

Chapter 2. Critical Realism and Economics

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1. Introduction: Economics and Reality

To many it might seem obvious that economics is concerned with reality. Its Greek roots are found in the management of the household. The modern day subject matter is more aggregated, but still refers to real actions: buying, selling, employing, working, using up, and so on. If it is not concerned with reality, what can it be concerned with?

Most economists would, if questioned¹, agree that our subject matter is real in some sense, although we shall see that there is some doubt as to how we pin down reality. Indeed, once we start studying any real subject matter, collecting evidence and constructing theories, we are putting a distance between ourselves as economists and reality. This is inevitable. It is the purpose of gathering evidence and of constructing theory to identify patterns in reality which allow us to make sense of it and, possibly, change it. In that sense all study of real subject matter itself is ‘unrealistic’; it quite deliberately differs from an exact representation of reality.

But then what do we make of the relationship between theory and reality? Particularly if the ultimate purpose is to propose policies to change reality, and particularly if the change involves transformation, we need to understand that reality and how change might impact

upon it. But we also need to be sure we understand the relationship between economic theory and economic reality.

The critical realist critique of mainstream economics has brought these important issues to the surface of debate. The purpose of this chapter is to explore the contribution which critical realism makes to our understanding of economics, as well as our understanding of the economy. We start by placing critical realism in context. The issue of the relationship between economics and reality is a long-standing one. In the next section we sketch in a brief account of how the issue has been addressed in the past. We focus on the most recent prior debate in the 1960s and 1970s over the realism of assumptions and the subsequent treatment of the issue by the ascendant New Classical Economics in the 1980s. We devote a separate section to the emergence of a very different approach in the 1980s and 1990s which raised much more fundamental questions about our access to reality and about the accounts we construct about it: the constructivist approach (found in the postmodern, rhetoric and sociology of scientific knowledge approaches).

Against this background, we can then set out the critical realist approach. Critical realist methodology is derived from a philosophical approach called transcendental realism. We discuss this, and other possible philosophical foundations, in the following section. We then explore in some detail what the critical realist approach consists of in terms of methodology: its use of the concepts of open and closed systems, fallibilism, and the abductive method. We conclude with a discussion of the implications of critical realism for economics.

2. The Realism of Assumptions Debate

The issue of realism was brought back to the surface of debate in economics fifty years ago when Friedman (1953) challenged the idea that there needs to be a direct correspondence between theory and reality. He argued that the connection with reality should only occur at the point at which predictions from a theory are compared with actual outcomes. The assumptions of the theory itself need not correspond to reality, indeed he argued that more unrealistic assumptions are likely to yield better predictions. Theories were simply instruments for predicting the values of variables.

Friedman himself did not practice what he preached – he proceeded to justify his theories in terms of their structure and assumptions. But he had brought to the surface an issue which had slid into the background, namely the realism of economic theory.² This had been an important issue over the history of economics, but one which had subsided with the burgeoning empirical activity which followed the emergence of modern macroeconomics and the construction, eg by the NBER in the US, of large datasets.

The debate sparked off by Friedman had several outcomes which are relevant to the subsequent development of critical realism. One outcome was a closer specification of the different senses in which assumptions might be unrealistic (see Nagel 1963), which suggested that some types of unrealism were more problematic than others. Nagel argued that assumptions could be unrealistic in three senses: falsehood, fiction and simplification. The issue then is whether any or all of these senses of unrealism lead, as Friedman argued, to better prediction. Critical realism takes a particular stand against

fictional assumptions in that they preclude any hope of identifying causal mechanisms.

Another outcome was a reflection on the principles which should govern theory construction, if they go beyond predictive success. Samuelson (1963) challenged Friedman's advocacy of unrealistic assumptions, arguing that the goal of theory, rather than predictive success, should be descriptive content, or empirical validity. The difficulty, given that theories inevitably involve some unrealism, lay in establishing operational criteria for empirical validity. Samuelson advocated what is known as 'conventionalism' (see Boland 1982 chapter 9), namely recourse to what are conventionally accepted as criteria for choosing theories. The result was a rather unsatisfactory falling-back on convention as a guide to theory construction. But, particularly given the popularity with economists of Popper and Lakatos's methodology, the ultimate criterion remained empirical.³ The way to decide whether a particular theoretical development was a good one or not was by empirical testing.

