

Plurality in Orthodox and Heterodox Economics*

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Abstract

Several observers have noted signs of a growing plurality in mainstream economics. At the same time there has been a growing emphasis in heterodox economics on commonality. The purpose of this paper is to explore the nature of plurality in economics in order to make sense of these characterisations, and to consider the issues raised by this plurality. The critical factor is to distinguish between plurality at the level of theory and evidence, at the level of methodological approach (plurality of methods), and at the meta-methodological level (a plurality of methodologies). First it is argued that, while there is plurality at the level of theory and even of type of evidence in orthodox economics, there continues to be monism in terms of methodological approach, and in attitude to methodological alternatives. In heterodox economics, the commonality of methodological approach does not go far before emerging pluralistically into a variety of approaches. Indeed there is, at the meta-methodological level, a range of arguments in heterodox economics for a plurality of methodologies, that is, a recognition that it is legitimate (if not inevitable) that there is more than one approach to economics.

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Introduction

The discipline of economics is continually changing. The features of recent change which this paper examines are the appearance of increasing variety, or plurality, in orthodox economics, as highlighted recently by Davis (2006) and Vromen (2004), alongside a growing sense of, and indeed advocacy of, cohesion in heterodox economics around a single (pluralist) methodology.

Plurality has been an accepted norm in heterodox economics, both in terms of recognition of at least one other approach in the form of orthodox economics, but also in terms of variety among heterodox schools of thought. It is inevitable when an approach is counterposed to an orthodoxy that there is a sense of 'otherness'. But there have been suggestions that these divisions are lessening. Commentators such as Goodwin (2000) and Colander (2000a) identify the growing plurality in orthodox economics as accompanying a move away from (ideological) divisions between schools of thought, so that the terms 'orthodox' and heterodox' are no longer relevant. It is however disputed, from the heterodox perspective, that the gap is lessening with orthodox economics; critical realists in particular continue to focus on the fundamental difference of approach between the two. However, there has been growing support (represented at the institutional level by ICAPE and AHE) for the idea that heterodox economics be united, by its open-system ontology (Lawson, 2003; Lewis, 2004) and/or by its reliance on a pluralist methodology (Garnett 2005). At the same time, Davis and Sent (2006) argue that heterodox economics is in fact far from pluralistic in the sense of being tolerant of a range of competing methodologies. They have also urged heterodox economists to keep abreast of developments in orthodox economics in order to update the relevance of critique as well as to be alert to opportunities for constructive developments in ideas across what is normally thought of as the orthodox/heterodox divide.

The key to making sense of these apparently competing accounts is to distinguish between plurality, and the arguments for plurality (pluralism) at different levels: the level of reality (is there variety in nature?), the level of knowledge or meta-methodology (variety of methodological approaches), the level of methodology (variety of methods), and theory/application (variety of theories/applications) (see further Dow 1997). We start with orthodox economics in order to identify at which level(s) it might be said to be pluralistic. Since we conclude that it is still monistic in terms of methodology (one method: mathematical formalism), we then consider the implications of the core requirement for mathematical modelling of ideas. Orthodox economics is also monistic in terms of not contemplating alternative methodological approaches. This contrasts with the range of arguments coming from heterodox economics for methodological pluralism, which we then explore. Against this backdrop, we consider the recent arguments that heterodox economics is not very pluralistic on the one hand, and the arguments that it should be less pluralistic on the other, all at the level of meta-methodology.

In the process we explore what is entailed by pluralism at the meta-methodological level. In particular it does not entail individual economists simultaneously adopting a range of methodologies, since that would be either incoherent, or else another methodology. (To

employ a plurality of *methods* is at a different level, being an example of a particular methodology.) Rather it entails recognition that there might legitimately be other methodological approaches, which is not inconsistent with arguing forcibly for one's own preferred methodology. The changing attitudes towards schools of thought, within both orthodoxy and heterodoxy are the focus of Dow (forthcoming b), which offers a diagrammatic representation.

