The Pathology of Heterodox Economics and the Limits to Pluralism

Geoffrey M. Hodgson

Hertfordshire Business School, University of Hertfordshire, Hatfield, Hertfordshire AL10 9AB, UK
www.geoffrey-hodgson.info
g.m.hodgson@herts.ac.uk

Draft of 12 July 2017

KEY WORDS: heterodox economics, pluralism, social epistemology, philosophy of science, sociology of science

JEL classifications: A14, B40, B50

ABSTRACT

This paper addresses the possible meanings and potential of 'heterodox economics' as an organizing label. As Tony Lawson (2006) and others have noted, there is little consensus on the meaning of the term. Obversely, the nature of 'orthodox economics' has been construed in different ways, depending on ideological, theoretical, ontological or other considerations. This creates a problem in using 'heterodox economics' to organize critics of orthodoxy. Furthermore, insights from the philosophy and sociology of science suggest that, while diversity and pluralism are desirable, schools of thought also rely on some degree of consensus to develop. Science is a social process where we depend unavoidably on the contributions, criticism and scrutiny of others. Some consensus in the scientific community over basic ideas is essential to monitor quality, to maintain standards, to avoid ongoing critical discussions of potentially everything and to establish shared principles and questions that can then be appraised extensively by multiple, interacting researchers in the face of empirical data. In turn, consensus relies on established positions of power and influence, over departments, journals, research grants, and so on. These considerations signal severe problems for the viability and future of 'heterodox economics'. Some possible alternative strategies are considered.

The Pathology of Heterodox Economics and the Limits to Pluralism

ABSTRACT

This paper addresses the possible meanings and potential of 'heterodox economics' as an organizing label. As Tony Lawson (2006) and others have noted, there is little consensus on the meaning of the term. Obversely, the nature of 'orthodox economics' has been construed in different ways, depending on ideological, theoretical, ontological or other considerations. This creates a problem in using 'heterodox economics' to organize critics of orthodoxy. Furthermore, insights from the philosophy and sociology of science suggest that, while diversity and pluralism are desirable, schools of thought also rely on some degree of consensus to develop. Science is a social process where we depend unavoidably on the contributions, criticism and scrutiny of others. Some consensus in the scientific community over basic ideas is essential to monitor quality, to maintain standards, to avoid ongoing critical discussions of potentially everything and to establish shared principles and questions that can then be appraised extensively by multiple, interacting researchers in the face of empirical data. In turn, consensus relies on established positions of power and influence, over departments, journals, research grants, and so on. These considerations signal severe problems for the viability and future of 'heterodox economics'. Some possible alternative strategies are considered.

1. Introduction

This essay explores the nature, boundaries and future of 'heterodox economics'.[1] The aim is not to appraise particular heterodox theories, whatever they may be, but to examine the use of the 'heterodox economics' label to organise opposition to mainstream economics and to develop alternatives to it.

The argument here makes use of work in the philosophy, sociology and social epistemology of science to suggest that the traditional emphasis by heterodoxy on pluralism, while valid, is one-sided. It neglects the need to build up a community of scientists sharing some common assumptions and with some consensus on key issues. Of course, the existence of a consensus does not validate any shared belief, and the possibility of challenging the consensus must remain, but some kind of consensus is essential for science to move forward.

To this problem, 'heterodox economics' adds its failure, despite major attempts, to establish sufficient agreement within this community on what 'heterodox economics' means. My purpose in sections two, three, four and five is not to provide a definition of heterodox economics but to show that controversy over its nature is unresolved, without any clear consensus on its meaning.

[1] The author thanks Philip Arestis, Fernando Carvallo, Hulya Dagdeviren, John Davis, Wilfred Dolfsma, Sheila Dow, Gary Dymski, Nils Gilman, David Gindis, Geoffrey Harcourt, Mark Hayes, Mark Lavoie, Tony Lawson, Robert McMaster, Edward Nell, Jochen Runde, Engelbert Stockhammer, Wolfgang Theil and others for helpful information, feedback and discussions.

The problems go further. Section six considers possible *raisons d'être* of any discipline or school and finds them lacking in the case of heterodox economics. Sections seven, eight and nine apply some ideas from the philosophy, sociology and social epistemology of science to 'heterodox economics' as a community. Progress in any school of thought requires social institutions to establish concentrations of expertise that can help monitor quality and channel debate.