The third outcome was a more general questioning of the purpose of theory, whether it is addressed more to prediction or to explanation. There was an understanding that there might be a trade-off between the two. Some theories are more suited to one than the other; for example, the theory of gravity is better for prediction than explanation, while the reverse is true of the theory of evolution. The trade-off is not complete, however – if there was a correspondence between the structure of a theory and reality, then there was some chance of working out why a theory did not predict successfully. Further, it was possible to adapt theory to a change in economic structure (such as a change in exchange

rate regime) if there was some correspondence with reality. If however theory were treated as a black box, there was no mechanism for taking account of structural change. Understanding may therefore provide a better basis for prediction.

New Classical Economics attempted to cut through the problems raised by Friedman's instrumentalism by conflating theory with reality.⁴ The criterion for theory choice was still predictive success, not only for economists, but also for economic agents who were depicted as employing exactly the same models. Agents were not understood in reality as knowing econometric models, but behaving as if they knew them. This 'as if' argument had been a common one to justify unrealistic assumptions (like entrepreneurs equating marginal cost and marginal revenue) – an example of a fictional assumption. But the difference with New Classical economics was that, since rational behaviour (defined in the specific way of the axioms of orthodox microeconomics) meant that no opportunity was ever left unexploited except by choice, the economy and all its components were always in equilibrium. This argument meant a much tighter correspondence between theory and reality than in neo-classical theory, where it arises only at the end of a disequilibrium process. The problem with the latter view was knowing whether observations referred to equilibrium or disequilibrium (for which there was little theoretical equipment).

Whether the choice was Friedman's instrumentalism, New Classical instrumentalism or Samuelson's conventionalism, the tenor of the debate was that there was one best set of procedures for economists; it was just a matter of settling the argument as to which set.

All agreed that the ultimate criterion for choosing a theory was empirical success (understood in econometric terms). This provided the ultimate touchstone of reality.

But there was a general change in intellectual and social climate in the 1980s which challenged not only the idea that there was one best procedure for science, but also that there was one reality by which to assess it. This encouraged what is known as the constructivist approach to economics.

2.1 Constructivism

Constructivism grew out of the philosophy of science of Kuhn (1962). Like Popper, he focused on the significance of scientific community. He offered a descriptive account of science which was 'realistic' in setting out what scientists actually do, rather than prescribing what they ought to do as Popper had done. He addressed the observed fact that scientists do not in fact abide by the empirical criterion, but rather continue according to criteria internal to that particular scientific community. Reality breaks through when a disparity between theory and reality can no longer be sustained, and when there is an alternative approach (what he called a paradigm) which appears to fit better with reality. A classic example is the Great Depression in the 1930s which could no longer be ignored in spite of the inability of economic theory at the time to account for it.

The conventionalism discussed above fits well into this framework. But Kuhn demonstrates that it is possible to have a range of paradigms with their own sets of conventions, and there is no ultimate set of criteria by which to decide which is best. The

empirical criterion is no use in any absolute sense. What constitutes a good empirical test may differ from one paradigm to another. But more fundamentally, the view of what constitutes reality may differ. Constructivism questions the whole notion of ‘facts’. Rather, all we have are subjective perceptions which differ from person to person, and over time. Indeed Kuhn’s starting point was the different ways in which language is used, effectively making communication – about ‘facts’ or anything else - difficult between paradigms.

What then transpired was a dualistic alternation between the view that there is (in principle at least) one best way of going about economics, and an ultimate arbiter in the facts on the one hand, and the view that there was a multitude of ways of going about economics, and no objective means of choosing between them on the other hand. In practice economists continued to develop and test theories. Oddly enough, constructivism was liberating in that orthodox conventions apparently no longer required justification. But the result was an absence of methodological awareness, and an unwillingness to discuss the principles by which economics was developing (see Lawson, 1994a). At the same time, the particular conventions for orthodox theorising were being opened increasingly to question. The constructivist approaches of postmodernism and rhetoric played an important part in this questioning, but seemed unable to offer any alternative guidance; indeed to have done so would have gone against the conclusion that no guidance could be justified. It was in this context that critical realist ideas emerged.

