintains that "economics can learn much about its limits from Aristotle, who describes aspects of choice behavior that cannot be precisely modeled" (p. 3). Thus, the aim of the book is to determine what aspects of human behavior cannot be captured by the economists' models. In this task, Yuengert has the advantage of being a well-informed and up to date academic economist: an economist talking to economists. He knows the current literature on economics' new perspectives, from behavioral economics to neuro-economics to economic sociology. And he provides technical examples familiar to economists. Yuengert has also has the advantage of having studied philosophy with the aim of enlightening economics. Thus he is able in this book to present philosophical concepts and arguments in a way that economists can appreciate.

Chapter 1 introduces the book. Chapter 2 justifies the need to compare economic modeling with the Aristotelian philosophy of action. The fact that economists consider that models are approximations implies that there is a difference between models and a 'background account' of actual choice. This chapter carefully analyses why the

traditional economic optimization model is insufficient to solve complicated decision problems in the face of pervasive uncertainty, and argues for the need to incorporate a form of reasoning other than the instrumental. We need, Yuengert maintains, a comprehensive view of human choice acknowledging—as the economists claim—that economic agents act intentionally, for reasons. Yuengert takes reasons as causes in the context of a free human agent. It also presumes that human rational decisions are not only calculative, that instrumental rationality does not exhaust rationality. Such concerns lead directly to the Aristotelian theory of human action.

Chapter 3 introduces the Aristotelian concept of practical wisdom (or 'prudence'). This human capacity integrates human reason, emotion, habit, and instinctive traits, to make decisions in a non-deterministic way. Yuengert develops the differences between practical wisdom and technique. While practical wisdom deals with both means and ends, technique only deals with the means to attain *given* ends. That is, for technique ends are fixed and external, while for practical wisdom they are dynamic and internal. The differences between practical wisdom and the logic of constrained optimization—technique—can already be discerned, and they are developed in the following chapters.

Chapter 4 makes a comparison between well-behaved objective economic functions and the Aristotelian explanation of action. One problem with the economic concept of the utility function is that in real life preferences are not given—they are dynamic and discovered in the very process of acting. We do not start off with a set of well-behaved preferences and then act; means and ends are mutually determining each other *while* we act. Yuengert carefully shows how this complex interaction of means and ends cannot be grasped by cost-benefit analysis techniques. Another problem is the incomparability of our ultimate ends, which leads to incompleteness in preference orderings. The homogenous concept of utility is inadequate for such cases.

A minor point to note in chapter 4 is that Yuengert adopts a specific interpretation of Aristotle's concept of *eudaimonia* (a word often defectively translated as 'happiness'). There are two main interpretations of the meaning of Aristotle's *eudaimonia*. The 'inclusive view' of *eudaimonia* promoted by John Lloyd Ackrill (1980) and adopted by Yuengert holds that *eudaimonia* is an inclusive end composed or

constituted out of defined "second order" ends.[1] It is more practically oriented. The other interpretation, by Richard Kraut (1989), maintains that *eudaimonia* is a dominant end different from second order ends. Second order ends are sought not only for the sake of themselves but also always for the sake of the *eudaimonia* to which they are subordinated, but for which they are not always necessary. This view is more oriented to theoretical contemplation than practical action. For example, a sick person might also be *eudaimon* in this account: it all depends on how she copes with her illness.

Aristotle leaves room for both interpretations. In effect, in his *Nicomachean ethics* he develops an account of the virtues leading to *eudaimonia*. But at the end of the *Ethics* he makes clear that a 'perfect' (*teleia*) *eudaimonia* is a contemplative or theoretical activity (*Nicomachean ethics* X, 7, and 8). However, these two versions of *eudaimonia* are compatible, especially when considering them in the wider context of Aristotle's thought: there are some people called to practical life and others called to theoretical life, and there might also be different stages in life which call for one or the other. Both virtues and material goods are necessary for both kinds of *eudaimonic* lives. Yuengert, as I mentioned, declares that he adopts Ackrill's position, but in fact he also seems to follow Kraut's when he asserts that *eudaimonia* is not contained in the second-order ends, but in their ordering (p. 53).

Chapter 5 outlines the difference between the Aristotelian concept of contingency—the singularity of human actions—and the economic concept of uncertainty. Much depends here on what concept of uncertainty economics adopts. Mathematicians and economists have generally tried to avoid contemplating the contingency of future events. Only a few economists have warned about the unavoidability of contingency in many fields: Frank Knight, John Maynard Keynes, George L. S. Shackle, and Friedrich von Hayek. In 1921, Knight distinguished risk—where there is an objective probability and it is known—from subjective probability—where there "is no valid basis of any kind for classifying instances" (Knight 1921, 225). Keynes expressed

[1] We can distinguish between a) ends that can be considered only as means, only pursued for the sake of something else (first-order or instrumental ends), b) ends that are desirable in themselves and also pursued for the sake of some other final end (second-order ends), and c) ends which are only desirable in themselves (third-order or final ends: usually known as *eudaimonia* or 'happiness'). For example, we study for an exam (i.e., a means to a first order instrumental end) in order to achieve graduation (a second-order end), in order to be happy (a final end) according to our plan of life (designed by practical reason).

this in a very similar way in his famous 1937 paper: "about these matters there is no scientific basis on which to form any calculable probability whatever. We simply do not know" (Keynes 1937, 113).