These insights help us understand the limited progress of 'heterodox economics' and its variable esteem in terms of quality. They help us appreciate why the 'heterodox' project has made relatively little progress. They also offer guidance for alternative strategies. On this note, section ten concludes the essay.

2. 'Heterodox economics' – the problem of meaning

One might attempt to establish the nature of mainstream or orthodox economics and define 'heterodox economics' in opposition to a list of prominent orthodox claims or features.[2] Alternatively one may start with an attempted description of heterodoxy, and establish the nature of orthodoxy by comparison. Or the researcher may combine both moves. In any case, the meaning of 'heterodox economics' implies a conception of 'orthodox economics' and vice versa.

Frederic Lee (2008) charted the history of 'heterodox economics', addressing both its assumed substance and the past use of the label. The term 'heterodox economics' has a long lineage, but it became prominent as an organizing banner in the final quarter of the twentieth century, alongside other labels, particularly 'post-Keynesianism'. The term 'heterodox economics' is now widely used. There is an Association for Heterodox Economics (in Europe) and a Society for Heterodox Economic (in Australia). Leading publishers such as Edward Elgar and Routledge use the label 'heterodox economics' to classify and market publications that are critical of the mainstream.

But what lies beneath the 'heterodox' label? What does it mean? Tony Lawson (2006: 484, emphasis in original) wrote that 'very few … have questioned the nature of heterodox economics' and when queried 'it is recognised … as an umbrella term to cover … *separate* heterodox projects or traditions.' Andrew Mearman (2011: 480) analysed a survey of members of the Association for Heterodox Economics and found 'little agreement on any core concepts or principles' and 'that there is little structure to heterodox economics beyond that provided by pre-existing (or constituent) schools of thought' (which are, most importantly, post-Keynesianism and Marxism). Clive Spash and Anthony Ryan (2012) conducted a different survey that confirmed a similar result.

Given this internal diversity, with little agreement on core issues, one wonders what keeps the 'heterodox' community together. It cannot be simply opposition to orthodoxy, as the

---

[2] The meaning of 'orthodox economics' remains contested precisely because of the lack of consensus over the 'heterodox' label. By contrast, I use the term 'mainstream' loosely to refer to the global community of economists who *de facto* dominate economics within the academy, who publish in journals most highly-ranked by that group, and who populate its most prestigious departments. As Dequech (2007: 281) put it: 'mainstream economics is that which is taught in the most prestigious universities and colleges, gets published in the most prestigious journals, receives funds from the most important research foundations, and wins the most prestigious awards.' Here I avoid the term 'neoclassical' because it has become controversial (Lawson 2013), and there is no space to enter into the issues. For different views on the use of the term 'neoclassical' see Hodgson (1999a: ch. 2) and Lee (2009).

heterodox are not themselves agreed on its nature. Beyond a demand for greater pluralism and a degree of ideological commonality, it is unclear upon what else heterodox economists agree.[3]

Although our primary focus here is on 'heterodox economics', the 'post-Keynesian' label has similar problems of definition and the two groups have a sizeable overlap in doctrine and membership. When the 'post-Keynesian' label emerged in the 1970s it was deemed to include a number of dissenting economists, including Marxists, institutionalists and (in some cases) Austrians (Davidson 1980, King 2002). Lawson (2006: 484) argued that 'post-Keynesianism' is internally divided and inadequately defined. Attempts by post-Keynesians 'to produce substantive theories, policies or methodological stances have usually led to such a degree of variation or competition that post Keynesians, and their observers, have tended to conclude that the only definitive point of agreement among post Keynesians is that they stand opposed to mainstream or "neoclassical" contributions.' Lawson cited evidence supporting this claim, which suggests that both 'heterodox' and 'post-Keynesian' economics define themselves principally by their opposition to mainstream views.

3. 'Heterodox economics' – the problem of political ideology

Consider the possible role of policy and political ideology in giving heterodoxy meaning. In social science, if there were a one-to-one mapping of theoretical explanations on policy outcomes, and vice-versa, where a particular theoretical approach sustained one unique type of policy stance, and a particular policy outcome pointed to a particular theoretical approach, then the establishment of the theoretical core of 'heterodox economics' would imply a designated set of policy positions. These might cover prominent issues such as the roles or limitations of markets, different attitudes to macro-economic austerity, and so on.