3. Critical Realism: Philosophical Foundations

Critical realism has struck a chord with many economists who are dissatisfied with mainstream economic methodology in practice. While much of the support for critical realism therefore comes from those who approach it from the direction of practice, it is set out very explicitly as an approach which has been developed from the direction of philosophy. We consider its philosophical foundations in this section.

Critical realism is founded on transcendental realism, as expounded by Bhaskar (1975). It is a philosophical argument as to what the real world must be like, given the nature of scientific activity. The crucial distinction is drawn between *ontology*, which is concerned with the nature of reality, and *epistemology*, which is concerned with the nature of knowledge. The object of realist science is to build knowledge about the real world. But what can we say about the real world other than in terms of our knowledge of it? Bhaskar warns of confusing the two, that is, of committing the epistemic fallacy.

If the real world is something other than our knowledge of it, then it exists at different levels, not all of which are directly accessible. Transcendental realism suggests that there are three levels: the actual, which we experience directly, the empirical, which is an attempt to measure the actual, and the real, to which we do not have direct access. It is at the level of the real that causal mechanisms operate; it is the purpose of realist science to uncover them. But we can only access the real at the empirical and actual levels; science focuses particularly on the empirical as a means of systematising knowledge of the actual.

What we can tell about the real from the empirical level depends on the nature of the causal mechanisms at the level of the real. The crucial question is whether these causal mechanisms operate within a closed system or an open system. A closed system is one in which there is both extrinsic closure – no unaccounted for external forces – and intrinsic closure – no unaccounted for interrelationships between the parts of the system. Closed systems allow for law-like causal mechanisms, which in turn generate empirical regularities by which the laws may be identified. An open system, by contrast, is subject to outside influences which cannot be anticipated (even as being random, which requires some prior knowledge of their nature) and evolution and interaction within the system which also cannot be anticipated. Further, causal mechanisms take the form of powers, or tendencies, which may or may not be active at any one time, and which when active may operate simultaneously and in ways which may counteract each other.

The key argument within transcendental realism is the observed fact that physical science proceeds by means of experimentation. An experiment consists of isolating variables from outside forces, that is, of *fabricating* external closure. Drawing conclusions from repeated experiments in turn presumes that internal closure is satisfied – that the causal mechanism identified in one experiment can be assumed to be repeated in all others. If the real world itself constituted a closed system, there would be no need to close it artificially in an experiment. The regularities would be present in observed values of variables. Therefore the real physical world must be open.

Since it is widely acknowledged to be extremely difficult to construct experiments at all

in the social world, then that justifies even more strongly the conclusion that the social world is an open system. And indeed there are powerful secondary arguments which support this philosophical conclusion: arguments which refer to the creativity of human behaviour, the exercise of human agency, the evolution of social institutions, which bear out an argument that the real social world must be open.

In summary, then, transcendental realism first puts the spotlight on ontology as being prior to, rather than subsumed in, epistemology – the nature of reality is important for how we construct knowledge about it, and exists independent of the knowledge we construct about it. Second, the observed identification of science with abstraction and experimentation shows that there are forces from which science must abstract. Were the real world a closed system, this would not be necessary; it would be feasible for science to identify all causal mechanisms.

While transcendental realism is the only philosophical route to critical realism identified in the critical realist literature (as exemplified by Lawson, 1997), there are other philosophical routes. In particular, the philosophy of the Scottish Enlightenment offers an alternative route (see Dow, 2002).⁵ Hume had concluded that existence could not be demonstrated by reason alone; ontology could not be accessed purely by epistemology, understood as reason applied to observation. But, just as Bhaskar observes that science proceeds by experiment, Hume observed that science (and conduct more generally) proceed on the basis of common sense belief in existence.⁶ The need for such a basis arises from the inaccessibility of the underlying causal mechanisms which generate what

we observe and experience. In the terms we have been developing, it is because the world is an open system that we cannot hope to identify the underlying causal mechanisms and prove by reason and observation their existence. The way in which we then proceed to build up knowledge follows from the inaccessibility of the real.

As far as critical realism is concerned, Hume's philosophy takes us to the same starting-point as transcendental realism. No doubt there are other possible philosophical routes. But, as far as the implications for economic methodology are concerned, the important issues are the same: how to build knowledge about a real world which constitutes an open system. We turn in the next section to consider what critical realism implies for economic methodology.

