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PLURALISM IN ECONOMICS

Sheila C Dow

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Department of Economics
University of Stirling
Stirling FK9 4LA
Scotland, UK
s.c.dow@stir.ac.uk

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Introduction

Modern economics operates within a wider cultural and intellectual context where pluralism is widespread. This pluralism arose from a reaction in the last few decades against the measuring of cultural experience and intellectual ideas against some notion of an absolute norm, which tended to dominate in the middle of the twentieth century. Thus there is now a positive embracing of the pluralist society and a rejection of scientism.

Economics, like all disciplines, has been influenced by this development. But economics can be distinguished from the other social sciences by its conscious positioning as being closest to the physical sciences. Thus, while other social sciences develop theories of human nature and social structure, mainstream economics has captured human nature in a set of 'self-evident' axioms. These axioms in turn form the foundation of a system of classical logic from which propositions are deduced whose truth content can be determined by means of empirical testing. The origins of this approach can be found in physics (see Mirowski, 1989). Now that physics no longer conforms to logical positivism, the model of modern economics can more readily be found in pure mathematics (see Blaug, 1999). The methodological framework espoused by mainstream economics, therefore, is not apparently open to pluralism. Classical logic applied to the axioms and testing the ensuing propositions against 'the facts' are seen as definitive; there may still be arguments, but these can 'in principle' be resolved with sufficient technical advance in modelling and testing.

Nevertheless there are distinct signs of pluralism within mainstream economics. There is for a start a notable diversity of approach, such that mainstream economics can no longer readily be defined simply in terms of a general equilibrium system. For example, while game theory depicts deterministic axiom-based behaviour, it does not fit readily into a general equilibrium system. Further, the kind of inconsistency which general equilibrium theory was designed to resolve is now evident in mainstream economics; new growth theory for example incorporates an endogenous money supply function in contrast to the exogenous money supply function of New Classical macroeconomics.

This pluralism in mainstream economics can be supported by the postmodern argument that the methodological strictures of logical positivism cannot be sustained. Thus for example Phelps (1990) describes New Classical Economics as postmodern. Indeed McCloskey's (1983) argument for the end of prescriptive methodology was embraced by mainstream economists, who prefer not to engage in methodological debate. In a modern version of the earlier realism-of-assumptions debate, the implication that was drawn was that the structure of theory did not matter; all that mattered was empirical testing.

But in the meantime, other approaches to economics have been evolving, some with long pedigrees, employing methodologies quite consciously different from mainstream economics. Central to this choice was the view that 'the facts' themselves are theory-laden and our capacity to test theory is highly constrained. As a result, economics consists not only of a dominant mainstream which has been fragmenting, substantially cut adrift from methodological scrutiny, but also of a wide range of approaches, or schools of thought, or paradigms, each of which asks different questions, and answers them in different ways. A feature of some of these non-mainstream approaches is an openness to other social science disciplines, which extends the plurality. In sum, economics consists of a plurality of approaches.

This plurality poses particular problems for policy makers. While methodologists have concluded that there is no one best way of choosing a theory, policy makers have to be decisive (even if the decision is not to act) and they need some basis for making such decisions. It is the first purpose of this paper to consider pluralism in economics and how policy makers can make reasoned choices between theories. We shall see that, in the absence of absolute criteria for theory choice, policy makers need to be able to exercise judgement with respect to a wide range of sources of knowledge. This has direct implications for economics education. The most obvious implication is that economics education should develop students' knowledge and skills with respect to a wide range of sources and types of knowledge. The more difficult implication to address is that the foundations need to be laid for developing skills in exercising judgement. Considering the implications of pluralism for economics education is the second purpose of this paper.

In order to lay the groundwork for these two analyses, we start by exploring the meaning of pluralism, distinguishing particularly between the different levels at which the term may be applied. We then discuss the reasons why pluralism can be justified in economics, by considering the nature of the economic system. This involves exploring the meaning and significance of open and closed systems, in the real world, and in knowledge and theory. We are then in a position to proceed to considering how policy makers can profit from this pluralism, and what this implies for the education of future generations of academic economists and economic policy makers.¹

The Meaning of Pluralism

Pluralism can be present at several levels, and these need to be distinguished if we are to understand what is involved in theoretical pluralism. Pluralism in general involves variety, a classification according to a plurality of categories. It can be distinguished from monism, which involves unity rather than plurality, or dualism which involves categorisation by a duality.