The outcome of this one-to-one mapping would provide both theoretical and policy grounds for distinguishing heterodoxy from orthodoxy. One could identify heterodoxy or orthodoxy by simply identifying policy stances. The contest between heterodoxy and orthodoxy would prominently be a battle between ideological positions. Each ideological standpoint would signal a corresponding theoretical position. Heterodoxy and orthodoxy would be neatly divided in both theoretical and policy terms.

But things are not that simple. I concur with Lawson (2006) in rejecting a policy-driven demarcation of orthodoxy from heterodoxy, for reasons reported below. Furthermore, the case for a one-to-one mapping is untenable. It is demonstrable that many prominent theories can serve multiple policy outcomes, and particular policy outcomes can be defended from multiple, contrasting theoretical positions. The relationship between theory and policy is many-to-one and one-to-many.

There are different attempts in social science to link theory with policy, one of which may be briefly mentioned. The pioneering 'critical realist' thinker Roy Bhaskar (1986: 169) wrote of the 'essential emancipatory impulse' of the social sciences. As Andrew Collier (1994: 172) explained Bhaskar's argument: 'To say that some institution causes false beliefs is to criticise it.' Critical realists describe this as an 'explanatory critique'. Bhaskar and Collier further argue that adequate explanations in social sciences imply particular policy stances. But whatever the

[3] There is now a large literature on pluralism in economics, but Salanti and Screpanti (1997) remains an important and sometimes-neglected early landmark.

value of this argument in general terms, the particular policy conclusions they leap to embrace are highly restrictive and debatable.[4]

Other widespread attempts to link theory with policy start from the claim that 'facts are inseparable from values'. Of course they are linked. Scientists unavoidably make value-infused judgements over priorities, methods, assumptions and so on. But this does not mean that particular values imply particular theories, or that it is impossible to distinguish judgements (mostly) about facts from judgements (mostly) about values. If they were indistinguishable, then science would dissolve into ideology, and facts would be disempowered.

Of course, mainstream (i.e. dominant) theory nowadays is often used to sustain free market policies. But this has not always been the case. Many of the pioneers of mainstream economic theory were sympathetic to left ideas. Léon Walras called himself a 'scientific socialist' and advocated price regulation and the public ownership of natural monopolies, including of land. Alfred Marshall was sympathetic to worker co-operatives. In the 1930s, a group of mainstream economists led by Oskar Lange used general equilibrium theory in attempts to demonstrate the viability of socialism. General equilibrium theory was the weapon of the socialists *against* the pro-market critics of planning in the Austrian school, including Ludwig von Mises and Friedrich Hayek. Consequently, Hayek (1945) in particular criticized mainstream assumptions.[5]

Leading general equilibrium theorists Kenneth Arrow and Frank Hahn declared their sympathies for various interventionist and social-democratic economic policies. Indeed, Hahn and others have justified the whole mainstream general equilibrium theoretical project as an attempt to demonstrate the *limits* of the market mechanism. Some Marxists such as Jon Elster and John Roemer, have explicitly embraced mainstream tools of economic analysis, including general equilibrium analysis and game theory.

Even today, mainstream theorists span the conventional political spectrum – from the pro-planning left to the pro-market right – and the mainstream, despite its biases, is not definable in terms of the policy stances of its adherents. While many mainstream economists advocate free-market policies, Nobel Laureates including Kenneth Arrow, Paul Krugman, Paul Samuelson and Joseph Stiglitz have favoured a mixed economy and supported Keynesian rather than austerity measures to counter recessions.

Consequently, the evidence is stacked against the idea that there is a simple mapping of theoretical positions onto policy outcomes. In terms of its adverse impact on current discourse, such a claim might underestimate the support for state-interventionist policies among the mainstream, or inexplicably exclude from the heterodox camp those economists who are critics of mainstream theoretical approaches, but support free-market policies (notably Austrians such as Hayek). Notably, Lee and Lawson have expressed different views on how Austrian economics should be categorized. We turn to their views now.