Plurality in Orthodox Economics, alongside Monism with respect to Methodology

There was an unusual amount of reflection around the millennium on the state of economics which provides some insight into how plurality is regarded in orthodox economics. As one of the millennial reflections on economics, Weintraub (1999) explicitly drew on modern developments in historiography, which acknowledge that different histories can be written from different perspectives; no historical account can claim to be the one 'true' account. The emphasis therefore was on the variety of perspectives in economics and, by implication, variety in economics itself. Indeed, such an account provides implicit support for pluralism, ie the argument for, or celebration of, variety. The role for plurality had already arisen in earlier exercises in looking forward to the future of economics. In 1991, the *Economic Journal* marked the occasion of the first issue of its second century by inviting leading economists to reflect on what the future held for the discipline. Among the prescient themes which emerged were the following, each of which was explored by several contributors:

- the opening of economics to input from, as well as input to, other disciplines, notably sociology and psychology;
- increasing specialisation within economics (and thus of conferences, journals etc) leading to fragmentation of the community of economists;
- increasing cohesion around methodological and theoretical principles, with a move away from the type of divide seen in the Monetarist-Keynesian debates.

John Pencavel (1991) concluded that these seemingly opposing trends would be compatible if we think of economic ideas as being diverse and competing freely in competitive markets. He used the term 'pluralistic' to describe the outcome, which he welcomed as reducing the scope for '[p]rofessional tyranny' (Pencavel, 1991, p.87), by implication an imperfection in the market for ideas. But plurality is not universally welcomed within the orthodoxy, since it raises concerns as to how the different types of theory can be put together. Blanchard and Fischer (1989, p.505), for example, had referred to it as being 'logically uncomfortable'.

The conventional account (see for example Colander, 2000a, and Goodwin, 2000) characterises the 1970s-1980s as a period of fierce debate between different schools of thought, often epitomised by the Monetarist-Keynesian debates. The differences are characterised as being policy-focused and, ultimately, ideological. But contemporary accounts from that period identified a wider range of schools of thought, which were differentiated more by methodological approach than by ideology alone: mainstream economics, Post Keynesian economics, institutionalist economics, neo-Austrian

economics, Marxian economics, and so on. There were differences as to how to characterise mainstream economics. Weintraub (1985) and Backhouse (1991) saw it as being unified in terms of the principles of general equilibrium theory (see also Dow, 1985). But Phelps (1990), Mair and Miller (1990) and later Snowdon, Vane and Wynarczyk (1994) could identify schools of thought within mainstream economics (such as monetarism, new classical economics, real business cycle theory and new Keynesian economics).

What has been identified in the literature some twenty years later has been a process of increasing fragmentation within mainstream economics, going beyond the schools of thought identified earlier. However, it is contestable how far this is a change in degree of variety in orthodox economics, and how far just a matter of content (see Weintraub, 1999). Colander (2000b) focused on the movement of economics in the direction of handling increasing complexity. He noted a growing divergence from formal general equilibrium models for policy purposes, which was inevitably a force for fragmentation, and predicted a move towards more contextual microfoundations, which would reinforce that trend. He had already announced the 'death' of neoclassical economics as a useful category (Colander, 2000a). As predicted in the centennial *Economic Journal* issue, the growth of game theory, experimental economics, evolutionary economics, behavioural economics, complexity economics, and so on, had meant that the mainstream of economics could no longer be identified as a single theoretical system.

Davis (2006) offers an explanation for this development in terms of a cyclical process of trade in ideas, whereby variety emerges when imports exceed exports. Thus, many of these developments in mainstream economics can be seen as an adaptation designed to incorporate ideas from other approaches in economics (which had been questioning the rational economic man concept, for example) or other disciplines (such as psychology and biology). Since many of these developments have encroached on the middle ground between mainstream economics and non-mainstream schools of thought, Goodwin (2000) questions whether there is any continuing relevance in these two categories (see further Coats, 2000).

This plurality of theories is also evident in their content, and the changing nature and scope of evidence, reflecting an increasing understanding of plurality in the subject matter. Thus, by considering the possibility of different information sets among different categories of economic actor, rational expectations theory generated multiple equilibria. This outcome jeopardised the clear implications which had earlier been drawn from the strong rational expectations hypothesis. Similarly, behavioural economics took on board different attitudes to risk in order to explain more complex behaviour in financial markets, and new types of evidence were gathered on the basis of experiments, and happiness studies have gathered new evidence based on surveys (Frey and Stutzer, 2002). Game theory took on the implications of interaction between different interest groups, and so on. Increasing analysis of heterogeneous agents reflects a movement away from the idea of the representative agent in an effort to capture more effectively a complex reality (see for example Kirman, 1992). Thaler (2000) predicts a continuation of this trend.

