How Rational is Popper's Rationality Principle?: A Critical Note on Oakley

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In an otherwise insightful paper, Allen Oakley (1999) suggests that Karl Popper's methodological recommendation for economics, a mix of Situational Analysis (SA) and the Rationality Principle (RP), is a remarkable failure as a result of the tensions between his ontological and humanist views of knowledge and the instrumentalist theory of economics he eventually embraced. I will argue that these tensions are not relevant to Popper's methodological formulation for economics. As a matter of fact, they are just a by-product of Oakley's conflation of Popper's theoretical choices in economics and his methodological views. More to the point, it is the result of his interpretation of the growth of knowledge in contemporary economics. There is nothing in the SA-RP approach that makes it entirely, or crucially, dependent on the instrumentalist and formalist methodology of conventional economic theory. Despite the author's scholarship on Popper's philosophy of science, his thesis could have been advanced without any reference to Popper's methodological views on the principle of rationality. I will contend that Oakley's paper reads more as an indictment of Popper's unwise theoretical choices in economic theory than as a critical interpretation of Popper's methodological work in economics.

Oakley's main criticism of Popper's excursion into the methodology of the social sciences revolves around his decision to approach Popper's RP as if it were a theory of real economic agents' behaviour. But it is not. It makes no claims on reality and it does not try to predict human agents' real actions. More to the point it is openly anti-psychological: it rejects any attempt to understand the 'deep' motivations behind an individual human agent's actions. Popper was acutely aware of the 'countless misunderstandings' his RP would stir. His reaction went beyond a mere defensive restatement of his original claims. In his contribution to the *Festschrift* for Professor Jacques Rueff (Popper, 1967, 1985) Popper made three crucial points for the ongoing debate on the status of the rationality principle. First, the RP does not make any psychological or empirical assertion about real human behaviour. Second, in the theoretical social sciences everything is in the model; there is nothing outside its limits. That's why the RP is an 'almost empty' or 'zero' principle (Popper, 1985, p.359), one that cannot be tested or falsified. Only models –the empirical explanatory theories of Popper's methodology—can. But if Popper's RP is not a theory, and is thus free of enduring the standard Popperian prescription of bold conjecture and hard refutation, what is then to be understood by it?

Popper's RP is indeed modest. It just claims that human agents 'act adequately, or appropriately –that is to say in accordance with the situation' (Popper, 1961, p.169). But this seemingly innocuous principle entails some crucial methodological implications for economic theory. According to Popper the main difference between the social and natural sciences with respect to method is that 'in most social situations, if not in all, there is an element of rationality' (Popper, 1961, p.140). This element of rationality is neither an arbitrary assumption out of Popper's bag of methodological tricks, nor a falsifiable theory about human economic behaviour. It is the outcome of a long evolutionary process that has made

humans capable of formulating problems, advancing tentative solutions and criticising outcomes through an open-ended process of trial and error (Popper, 1972). This, of course, makes things easier for the social sciences (and paves the way for some new problems). If evolution has worked effectively, researchers in the social sciences can safely assume that human agents will consider acting in a way appropriate to the situation at hand. The methodological impact is crystal-clear: '... this makes it possible to construct comparatively simple models of their actions and inter-actions, and to use these models as approximations' (Popper, 1961, pp.140-41).

Oakley chooses to dismiss Popper's methodological suggestion on two counts: first, 'such argument is firmly grounded on an ontological belief that human agents are in some sense consistently rational in devising and carrying out their actions', and second, it 'is an open-ended ontological assertion implying that there exist in most humans' actions a remainder of non-rationality of indefinable extent and significance' (Oakley, 1999, p.34). It is my contention that Popper's position is not grounded in any ontological belief in human agents' consistently rational behaviour. If there is any ontological foundation for Popper's proposal, it must be found in his evolutionary rendition of human agents' rationality. That is why his argument does not need to be grounded in the type of ontological assertion Oakley attributes to Popper. Moreover, because the RP principle was not considered as a theory of human behaviour, it does not and cannot predict or assert that humans are consistently rational in their behaviour. It simply recommends the use of 'complete rationality' as an assumption from which multiple models of social interaction can be constructed.

Is Popper's position on rationality open-ended? Yes, and for good reasons. First, rationality in Popper's philosophy implies criticism. Human agents are rational not only because they can understand a situation and devise and carry out actions adequate to their assessment of it, but also because they can criticise their solutions and theories, and in doing so they can learn and improve their knowledge. There is not and there cannot be a unique, privileged procedure to confirm human agents' full rationality. To claim otherwise would mean succumbing to the temptations of the instrumentalist position that both Popper and Oakley reject. And rationality itself should be subjected to the hardships of criticism. How else can we assess the recent and rising criticism of rationality and its foundations taking place in economic theory? The theoretical developments of the last decade have taken economic theory back to square one: is the rationality of human agents well founded in economic theory? Or, as Mailath (1998) puts it in the title of his review of this expanding new field: 'Do people play Nash equilibrium?' An impressive mass of work (Fudenberg and Levine, 1998; Young, 1998, 1996, 1993; Kandori et al., 1993; Friedman, 1999; Conslick, 1996; Camerer, 1997; Kahneman and Tversky, forthcoming) has emerged in many fields (game theory, evolutionary economics and game theory, behavioural economic theory, adaptive complex theories of localisation and social interaction), and is forcefully pushing towards a full reconsideration of the rationality of economic man.