---

[4] Bhaskar (1989: 6) and Bhaskar and Collier (1998, p. 392) posited undiluted socialism as the only adequate policy stance. They excluded social-democratic compromises and shunned all markets. See Hodgson (1999b, 2006: ch. 5) for a critique of this argument. Subsequently, Spash (2012) invoked the Bhaskar-Collier argument in his critique of pluralist strategies in ecological economics. Instead of pluralism, Spash and Ryan (2012: 1092) promoted an ideologically-driven economics that empowers 'a challenge to … dominant neoliberal market structures'.

[5] For a fuller discussion with citations of the historical points made in this and the following paragraph see Hodgson (1999a: ch. 2).

4. Frederic Lee on the nature of 'heterodox economics'

The most important attempts to define nature of 'heterodox economics' are arguably by Tony Lawson and Frederic Lee. While they overlap on some points, there are major divergences between the two.

Lee (2009) did more than anyone else to document the 'heterodox' tradition, to attempt to define its nature and to organise it into a viable international movement. In his entry on this topic in the second edition of the *New Palgrave Dictionary of Economics,* Lee (2008) described heterodox economics as a tendency standing 'in some form of dissent relative to mainstream economics'.

In turn, for Lee (2008), 'mainstream theory is comprised of a core set of propositions – such as scarcity, equilibrium, rationality, preferences, and methodological individualism'. For Lee (2009: 7) mainstream economics assumes 'asocial, ahistorical individuals … fictitious concepts … a deductivist, closed-system methodology … methodological individualism', a 'positivist … methodology' and 'the concept of scarcity'.

But many questions of necessary clarification are unanswered. Some writers suggest that many useful economic theories are 'fictitious' to the extent that they make simplifications that do not exactly correspond to reality (Mäki 1992, 1994, Sugden 2000). This is one among several disputed areas. Given that there are several conflicting definitions of terms such as 'deductivism' and 'positivism' (Hands 2001: 323 n., Hodgson 2006: 115-16) which of these characterizes the mainstream?

If mainstream economics adopts a 'closed-system methodology', then Lee would suggest an 'open-system methodology' as an alternative. But the nature of the latter remains contested and incomplete, despite the efforts of Lawson and others. For instance, Victoria Chick and Sheila Dow (2005) suggested that there are different open-system methodologies, depending on the sense in which a system is viewed as being open. Lee was playing lip service to something that he failed himself to clarify or elaborate.

Concerning methodological individualism as another of Lee's demarcation criteria, are Arrow's (1994) criticisms of methodological individualism sufficient to make him heterodox? Methodological individualism has different definitions, some of which fully accommodate social structures and are arguably acceptable, albeit miss-labelled (Hodgson 2007).

Mainstream economists are imprecise about 'scarcity' and there is no recognition by Lee that it has several different meanings (e.g. Daly 1974). Would exhortations that natural resources are scarce be sufficient to make one mainstream? Of course, things like trust and honour are not physically limited, but surely all material resources are globally finite – which is one prominent meaning of scarcity. Alternatively, if interpreted narrowly in terms of limited or costly *immediate access* by agents to necessary or desired resources, then scarcity is indeed a universal feature of all life on this Earth (Aldrich et al. 2008).

Lee also included Lawson's (1997) version of 'critical realism' as an element of heterodox economics. This seems to allow for no dissent from 'critical realism' to qualify as heterodox. Are other philosophical approaches, including other versions of scientific realism, mainstream? Lee gave no reason for including critical realism alone.[6]

---

[6] Given Lee's (2009) declared antipathy to capitalism, is it possible that this is to do with the socialist and leftist claims made by some of critical realism's leading proponents, including Bhaskar and Collier (Hodgson 1999b)? It should also be noted that some (leftist or Marxist) advocates of critical realism dissent from Lawson's critique of economic modelling (e.g. Wright, 1994: 183-9). What unites many (but clearly not all) critical realists is their

On the basis of these reflections, Lee (2008) concluded that heterodox economics comprises 'a group of heterodox theories' including Marxism, post-Keynesianism, social economics, feminist economics and institutionalism (he implied, but he did not make it clear, that this referred to the original rather than the new institutional economics).[7]

But a number of non-mainstream schools were excluded from Lee's heterodox listing. Lee omitted Sraffian approaches, from his descriptions of both heterodoxy and post-Keynesianism. Post-Keynesians are themselves divided on whether or not they include work inspired by Sraffa (1960) under their label.[8]

The 'evolutionary economics' of Richard Nelson and Sidney Winter (1982) was also excluded from Lee's (2008) list of 'heterodox' approaches. The irony here is that the original institutionalist Thorstein Veblen (1898) coined the term 'evolutionary economics' and there are resemblances between the work of Veblen and that of Nelson and Winter (Eaton 1984, Hodgson 2004).[9]

Lee's reasons for excluding the Austrian school were also unstated. Austrian school economists generally reject assumptions of equilibrium, maximization, global rationality and fixed preferences. But Lee is clearly hostile to their pro-market inclinations.