4. Critical Realist Methodology

Critical realists present their arguments as being in support of an approach to economics rather than a specific methodology, suggesting that the approach can support a range of methodologies (see for example Lawson, 1994b). The approach is one which puts the focus on ontology first and epistemology second, with ontology determining epistemology. How we construct knowledge depends on the nature of the subject matter.

The critical realist approach helps us to understand existing bodies of work in economics by analysing it in terms of ontology and epistemology, for example the work of Menger (C Lawson, 1999). But the most powerful use of the approach is to offer a critique of mainstream economics (Lawson, 1997). The predominant approach to economics, as exemplified by the earlier debate over realism of assumptions, is to construct theories

based on fictional assumptions about human choice, and set them in a context which implies a given (universal) institutional framework, in order to yield general propositions. In practice these propositions may not be tested empirically; rather their truth value is assessed in terms of the internal consistency of the theory. Realism then rests on the slender thread of the realism of the rationality axioms of orthodox microeconomic theory, which we assess by means of introspection. Where propositions are tested empirically, they are assessed in relation to a set of facts which is understood to be objective. Testing consists of some more or less elaborate identification of event regularities using econometric techniques, such that, for example, the rate of inflation correlates with the rate of growth of the money supply.

The extent to which any model being tested reflects real causal mechanisms was the focus of the realism of assumptions debate. Friedman's argument was that it was the predictive power of the model which was the best test of having captured law-like behaviour.

Samuelson's argument was instead that the theory itself should reflect law-like behaviour.⁷ But there was no questioning that identifying law-like behaviour was the object of the exercise and that empirical testing of some sort was the definitive basis for deciding on the best theory. The New Classical approach went further in suggesting that individual agents behave in exactly the same way – that they too are seeking covering laws by means of empirical assessment. There has always been an awareness that there may be disturbing forces which cause actual variables to deviate from their predicted values. But the goal of theory is seen as being to capture as much as possible in the theory, such that any remaining disturbances are stochastic. This implies knowledge of

the disturbances such that they can be assumed to be random.

The models of mainstream theory then are closed systems. Testing them by reference to what are seen as an objective set of facts implies that the real world is also seen as a closed system. But the transcendental realist argument is that, if theories abstract (as everyone agrees that mainstream theories do) then they must be abstracting from something which cannot be captured in the closed system. Attempts are made (for example by Becker 1991) to extend the reach of economics as if to minimise what must be abstracted from. In particular, critical realists argue that the need to abstract follows from the openness of the social world.

The reason for considering above the context in which critical realism arose was not one of purely historical interest. Certainly we need to understand the context in order to understand the reception which critical realism has encountered. But more important, critical realism itself cannot be understood without understanding that context.

The instrumentalism/conventionalism debate in economics was conducted within an approach to economics which espoused some form of logical positivism, whereby theories are tested not just by their internal logic but ultimately by reference to 'the facts'. Constructivism was a dualistic reaction to logical positivism, challenging the notions of singular logic and singular facts. Rather, logic and understanding of facts were seen as specific to particular paradigms or, in the extreme versions of constructivism, to particular individuals, who even themselves are fragmented. Logic and the facts are then

constructs.

Much of the constructivist critique of mainstream economics was similar to the critical realist critique, except for the crucial difference that there was a denial of any form of benchmark in the form of reality. Effectively the argument was that the social world is an open system, and that is why knowledge is socially constructed. There is a contradiction here in that appeal does seem to be made to the reality of 'scientific' activity, while the scope for such appeal is denied. Indeed, just as logical positivism has proved to be unsustainable as a basis for methodology (see Caldwell, 1982), so constructivism collapses ultimately under a contradiction (see Dow, 2001). The dualism which both approaches represent itself reflects closed-system thinking which is at odds with both an open-system ontology and an open-system epistemology.

Critical realism then can be seen as the dialectical synthesis which emerges out of the thesis of logical positivism and the antithesis of constructivism. As part of a process in the development of thought, it carries forward some elements of what has gone before. From mainstream economics it takes the idea that empirical regularities tell us something, but unlike mainstream economics, these regularities are seen as the starting-point for theory rather than the end-point, as prediction. From constructivism, critical realism takes the understanding that there is no such thing as objective 'facts', only socially-constructed knowledge of the world. But the benchmark of a reality independent of our knowledge of it gives critical realism more scope for being optimistic that useful knowledge can be built up.