Second, 'complete rationality' was not devised to cover the whole realm of human social actions. Thus, it is not an appropriate to invoke a 'remainder of non-rationality of indefinable extent and significance' in most human actions as a consequence of Popper's assertion, as Oakley does in his piece. There is no 'remainder' because there is not an exact proportion of 'complete rationality' in every human action. 'Complete rationality', as should be pretty obvious from Popper's work, is just a theoretical construction, a methodological device, a useful

and provisional scaffold on which to build models of increasing complexity. 'Complete rationality' within Popper's methodology should thus be seen as a point, a 'zero principle' from which real human behaviour must deviate in the vast majority of social situations. Is this deviation measurable? Is there something 'uniquely definable from which to measure the "deviation" of observed conduct' (Oakley, p.35)? No, and there should not be, for Popper's view of rationality is firmly based on evolutionary foundations. It takes the rationality of agents as an open research subject, within the limits of the situation under analysis. In doing so, it gives rationality, within the limits set out from the beginning by each model, an emerging character.

We can argue in a similar way on the issue of complete information within the context of the so-called 'zero method'. Oakley (1999, p.34) quotes at length Popper's attempt to define the RP and the so-called 'zero method'. He finds, of course, that Popper's assertion poses more questions than it answers. Then Oakley begins a fundamentalist critique of Popper's notions of completely rational agents and complete information. His arguments: the contingent, individualistic and subjective nature of an agent's cognition and reason, and the impossibility of defining *ex ante* the idea of possessing complete information. First I will discuss the objection concerning the undefined character of Popper's rationality. Yes, it is indeed undefined. But, given the knowledge of Popper's RP evolutionary underpinnings, could it be otherwise? If we are to take seriously Popper's evolutionary foundations for the presence of an element of rationality in human agents, then it is difficult to argue against the unlimited, open-ended character of human rationality. What about Popper's use of the phrase 'optimal use of all the available information for the attainment of whatever ends they may have' (Popper, 1961, p.140)? This type of formulation seems to uphold Oakley's criticism, for it not only advances an instrumental definition of rationality as an optimisation procedure, but also seems to provide a unique definition of rationality. However, the acceptance of the hypothesis of 'complete rationality' as a solution to an optimisation problem (Börgers, 1996), even within the realm of information, need not be in contradiction with the evolutionary foundations of rationality. The evolutionary rendition of human rationality can accommodate the fact that human agents can eventually learn to optimise. It is an option within a set of multiple emerging alternatives. But it is neither a general law, nor a theory of human behaviour, nor an ontological foundation for a specific theory of human behaviour. It only amounts to one of the probable outcomes of the evolution of human behaviour. As for the 'contingent, individualistic and subjective nature of agents' cognition and reason', it has to be said that Popper's strategy of constructing models within a situational logic has been largely vindicated by the large collection of economic models with different types of information (incomplete, symmetrical, asymmetrical, imperfect) created in the last 30 years, and by its impact on the way informational issues are interpreted in contemporary economics. This growing vintage of models does not necessarily belong to conventional economics: the most recent wave of them comes from non-conventional, evolutionary economics. The fact is that we cannot have a 'complete' and omniscient theory of information and rationality. All we can have, at least in this type of approach to economic knowledge, is a collection of models contending with the issues of rationality and information within the context set by each model.

Was the RP's future, from its very inception, unavoidably linked to the destiny of neoclassical economics? I would contend it was (and is) not. As I have said already, Popper carefully ruled out any predictive power for his principle. It

has no psychological or empirical consequences and, of course, it does not pretend to predict any real, observable economic behaviour from any real, observable economic agent. The main and crucial consequence of this choice is that RP has only methodological, heuristic and prescriptive effects. It does rule out behaviour that is not included within the explicit limits of the model. It encourages models with agents who 'act adequately or appropriately' with respect to the situation described by those models. It does not choose, from the beginning, any specific or particular rationality procedure. And it encourages research about the most adequate way of acting in every particular situation described by a model.

Is the openness of Popper's RP a definitive logical weakness of his methodology for the social sciences? No, as I believe my argument has made clear. On the contrary, it is one of its strengths. It does leave open the question of what is rationality, because in each situation, rational agents, or agents observing the RP, must find and look for, the type of rationality adequate to the their problem and act accordingly. That is what Popper is suggesting with his simple assumption that 'the various persons or agents involved act adequately, or appropriately - that is to say, in accordance with the situation'. Is this a zero degree of rationality? Does it say nothing while pretending to cover everything? Granted, it is not, and it was not devised as, a theory of rationality in the realm of economics. It is just a modest, limited, non-obtrusive, prescriptive principle of behaviour, with a remarkable property. It takes the rationality of agents as an open research subject within the limits of the situation under analysis. In doing so, it covers a larger and wider range of types of behaviour that can be deemed rational. Larger, of course, than the set of types of behaviour covered under the hypothesis of rationality as a solution to an optimisation problem upheld by the neoclassical faithful. Moreover, it captures two essential features of social situations. First, because initial conditions have crucial effects on social situations (e.g., they can tip the balance towards inefficient equilibrium allocations), they have to be modeled as typical situations within the limits of each model. Second, agents involved in social situations typically seek out, and choose, actions that are compatible with the actions of the other agents involved, but that are not, alas, optimal choices.

However, in the last 50 years rationality has become an assumption of formal modeling and its meaning was conflated with the idea of rationality as maximising behaviour. Oakley has chosen to interpret Popper's RP as a methodological foundation for this turn of events. I prefer another interpretation. Popper's principle can cover both situations: the rise to dominance of rationality as maximising behaviour, and the recent outgrowth of research on the foundations of rational behaviour, emerging from evolutionary game theory, evolutionary economics and behavioural theory (both in games and in other research contexts). However, I would agree with Oakley in deeming Popper's principle to be inconclusive. Theoretical economics is, indeed, lacking a general theory of rationality. It is a difficult and uncertain endeavour, for it must deal with the problem of how to assess the rationality of each emerging alternative within the complexity of the situation under analysis.

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