

Economics and the origin of Popper's situational analysis

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1. Introduction

The philosopher of science Karl Popper (1902-94) is best known to economists through frequent references to his work in the literature of economic methodology. In this literature, the relevance or otherwise of his naturalist scientific methodology for economics, and for the social sciences generally, has been the subject of intense controversy (Caldwell, 1991; Hands, 1993). Another familiar aspect of Popper's writings among economists is that they include two works from the 1940s, *The Poverty of Historicism* and *The Open Society and Its Enemies*, that confront issues of political philosophy and social science, with occasional excursions into economics (Popper, 1960, 1962). With his background in the social sciences stemming from his education in Vienna in the early part of this century, these limited references to economics included primarily the works of a number of Austrians. From among them, it was Friedrich von Hayek with whom he had personal contact and to whose writings he mostly referred.¹ It is evident, though, that the key theses of Austrian subjectivism were not to Popper's taste, even though he was an individualist in his social vision and ultimately took a keen interest in psychology. Indeed, he was inclined to avoid any subjectivist intrusion into the social sciences and, for this reason, favoured the formalist versions of marginalist microeconomics that he found in Austrian and other writings.² This provided him with a well-established, ostensibly objectivist frame of reference to adapt in support of his own efforts to devise some methodological and epistemological foundations for the social sciences more generally.

It is clear from Popper's own statements that he intended to develop a metatheory for the social sciences consisting of two components: situational analysis (SA) and the rationality principle (RP). It is equally clear that he thought of himself as modelling these components on the forms of analyses employed in the economic theory. In this article, I examine the role that Popper's endorsement of formalist microeconomics played in his thought about these desired fundamentals of the theoretical social sciences. My intention is to show that having read such economics for guidance, albeit rather narrowly, the model of analysis that he devised and subsequently recommended for adoption in all social theory was burdened with a format that contradicted some key elements of his own realist philosophy of science and his own understanding of human action and society. Ultimately, pursuing what he believed to be the metatheoretical ideal of economic models as the formalist exemplar of a social *science* led to some puzzling tensions in his work that were never resolved.

In the spirit of the critical rationalism that he often advocated, Popper's main contributions to developing this SA-RP metatheory have been well worked over in debates that now make up an extensive literature.³ Although his contributions have been found to have a number of significant limitations, the extant critiques have nonetheless generally endorsed SA as, in principle, a congenial metatheory for the social sciences.⁴ The critical focus of attention has been, rather, the weaknesses introduced by Popper's insistence that some restricted notion of agent rationality must form the essential, activating core of SA-RP models of human action. The crucial difficulty is that it is far from self-evident just what this

principle should mean, and it is widely agreed by critics and sympathizers alike that Popper himself left his argument in a highly unsatisfactory state.

In his approach to the social sciences, Popper brought with him some definite ideas about the generic characteristics of any scientific investigation and its claimed results (O'Hear, 1980; Corvi, 1997). First, all such inquiries should give priority to realism (1972c, pp.32ff, 285ff).⁵ Secondly, his vision of scientific realism was set in a theory of knowledge that ruled out instrumentalism and essentialism in favour of a combination of what he believed to be the legitimate elements of the two (1972b, pp.97ff). In this alternative epistemology, although explanatory theories should aim at realism and truth, as well as at being pragmatic and useful, they can never be more than fallible conjectures. But what is most important in the present context is that his theory of knowledge ruled out the idea that a theory can be made acceptable on the basis of its capacity to predict (or 'postdict') alone. The focus of critical assessment shifts instead to the empirical contents of the premises and arguments from which a theory is constructed. Thirdly, the strictest requirement for any claim to scientific knowledge within the bounds of these principles was that such a system of premises and arguments should be falsifiable (1972a, pp.40ff, 78ff; 1983b, pp.xixff). Fourthly, all theories must be presented in a format that complies with the hypothetico-deductive-nomological (H-D-N) mode of scientific argument (1972c, pp.191ff; 1976a, pp.98ff). That is, deductive logic must link the explanandum, the observed phenomenon to be explained, to a conjectural explanans comprising initial conditions and covering laws (Hands, 1991).

Now it was one of Popper's most basic beliefs that these characteristics should be found in all knowledge that claims to be part of the sciences, be it about the natural realm or the human realm. His desire was to preserve the 'unity of science' at the methodological and epistemological levels. However, in recent critical interpretations of his specific significance for the social sciences, including economics, it has been made all too apparent that no 'unity of science' as he envisaged it can be sustained. More specifically, the claims that this 'unity' should hinge upon the application of the falsification criterion have been shown to be incompatible with the essential nature of the social sciences (Boland, 1997; Caldwell, 1991; Hands, 1985, 1992a, 1992b, 1996; Hindess, 1977, chapter 6).

Some methodologists have nevertheless defended this ambition for 'unity'. They argue that economics, to be a science, needs minimally to construct models in which the systems of arguments meet the requirement of falsifiability (Blaug, 1980, 1985, 1994; Hutchison, 1988). These contributors maintain this in spite of the paucity of evidence of, or demonstrated potential for, the actual application of the falsificationist criterion in extant economic analyses. Moreover, there is ample evidence that Popper himself found it impossible consistently to apply the falsifiability test to the sorts of arguments required by his own SA-RP metatheory for the social sciences, whatever may have been his lip-service to the 'unity of science' thesis (Hands, 1991).⁶

Be these critical revelations as they may, it remained the case that Popper thought of himself as seeking to sustain this 'unity of science'. In doing so, he also attempted to maintain a particular understanding of social reality. Key features of a social science consistent with this understanding were that it should distance itself from any influence of psychologism and that it should be grounded on methodological individualism (1962, pp.89ff). These features combined with his generic philosophy of science to provide the rationale for applying the ideal of situational logic that he derived from economic theory to accounting for all human action and its results. However, the limited degree of 'unity' sustainable across the natural and social sciences could be achieved only by forcing SA models to take the H-D-N form. This meant replacing the universal law requirement of the natural sciences with the mechanistic 'animation' provided by an unrealistically rigid version

of the RP. The effect was to turn human agents into automata of the *homo oeconomicus* type. Popper's ontological consciousness made him quite sensitive to this effect and it led to a treatment of the RP that was ambiguous at best and evasive at worst. From this perspective, he could have well done without the ostensible support for such a representation of the human agent that he drew from the ideal of economic theory.