Because of its open-system ontology, whereby the real is not fully manifest in the empirical, critical realism aims to build up knowledge of the mechanisms at work at the level of the real, even though we do not have direct access to them. We can never be sure that our knowledge is true – theory is fallible – but we can construct arguments in favour of one theory over another. There are likely to be several, probably countervailing, tendencies at work at any one time. What we pick up at the empirical level may be very confusing, not allowing definitive predictions. The aim therefore is to build up sufficient knowledge about the different tendencies. The predictions can be made about the operation of the different tendencies, without being able to predict precise values of variables.

Critical realist methodology then sets out guidelines as to how that knowledge is built up. These guidelines rest on the method of abduction, or retroduction, from regularities identified in the economic system. While there is considerable debate about the role (if any) of econometrics in critical realist methodology, a matter discussed in some detail in the remainder of this volume, this is where the clearest indication of a role for this kind of empirical work lies – descriptive statistics. An observed empirical regularity is a clue that there may be some tendency at work which has dominated other tendencies, at least for the period of observation. This instigates further investigation of a substantive sort.

Further investigation draws on the second key element of critical realist methodology, pluralism of method. Since the reality which we are trying to understand is ultimately

inaccessible, no one method can generate true knowledge of it. If the real social world is an open system, then it is subject to complex internal and external influences. In particular, such a system does not lend itself to representation by a singular, deductive axiomatic system, since such a system requires the axioms to be true in order for the conclusions to be true. Instead, critical realism espouses pluralism, involving recourse to a range of methods designed to build up knowledge in different ways, taking different starting points.

A starting point involves some closure. Indeed theorising inevitably involves closure of some sort (see Chick and Dow 2001, Loasby 2002). Particularly where there is awareness of the openness of the economic system, there is a need to invoke closure in order to say anything at all other than that everything is complex, interconnected and unknowable. In the real social world, open-system uncertainty is contained by the formation of institutions (such as the firm) and conventional behaviour (such as posting prices); these are closures which allow the system to function. Similarly, economists need to parcel off pieces of the system for study in order to try to identify causal mechanisms which can be regarded as in some sense separable.

The key difference between the closures of mainstream economics and the closures of critical realism is that the former are regarded as universal and fixed while the latter are regarded as partial and provisional. In mainstream economics, for example, the money supply may be taken as exogenous as a universal principle. In a critical realist analysis, the money supply may be taken as given for one particular piece of analysis, for a

particular configuration of the banking system, while another investigates the mechanisms which generate the money supply for another configuration. Or both types of analysis may be applied to the same context, in an effort to build up knowledge from different starting-points.

What appears as inconsistency from a closed-system standpoint may be perfectly consistent within open-system logic. This logic is akin to Keynes's ordinary logic which, unlike classical logic, addresses (general) circumstances where the truth of axioms cannot be established beyond doubt.⁸ It is not that anything goes – the assumptions made for a particular analysis need to be justified in relation to reality. Assumptions in critical realist theory may be unrealistic, but only in the sense of abstracting from reality through simplification, not in the sense of being fictional.

Theories are developed within the critical realist approach, on the basis of abduction from observed provisional regularities (what Lawson calls demi-regs), where observation and theorising both rely on a range of methods. Theorising itself involves what Hume would refer to as the application of the imagination. The critical realist way of putting it is the devising of appropriate metaphors by which to capture a growing understanding of underlying causal mechanisms. Here too critical realism can be seen to be drawing elements from both mainstream methodology and constructivism in a new way. How useful the metaphors are can be judged from their application to new contexts.

There is an underlying presumption that there are sufficient regularities in the social

world to allow the building up of theory, however partial and provisional. Were there no regularities, knowledge would be impossible. But, as critical realists would argue, so would social life be impossible. If nothing else, the institutions and conventions which society evolves to allow social life to proceed provide us with some regularities on which to base our knowledge. These regularities are the antithesis of the event regularities which mainstream economics focuses on in that they are regarded by mainstream economists as impediments to the market forces which otherwise generate event regularities.