Pluralism involves something more than plurality.² It involves some element of judgement rather than pure description, such that pluralism can be grouped along a spectrum, from weak pluralism to strong pluralism. Weak pluralism simply involves an acknowledgement of plurality, a willingness to contemplate 'otherness', without any judgement as to whether or not this plurality is welcome. Pluralism becomes stronger the greater the degree of advocacy for plurality; we consider arguments for this more clearly normative pluralism in the next section.

But first we need to consider a further feature of pluralism, that it can be applied to a variety of levels. We start here with theoretical pluralism. When policy makers face a variety of theories which provide different analyses of real problems, suggest different solutions and predict different outcomes they are encountering pluralism at the level of theory. As long as the decision maker has a set of criteria for choosing the best theory to address a particular problem, this variety is not problematic. It is variety where it is not clear which is the best theory that is regarded as a problematic pluralism. It is a common joke told against economists that we can never agree, and even that the same economist may simultaneously put forward more than one view ('on the one hand . . . on the other hand . . .').

¹ See Salanti and Screpanti (1997) for a diversity of treatments on the subject of pluralism.

² See in particular Maki's chapter in Salanti and Screpanti (1997).

Within economics itself, pluralism may also be understood in terms of pluralism of method, whereby theories may draw on different types of model, or more generally reasoning, and on different types of evidence. This is often referred to also as eclecticism. The economist may be thought of as carrying a toolbox out of which a range of tools can be produced. But without any apparent criteria for deciding which are to be used for which purpose this does not take us very far. This can be a source of regret, among those seeking monism of method. Blanchard and Fischer (1989: 505) put it as follows:

‘Although it is widely adopted and almost as widely espoused, the eclectic position is not logically comfortable. It would be better for economists to have an all-purpose model, derived explicitly from microfoundations and embodying all relevant information, to analyse all issues in macroeconomics (or perhaps all issues in economics). We are not quite there yet. And if we ever were, we would in all likelihood have little understanding of the mechanisms at work behind the results of simulations. Thus we have no choice but to be eclectic.’

For some, therefore, theoretical pluralism and pluralism of method are seen as problematic at a different, methodological, level. What is looked for is a methodology which provides a basis for deciding on the methods to be used and the criteria by which theories are to be judged. But a methodology which provides this guidance in turn may be one of many. There can also be methodological pluralism – more than one methodology. How then are we to choose between different sets of criteria? This pushes us back to the level of epistemology, but again there is scope for pluralism in that there may be different theories as to the best way to build up knowledge and therefore as to the best methodology. Theology might suggest a monist epistemology – all knowledge derives from divine revelation – while a pluralist epistemology might involve knowledge being derived from experience, imagination and reason, for example.

This categorisation can be applied further at the level of reality. This can be called ontological pluralism. Indeed pluralism or monism in philosophy refers to whether reality consists of many substances (physical or spiritual) or only one. A monist ontology would involve all matter being reducible to one basic substance, like a subatomic particle, or all behaviour being reducible to a common basic element of human nature.

Starting again now from the level of ontology, we can see a logic connecting the presence or absence of pluralism at all levels. If reality derives from a unity in nature, then, as long as that unity were accessible, there would be one best way of constructing knowledge about it, so that science would have one best methodology which in turn would specify the best theories and methods to be used to derive and assess them. In other words monism in nature feeds through into monism at all other levels. The logic breaks down however if the monism in nature is not accessible. Then it becomes a matter for argument whether or not it is still possible to settle on one best epistemology, methodology, theory and method. The outcome may be monism or pluralism. Similarly, if nature is understood to be pluralist, it is a matter for argument whether the best knowledge system, methodology etc should be pluralist or not. In other words, pluralism at the different levels may be something to be welcomed rather than regretted.