In the next section, I will suggest that what has received inadequate attention in the extant critical literature is the significance of Popper's claim that his reading of economics was the source of the SA-RP model. It will become apparent that it was the discovery of economic theory in this SA-RP form that enabled him to defend at least the H-D-N logic for application in the social sciences. Section 3 critically reflects on this methodological basis for advocating the SA-RP model as Popper formulated it in the effort to preserve the 'unity of science' from a methodological perspective. The end result was the reintroduction of a pure instrumentalism, à la Milton Friedman (1953), into the social sciences, after Popper having emphatically rejected it as inconsistent with scientific realism. In the concluding section, it is suggested that in his SA-RP approach to the social sciences, Popper maintained a priority for methodology in the sense that its formal demands were to be met without any concern for how unrealistically object phenomena are represented. He did so even though this strategy meant omitting his own realist insights into the ontology of situated human action from the foundations of the social sciences. These insights could be part of the social sciences, including economics, only if the SA metatheory were explicated as a social ontology that is prior to the design of any methodology that enables us to give realistic accounts of social and economic phenomena. This remained an unrealized potential in Popper's contribution.

2. Economics and the origin of the SA-RP model

It is evident that Popper had a remarkably sanguine view of the scientific potential of formalist economic methodology. Consider as an example his announcement, in the context of arguing the merits of scientific realism, that 'the natural sciences with their critical methods of problem solving, and some of the social sciences too, especially history and economics, have represented for quite a long time our best efforts in problem solving and fact finding...'. Parenthetically he informed us further that 'by fact finding I mean, of course, the discovery of statements or theories which correspond to the facts'. And, to compound the hyperbole, he continued: 'Thus these sciences contain, by and large, the best statements and theories from the point of view of truth; that is, those giving the best description of the world of facts, or of what one calls "reality"' (1972c, p.290). These comments suggest that he put his critical rationalism on hold while reading economics for, in its extant theories, there is little that suggests a serious attention to the 'facts' of, or 'truth' about any observable 'reality'.⁷

Nevertheless, Popper often reiterated that his excursions in pursuit of a metatheory for social science were largely shaped by his admiration for economics. Although granting that 'the social sciences never had for me the same attraction as the theoretical natural sciences', he went on to add that 'in fact, the only theoretical social science which appealed to me was economics' (1976b, p.121). More explicitly, he argued that SA originated as 'an attempt to generalize the method of economic theory (*marginal utility theory*) so as to become applicable to the other theoretical social sciences' (pp.117f).⁸ He explained further that this is a method that 'consists of constructing a model of the social situation, including especially the institutional situation, in which an agent is acting ...' (p.118). On the basis of such observations, he reasoned that 'there exists a purely objective method in the social sciences which may well be called the method of *objective* understanding, or situational

logic' (1976a, p.102). The efficacy of this 'purely objective method', he thought, had been demonstrated by its dominant use and widespread acceptance in economic theory. He did not go on to pursue the long list of highly technical and restrictive conditions implicit in this objectivity.

When he first ventured into the study of the social realm with the 1940s papers for *Economica* that were to become *The Poverty of Historicism* (1960),⁹ it was Popper's intention to provide a broad and sustained critique of the methodology of the social sciences. For this purpose, he set out by dividing his critical reflections between those contributions that sought to defend the application of the physical science methods to the social sciences, the 'pro-naturalistic' schools, and those which oppose the use of such methods, the 'anti-naturalistic' schools (1960, p.2). Even at this early stage, he had a vision of 'economics' that stood it apart from the other social sciences. Commenting on the inclinations of early social scientists to draw upon the methods of the physical sciences, Popper argued that 'in the theoretical social sciences, outside economics, little else but disappointment has come from these attempts' (pp.1f). Then, having defined historicism as 'an approach to the social sciences which assumes that *historical prediction* is their principal aim ...', he went on to claim that 'I am convinced that such historicist doctrines of method are at bottom responsible for the unsatisfactory state of the theoretical social sciences (other than economic theory) ...' (p.3). The implication here was that economics had avoided the pitfalls of bringing physical science methods to the formal presentation of its general theories, and that its laws did not suffer from being historically relative. And, although he never said so directly, the indications are that, in his view, economics already fitted the desired category of a 'technological social science'. Such a social science has, 'in opposition to the historicist methodology ... a methodology [that] would lead to a study of the general laws of social life ...' (p.46). Theories in this type of social science, he noted, could be applied to 'predicting that certain developments will take place under certain conditions', but this did not amount to the historicist thesis that there exists an immanently generated future course of historic-empirical developments that can be scientifically predicted (p.vi). He explicitly rejected the historicist notion for economics, and analogously for other social sciences, that it 'can merely help to reveal the driving forces of economic development through different historical periods' (p.49). As he put it more explicitly, 'it is an important postulate of scientific method that we should search for laws with an unlimited realm of validity' (p.103, cf. pp.97ff).