In summary, then, the critical realist approach is fallibilist – there is no presumption of access to truth – and advocates pluralism of method. Both follow from critical realism’s philosophical conclusion that the real social world is open. Theories are developed by employing metaphors to capture something of the causal mechanisms for which observed demi-regularities provide clues. Both theories and demi-regularities inevitably employ some form of closure, but closure which is both partial and provisional. The aim of building knowledge in this way is to understand the underlying causal mechanisms well enough to provide the basis for policy designed to transform society.

Critical realism does not purport to advocate any one methodology – but rather to advocate an approach to choosing a particular methodology. Thus for example Lawson (1994b) argues that critical realism leaves methodological choice up to economists. In particular he draws back from any suggestion that critical realism can contribute to discussion about differences between schools of thought. We conclude by considering further what it is that critical realism implies for economics.

5. Implications for Economics

The critical realist literature has made a significant contribution to economics not least by the strength of the critique of mainstream economics. By setting out a critique at the philosophical as well as methodological levels, critical realism has added depth to discourse about the source of unease with mainstream economics which had arisen from practice. By putting the focus on ontology, critical realism exposes the problems with approaches to economics which refer purely to the level of epistemology or present contradictory positions with respect to ontology and epistemology.

At the same time critical realism offers a route out of the blind alley created by constructivism. The idea that both logic and facts are themselves constructed in a fragmented way has been an important part of the critique of the logical positivism of mainstream economics. Indeed this idea exposed the problematic nature of mainstream economics's correspondence with reality. But if at the same time the inability to access reality is taken as the dualistic opposite of mainstream economics's empirical access to reality, then there is a flip over from demonstrable truth on the one hand to nothing at all on the other, as far as economic knowledge is concerned. Constructivist economists in fact do construct useful knowledge (with respect to reality) but, as with mainstream economics, this knowledge lacks consistent philosophical foundations.

Critical realism instead offers the prospect of building knowledge about the real economy which is not demonstrably true, but for which reasoned arguments can be made. This is

because the way in which knowledge is built up is consistent with the critical realist understanding of the real world as an open system. There are strong implications therefore as to the shortcomings of the way knowledge is built up in mainstream economics on the one hand, and how non-mainstream economics should proceed on the other.

The early literature focused on philosophical foundations and critique. As such it was less strong on specific guidance as to how economics should be conducted. This was apparently deliberate – critical realism was not intended as a methodological blueprint. But it means that much work has to be done in working through the implications of critical realism for a number of issues. Three major issues which have already commanded attention are first how critical realism relates to different schools of thought within non-mainstream economics, second the relative roles of philosophy, methodology and practice, and third the role of econometrics.

Lawson (1994b) quite explicitly expresses critical realism as being at a different level from the level at which schools of thought are distinguished. There is a strong overlap with the concept of mode of thought as developed by Dow (1985). The Cartesian/Euclidean mode of thought is based on a closed-system understanding of reality while the Babylonian mode of thought is suited to an open-system understanding. But theorising, as argued above, requires some closure, albeit provisional and partial. An open social system allows for a range of different types of closure. A pluralist methodology means different closures for different parts of the analysis.

But, unless it is to mean eclecticism, or ‘anything goes’, pluralism itself needs to be applied within some limits. Thus paradigms or schools of thought can be understood as particular sets of limits on pluralism. These limits stem from the particular ontology of each community. For neo-Austrians economic reality is individual-based, for example, whereas for Marxists it is class-based, for institutionalists it is institution-based, and so on. Different sets of methods are more suited to one school of thought than another – questionnaire surveys and case studies are more central to neo-Austrian methodology, for example, and time-series analysis is more central to institutionalist methodology. But there may be overlap in methods employed by different paradigms. Further, just as closure in open-system methodology is partial and provisional, so is the closure within a pluralist methodology. Thus schools of thought, and their interrelations, evolve as the subject matter evolves. Critical realism provides the foundation for this discussion by making clear the starting-point of ontology (see further Dow, 1999).

While ontology as the starting-point for epistemology, methodology and practice is central to critical realism, what is less clear is the relation between philosophy more generally on the one hand, and practice on the other. The implication of the critical realist literature is that philosophy comes first, and therefore that philosophy determines practice. But where does the philosophy come from? By critical realist reasoning, philosophy is grounded in the real world, of which scientific practice is a part. It is through struggling to uncover the causal mechanisms which underlie what we experience directly that we become aware of the limitations of mainstream methodology and find

ourselves drawn to alternative approaches. As Adam Smith (1795) pointed out, we are motivated by our sense of wonder at unexplained phenomena or, in modern language, we experience cognitive dissonance when our experience does not accord with our theories. Similarly, we experience cognitive dissonance when we are dissatisfied with the mainstream approach to economics, but not when we adopt an approach which is designed to uncover reality as we believe it to be.