Given Lee's rejection of utility maximization, it is strange that there is no reference in Lee's (2009) book to the behavioural economics of Herbert Simon. Simon (1957, 1959, 1986) was a strong critic of the rationality assumption in mainstream economics and to a degree his work was inspired by the original institutional economics (Rutherford 2001, Hodgson 2004).

Lee's final omission was the work of Amartya Sen (1977, 1979), who is another highly important critic of the behavioural assumptions of mainstream economic theory, including rationality and maximization, and of their welfare implications.

On casual inspection it seems that the majority of self-described 'heterodox economists' are macroeconomists.[10] Maybe the preference for macroeconomics stems from its perceived greater impact on politics and policy at the national level? Notwithstanding this conjecture, Lee (1998) – following Alfred Eichner (1976) – was a part of the minority who addressed microeconomics as well. But the concerns of Lee and Eichner were largely to do with pricing and oligopolistic markets and less to do with the springs of individual human motivation. Does this help explain

---

leftist politics. While imperfect, this correlation between claimed philosophical and political stances is too strong to be dismissed as accidental.

[7] Feminist economics emerged in the 1980s (Waring 1988). But this includes a range of theoretical approaches, including mainstream general equilibrium models, mainstream game theory and mainstream econometrics, as well as including strong insights that challenge mainstream assumptions (Woolley 1993). Again, did Lee add feminist economics for ideological reasons?

[8] In 2014 the author asked leading post-Keynesians Philip Arestis, Fernando Carvallo, Sheila Dow, Gary Dymski, Geoffrey Harcourt, Mark Hayes, Mark Lavoie, Edward Nell and Engelbert Stockhammer whether they regarded Sraffian economics as part of post-Keynesianism. Six agreed, two answered in the negative, and another was unsure. Seven of the nine excluded Austrian economics from post-Keynesianism, despite the Austrians and Keynesians sharing a strong interest in uncertainty and expectations. The respondents were more evenly split on whether Marxian (three 'yes' versus four 'no') or institutional (four 'yes' versus four 'no') economics were included.

[9] 'Evolutionary economics' also has its own problems as an organizing label. Hodgson and Lamberg (2017) argued that it is a highly segmented field, lacking sufficient agreement on core principles and research focus. But on the other hand, there have been considerable achievements in this area. The present article concentrates on the problems with the 'heterodox economics' label.

[10] The impressive exceptional study by Davis (2003) proves the rule.

Lee's exclusion of Simon and Sen from the heterodox camp? Maybe the proclaimed anti-individualism of heterodoxy means that they generally avoid individual-level analysis?

Overall, Lee's (2008, 2009) attempt to define 'heterodox economics' bears the marks of personal and political preference, as well as some explicit scientific criteria. Notably, according to Lee (2008), 'heterodox economics is not out to reform mainstream economics'. Instead, Lee implied that the ultimate use of heterodox economics was to aid a political movement against capitalism.

5. Tony Lawson on the nature of 'heterodox economics'

Lawson's (2004, 2006) attempt to pin down the nature of heterodox economics is more systematic than Lee's. As elaborated below, Lawson's very different approach is based on alleged ontological assumptions concerning the use (or non-use) of mathematics. He considered the viability of defining orthodoxy in terms of support for 'status quo ideology'. But he persuasively rejected this demarcation on the grounds that theories should not be classified exclusively in terms of the purposes or policies that they serve. Furthermore, the mainstream is itself highly diverse in ideological and policy terms.

Lawson also eschewed the view that mainstream orthodoxy can be defined in terms of some core assumptions. In particular, he rejected any definition of orthodoxy centred on rational, optimizing, individual behaviour. His dismissal cited claims by John Davis (2005) and David Colander et al. (2004: 485) that mainstream economics is 'moving away from strict adherence to the holy trinity – rationality, selfishness, and equilibrium – to a more eclectic position of purposeful behaviour, enlightened self-interest and sustainability'.