Popper was convinced that the social sciences should be, as economics already was, both 'theoretical and empirical' in precisely the same senses as in his perception of the physical sciences (1960, p.35). What is of interest to us about this assertion is the meanings he gave to these two qualities. By a theoretical discipline he meant one that 'has to explain and predict events, with the help of theories or of universal laws (which it tries to discover)'. And, by empirical he meant to convey that the discipline is 'backed by experience, that the events it explains and predicts are *observable* facts, and that *observation* is the basis for the acceptance or rejection of any propounded theory' (p.35). He compounded this implied 'unity of science' by arguing that 'when we speak of success in physics we have in mind the success of its predictions ... [which] can be said to be the same as the empirical corroboration of the laws of physics' (p.35). It should be, therefore, the objective of the social sciences to emulate this predictive success. On this basis he concluded with a summary view that 'certain methods — prediction with the help of laws, and the testing of laws by observation — must be common to physics and sociology'. His support for this conclusion was unequivocal: 'I fully agree with this view ...' (p.36). In all this, it must be said that, in so dealing with social science, he had set a course that would take him dangerously near the shoals of the instrumentalism he wanted to avoid.

The question that remains relates to Popper's notion that the naturalist social science that he referred to in the *Poverty* stems from the application of a false set of scientific premises. As he observed, 'whether a student of method upholds anti-naturalistic or pro-naturalistic doctrines, or whether he adopts a theory combining both kinds of doctrines, will largely depend on his views about the character of the science under consideration, and about the character of its subject matter'. He added the rider that this attitude 'will also depend on his views about the method of physics'. For Popper, this latter was the 'most important' of the considerations (1960, p.2) for the reason that, as we saw in the first section above, he brought with him a particular set of methodological premises and tenets of epistemology that had their origins in his philosophy of the physical sciences. It was his inclination to side with neither of the established positions on naturalism. In particular, the thrust of his critique of pro-naturalistic scientism in the social sciences was akin to Friedrich von Hayek's view of 'the slavish imitation of the method and language of science' (Hayek, 1955, p.15, quoted by Popper, 1960, p.105 n1). The clarification offered of scientism by Popper was that 'here it is used ... as a name for the imitation of *what certain people mistake for the method and language of science*' (p.105 n1). That is, such doctrines 'spring from a misunderstanding of the methods of the natural sciences' (p.105).¹⁰

Popper suggested in the *Poverty* what might be done in the social sciences in order to bring them methodologically closer to the physical sciences. As the example of economics had shown him, what is needed is to adopt 'the method of logical or rational construction'. By this he meant 'the method of constructing a model on the assumption of complete rationality (and perhaps also on the assumption of the possession of complete information)'. The effect was to recommend the introduction into the social sciences generally of a formalism that he referred to as 'the "pure logic of choice", as described by the equations of economics' (1960, p.141). He even wrote, confirming his support for the formalist origins of the method, that 'the success of mathematical economics shows that one social science at least has gone through its Newtonian revolution' (p.60n). In so doing, he effectively promoted the stringent 'logic of the situation' to the dominant role in determining individual human actions, so that they become the mechanistic products of 'necessity' rather than of conscious 'decision' (p.149).

It was also in *Poverty* that we find the most detailed exposition of what Popper intended his metatheoretical work to achieve in the social sciences. This came mostly in the crucial section of the work he entitled '29. The unity of method' (1960, pp.130ff). His purpose in this section was explicitly stated: 'I am going to propose a doctrine of the unity of method; that is to say, the view that all theoretical or generalizing sciences make use of the same method, whether they are natural sciences or social sciences' (p.130). Here he proclaimed the H-D-N method of theory construction as common to all sciences, although his requirement was that it be couched in arguments that are subject to critical refutation and thus render it 'synthetic (rather than analytic); empirical (rather than *a priori*); and informative (rather than purely instrumental)' (p.132 n2). For Popper, the knowledge expressed in such theories was incrementally or cumulatively generated by successive conjectures and critical refutations. The import of this stemmed from his rejection of inductive observation as the source of generalized knowledge (pp.134f). Rather, theory precedes empirical observation and provides it with structure and content. What he now emphasized was that 'in the social sciences it is even more obvious than in the natural sciences that we cannot see and observe our objects before we have thought about them. For most of the objects of social science, if not all of them, are abstract objects; they are *theoretical constructions*'. Such theoretical constructions, he continued, 'are used to interpret our experience, are the result of constructing certain *models* ... in order to explain certain experiences ...' (p.135). These ideas about methodology indicated to him that 'the task of

social theory is to construct and to analyse our sociological models carefully in descriptive or nominalist terms, that is to say, *in terms of individuals*, of their attitudes, expectations, relations, etc. — a postulate which may be called “methodological individualism” (p.136).

Again here Popper turned to Hayek’s work for support, selecting for quotation two passages from the essay on ‘Scientism and the Study of Society’ (1955, pp.11ff).¹¹ What Popper identified as significant for him in these passages (quoted in 1960, pp.136f and 139) was Hayek’s methodological individualism and his consequent argument that deductive models are to be constructed from combining the individual ‘atoms’ of activity known by observation to contribute to the generation of a phenomenon to be explained. Two further points about theories made by Hayek were cited by Popper as confirming his own views. One was the notion that although a theory is a hypothetical conjecture that can never be verified as true, it can be refuted by empirical events for which its arguments cannot offer a defensible account. The other point was that the complexity of concrete reality rules out the demand that theories enable analysts to make precise predictions, especially in the case of human phenomena.