We will turn in the next section to consider the arguments for pluralism. In the process we will consider a further refinement of what is meant by pluralism which derives from Mearman (2002). When we refer to the different number of categories in monism, dualism and pluralism (one, two, many) there is further the issue of the status of those categories. They can be regarded as all-encompassing, mutually-exclusive, with fixed meaning, or they can be regarded as existing along a spectrum, where the divisions are provisional in terms of meaning and 'location', and partial in that different divisions may apply on different occasions. Which understanding prevails depends on the system of thought within which pluralism is being considered. In order to treat all these matters, we need to understand the meaning and significance of open and closed systems.

Open and Closed Systems – the Reasons for Pluralism

A guiding principle we will employ here is that the nature of the subject matter should determine the way in which we build knowledge about it. We therefore start now with the level of reality. There is a risk of circularity – what we can say about the nature of the subject matter depends on what we know about it. There are different alternative routes to ontology. One is theology, whereby knowledge comes from revelation. Another is philosophy, as in the transcendental realist argument (Bhaskar, 1975). My own preferred route is that of David Hume, which combined scepticism about the scope of reason with the Scottish tradition of common sense philosophy. According to Hume, our knowledge of existence comes from conventional belief built up over time in the form of socially-constructed knowledge, fed by generations of experience, and embedded in institutions and conventions (Dow, 2002).

As we argued above, monist subject matter justifies a monist knowledge way of building up knowledge. If economic behaviour and economic structures are understood to be such that they can all be derived from one common set of axioms, as in the axioms of rational individual behaviour, then it follows that knowledge should be built up as a deductive system from these axioms. The result was the general equilibrium framework, which became the conventional socially-constructed basis of knowledge in mainstream economics. But in the last decade or so, the confrontation of this framework with reality has not been satisfactory. In policy-making, the large general equilibrium macro models have proved unsatisfactory. Their primary rationale was that they were designed for prediction, but they failed to predict well. There is now open discussion in central banking circles about model uncertainty – uncertainty as to which is the best model (Goodhart, 1999). Similarly, within economic theory as well as policy, alternative types of theory have been developed, notably game theory, which seem to explain reality better.

If the economic system is monist, therefore, we have not identified yet what that system is. Indeed the general belief is that the economic system is pluralist. There is to start with the issue of how far the economic system can be separated off as a unity from other aspects of reality. For most economists there is some degree of acceptance that other disciplines address aspects of reality which cannot be separated entirely from economics. The Robbins (1932) definition of economics as being concerned with any circumstance of scarcity was an attempt nevertheless to define a clear disciplinary boundary. The Becker (1991) approach is to address this by extending the boundaries of that unity as far as possible, to the economics of the family for example. But the scarcity definition rules out situations of underemployment, where at least one

factor is not scarce, and dynamic situations of evolution and growth where the boundaries of capacity change their nature and shift out. The scarcity definition therefore achieves a demarcation at the cost of severely narrowing scope.

The scarcity definition as an attempt to define a boundary is addressed to closing off economics to anything which falls outside the definition, whether that scope is wide or narrow; it can be used further to define the subject matter of economics as a closed system.³ There is a close relationship between the pairs closed system/open system and monism/pluralism, which we will now explore. But we will also find that pluralism itself takes on a different meaning depending on whether it is applied within a closed system or an open system.

A closed system is one where all the relevant variables can be identified, where the boundaries of the system are knowable, so that variables can be classified as endogenous or exogenous, and where the relationships between variables are knowable and unchanging (so that all change in the system can be accounted for). The constituent parts of the system are of a common, fixed nature, with independent existence (as in atoms, or rational individuals). It is a system in reality which displays regularities between variables at the empirical level, and which can be represented theoretically by an epistemic system of covering laws. It is a monist system in reality which generates a monist system of knowledge, and thus a monist methodology: there is one best way of building up knowledge about the system. This is an axiomatic system of deductive logic, where the axioms refer to the smallest constituent element – in the case of general equilibrium economics, rational economic man.