Critical realist philosophy thus constitutes an application of reason to how we understand the world in order to build knowledge about it. But as our knowledge builds, we need to be open to the possibility that our philosophy too may evolve. Thus while critical realist philosophy is *applied* in a ‘top-down’ way, it has itself been *developed* in a ‘bottom-up’ way. A challenge which lies ahead is to treat critical realist philosophy itself as an open system, open to further lessons learned from practice.

A particularly controversial element of practice is econometrics. It has been forcefully argued, notably by Lawson (1997), that econometric techniques lack any justification when applied to an open social system, since they require closure in the aspect of the real world under study. But the argument is building force that econometrics, thoughtfully applied, might be a useful descriptive tool alongside other methods for building knowledge (see for example Downward 2002, and subsequent chapters in this volume). Further, since econometrics is not a homogenous set of techniques, some techniques may find more justification than others. In his critique of Tinbergen, for example, Keynes denied the general applicability of econometrics, and in particular general claims as to the

econometric testability of theories, but did not rule out the possibility that it might have some application (see for example Lawson 1985 and Pesaran and Smith 1985). The important point was that the onus was on the econometrician to justify assuming a sufficient degree of closure in reality to warrant application of a closed-system econometric model, and to accept limitations on how the results might be used. This is an area where practice can be considered in arguments about critical realist philosophy, such that the development at the philosophical level and the level of practice interact. Indeed, it is precisely this theme which is addressed in subsequent chapters.

5. Conclusion

Critical realism represents an important development in our thinking about the philosophical foundations for economics, and their implications for methodology and practice. It has echoes in eighteenth century debate about science which grappled with issues concerning the best way to build up knowledge about the real world as the basis for changing that world. But as it developed science took on a life of its own such that its relationship with reality became less of a focus for attention and accordingly more tenuous. Critical realism has refocused our attention on an independent reality and what is required to build knowledge about it in order to change it.

As such critical realism embodies a powerful critique of mainstream economic methodology. At the same time it presents philosophical foundations for non-mainstream economics in the form of a pluralist, fallibilist approach. The important agenda would now appear to be to build on these foundations more explicit direct applications of critical

realism to demonstrate the practical difference which such an approach makes. Such applications in turn will provide material to be fed back to the philosophical level. The philosophy stems from an understanding of social reality as an open system. But as we build up knowledge of particular aspects of that open system, there is scope for further developing the philosophical foundations. A particular case in point is the issue of the role of econometrics, which philosophical argument seemed to rule out, but practice suggests a modification to that position.

Finally there is considerable scope for further definition of non-mainstream schools of thought in terms of their different types of open-system ontology. At all levels – reality, observation, theory, methodology and philosophy – openness has to involve some (partial, provisional) segmentation in order to be functional. Mapping out the territory within open systems is the next important challenge.

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Endnotes

¹ The question is rarely raised explicitly, except by critical realists.

² In philosophical terms, realism is a multi-faceted concept, treated differently in different contexts; see Maki (1998).

³ See Dow (2002, chapter 6) for a fuller discussion of Popper and Lakatos's philosophy of science as it relates to economics.

⁴ This was particularly true of Sargent; see Sent (1998)

⁵ It is ironic, and potentially rather confusing, to argue that Scottish Enlightenment philosophy, particularly that of Hume, should provide an alternative route to critical realism, since Bhaskar in particular sees the Scottish Enlightenment as embodying the epistemic fallacy, and Hume as having inspired an empiricism based on observed event regularities. What is involved here is two very different interpretations of Hume and the Scottish Enlightenment.

⁶ The term 'common sense' here refers to common sense philosophy; see Comim (2002).

⁷ What is meant by reflecting nature is crucial. Samuelson's correspondence principle was an attempt to justify the assumption that the dynamic processes underpinning comparative statics were stable; see Blaug (1980: chapter 4).

⁸ Lawson (1995) explicitly develops the commonality between critical realism and Keynes's philosophy.