But having cited the authority of Hayek in support of these fundamentals of social science, Popper went on to indicate his misgivings about some related aspects of what he had quoted from Hayek. The opening sentence of the first quotation reads, in part, as follows: ‘The physicist who wishes to understand the problem of the social sciences with the help of an analogy from his own field would have to imagine a world in which he knew by direct observation the inside of the atoms ...’ (Hayek, 1955, p.41).¹² Popper admitted that this piece implied that ‘certain differences’ exist between the social and natural sciences. It is significant to note, that the implicit differences here related to the ontological origins of the respective phenomena of these sciences. Popper’s concern was to mitigate the significance of these differences, especially in the light of his earlier critique of the anti-naturalist doctrine that relied on such ontological distinctions between the natural and human realms (1960, pp.19ff and 55ff). The idea that he wanted to skirt around was that ‘the proper method of the social sciences, as opposed to the method of the natural sciences, is based on an intimate understanding of social phenomena’. His reference here was to the attempt in the social sciences to account for these phenomena by means of an ‘understanding of purpose and meaning’ that flows from the powers of intuition about, and identification with others with which all humans are endowed (p.20). At this point, Popper was content to dismiss the relevance of more direct knowledge of the ‘inside of the human atom’ on the grounds that what matters about a theory is not its origins in the mind of the analyst, but the extent to which it measures up to the requirements of science. He put it this way, referring to the task of the analyst: ‘Science is interested only in the hypotheses which his intuitions may have inspired, and then only if these are rich in consequences, and if they can be properly tested’ (p.138). By avoiding the clear ontological differences between the phenomena with which the two groups of sciences must deal, Popper again signalled that he was heading for the shoals of instrumentalism. For here, too, the implication was that what we know about the nature of an object of inquiry is not connected to whether the theory we construct is sound or not.

The significance of this avoidance of ontological distinctions came out in a second of misgiving that Popper expressed about Hayek’s passages. This concerned the implications of recognizing that analysts in the social sciences will have only ‘limited knowledge of the data of the complex situation’ which comprises their objects. For Popper, differences of complexity between the sciences, in particular ‘the prejudice that social situations are more complex than physical ones’, were essentially confined to differences of degree (1960, pp.139ff). It was in defending this observation that Popper’s notion of a distinctive SA-RP approach exclusive to the social sciences came to light for the first time. But it did so through

an argument that explicitly compounded what he saw as the need to avoid ontological intrusions into his efforts to deal with these sciences. Although he was prepared to accept the SA-RP approach as setting the social sciences apart from the natural sciences, the resulting theories were still required to meet as many of Popper's generic criteria for science as possible. It will become apparent in the next section that this was only possible to the extent of conforming to the H-D-N type of logical model, made possible by confining the exigencies of human agency within the limits of the imposed RP.

A key paper that provides insights into Popper's references to economics in support of the SA-RP approach is his 'Models, instruments, and truth: the status of the rationality principle in the social sciences' (1994, pp.154ff).¹³ This was written as a lecture and delivered by invitation in the Department of Economics of Harvard University in February 1963, and later revised by adding sections based on the discussion after the lecture (p.183 n18). Given the circumstances of the lecture, it is perhaps not surprising that Popper opened with the line that 'my views on the methodology of the social sciences are the result of my admiration for economic theory: I began to develop them, some twenty-five years ago [in the late 1930s], by trying to generalize the method of theoretical economics' (p.154). Nonetheless, this is a claim that gives us some significant insight into his own vision of the metatheoretical foundations and limitations of the social sciences. The appended note to the sentence (p.181 n1) informs us that a key source of his understanding of the core of economics was Hayek's exposition of the 'logic of choice' (especially as expressed in 'Economics and Knowledge': Hayek, 1949, pp.33ff). It was this, Popper asserted, that 'led me to my formulation of the "logic of the situation" This seemed to me to embrace, for example, the logic of choice and the logic of historical problem situations' (1994, p.181 n1). To this he added in parentheses the rider that the 'logic of the situation' was not intended to be a 'deterministic theory', but one that reflected the existence of real human choice (p.181 n1).

We should recognize at once that this is a desultory reading of Hayek's message. Hayek's subjectivist economics was about the puzzles of accounting for individual and collective human actions and their outcomes in markets. It was certainly not about extolling the logical virtues of any SA-RP models that might be found in economics. As a statement of metatheory, Hayek's paper was ontologically rather than methodologically oriented. It gave prominence to such real-world notions as market processes and tendencies towards equilibrium, along with the human knowledge, expectations, plans and actions that generate them (cf. Oakley, 1999a, pp.71ff). It is difficult to find in it any suggestion other than that the pure 'logic of choice' is an analytical device designed to ensure the viability of formalist models of market equilibrium. As Hayek frequently reiterated, such models cannot properly represent the human processes that contribute to market outcomes. Popper failed to grasp in Hayek's exposition the caveat that this 'logic' has implications that severely constrain the meaning of choice, as it is confronted by agents in the real world, and thus it can tell us nothing about their actual market activities. As Hayek made clear repeatedly throughout his 'Economics and Knowledge' paper, adopting such logically constrained accounts of choice has the effect of restoring the cipher of omnipotent 'economic man' whose market conduct is axiomatically defined. The effect is to rob market analysis of any power to explain observed market processes. Hayek had actually demonstrated that the 'logic of choice' premise could not be defended in economics as he saw it. But Popper proceeded to adopt such 'logic' as consistent with his SA-RP metatheory and thus drew ever closer to restoring instrumentalism in the social sciences.