An open system is one where not all the relevant variables can be identified, and where the external boundaries of the system are therefore not knowable. The system is subject to outside influences which cannot be accounted for in advance (where ‘accounted for’ includes knowledge that an outside influence, or relationship, is random). Further, within the system, there is scope for change in the relationships between variables which cannot be identified in advance, and indeed for change in the nature of the constituent variables themselves. Since the system in reality cannot be understood in terms of constituent parts of a fixed nature, it is pluralist.

The choice could still be made nevertheless to require that knowledge be a closed system, even though the subject matter is a pluralist open system. Thus, even if economists accept that the real social world is an open system, theory may be built up as a closed system, as in general equilibrium theory. But then how does theory correspond to reality? If it is built on axioms which are not a good representation of reality, what are we to make of the conclusions? If real factors are excluded, how do we include them when we come to draw policy conclusions? *Ceteris paribus* does not apply in reality. If the empirical evidence comes from an open-system reality, in what sense can it be used to test theory? One of the leading figures in the development of general equilibrium theory, Frank Hahn, has made precisely these arguments, but put a priority on a monist methodology: mathematical formalism within an axiomatic deductive system (see for example Hahn, 1973).

The clinging on to this monist methodology is in part an (understandable) unwillingness to embrace what is seen as the alternative, pure pluralism. At the epistemic level, pure pluralism implies a plurality of approaches to building up knowledge, which supports a plurality of methodologies and thus of theories. It is the

³ We are referring here to the modern use of the criterion rather than Robbins’s (1932) original exposition.

extreme relativism which Blaug (1980) categorises as the ‘anything goes’ approach. There is an infinite range of legitimate theories, without any (monist) absolute methodological criteria for choosing between them. If this were the only alternative, then indeed science in any meaningful sense would be impossible.

But this dualist, all-or-nothing view of knowledge is a reflection of epistemology itself being understood as a closed system, with only two categories which are mutually-exclusive and all-encompassing, and of fixed meaning. Neither category is workable as a means of building knowledge about a reality which, as far as we can have access to it, is pluralist. In practice, since scientific practice addressed to real problems is driven by the nature of the real subject matter, a study of practice reveals that it is the middle ground between monism and pure pluralism which is the main focus.⁴

As a guide to knowledge systems, it is important to note that reality apparently is not pluralist in a pure sense. In the social world in particular elements of (provisional) fixity have evolved in order for the system to function: these include institutions such as the firm, conventions such as price-setting, and habits of mind such as formation of expectations which are not continuously revised. Rather than complete diversity, we have pockets of commonality which promote effective communication and co-ordination. Individuals rarely operate as isolated atoms, but rather condition their behaviour by the common mores of society.

Just as the nature of social reality, therefore, can be understood as a structured plurality, so knowledge systems can be understood as a structured plurality, allowing for a finite range of methodologies. Each methodology is validated by a scientific community which judges this methodology to be the best to address an open system reality. That judgment in turn is based on that community’s view as to the main features of the real social system. Thus in economics some will focus on methodological individualism, some on class, some on institutions, and so on.

In turn, an open-system methodology, to be operational, requires some closure (Chick and Dow, 2001, Loasby, 2002). Building a theory requires that some variables be taken as exogenous, and that there is sufficient stability in the underlying causal mechanisms for them to be drawn out. Theory inevitably abstracts, and abstraction is a form of closure. But closure within an open system is different from closure within a closed system. In the former, any closure is only partial and provisional, for the purposes of analysis, while in a closed system, closure of a subsystem is part of the overall set of predetermined relationships between atomistic variables. In a closed system, it is in principle possible to put together all the closed subsystems in a coherent whole. If the (monist) method of mathematical formalism is applied to all subsystems, then it is a technical question how they should be put together. In an open system, however, if the methodology is not monist but pluralist, then the methods selected for analysing different subsystems may be incommensurate, so that the parts cannot be combined using one method into a whole. Further, the closure is partial – the influence of exogenous variables cannot be assumed to be stochastic – and provisional – the form of closure may change as the subject matter evolves.

Since neither pure monism nor pure pluralism has proved to be an adequate guide to policy, most of economics occupies some of the middle ground between the two. In the next section we attempt a mapping out of the middle ground.

⁴ For McCloskey (1983), a monist mathematical formalism provides the framework for the official rhetoric of economics, while a more pluralist approach characterises the unofficial rhetoric.