There is not the space here to evaluate the claims of Davis, Colander and others. They are based to a degree on empirical inquiry, including interviews with economists. They claimed that mainstream economics is changing in character and moving in a more empirical direction. Furthermore, in leading mainstream journals, there is now discussion of 'social preferences' and 'other-regarding behaviour', which contrast with the previous picture of self-regarding 'economic man'. But 'other-regarding preferences' can still be formulated as preference functions, and thereby the canon of utility maximization can still be observed. It is less obvious that mainstream economics is moving decisively away from individual utility maximization, or from Paretian welfare assumptions based on utility analysis.

Despite the changes noted by Colander and others, some evidence suggests that the idea of individual utility maximization retains a tenacious hold within the mainstream. Consider the transformation of 'behavioural economics' from the original and more radical version of Simon (1957, 1959, 1986) – which subverted the notion of rational, optimizing, individual behaviour – to versions more accommodating to the mainstream. As behavioural economics moved from the outer courtyard to the inner temple of orthodoxy, it made itself more compatible with the utility maximizer of old. Gerardo Infante et al. (2016) have documented how some behavioural economists have claimed to have rediscovered an inner *homo economicus* within everyone. Deviations from this inner rationality are put down to mistakes, misinterpretations of evidence or missing information. The individual utility maximizer eventually returns, once his or her mistakes and misperceptions are corrected.

As another example, as soon as it became possible to garner extensive data on brain activity, pioneering neuro-economists (Platt and Glimcher 1999, Glimcher *et al.* 2005) claimed to discover the utility function exists as a physiological reality inside the brain. This suggests that

utility maximization still besotted some prominent economists. If they had abandoned utility functions then they would not be looking for them.[11]

A final piece of evidence is the enduring use of the term 'economic approach' by mainstream economists, including in areas where there are contested modes of explanation, such as in studies of business organizations, legal systems, cultures, or even animal behaviour. This claimed 'economic approach' typically involves a focus on maximizing behaviour by individuals, taking into account costs and benefits. The persistence of this term suggests that numerous mainstream exponents still perceived that economics is defined by some theoretical core.

Of course, optimization and utility-maximization are partly driven by a concern to express theory in mathematical terms. But other assumptions could have been made, some of which might also be expressed mathematically, albeit perhaps through a different kind of mathematics.[12]

My intention at this point is simply to register a concern with Lawson's quick dismissal of the possibility of defining orthodoxy in terms of some version of individual maximization. If the claims of Davis, Colander and others were largely correct, then this would not rule out the possibility of a sizeable, identifiable, enduring, orthodox theoretical core, based on some inclusive notions of utility-maximization or cost-minimization. But adjudication over these issues must await another study.

Lawson's dismissal of the definition of orthodoxy in terms of utility-maximization is necessary to clear the space for his crucial ontological argument. For Lawson (2006; 492) 'the mainstream project of modern economics just is an insistence, as a discipline-wide principle, that economic phenomena be investigated using only certain mathematical-deductive forms of reasoning. This is the mainstream conception of proper economics.' Lawson (2006: 493) claimed that 'mathematical methods are being imposed in situations for which they are largely inappropriate.' The 'formalistic models that economists wield mostly require, for their application, the existence (or positing) of closed systems'.

This is an important extension of Lawson's (1997) earlier thesis on economic theory and reality. It has since been widely debated.[13] Leaving these controversies on one side, Lawson's (2006: 493, 592) impressive and novel conclusion is that '*the essence of the heterodox opposition is ontological in nature'* and 'modern heterodoxy is, *qua* heterodoxy, first and foremost an orientation in ontology.' This creates an orthodox-heterodox demarcation, where

---

[11] This claim is scrutinized by Vromen (2010), who argued that there is no evidence of actual computation of utility. See also Hodgson (2013a).

[12] If orthodoxy meant utility maximization, then heterodoxy would be defined in opposition to it, and it would draw upon leading critics, from Smith (1759) to Simon (1957) and Sen (1977). But notably this would lead to a wide variety of possible policy stances, including conservative or market-friendly positions, outside the comfort zone of many current 'heterodox economists'. Does leftist political ideology help to explain why this understanding of orthodoxy as utility maximization did not become pivotal for the heterodox community?