3. Methodology and the logic of the SA-RP model

We have seen that Popper had a fundamental belief that all acceptable scientific theories should conform to the H-D-N model of logical argument.¹⁴ His drive for a 'unity of science' meant that the methodological conditions demanded by the model should be applied to the social sciences without any qualification concerning their form. He believed that the success of economic theory was a vindication of this stance. But he was digging himself into a position where the conditions that he set for the acceptability of such explanations simply could not be met in the case of the phenomena that the social sciences should be able to explain. Consistently with his anti-instrumentalism and realism, Popper's demands regarding testability and acceptability relate directly to the explicans of any model. That is, they relate to the form of representation of the ontological conditions and processes which it is claimed can account for the fact that the explicandum is generated. His decision to invoke the H-D-N logic as the ultimate necessary condition for valid analyses in all the sciences meant that his SA-RP model in the social sciences was bound to take a very particular form. Sustaining the required strictly deductive form of argument demanded much of the RP as a means of regularizing and automating the way agents apply reason to their circumstances in the processes that generate human phenomena.¹⁵

What if we take Popper at his word and look in particular to Hayek's 'Economics and Knowledge' and 'Scientism and the Study of Society' papers as Popper's specific source of inspiration for SA-RP modelling? It is puzzling that Popper gave no explicit attention to the fact that already by the third page of the former paper the warning signals about the potential dangers of certain classes of economic models were there. Hayek wrote that 'I am certain that there are many who regard with impatience and distrust the whole tendency, which is inherent in all modern equilibrium analysis, to turn economics into a branch of pure logic, a set of self-evident propositions which, like mathematics or geometry, are subject to no other test but internal consistency'. Hayek continued that what concerned him most was that 'the recent tendencies to make economic theory more and more formal ... have not yet been carried far enough to complete the isolation of this branch of logic ...' so as to ensure that such 'formal economic theory' is used only 'as a tool in the same way as mathematics' (1949, p.35). Here and elsewhere in his paper, Hayek's concerns about the acceptance of economic analysis as purely formalist and instrumentalist were transparent.

The paradox is that Popper wanted to take away from Hayek's paper just that mode of economic analysis that was being condemned and turn it into a method for all the social sciences. What is cause for concern in any reading of Popper's erstwhile economics roots for the SA-RP metatheory is that it led him immediately into the further difficulty of contradicting his own explicit rejection of instrumentalist pretences to knowledge. He had denounced strict instrumentalism, the doctrine that 'theories are *nothing but* instruments', as unacceptable in any scientific analysis (1972b, p.101). His rejection of this pragmatist methodology was on the grounds that it avoided the pursuit of knowledge as existential truth about the real universe in favour of knowledge that provides instruments of calculation and prediction, for instrumentalist theories are 'nothing but computation rules (or inference rules)' (p.111). On this basis, the only 'knowledge' could be '*instrumental knowledge*', establishing that 'knowledge was power, and that truth was usefulness' (p.99). According to Popper, the situation here remained as it was when Berkeley read Newton's theory to the effect that instead of it being a testament to '*the power of the human intellect, unaided by divine revelation, to uncover the secrets of our world ...*', this theory could not possibly be anything but a "mathematical hypothesis" ...'. That is, it was no more than 'a convenient *instrument* for the calculation and prediction of phenomena or appearances ... [and] could not possibly be taken as a true description of anything real' (pp.98f). Such an approach to

knowledge led many scientists to think of their inquiries as demanding no more than '(a) *mastery of the mathematical formalism*, i.e. of the instrument, and (b) *its applications*' (p.100). The effect of instrumentalism was that it made science 'nothing but glorified plumbing, glorified gadget making — "mechanics"; very useful, but a danger to true culture, threatening us with the domination of the near-illiterate ...'. The result is that 'a scientific theory neither explains nor describes the world; it is nothing but an instrument' (p.102). Some deeper thought might have led Popper to observe how well much of extant orthodox economics conformed to just these principles.

A crucial intention that Popper had in his 1963 Harvard paper was to attack 'the instrumentalist philosophy of science — that still fashionable philosophical theory of pragmatism which tells us that our theories are nothing but instruments' (1994, p.154). He asserted that he was 'an anti-instrumentalist (or, as I may perhaps say, a realist) ...' (p. 173), and went on to allow that while theories have some instrumental purpose, 'they are not *merely* instruments' (p.174). Rather, he intended to maintain the realist position that 'we may learn from science something about the structure of our world: that scientific theories can offer genuinely satisfying explanations that can be understood and so add to our understanding of the world' (p.174).

In adhering to such an intention, Popper showed a lack of insight into the instrumentalist nature of orthodox economic theory as it was being practised in so much of the literature of the period.¹⁶ For instance, he cited positively the theory of perfect competition as an exemplar of situational analysis (1994, p.170), thus failing to take to heart Hayek's objections to such equilibrium centred market theories. Hayek had made it clear that such theories can be nothing more than pieces of deductive economic logic in which the premises defining the situation for agents *determine* the decisions they will take (cf. Latsis, 1972, 1983). Popper also cited without qualms the theories of pure monopoly and pure duopoly as exhibiting similar characteristics (1994, p.170). By contrast, Hayek was really intent upon establishing that most such economic theories are constructed to conform to the imposed methodological demands of a simplistic version of physical scientism, and to the consequent demands of formalist mathematical expression. Popper simply showed no awareness of the fact that his own SA-RP combination amounted to allowing the instrumentalism that he rejected as an inadequate mode of discursive explanation to dominate his recommended metatheory for the social sciences.