Pluralism and Economics

Conceptions of the economy as an open system are based on an understanding of human behaviour as being purposeful and creative (and thus not deterministic) and also as being social; social behaviour in turn is influenced by conventions and institutions which evolve over time in an indeterminist fashion. If we accept this conception of the real social world is an open system, that there is no basis for building economic knowledge in the form of laws, then there is scope for methodological pluralism, that is, a range of views as to the best way to build up economic knowledge. Pure methodological pluralism being unworkable, given the real social nature of science, the range of methodologies is limited to a range of communities. These communities are identified with different paradigms – mainstream, Post Keynesian, institutionalist, etc – which take different views as to the essential nature of the economic process, and thus different views as to how best to build up knowledge about it (Dow, 1996).

To be operational, a pluralist approach requires some closure – focusing on some variables rather than others, taking different things as given etc. Just as in the real economy, closure enables rather than constrains, but only if the closure is partial and provisional. It is closures which remain fixed in the face of evolutionary change which ultimately constrain, both in the economy and in knowledge (Hawkins, 2000). With this in mind, we now consider whether there is any difference in kind between the closures involved in mainstream economics and those involved in the various heterodox approaches to economics.

Having moved away from explicit espousal of the ideals of general equilibrium theory, mainstream economics gives the appearance of a moderate form of pluralism. The parts do not readily fit together to make a whole. There is in particular a bifurcation between theoretical and applied mainstream economics. Both theoretical and applied models, in turn, are often partial. Most mainstream economists, were such explicit methodological discussion more commonplace, would probably justify this situation in terms of the complexity of the subject matter, knowledge limitations etc in a way which seems to accord with open systems thinking.

But the key ingredients of the monist methodology of logical positivism are still there. First, theory is built on the axioms of rational individual behaviour. Second, empirical work is presented as ‘testing’ theory.⁵ The difficulties in putting the theorising and testing together are seen as procedural and regrettable. The underlying conception of reality and knowledge therefore is a closed-system conception. If the building blocks of theory are (narrowly-defined) rational individuals and the conclusions of theory can be tested against objective ‘facts’, then the presumption is that the economy is a closed system waiting to be discovered.

Further, this closed-system conceptualisation applies to pluralism itself. Within a closed system, pluralism involves many all-encompassing, mutually-exclusive categories with fixed meaning, where dualism involves two such categories and monism one. Theory is one category and empirical testing another. In principle,

⁵ Two characteristics which reveal closed-system thinking are the tendency to derive policy conclusions directly from a model (with simplifying assumptions) without explicit justification, and also the reference to theory testing; see Lawson (1997) for a detailed critique of the use of econometrics for testing theory.

mathematical formalism should be able to represent all different categories in a commensurate manner, allowing their combination into a whole.

In contrast, the pluralism of heterodox economics is an explicit response to the openness of the real economic system. This system is understood to be such that covering laws are not there to be discovered. Rather there are underlying causal mechanisms (the system is not chaotic) which we experience only indirectly. Further these mechanisms, as tendencies, are not always in operation, and, when they are in operation, can operate across each other. As the institutions and conventions of the economy evolve, so too do the ways in which the causal mechanisms operate. Finally, knowledge is seen as socially-constructed. This is important for the subject matter of economics, since knowledge is a key aspect of the economic process.

But social-constructedness is also important for our understanding of our own economic knowledge. Different paradigms understand the economy differently and have a different conception of what constitutes ‘the facts’. Categories are not mutually-exclusive, all-encompassing with fixed meanings. Within an open-systems mode of thought, pluralism itself involves partial, provisional closures.

The implications of this different foundation for pluralism, in an open-systems understanding of the economic system, are profound. Methodological pluralism itself is welcomed as providing a range of means of building up knowledge of a complex whole. Since the closures of this type of pluralism are partial and provisional, there is an openness to cross-fertilisation of ideas across paradigms. This is increasingly evident in non-mainstream economics, with the emergence of umbrella institutions like ICAPE and AHE⁶, and in the work of younger scholars which is increasingly addressed to the middle grounds between paradigms. Indeed, to employ the metaphor of biological evolution, variety is essential to the survival of a species in the face of unpredictable outside influences.