[13] For a selection of critical views and responses see Nash (2004), Chick and Dow (2005), Wilson (2005), Hodgson (2006, ch. 7), Mearman (2006), Pratten (2007), Fullbrook (2009), Mohun and Veneziani (2012) and Fleetwood (2017). Objectors have argued that all (formalized) theory involves some assumption of closure or isolation, and some theories still manage to be useful. Lawson's definitions of openness and closure are also challenged. It has been further argued that Lawson underestimated the heuristic purposes of much theory. Sugden (2000) argued that theory can be useful without claiming to represent or predict reality in some adequate sense. But there is neither the possibility nor the need to resolve these issues here.

the former imposes mathematical methods 'in situations for which they are largely inappropriate', and, by contrast, the latter either minimizes the use of mathematics or uses mathematics where a 'closed system' is approximated. Lawson (2003, p. 21) suggested that such approximations are 'seemingly rare'. Consequently, for Lawson, mathematics is appropriate for economics in highly limited circumstances only.

Lawson (2006) argued that while the heterodox camp is divided into multiple schools, they each make (explicit or implicit) ontological claims that imply that mathematical modelling is difficult or inappropriate. For example, post-Keynesians emphasise radical uncertainty (ruling out calculable probabilities), the original institutionalists underline evolution in open systems, and so on. For their emphases on uncertainty and processual change, and in contrast to Lee, Lawson described Austrians as heterodox. Overall, Lawson emphasized a division of labour within heterodoxy, where different heterodox strands commonly resist the pull of excessive mathematical formalization and together create a richer picture of economic reality.

Whatever the veracity of Lawson's argument, it is important to consider more fully its implications. Even if Lawson is right, it has further consequences, which the heterodox community might find uncomfortable.

Consider first the example of Ronald Coase, who is mentioned by Lawson (2006: 492-3) in one passage as a 'mainstream contributor' alongside Ariel Rubinstein, Edward Leamer and Wassily Leontief. But unlike the other three, Coase did not use mathematics. In fact, Coase (1988: 185) ridiculed the excessive use of mathematics in economics: 'In my youth it was said that what was too silly to be said may be sung. In modern economics it may be put into mathematics.' Consequently, by Lawson's own argument, but contrary to Lawson's own designation, Coase would seem to qualify as a heterodox economist.

The problems do not stop there. The dominance of mathematical formalism in economics is relatively recent. Mark Blaug (2003) and others have dated its inception to the 1950s. In fact, few economists made any use of mathematics before the 1930s. Several prominent economists – including Alfred Marshall and his student John Maynard Keynes – explicitly regarded mathematics as a highly limited tool (Hodgson 2012). Lawson's criterion would seem to suggest that most economists, from Adam Smith to Alfred Marshall, were 'heterodox'.

Even after the 'formalist revolution' of the 1950s, a substantial number of influential economists have concentrated on words rather than equations. As with Coase, there is little or no mathematics in the works of Douglass North, Oliver Williamson, or Elinor Ostrom, all of which won Nobel Prizes for their work in the 'new' institutional economics. The works of Richard Posner are also highly cited in leading economics journals: but he made no use of mathematics.

Others made some use of mathematics but also saw its limitations. Several of Milton Friedman's works made relatively little use of mathematics, and he complained that: 'economics has become increasingly an arcane branch of mathematics rather than dealing with real economic problems' (Friedman 1999: 137). Frank Hahn (1991: 50) predicted a state of diminishing mathematical returns for future economists: 'less frequently for them the pleasures of theorems and proof. Instead the uncertain embrace of history and sociology and biology.'

We may add numerous additional examples. By Lawson's criterion, there is a case for regarding most pre-1930 economists and at least some work by many famous and lauded post-1930 economists as 'heterodox'. Whatever the merits of Lawson's classification, this augmented list would not seem palatable for many in the heterodox community, and would yield outcomes very different from those outlined by Lee (2008, 2009).

Despite frequent lip-service to 'critical realism' in the heterodox community, there seems lesser support for Lawson's definition of heterodoxy. The inclusion of the Austrian school was an anathema to leading heterodox figures such as Lee. Furthermore, Lawson's exclusion of Sraffian and post-Keynesian mathematicians from the heterodox camp jars against their widespread (but not universal) inclusion. There are many economists who are critical of mainstream (i.e. prevailing) theoretical approaches and use mathematics or econometrics. They would reject being classified as orthodox, especially as the logic of Lawson's argument would also include Nobel Laureates such as Coase, Hayek, North, Ostrom and Williamson as heterodox.