In conforming to the H-D-N logical form, the SA-RP model can be no more than a methodological imposition upon the social sciences unless the universal statements and initial conditions from which it is constructed can be defended empirically and subjected to the test of critical rationalism. That is, unless the explicans is shown to have the real-world ontological content required to represent the actual generation of the phenomenon to be explained in terms of human action. Popper the realist was conscious of the importance of defending the veracity of the explicans in any theory. He made this an issue for the social sciences when, in his Harvard lecture, he explicitly compared them with the natural sciences in an endeavour to expose what he called 'some of the peculiarities of the methods of the social sciences' (1994, p.162). In particular, when probing the relevance of SA in the social sciences, Popper made what appears to be a suggestion about the particular and peculiar ontology involved in the human origins of their phenomena. His suggestion was that 'the fundamental problem of both the theoretical and the historical social sciences is *to explain and understand events in terms of human actions and social situations*. The key term here is "*social situation*"' (1994, p.166). It is to be noticed that the objective of prediction was not mentioned here. Rather, it was the notion that we should try to '*understand*' the phenomena of the social sciences that was given priority, even though the aim of prediction in some sense may have remained a legitimate one. Popper gave no immediate indication of what he

saw as the significance of this intention to 'understand' in social theory. He continued by reiterating that 'the "models" of the theoretical social sciences are essentially descriptions or reconstructions of *typical social situations*' (p.166). Finally he concluded with the assertion that 'the idea of a *social situation* is the fundamental category of the methodology of the social sciences', adding the extension that 'I should even be inclined to say that almost every problem of explanation in the social sciences requires an analysis of a social situation' (p.166).

Popper nevertheless continued to confirm the *methodological* status of SA by his response to the question of the source of 'animation' for models of situated human action. Again here his immediate concern was to stress his anti-subjectivism and anti-psychologism. His belief was that no call need be made on anything like psychological laws to 'animate' agents in situational analysis; indeed, that it would be a mistake to do so for two key reasons (1994, pp.168f). First, he claimed that is possible to replace an agent's 'concrete, conscious or unconscious, psychological experiences by some abstract and typical situational elements, such as those we dubbed "aims and knowledge"'. Secondly, he claimed that 'animation' sufficient for the situational model could be encompassed by the simple assumption that 'the various persons or agents involved act *adequately*, or *appropriately* — that is to say, in accordance with the situation' (p.169). He stressed at this point that the situation as defined contains all the relevant aims, information and knowledge, as well as the available means, required by agents to enable them to act accordingly. Under these circumstances, the RP means that agents are presumed to act in accordance with the demands of their given situational conditions.

The essence of Popper's claim here was already evident in the *Poverty*, where he wrote that 'in most social situations, if not in all, there is an element of *rationality* ...', so that the human agents involved can be presumed to act 'more or less rationally' in response to their circumstances. What this makes possible is 'to construct comparatively simple models of their actions and inter-actions, and to use these models as approximations' (1960, pp.140f). 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. In what sense he expected this rationality to apply he explained as follows: 'Admittedly, human beings hardly ever act quite rationally (i.e. as they would if they could make the optimal use of all available information for the attainment of whatever ends they may have) ...' (p.140). But this is an open-ended ontological assertion implying that there will exist in most human actions a remainder of non-rationality of indefinable extent and significance. It is an assertion that leaves open the subjectively oriented puzzles of what constitutes 'optimal use' and how information comes to be defined as 'available'. Without their meanings being specified, the precise meaning to be attributed to rationality itself is inconclusive.

Popper claimed that the enforced shortfall between the rational and non-rational origins of action could be coped with *methodologically* by adopting the 'method of logical or rational construction', to which he referred as the 'zero method'. Ostensibly, what this was intended to mean in practice was 'constructing a model on the assumption of complete rationality (and perhaps also on the assumption of the possession of complete information) on the part of all the individuals concerned, and of estimating the deviation of the actual behaviour of people from the model behaviour, using the latter as a kind of zero co-ordinate' (1960, p.141). This sort of assertion poses more questions than it answers. Given the wholly individualistic, subjective and contingent nature of agents' cognition and reason, and given the impossibility of defining ex ante the idea of having 'complete information', there simply can be no unique 'completely rational' response by agents to any particular set of circumstances. This lack of definite meaning for 'complete rationality' negates the whole

intention of the 'zero method', for there is nothing uniquely definable from which to measure the 'deviation' of observed conduct.

It was probably because of the ambiguity of the term rationality that Popper proceeded in the Harvard lecture to detail his intended meaning of the principle. He stressed that, in the SA-RP context, rationality had no ontological significance and was not intended as a theory of human action. It remained 'empty' in that sense because it has 'little or nothing to do with the empirical or psychological assertion that man always, or in the main, or in most cases, acts rationally' (1994, p.169). The RP 'does not play the role of an empirical explanatory theory, of a testable hypothesis' (p.169).¹⁷ Thus, rather than accepting any intrusion into psychologism, Popper boldly proclaimed that rationality as he defined it is nothing more than 'an aspect of, or a consequence of, the methodological postulate that we should pack or cram our whole theoretical effort, our whole explanatory theory, into an analysis of the *situation* — into the *model*'. It is nothing more than a 'by-product' of that postulate (p.169). It was clearly his intention that we should read no more into the idea of agent rationality as represented in the RP than that it is an assumption made necessary by a *methodological* choice on the part of analysts in the social sciences. All this demands that we respect the purest '*logic*' of the situation fully when giving accounts of human action and its consequences. By sterilizing the complex and contingent ontology of the human agent in this manner, Popper had moved more towards instrumentalism than he seems to have realized. He had put himself in the position of allowing methodological principles to dictate the form of representation of human phenomena without concern for the resulting ontological veracity of the accounts given of their origins. The issue, as he put it, was that 'if we wish nevertheless to uphold the method of situational analysis as the proper method of the social sciences, as I certainly do, and if we wish to uphold the view that science searches for the truth, are we not in a hopelessly difficult position?' (p.173). The answer to this effectively rhetorical question should be in the affirmative.