Yet, despite the inapplicability of probability calculations to such matters, people need to act, and they do use probability estimates in deciding what to do. Though this appears rigorous, it is not. This process has nevertheless acquired a scientific character thanks to the mathematical talents of people like Frank Ramsey, Bruno de Finetti, and especially Leonard Savage. Savage (1954) argued that people behave *as if* they have a subjective *a priori* belief about the probability of future events, and that this can be discovered through the empirical examination of people's decisions *a posteriori*. This move distorted Knight's concept of uncertainty. What was purely subjective for Knight, or uncertain for Keynes, became 'objective' for Savage (he called it the "personalistic theory of decision"). Savage's proposal became expected utility theory, the dominant paradigm of contemporary economic decision theory.

Yuengert considers Knightian uncertainty to be compatible with the Aristotelian concept of contingency. However, he does not take into account one possibility considered by Aristotle that would partially overcome the extreme difficulty of dealing scientifically with singular facts. Aristotle distinguishes between three classes of facts: necessary facts which always occur in the same way; general facts which mostly occur in the same way; and accidental facts which scarcely ever occur in the same way (*Physics* II, 5, 196b 10ff. and *Metaphysics* VI, 2, 1026b 27ff.). The exact sciences deal with the first category, physics and practical sciences with the second, and the third cannot be the subject-matter of any science. "General facts" are *hos epi to polu* (those which occur in many cases, but not of necessity or always). This is an expression not only used in the quoted passages from the *Metaphysics* and *Physics*, but also in the *Nicomachean ethics* (I, 2, 1094b 21), in reference to the practical realm. Given that, by definition, statistics deals with general facts, it is clear that it cannot be an exact science in Aristotle's sense. This does not imply its weakness, but rather the need to adjust our expectations of it to the nature of its subject-matter. Nevertheless, this inexactness is of a different kind to the inexactness that comes with dealing with singular cases.

This leads me to note that this book does not consider Aristotle's account of practical science, which is different from his practical

wisdom.[2] Aristotle thought that there were some regularities in the human realm that could be the object of a science, though an inexact one. In fact, Yuengert implicitly refers to practical science, for example when he praises case-based decision theory (e.g., Gilboa and Schmeidler 2001), in which economic agents cope with contingency by relying on memory and looking for similarities between cases. However, if Yuengert had explicitly considered Aristotle's practical science, he would have found fewer difficulties with economics. As Aristotle's ethics and politics demonstrate, it is possible to build an inexact science of tendencies. It is true, as Yuengert explains excellently, that Aristotle's remedy for contingency is based on the virtues. However, I think that this does not exclude the possibility of a positive account of generally repeated conduct.

Chapter 6 returns to virtue. After explaining the Aristotelian concept and characterization of virtues, Yuengert presents four types of human conduct: 1. the virtuous, 2. the continent, 3. the incontinent and 4. the vicious. If we only observe the external outcomes, the first two (1 and 2) and the last two (3 and 4) are indistinguishable, but in 2 and 3 there is an internal conflict. Virtue helps to overcome the conflicts of the continent and incontinent actors. Yuengert notes that recent economics research into addiction, behavioral economics, human capital and time inconsistency models try to take this internal conflict into account, and he explains why they not fully achieve that. While the synthetic character of practical wisdom can address the problems identified in this and the preceding chapters, Yuengert concludes in chapter 7 that economics cannot attain that level of comprehensiveness.

Chapter 8 describes the characteristics of the *phronimos*, the prudent person. There is no formula or manual containing the rules of practical wisdom, there are only practically wise persons. Yuengert finds in the literature on tacit knowledge (e.g., Polanyi 1966), learning by doing and social norms some recognition of the traits of the *phronimos*, without being capable of modeling him.

[2] We should distinguish practical science, practical reason, and practical wisdom. Practical wisdom is the virtue of prudence, correctly characterized by Yuengert. Practical reason is a discursive form of thinking about what we should do: in deliberating about our purposes or ends, it produces a judgment that is used by practical wisdom. Practical philosophy or science is both a discipline and a critical reflection on practical reasoning, its process, and its goals. It deals with those subjects relating to human decision or choice and it has a practical aim (*Metaphysics* II, 1, 993b, 21-22; see also *Nicomachean ethics* I, 2, 1095a 6, and II, 2, 1103b 27-28).

Chapter 9 is the final chapter. Given that the book has shown that "any quantitative optimization model of human decision making cannot hope to be comprehensive" (p. 158), this chapter argues that economists must be mindful of the limits of their models, that "economists ought to be mindful that the economic method is a small worlds approach, which consequently cannot speak comprehensively to a large worlds reality" (pp. 160-161). The limited conclusions permitted by the idealizations built into economic models might be enough for positive analysis, but are not sufficient for normative analysis. The details left out of the models are necessary for normative work. True normative economics, Yuengert concludes, requires practical wisdom.

The book ends with two appendices: the first on the need for and meaning of realism in economics, and the second about naturalistic and non-naturalistic accounts of social reality.

This book provides the useful service of identifying the characteristics of human action that economic models cannot take into account. It is useful because it explains the challenge to positive economists of trying to incorporate these characteristics into their approach, and because it highlights the features that economists must consider in their normative work. The contribution of the book lies in its originality. Economics books are not usually about what economics cannot do.

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Ricardo F. Crespo holds BA degrees in economics and in philosophy, as well as doctorates in philosophy (Universidad Nacional de Cuyo, Mendoza, Argentina) and in economics (Universiteit van Amsterdam).

He teaches philosophy of economics at IAE Business School (Universidad Austral) and Universidad Nacional de Cuyo and he is a researcher at Argentina's National Council of Scientific Research (CONICET). His recent publications include *Theoretical and practical reason in economics: capacities and capabilities* (Springer, 2013) and *A re-assessment of Aristotle's economic thought* (Routledge, forthcoming).
Contact e-mail: <RCrespo@iae.edu.ar>