Nevertheless the resulting complexity of the disciplinary landscape can be seen as being unified by the shared purpose of a general systematisation of agents' rational behaviour under certainty and uncertainty conditions, including interactive behaviour (Giocoli, 2003). Indeed, while there is a consensus in the orthodox literature (whether justified or not) that there has been fragmentation in terms of theory and evidence, there is also a consensus that there has been a growing cohesion at the level of approach, specifically in terms of method selection. Thus Blanchard, who with Fischer had drawn attention to the plurality within macroeconomics in 1989, as we noted above, had by 1997 come to emphasise the commonality at the level of framework (Blanchard 1997, p.582). More generally, Goodwin and Colander point to the increasing requirement for theory to be expressed in terms of formal mathematics, which at the level of method reduces significantly the degree of plurality.

Thus game theory has evolved by formalising different notions of rationality (Samuelson, 2004). In behavioural economics, the notion of 'rational' behaviour has been extended to incorporate what had once been dubbed 'irrational', such as time-inconsistency and self-control. But the outcome is still expressed in terms of optimising behaviour subject to constraints, such that it is amenable to formal treatment (eg Samuelson and Swinkels, 2006). The orthodox notion of uncertainty has been refined, now incorporating experienced uncertainty, as well as decision uncertainty (eg Kahnemann and Sugden, 2005), but again still applied within a utility maximisation framework. Something relatively new is that many of these developments involve theory adapting to experimental evidence. Further, survey evidence is informing the 'happiness' literature, as well as more specifically labour-market analysis. Thus for example Thomas (2005) analyses labour market behaviour focusing on the idea of the fair wage (and thus wage relativities). But the analysis still rests on a utility-maximising framework where such considerations do not appear in the utility function. Similarly it is not clear how the evidence on happiness will be translated into theory, not least because of the subjective nature of the evidence. Finally, Bewley's (1995) conclusion, that the survey evidence of the feeling of self-worth from employment appears to contradict the conventional view of work as a source of disutility, poses a tremendous challenge to the specification of preferences.

Samuelson (2005) explains some of the challenges such developments pose for a formalist approach, exploring in detail the difficulties in combining the apparently conflicting insights from experimental economics with theory (see further Sugden, 2005; Morgan 2005). For example, how far are surprising results from experiments still conditioned by the abstractions of the theory to which they related, and therefore do not constitute independent evidence? How should preferences be modelled when going beyond a narrow conception of self-interest (note the unquestioned requirement to 'model')? The importance of addressing such difficulties is emphasised when he concludes that 'at some point some connections must be made between theory and behaviour if economic theory is not to fade into either philosophy or mathematics' (Samuelson, 2005, p.100). The consensus identified by commentators (such as Morgan and Rutherford, 1998, and Blaug, 1999) has been that constructing, analysing and testing

formal models is the core activity of mainstream economics. The key question will therefore be how far the requirements of mathematical modelling are given priority in resolving the emerging incompatibilities between theory and evidence.

Addressing such questions is hampered by the long history of monism with respect to methodology which, in Davis's (2006) terms is a constraint on trade in ideas. Since economics had come to be defined by its (formalist) method, any research which fell outside that method could not be economics and was thus ignored. As a result there is a profound lack of awareness of the long tradition of heterodox economic analysis using different methodologies, so that orthodox economists are addressing the confrontation of theory with the real world as if from scratch. For this reason, if for no other, it would not be surprising if the prevailing formalist methodology persisted, for want of ideas among orthodox economists as to how to develop alternatives. Orthodox economists would then continue to define the field, monistically, by its method.

Plurality of Method in official and unofficial discourse

The choice of mathematical formalism which came to dominate economics from the 1950s is generally tacit among orthodox economists. Indeed where it is still discussed, as in Allen (2000), it is generally in terms of the matter being settled. Yet the attitude to mathematical formalism could prove decisive for how the theoretical difficulties are resolved in orthodox economics that we noted above as arising from experimental and survey evidence. It can be argued that orthodox economists in practice use more than one method, ie they practice a different methodology. McCloskey (1983) has demonstrated that, while the 'official discourse' of orthodox economics conforms to formalism in terms of a particular range of mathematical techniques for formulating theory and assessing evidence, the 'unofficial discourse' relies on a much wider range of methods of argument being brought to particular questions. In this section we consider the coherence of a methodology where the practice differs so much from the principle.