4. Conclusion

Two intimately related sources of tension in Popper's thought on the required foundations for the social sciences have emerged from his attempts to link these to formalist economic theory. One of these flowed from his pursuit of a methodological 'unity of science', for this endeavour made it difficult to avoid the reintroduction of instrumentalism as the default mode of representing theoretical social and economic knowledge. This constitutes the second source of tension, for he had elsewhere rejected any reliance on instrumentalism that excluded concern for the empirical content of the model itself. But mainstream microeconomics had ignored the maladies of such methodology and nevertheless become a successful and respected body of doctrine.

Popper made it clear that the reason he chose the SA-RP metatheory and adhered to the formalist treatment of it found in microeconomics was to avoid advocating a subjectivist and psychologically grounded social science. He saw the introduction of the 'logic of the situation' as rescuing human inquiry from the impossible task of generalizing from personal introspection, and from the need to devise psychological 'laws of human nature'. Agents could instead be depicted as artificially omnipotent and rational, and as acting exclusively in ways that are consistent with the objectively defined and finitely specified conditions within which their actions take place. But presumptions about human action sufficiently regularized and consistent to conform to the demands of scientific logic had to be imposed by the theorist. Popper was aware of this, for he well knew that realistically representing the ontological origins of social science phenomena in the actions of human agents simply could

not be done within the formalist boundaries he had set in requiring consistency with the H-D-N model of scientific argument.

The second source of tension arises, then, because of the incongruity that much of what Popper knew and rejected about instrumentalism was integral to the very formalism of the SA-RP logic and its H-D-N method demanded by a 'pure' science of human action. He had found this formalism actively applied and accepted in the economics he openly admired. In spite of his advocacy of a critical rationalist strategy when assessing theories, he showed a surprising lack of critical acumen in dealing with the instrumentalist nature of orthodox economic theory as it was being practised in so much of the literature of the period. It was well known then, as it remains now, that most economic theories, especially the theories of idealized markets upon which Popper focused, are constructed to conform to the imposed methodological demands of a simplistic version of physical scientism, and to the consequent demands of formalist mathematical expression. He showed little concern that, consequently, an extreme instrumentalism dominated the foundations of orthodox economics.

Elsewhere, I have added a further dimension to interpreting the status of Popper's legacy for the social sciences by amplifying an aspect of his investigations that has received only limited attention (Oakley, 1999c). I refer there to the detailed ontology of human action that he developed in his body-mind interaction theory, a theory that is intimately involved with his three-worlds vision of universal reality (1972c, pp.106ff, 153ff; 1976b, pp.180ff; Popper and Eccles, 1977, pp.36ff). This deeply humanist dimension of Popper's thought is readily shown to aggravate the tensions present in his metatheoretical contributions. It provides a richer and more realistic concept of the agent that gives the SA approach an extended meaning for understanding human action that reaches beyond the formalist status to which the strict RP confines it. Such an extended meaning makes even more evident the potential of situational analysis as a foundation for social and economic theory that transcends the merely methodological (see Oakley, forthcoming 2000).

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Notes

1. Popper's personal and intellectual relationship with Hayek is referred to on a number of occasions in Popper's autobiography (1976b, pp.108ff, 120, 127f, 234).
2. Popper made no explicit reference to these sources. It is perhaps appropriate to record in this connection that among those to whom Popper made passing reference in his autobiography as having influenced his evolving thought while in New Zealand during the late 1930s and early 1940s was 'Colin Simkin, the economist' (1976b, p.112). Simkin's own recollections confirm that he did instruct Popper in economic theory, but there is no indication of the extent or content of that instruction (Simkin, 1999, p.244).
3. Most recently, these contributions were the focus of 'The Vienna workshop on Popper's situational analysis and the social sciences' held in 1997. The papers from this workshop were published in two parts in *Philosophy of the Social Sciences*, 28: 3 and 4, 1998 under the editorship of Egon Matzner and Ian Jarvie (Matzner and Jarvie, 1998).
4. Wade Hands is a critic of Popper's metatheories especially sensitive to the possibility that situational analysis may be unacceptable as a foundation for social theory. He situates SA in the debates concerning the validity or otherwise of the folk psychology upon which it crucially depends (1991, 115f.; 1993, 171ff.). The message of folk psychology is that human action can be legitimately and fully understood as flowing from agents' subjective and psychological beliefs, desires, intentions and dispositions, without the need to explicate the concurrent neurophysiology of the brain with which these things are undoubtedly linked. This was also the message of Popper's ontology of human action (Popper and Eccles, 1977). But those who reject such accounts

deny that the instigation and determination of actions can be attributed to categories that purport to represent independent conditions and processes of the mind. In the extreme of what is known as identity theory, a theory explicitly rejected by Popper, individual psychological states *are* brain states and nothing more, so that the folk psychology approach to understanding the mental origins of action is *replaced* by a neurophysiological approach that attributes actions directly to physical brain activity (Churchland, 1988, 26ff). Hands refers to this as eliminative materialism, or eliminative naturalism, because the intention is to get rid of all mental references and bring the social sciences back into the fold of pure natural science (1993, 177f.). This issue remains unresolved but cannot be pursued further here (see Oakley, forthcoming 2000).