Second, methodological pluralism grounded in the inability of any one set of methodological principles to dominate as the best way to construct knowledge in turn justifies pluralism of method. Different paradigms, employing different methodological principles, will employ a different range of methods suited to those principles. This is not eclecticism in the sense of ‘anything goes’ regarding choice of method. It is a conscious choice of method derived from a particular paradigmatic understanding of the nature of the real world and the consequent choice of methodology. Thus, for example, Keynes could accept the use of formal mathematics and econometrics as contributing to analysis, if they could be justified by the subject matter; specifically the closures entailed by econometrics had to be mirroring something approximating a closure in the real world. This typifies an open-systems pluralism, in contrast to mainstream economics which presents itself as consisting solely of mathematical formalism and econometric testing.

Now that we have explored the reasons for pluralism and the different meanings of the term, we are in a position to turn explicitly to the needs of the policy-maker looking to economics for guidance.

⁶ The International Confederation of Associations for Pluralism in Economics, and the Association of Heterodox Economists, respectively.

Pluralism and Policy-Making

Theoretical pluralism poses problems for policy-makers in that theoretical economics itself does not generally present one clearly preferable policy solution to particular problems. There may be different assumptions, different uses of evidence, different understandings of the evidence and different uses of language which make the different bodies of theory incommensurate. And methodological pluralism means that there is no one set of criteria agreed on by economists by which to decide which is the best theory.

Nor is it reasonable for policy-makers to consider all methodologies and all theoretical approaches when deciding on a policy measure. Policy-makers usually do not have the luxury of time to consider all the methodological options. Further, it is a tall order for anyone simultaneously to retain several different conceptualisations of reality, uses of language, and so on. Just as an academic economist belongs to a particular community within which there is a shared conceptualisation of the economy, use of language and so on in order to function, the same applies to policy-makers. Kuhn (1970) argued that normal science within paradigms is the process by which science progresses. This implies that policy-makers need to decide on a particular understanding of the nature of the economic process first of all, and only then on the methodology and theoretical approach which follows. This is how schools of thought within economics are defined. The decision then is taken at the level of ontology. Looking only at the level of theory, there is no clear basis on which to choose one theory over another.

But policy-makers face more immediate questions than academic economists about the congruity of theory with reality. The closure involved in defining paradigms for Kuhn was a provisional and partial closure. At the same time as most economists are engaged in normal science, some are engaged in extraordinary science, examining the ontological and epistemological foundations of the ruling paradigm. What sparks off attention to this activity, and potentially a scientific revolution, is the growing perception of a disjunction between the dominant paradigm and reality. The classic case in economics is the Great Depression, which challenged a ruling paradigm which did not address unemployment. Since the real world evolves, new problems emerge to which the ruling paradigm may not be best suited. Policy-makers need to be more alert than most to the possibility that their chosen paradigm no longer addresses the problems they now face. More than academic economists, therefore, policy-makers need to be aware of a range of paradigms and be ready to either adapt or shift paradigm if the nature of the real problems they face changes.

From this point of view, therefore, pluralism is helpful to the policy-maker. Since the real world, and thus the nature of the problems policy-makers face, changes over time, a single approach would be seriously inadequate. It is only if the real world retains its essential characteristics, and these can be understood to operate within a closed system that one (closed-system) approach would be judged to be appropriate. If the real world is understood as an open system, therefore, pluralism is to be welcomed rather than thought of as a problem. The crucial point is to recognise the origins of theoretical approaches in methodological approaches and ultimately in conceptions of reality.

At the level of method, too, pluralism can be seen to be helpful to the policy-maker. A monist methodological approach involves one method, as in mathematical formalism (the method best suited in economics to a closed-system approach). An open system

approach sees no one method as being sufficient and therefore advocates recourse to a range of methods. Knowledge can then be built up by approaching an issue from a variety of directions, employing different methods. By definition these methods are incommensurate (or they could be collapsed into one method). Thus for example questionnaire evidence is of a different sort than historical time-series evidence; they can't be put together in any formal way, but each does provide some knowledge. Different collections of methods will be suited to different methodological approaches.