Clearly the principal of mathematical formalism has strong attractions for many economists. One of the main advantages of a monist methodology is that all arguments are commensurate. Mathematical formalism puts all arguments on an equal footing, allowing direct comparison, and a straightforward check on consistency (Allen, 2000). However in an applied discipline (and even within pure mathematics) mathematical systems cannot be closed, so that internal mathematical consistency is insufficient; there inevitably remains scope for variety of opinion (Weintraub 1998, 2002). And indeed charges of logical inconsistency (as in the Cambridge controversies of the 1960s, see Harcourt, 1972, or with respect to the no-trade theorem, see Sent, forthcoming) in practice have not proved decisive. This suggests an increasing need for a different justification for arguments to be expressed exclusively in terms of mathematics, if this approach is to be sustained.

The plurality of methods applied in unofficial discourse is inevitable. At the level of choice of specific method (within a monist, formalist, methodology), there is a range of

techniques which could be employed. But inevitably such choice requires argument which is in some sense outside of mathematics. The choice requires reference to the nature of the subject matter and a weighing of the costs and benefits of possible methods of analysis in relation to that subject matter. The methodology then cannot be fully defined by mathematical formalism.

Similarly, something else which lies outside mathematics itself is the issue of meaning. The scope for different meanings itself is a source of plurality, but one which is concealed if meaning is presumed to be held in common. Mathematical expression is often treated in terms of translation from verbal language to mathematical language, which is internally precise. Mathematical argument has the advantage that it can achieve more complex operations than verbal argument, retaining precision throughout. But while mathematical argument is internally precise, giving meaning to mathematics is not (Coddington, 1975). The vagueness of verbal language allows it to encompass shades of meaning, to evolve in meaning, and to combine a plurality of types of argument. But if there is variety in meaning of verbal terms, and variety in methods of argument, both are lost in an effort of translation into mathematics. Mathematical expression is therefore not neutral, but rather puts particular limits on the scope of subject matter and of argument (Chick and Dow, 2001). Most importantly, meaning in application of theory further remains imprecise and open to variety of opinion. The rigour required for application is different from the rigour of mathematical argument, but arguably even more important.

Non-mathematical argument is required at the meta-methodological level to explain why one methodological approach has nevertheless become the common source of homogeneity in orthodox economics. The explanation may be that the growing heterogeneity at the theoretical level can be counteracted by a common mode of expression, with sufficient commonality of meaning (of concepts like 'rationality') to allow understanding across subfields. This would be a particular form of the more general sociological explanation that scientific communities adopt a methodology which becomes an identifying feature. The community is perpetuated by means of education through textbook exemplars, by peer review, by hiring decisions and so on. While there is a deep background to knowledge which evades articulation (Searle, 1995), a community can serve to create and perpetuate a common background among its members and recruits to support a continuation of the methodological approach. All of this is the meat of Kuhn's analysis of paradigms.

Yet paradigms require a core set of principles by which to guide practice; what is it that distinguishes a good argument from a bad argument? We have seen that expression in mathematical formalism is not enough. Yet the argument for mathematical formalism and discussion of how to combine it with other methods remain absent from orthodox discourse. We are left with the uncomfortable impression that there is no coherent core; that it is in orthodox economics that 'anything goes' (the dualistic misinterpretation of Kuhn which was used by orthodox economists to dismiss heterodox economics).

The Case for a Plurality of Methodologies

While monism at the meta-methodological level has stifled discussion of methodological alternatives (other than in terms of rejection), discussion of methodological alternatives has been central to heterodox economics. Out of this discussion has emerged a range of arguments for a plurality of methodological approaches, of which we highlight four. The first is to accept its existence as a feature of knowledge systems on ethical grounds, whether or not it is justified. The second is to argue that no mechanism exists for unifying knowledge about reality, so we have no choice but to accept plurality of approach. The third is positively to advocate plurality on the grounds that variety is essential to the survival of the discipline in the face of an evolving subject matter, and the fourth is to argue that plurality of approach inevitably follows from the nature of the subject matter.