5. All reference citations by date without author in the text are to Popper's writings unless otherwise indicated.

6. It has been suggested more recently that the demands of this comprehensive natural 'scientific' approach to social theory might be softened by giving more serious attention to Popper's method of critical rationalism. This is a method that includes the potential for the falsification test, but also allows a broader range of theoretical conjectures to achieve scientific acceptance by surviving some stringent process of attempted refutation by means of critical debate (Caldwell, 1991, 1994; Boland, 1997; Hands, 1993). It must be said, though, that the application of this dimension of Popper's philosophy to the social sciences has met with a mixed reception. Initially, scepticism dominated concerning the practical relevance of the approach because its lack of precision made it difficult to apply with any consistency (Hands, 1991, 1992a; Blaug, 1992). However, some have found critical rationalism defensible, with reservations, as Popper's only sustainable methodological contribution to the social sciences (see Boland, 1997, especially 260ff; and Hands, 1993, 149ff.; 1996).

7. Perhaps there is something in Mark Blaug's quip that 'the fact is that Popper knew little about social science and even less about economics' (1985, p.287).

8. In this and all subsequent quotations from Popper's writings, the emphases shown are in the original.

9. Some insights into the origins of the work are found in Popper (1960, p.iv) and in Popper (1976b, pp.108ff). Subsequent citations of this work in the text are to *Poverty*.

10. Hayek added that scientism is 'a very prejudiced approach which, before it has considered its subject, claims to know what is the most appropriate way of investigating it' (1955, p.16). This was a signal about the priority that should be given to the ontological nature of phenomena over methodological predilections when devising scientific analyses (see Oakley, 1999a, pp.126ff). We saw in a quotation above a hint from Popper that he, too, recognized such priority in linking the methodological concerns of a science to concerns about 'the character of its subject matter'. If such links are taken seriously, economics would lose its status as the exemplar of the social sciences because its canonical instrumentalist methodology is not driven by any such demands for ontological veracity in its representation of phenomena. On the contrary, it makes such matters irrelevant in the assessment of theories. Popper chose not to confront this issue.

11. This work was originally published in three parts in *Economica* in the early 1940s and republished in *The Counter-Revolution of Science* in 1955.

12. J.M. Keynes expressed a similar notion concerning the 'inside' of a falling apple in his correspondence with Roy Harrod during 1938: 'I also want to emphasize strongly the point about economics being a moral science ... [because] it deals with introspection and with values ... [and] it deals with motives, expectations, psychological uncertainties. ... It is as though the fall of the apple to the ground depended on the apple's motives, on whether it is worth while falling to the ground, and whether the ground wanted the apple to fall, and on mistaken calculations on the part of the apple as to how far it was from the centre of the earth' (Keynes, 1973, p.300).

13. It is now evident that the better-known paper 'The rationality principle' (1983a) was effectively an extract from this longer piece.

14. 'In the sciences', Popper wrote, 'we work with theories, that is to say, with deductive systems', each of which is 'an attempt to solve a scientific problem — a problem of explanation' (1976a, p.99). Science has the task of finding the 'causal explanation' of an explicandum that consists of 'a fact or of a phenomenon or of a remarkable regularity or of a remarkable exception from a rule' (p.100). He was unequivocal that in the theoretical sciences 'the basic logical schema of every explanation consists of a (logical) deductive inference whose premisses consist of a theory and some initial conditions, and whose conclusion is the explicandum' (p.100). As he explained elsewhere, to achieve the generic 'aim of science', an explanatory theory and its initial conditions comprising the explicans 'must fulfil a number of conditions' (1972c, p.192). First, the explicandum must be entailed by applying logic to the explicans; and secondly, the explicans must be based upon independent evidence that, when it has been subjected to critical scrutiny, has not shown the explicans to be false. Moreover, the explicans must be rich in empirical content and avoid making use of ad hoc statements (pp.192f).

15. What this means in terms of the modelling of economic and social explanations has been demonstrated and criticized at length by Spiro Latsis (1972, 1983) and Wade Hands (1991), both of whom centre their attention

on versions of Popper's H-D-N logic similar to those provided by Noretta Koertge (1974, 1975, 1979).

16. Popper remained unaware, it seems, of the widespread acceptance by the economics profession of Milton Friedman's 1953 methodological prescriptions in his 'The methodology of positive economics'. There have been numerous controversies about the precise meaning and intention of this contribution (see Boland, 1997, Part I). But, for those practising economists who took the piece seriously, the message was unambiguous and uncontroversial. It gave scholarly legitimacy to what they had been doing for some time: devising formalist theoretical analyses by shaping the terms of economic phenomena to suit H-D-N modelling, expressing these analyses in mathematical terms, and then, on occasion, applying econometric tests for 'confirmation' that the analyses conform to observed quantitative realities. Economists, by and large, had shown themselves to be satisfied with the apparent conformity of their methodological strategy and theoretical results with the epistemological standards they believe to have been established as 'best practice' in the physical sciences. Economics was legitimated as a pseudo natural science that employs rigorous modes of argument and claims to confirm its theories by predictions alone (Blaug, 1980, pp.119f).

17. Popper went so far as to reject the idea that in the case of the controversy over marginal-cost pricing and profit maximization, contrary empirical evidence flowing from questionnaires about the motivations of entrepreneurs should be used in refuting the theory. What we are to make of his conclusion in this matter that even if profit maximization is 'false as a theory of businessmen's behaviour, it may still be valued as an approximation to the truth' is quite unclear if we are to have any faith in the principle of falsifiability (1994, p.182 n6). There is more apparent sense in his additional thought that profit maximization may be one among other situational elements that may be called up to explain entrepreneurial decisions. These other elements may include increasing the standing of the enterprise and/or of the decision maker's position within it, in which case the profit maximization criterion may act as a 'kind of situational constraint' (p.182 n6).

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