Pluralism thus is helpful for policy-makers in addressing a changing economic system where there are different types of knowledge about it. But, while more helpful than a monist approach in dealing with reality understood as an open system, it poses particular challenges. The key challenge is in choosing a paradigm, deciding when it now longer addresses real problems as they emerge, and considering whether adapting the paradigm is sufficient, or whether a switch of paradigm is required. Since policy-makers operate within a political arena, too, there will be criticism from the perspective of other paradigms, so that there needs to be a continual awareness of how thought is progressing in other paradigms. The second challenge lies in putting knowledge together within the chosen paradigm. Different methods of building knowledge may appear to cut across each other for example. If there are underlying causal mechanisms, which we cannot directly access, but which themselves can cut across each other, then it is inevitable that empirical knowledge of different sorts will be confusing.

The faculty which policy-makers require to deal with these challenges is judgment. Rationality in the rational economic man sense is insufficient, since that requires information held with certainty and thus a closed system (all relevant variables known and so on). Judgment rather is the exercise of practical reason, or, as in the Keynesian literature, human logic or ordinary logic (see Mizuhara and Runde, forthcoming). This is the exercise of reason under uncertainty, where rational belief is built on a combination of direct knowledge, on the one hand, and on indirect, theoretical knowledge which draws on imagination and convention as well as reason, on the other hand. The monetary policy literature poses the issue of choice among a plurality of theories as 'model uncertainty'. By posing the issue in formalist (monist) terms, this literature seeks a formal solution. But Keynesian uncertainty, expressed in open-systems terms, indicates the need for practical reason which draws on a range of methods in order to arrive at an (uncertain) conclusion (Dow, 2001). This implies that skills in judgment, that is in the exercise of practical reason, are essential for effective decision-making. We turn in the next section to considering what this implies for economics education.

Pluralism and Education

Economics education has increasingly become dominated by the monist methodology of mathematical formalism. Training has focused increasingly on building up technical expertise in formal modelling and empirical testing. This is most noticeable at the graduate level, and has been documented in various studies, notably Colander and Klammer's (1987) survey of graduate students and Krueger et al's (1991) study commissioned by the American Economic Association. This trend is an affirmation of the methodological preference for mathematical formalism, which students implicitly absorb and then tend to perpetuate. In addition, time being a scarce resource, the

increase in attention to training in mathematical formalism squeezes out training in other skills and sources of knowledge, so that students are provided with less equipment with which either to assess the relative merits of mathematical formalism or to adopt an alternative methodology. But the surveys noted above reveal that students themselves are aware of the disjunction between theory and real-world experience.

The first requirement, then, is that economics education include instruction on methodology, to increase awareness of what is involved in methodological choice. Students, like policy-makers, may still opt for mathematical formalism. But no methodology can be said to have the best (or indeed any) claim to truth, so that choice in favour of one approach requires awareness of the opportunity cost involved in rejecting other approaches. In fact, from a pluralist standpoint, methodological awareness is essential if policy-makers are to be able to respond to a changing real environment, assessing how far their chosen methodology is still preferable.

At what stage of an economics degree program methodological instruction occurs is a matter for debate. The educational approach adopted in higher education during the Scottish Enlightenment, and continuing thereafter, was to teach all subjects historically, so that an awareness developed naturally of knowledge systems developing and changing in the light of what was needed in order to address practical problems. Further, early instruction in moral philosophy provided a grounding in epistemology. Ideally, I would suggest, methodological awareness should be developed in students naturally as a by-product of how economics is taught, with explicit methodological instruction only as a more specialist activity once substantial knowledge of economics has been built up.

The historical approach has particular importance for economics. As an open social system, any economy evolves over time, requiring theory and possibly methodology to change with it. Economic history and the history of economic thought provide an array of case studies by which to learn how, in new situations to arise in the future, theory might adapt to suit changing circumstances. For the monist mathematical formalist, economic history simply extends the data set for testing timeless theory. But by studying different cases of theory development and of the building up of knowledge more generally, students can learn to develop their own judgment. In the process students also learn about a range of methods of acquiring knowledge other than published data sets.