The ethical argument rests in turn on what is seen as a fundamental aspect of knowledge (Screpanti, 1997; Mäki, 1997; McCloskey, 1994). If at a basic level we can construct knowledge in different ways, for whatever reason, and there is no agreed basis for identifying one best approach to knowledge, then there can be no justification in presuming that others' approach to knowledge will be the same as our own. To recognise this requires an awareness that reality may be understood differently, terms may be used with different meanings, different criteria employed for deciding what is a good argument, and so on. The ethical argument then is to develop sufficient awareness of difference, first to recognise other approaches, and second not to reject them simply because they are different. This is not at all to rule out criticism. On the contrary, it is argued that critical analysis which is as 'objective' as possible requires some mutual understanding (of methodological principles, meaning, etc).

When Morgan and Rutherford (1998, p.8) identified a change in the professional ethos of American economics away from what they saw as interwar pluralism, they characterised it in terms of a move away from associating objectivity with even-handedness with respect to different arguments (and different types of argument). Even-handedness requires awareness of otherness. The extent of this awareness and thus of interwar pluralism was arguably very limited. But what is noteworthy is that Morgan and Rutherford identify modern economics with the rise of technocracy, and an association of objectivity instead with the adoption of a particular range of techniques. These techniques facilitate instead direct comparability of argument, but at the cost of precluding arguments which cannot be expressed in terms of these techniques. This approach is monist (ie discourages variety) with respect to methodological approach. Further the particular approach itself is monist in making mathematical modelling the one general core method.

As we have seen, the increasing monism in terms of methodological approach in orthodox economics has nevertheless been accompanied by the emergence of a plurality of theoretical approaches, using different subsets of formal techniques. But at the same time, it has created a dualistic divide between theory which conforms to these norms of development and expression and those which do not, discouraging mutual understanding and communication. The ethical argument for pluralism suggests that even-handedness of

treatment of different arguments should allow, not only for different theories within one definition of objectivity, but also for other concepts of objectivity. It is above all such even-handedness (applied to a range of approaches) that the various groups of students petitioned for in the teaching of economics in what led up to the formation of the PAE network (Fullbrook, 2003).

The ethical argument for pluralism is supported by the second argument at the level of knowledge systems. The modern argument that a plurality of methodological approaches is inevitable stems from Kuhn's study of the history of science as developing within successive incommensurate paradigms. In the absence of any basis for absolute principles for good science, paradigms are formed around particular sets of principles shared by scientific communities. While this withdrawal from any attempt to establish absolute principles encouraged the growth of postmodernism and the positive espousal of 'anything goes', there was also an argument for a more limited form of plurality of approach. The emphasis here was on the limitations on variety imposed by the social nature of science, ie focusing on Kuhn's emphasis (following Popper) on scientific communities. There is a limit to how far there can be plurality of understandings of the nature of reality, approaches to knowledge, and meaning, when knowledge needs to be developed within groups of researchers and communicated to others. Plurality in practice cannot be infinite, but rather takes the form of a range of approaches, each with its own guiding principles for building knowledge; this can be classified as 'structured pluralism' (Dow, 2004b).

Further, the emphasis on the social nature of scientific activity has encouraged attention on the sociology of the discipline, so that much of the activity within economic methodology now is some form of science study, concerned with understanding the choices made by economists in developing theory and the means by which they persuade others to accept their theories. This work draws on a rich seam in what is generally classified as the Sociology of Scientific Knowledge (SSK; see Hands, 2001, chapter 5, for a survey). A key concept in this literature, which has caused considerable problems for its application, is reflexivity. In particular, no commentary on an approach to economics can be objective in the sense of not itself employing an approach. The notion of a market for economic ideas, for example, is not objective, given the range of understandings of markets in the literature (see for example Vickers, 1995; Mäki, 1999; Milberg, 2001). Thus it is highly problematic to contemplate a market for ideas as a satisfactory arbiter of ideas about markets. Nevertheless the SSK approach provides a vehicle for analysing the community of economists as a society, including the way in which methodological norms are adopted and propagated.

The third argument for variety of approach to economic knowledge is also made at the level of knowledge systems, and comes from application of the biological metaphor. The argument refers to the subject matter only in the sense that theory has to adapt to new developments. In nature, diversity of species provides protection against unforeseen threats, such that if one strain succumbs to a threat, others are available to take its place. In other words, without diversity, the one dominant strain of ideas is highly vulnerable to unanticipated developments for which it cannot generate an explanation.

The fourth argument for a plurality of approaches rests on a specific argument about the nature of the subject matter as an open system (King, 2002; Chick and Dow, 2005). The argument then is not just that there are limitations to the human capacity for knowledge which prevent us from identifying a single best approach to knowledge which would satisfactorily explain law-like behaviour. The argument is further that the nature of individual behaviour (with its social and creative aspects) and institutions is complex and evolving, in such a way that we cannot hope to identify true causal mechanisms (or at least know if we have done so). Nevertheless we strive to identify causal mechanisms in which we have good grounds for belief. But social systems too incorporate (uncertain) knowledge, which therefore has real consequences. The inevitability of a plurality of methodological approaches which we discussed above at the epistemological level is thus reinforced at the ontological level; not only are real social systems incapable of capture in any one knowledge system, but the plurality of knowledge systems itself compounds the problem is that there are real consequences for institutions and for behaviour (see Niebyl, 1946, Chick, 1999, for a discussion of the interplay of reality, theory and power).

Plurality of Methodological Approach in Heterodox Economics

Just as orthodox economics is continually evolving, so too is heterodox economics. Davis and Sent (2006) argue that the divide between orthodoxy and heterodoxy too has evolved and continues to evolve. They argue for an approach to pluralism which promotes such evolution in constructive directions, in particular with heterodox economists taking up opportunities offered by the kind of changes in orthodox economics outlined above which would benefit from an approach other than the standard orthodox approach. At the same time, they argue that heterodox economists are too prone to approach pluralism as a strategy rather than as the chosen approach to knowledge. Indeed the chosen methodological approach, they argue, is more akin to monism, based on assertion of the best methodology. Garnett (2005) makes a similar argument in relation to the traditional structure of heterodox economics as consisting of schools of thought, or paradigms, which are each defended against each other, as well as orthodox economics. All therefore argue for a more open pluralism at the meta-methodological level, where there is acceptance of a range of approaches, where none can demonstrate itself conclusively superior, and where there is a willingness to explore alternatives.

At the same time the argument is being put forward, particularly by critical realists (Lawson, 2003; Lewis, 2004) that a pluralist methodology is the best approach to knowledge, ie an apparently monist argument at the meta-methodological level. Critical to this argument is the view that, however orthodox economics may have changed in content, it still employs a monist methodology based on mathematical formalism. Rather it has been argued that there is, or should be, only one heterodox methodology, and that that methodology should be pluralist in the sense of employing a range of methods. The reasoning behind this is that the subject matter of economics, the social system, is an open system and as such a closed-system methodology of mathematical formalism cannot identify underlying causal mechanisms. Instead we need an open-system methodology. It

is a logical argument, that a closed-system methodology can only work for a closed-system reality, ie it is regarded as successfully demonstrated that open-system knowledge systems are superior to closed-system knowledge systems when the subject matter is an open system.

Such an approach is shared by the attempt behind a range of developments (including the growing strength of the AHE) to emphasise the commonality within heterodox economics rather than the differences. This is done for strategic reasons, but reflects a genuine recognition of a shared rejection of closed-system theorising. Pluralism is therefore seen to be relevant only within that open-system methodology. Strategy is of course highly contestable. We have seen Davis and Sent's (2006) critique of this strategy as denying pluralism at the meta-methodological level. Davidson's (2004) insistence on one 'correct' theory, of which orthodox theory is a special case can also be understood as being strategic. This monist strategy (indeed building an alternative deductive axiomatic framework) may be thought to be the only approach which can be understood by the orthodoxy and thus the only one with a chance of gaining increased support. Yet another approach, and one which is perhaps most consistent with pluralism at the meta-methodological and methodological levels, is to adopt a pluralist strategy for promoting heterodox economics, with the methods employed designed to communicate most effectively with the intended audience (Dow, 2000).

But the more important question is what form heterodox economics takes, strategy for persuasion being secondary. The first question is whether it is indeed monist to argue for one approach as being superior to another. The important point is that there has to be recognition of another approach in order to argue against it. The heterodox argument against the orthodoxy is not that it is outside economics, but rather that it is inferior to heterodox economics. This is totally different from the orthodox refusal – which is more often implicit than explicit – to contemplate anything which does not conform to mathematical formalism as economics. This is what makes communications between orthodoxy and heterodoxy so difficult – there is an asymmetry in understanding the scope of the discipline, which follows from orthodox monism.