The type of educational approach suggested here would ideally be general to all subjects. If all subjects were taught historically, with the knowledge that all students were trained in philosophy, then the question of drawing across disciplines for different types of knowledge would follow naturally. The increasing professionalisation of academic fields puts up barriers to communication across fields. Within the social sciences, economics in addition puts up barriers by treating the economy as a closed system and thus, as we have seen, economics as a closed system of knowledge. Yet, if the economy is understood as an open system, then it follows naturally that economists would, as part of their pluralist approach, look to other disciplines for additional sources of knowledge about the economy.

Thus, while ideally a radical restructuring of modern education would seem to be called for, there is much that could be achieved in the meantime within the economics curriculum itself. But it has got to the stage that a pro-active effort is required to achieve this. Until recently, economics was taught by instructors who may well have

adopted the methodology of mathematical formalism, but who nevertheless had been educated much more broadly themselves. The teaching staff increasingly now have mostly come through mathematical formalist programs themselves. Many economics programs are in fact much broader than a pure form of mathematical formalism. Many academic economists are applied economists who themselves have to grapple with the disjunction between formalist theory and reality. Students learn much from them about the exercise of judgement. But as long as the official discourse is that of mathematical formalism, and signals are given to students that technical skill is more important than methodological awareness, then educational opportunities are being missed. Further the official rhetoric carries forward into policy-making circles, influencing how analysis is presented and understood, inhibiting the practice of pluralism.

Conclusion

We have considered theoretical pluralism as a problem faced by policy-makers, and concluded that it may in fact be something to be welcomed. To pursue this question further, it was necessary to put theoretical pluralism in the context of the methodologies within which the theories were developed, and the understanding of the nature of the reality being studied. In particular, it was argued that pure pluralism (an infinite plurality) is unworkable. When we talk of a workable pluralism, we are talking of a structured form, whereby there is a limited range of approaches, each approach is conditioned by the underlying understanding of the nature of the economy, and each approach is therefore open to change.

If the real world is understood as a closed system, then it follows that one best way of identifying the laws which govern that system can be identified. This monist methodology provides the criteria by which the policy-maker can choose the best theory.

However if the real world is understood as an open system which evolves internally as well as in its external relations, then no one best way of theorising about it can be established; the logical consequence is methodological pluralism. It is then welcome to have a range of approaches available for the policy maker to choose among. But it is also important therefore for policy-makers to be methodologically aware. This does not mean that they should constantly actively function simultaneously within the different paradigms. Rather it means that there should be awareness of the limitations of any one approach, awareness of the nature of alternatives, and sensitivity to the point at which the chosen methodology and theories no longer shed light on a changing reality. Progress in knowledge (by some criteria) requires adoption of one or other paradigm, even if the eventual outcome is to change to another one or create a new one. Further, just as the partial, provisional closure of paradigms facilitates the building up of knowledge, theorising itself requires some closure of a partial and provisional sort to be useful. But it is this modified form of closure, rather than the fixed application of the *ceteris paribus* clause which allows theory to be applied to a reality where *ceteris paribus* does not in general hold, and certainly not in any fixed way.

We then discussed the implications for economics education of this embracing by policy-makers of pluralism. Technical skill has come to dominate economics education, particularly at the graduate level, at the expense of education in other skills. Of primary importance is the teaching of methodological awareness. This need

not take the form of separate specialist courses. Indeed it is all the more effective for economics to be taught in such a way that methodological awareness is absorbed naturally. This would follow from a historical approach to teaching which encourages the idea that economic theories and evidence may change to suit the practical requirements of different contexts, and that different economists may quite legitimately offer different accounts of the same circumstances, and different policy solutions. By studying the development of theories to address particular contexts and the application of different methods, students will build up the skill of judgement which is central to the role of the policy-maker.

To conclude, if there has been a single theme in the paper it has been the following: far from being a source of weakness, the kind of modified pluralism presented here (with partial, provisional closures) is a source of strength. To exploit this strength requires an openness of mind to the different possibilities for economic analysis and training beyond the technical skills of mathematical formalism.

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