Not only is argument in favour of one approach over another a sign of absence of monism, it is required by absence of monism. Not to articulate the reasons for employing one methodology over another is to risk slipping into pure relativism. It is through exchange of arguments for one methodology over another, ie through constructive criticism, that knowledge progresses. The ferocity of argument noted by commentators on heterodox economics is a sign of lively debate and methodological awareness rather than their absence. Knowledge only progresses in this way of course if there is openness to criticism, and a willingness to contemplate change (in line with the ethical arguments for pluralism). But forceful promotion of one preferred methodology in itself is a sign of absence of monism. The relevant contrast is with the unwillingness of orthodox economics even to engage in discussion about methodology (in the sense of methodological approach).

The second question is whether the appropriate form at the meta-methodological level is dualism rather than pluralism, ie the closed-system approach and the open-system approach. Quite apart from the question (which is not explored here) of a range of closed-system approaches, how far is it feasible to contemplate a singular open-system approach. This has been a matter for debate particularly with critical realists, for whom differences within heterodoxy are a matter of mere 'ontological commitment', a division of labour (Dow, 2004, forthcoming a; Fleetwood, forthcoming; Lawson, 2004). A key issue is how far it is reasonable to see heterodox economics as having a shared ontology, beyond the understanding of the social system as being open. Fleetwood (forthcoming) for example claims that there are incontestable claims, of the sort 'women earn lower wages than men'. We thus have enough of a grip on a singular reality to avoid relativism, and by implication to provide a common ontological foundation for all of heterodox economics. But even this example demonstrates the limitations of the argument. The example is taken from the empirical level. Yet there has been extensive discussion as to the limitations of the notion of 'facts' as being dependent on perspective (see further von Staveren, 2004). But more than that, critical realism emphasises the nature of reality as consisting of social relations, rather than 'facts'. Even if there were complete agreement on quantitative indicators, this only provides the starting-point for analysis, which aims to illuminate the real tendencies underlying the empirical level. Analysis and also, I would argue, accounts of 'facts' themselves, immediately take us into the realm of differing understandings of reality, ie different ontologies (see further Dow and Dow, forthcoming). Thus some heterodox economists would see labour relations in class terms, some in terms of social institutions, some in terms specifically of gender. It is the gender perspective which perhaps illustrates this point most clearly; the feminist critique is that economics is dominated by the male perspective, which is employed monistically, just like the orthodox perspective (as if there were no other). Kuiper (2004) makes just this critique of critical realism.

The general implication is that, while there may be agreement among heterodox economists that the real social system is open, there is scope for different open-system ontologies which support different knowledge systems. These differences are better recognised if argument is to be effective. It is not that differences are absolute and unchanging, or that schools of thought are mutually exclusive. It is the purpose of argument across schools of thought to expand the understanding of each and suggest to each new channels of enquiry, which may indeed operate within common ground between schools of thought. But, as Kuhn (1974) argued in debate with Popper, scientists cannot all be engaged in extraordinary science all of the time; knowledge generally progresses by pursuing research within paradigms where there is shared understanding, particularly of what constitutes a good argument. Schools of thought thus perform a positive role in the sociology of knowledge. To recognise this would be to adopt a pluralist meta-methodology in its fullest sense.

Being pluralist at the meta-methodological level however does not mean any one economist pursuing more than one methodology simultaneously. At best this would in fact constitute an additional, distinctive, methodological approach. At worst it would be incoherent – simultaneously maintaining that only mathematical argument is acceptable

at the same time as maintaining that mathematical formalism is unacceptable, for example. Rather it means accepting the existence of alternative approaches, and approaching them in the spirit of constructive debate (including defending one's own approach). The only sense in which it is reasonable to think in terms of approaching a range of methodologies simultaneously is from the perspective of the policy-maker. A specific question, such as whether the central bank should raise the official interest rate or not, can be answered using a range of approaches depending on the underlying understanding of how the social system, and the central bank within that system, works. If all approaches produce a recommendation to increase the rate, while none can be demonstrated to be the absolute best approach, then more weight is attached to the judgement that the rate should be increased. Of course if the recommendations differ, then the central bank has to form a judgement as to which view of reality is closest to its own, and act accordingly. If different ontologies are represented in the decision-making body, however, the conclusion might be reached that there are insufficient grounds for belief that any action (in the form of a change) is warranted.

This argument follows Keynes's (1921) analysis of reasonable grounds for belief under uncertainty (see further Dow, 2004a). Keynes argued that in general the confidence we have in particular conclusions increases, the more different types of argument, and sources of evidence, support it. He was arguing for what is discussed now as triangulation as an account of how we, as agents and as philosophers and economists, build knowledge. We have been discussing triangulation at the meta-methodological level, as something for practical application by users of economic analysis, not its producers. Downward and Mearman (2006) provide a detailed account of what is involved in different forms of triangulation, as well as its justification. In contrast to the argument set out above, they advocate a triangulation of methodologies as a way of understanding the critical realist notion of retrodution, drawing together the different schools of thought in one methodological approach. This argument fits well with the critical realist emphasis on a common ontology, so that the differences are more between selections from a range of methods than between methodologies. What is argued here is that, either the ontologies differ, and thus the methodologies cannot be combined in a straightforward manner (since methodology follows from ontology), or they do not, in which case what is being talked about is a singular methodological approach. I would maintain that ontological differences persist, and it is inevitable that this should be so (whether or not there is a single independent reality).

It is at this level, of methodology, that pluralism is reflected in practice. Within diversity of methodological approach, one possibility of course is a methodology which is itself pluralist, that is, relies on a range of different methods, on the grounds that no one method is sufficient. And indeed this is how we could characterise the triangulation advocated by Downward and Mearman, and Lawson, within a singular methodological approach, were it achievable. These methods must be incommensurate, otherwise they would collapse into one method. Explicit adoption of this type of triangulation typifies heterodox economics, although there are differences between schools of thought with respect to the range and focus of methods employed (whether or not there is a partial role for formal modelling, for example). There is diversity too as to whether several methods

are applied to common questions, or whether several methods are used, but only one applied to each question (which differs from triangulation).

Conclusion

We have seen evidence that there are forces for heterogeneity in orthodox economics (at the level of theory and evidence) but much less at the level of methodology. Whether or not there is agreement as to the precise account of change within orthodox economics, and how far it is different extent from the past, it cannot be denied that there has been change. Yet this has attracted remarkably little critical scrutiny within orthodox economics itself, as if whatever change occurs must be socially optimal.

One possible explanation which can be imputed from such methodological statements as have emerged (such as Pencavel, 1991) is that there is the presumption of some sort of invisible hand at work in a market for ideas. This is a powerful metaphor to use in economics, but one which itself requires further examination, not least because ideas are not traded; there is no price mechanism through which markets might adjust. Indeed this metaphor illustrates well its own limitations. Because, given the plurality in economics, there are different understandings of market processes within different schools of thought, each would understand the operation of a market for ideas differently. In particular, those who identify limitations to the social benefits of free markets, and thus intervention (including intervention to promote increased competition) would be inclined to question whether the unfettered production of ideas in economics did indeed produce the optimal outcome. While this argument is ultimately circular (depending on the perspective of market adopted), so is the argument that rests on the invisible hand. Indeed the scope for different understandings of key terms is central to the nature of plurality in economics.

It has been argued here that the growing plurality in mainstream theory and evidence, prompted by the desire to capture more of the complexity of the economy, challenges the sufficiency of mathematical formalism as a methodological approach. Indeed the arguments for pluralism with respect to methodologies which have come from heterodox economics imply that monism (ie identifying economics with one methodological approach, such as mathematical formalism) remains without adequate justification. From a methodological-pluralist perspective, the problem is not so much with the content of a monist methodology as with the idea of its exclusivity.

The argument for a methodology with pluralist content is a separate matter from being pluralist at a meta-methodological level. As long as heterodox economists recognise other approaches, even if only to reject them, they are being pluralist at the meta-methodological level. But this does not mean actually adopting a plurality of methodological approaches (as opposed to a methodology which itself is pluralist). We cannot function as economists by adopting a pure pluralist perspective, allowing anything to go; we must make our own choices as to how to proceed. Sociologically this is most successful when done within loose, evolving, social groupings where ontology, and thus epistemology (including meaning) and methodology are shared. But, just as choosing to function generally in one language, for example, should not affect our tolerance of other

societies adopting different languages, so choosing one methodological approach (for our own good reasons) does not affect our capacity to respect others' right to adopt a different approach and indeed to learn from them. Nor does it affect our right (and indeed duty) to explain these reasons and to persuade others of the merits of our chosen approach.

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