More than ten years have passed since Lawson's (2004, 2006) key articles on this topic and it does not seem that his definition of heterodoxy has become widely adopted. Instead, the heterodox community remains dominated by those describing themselves as post-Keynesian, Sraffian or Marxist, seemingly united more by their leftist political leanings, contrary to Lawson's critique of an ideological demarcation criterion. Furthermore, contrary to Lawson's 'ontological' demarcation, mathematical modelling and econometrics are still widespread among those who describe themselves as 'heterodox'.

6. The need for a *raison d'être* – and the role of pluralism

The failure of self-described 'heterodox economists' to agree upon a rough working definition of their scope and nature is a serious impairment, for several reasons. Any viable discipline or school of thought should have a shared *raison d'être*. This may be defined in terms of

(a) the study of a specific zone of enquiry or a set of phenomena in the real world, or
(b) the promotion or development of a particular theoretical approach (such as utility maximization, or the use of evolutionary theory, or whatever), or
(c) the promotion or development of a set of analytical techniques (such as econometrics, or game theory, or agent-based models, or whatever), or
(d) the promotion or development of policies in a defining problem area (such as the environment, peace, or economic development).

The *raison d'être* may consist of one of these, or a combination of more than one. Lee's attempted definition of heterodoxy fits largely into category (b), by listing sets of acceptable and unacceptable theoretical assumptions. But Lee also strays into the policy area (d). Lawson's argument perhaps fits best into (a), entailing his assumption of open systems in the socio-economic world. But it also he drew implications concerning types of theoretical approach (b) and appropriate analytical techniques (c).

The differences between Lee and Lawson reveal a schism in the heterodox camp. 'Heterodox economics' spans a range of diverse approaches that agree on relatively little in theoretical terms, other than opposition to (some notion of) the mainstream. Within its compass there are clashes and contradictions. This leads us to the issue of pluralism.

Some internal pluralism or diversity within any academic school or discipline is vital. Internal debate is necessary for theoretical advance: diversity and dissent provide the fuel for theoretical innovation. But pluralism must be housed within some kind of consensus over what common problems are to be faced and what is within or beyond the scope of the group of researchers. Otherwise progress is impaired by endless dispute over fundamentals. As Sheila Dow (2007: 448) argued, an 'unstructured pluralism or eclecticism, understood as an absence of selection criteria, or "anything goes", is antithetical to the building up of knowledge': it would lead to chaos or stagnation.

Consequently, an academic discipline or school requires not only a shared *raison d'être* but also some institutional mechanisms for sustaining conversation, channelling debate, appraising the importance and quality of arguments, screening out ungrounded claims, and so on. It has become a truism that science is a social process. But the full consequences of this for heterodox economics have yet to be taken on board. They are especially relevant for the issues of quality enhancement and the cumulative development of knowledge. The following section begins to address this issue.

7. The social processes of social science and the role of consensus

After the work of John Dewey (1929), Ludwik Fleck ([1935] 1979), Ludwig Wittgenstein (1953), Thomas Kuhn (1962) and several others, the social embeddedness of scientific enquiry has become more widely understood. Instead of the picture of the lone, reflective, observer or experimenter, there is a growing understanding that, for several reasons, effective enquiry requires an interacting community of researchers.

Philip Kitcher (1993) applied developments in social epistemology to the scientific community.[14] Scientific knowledge is established by institutionalized communities of investigators that scrutinize each other and play a crucial role in the advancement or extinction of particular approaches to understanding. The academic institutions of the scientific community mould the conceptual language, identify the questions that are deemed important, establish acceptable modes of explanation, determine the paradigms if experimentation and observation, and highlight the exemplars of acceptable scientific reasoning.

Kitcher highlighted a crucial and everyday problem for the development of science as a whole: it is impossible for any scientist (or team of scientists) to check every result or claim upon which their research is based. Because of the overwhelming scale and complexities of science, and the immense amount of information involved, scientists depend on the screening capacities of others and necessarily rely on a measure of trust. The social relations and institutions of the scientific community are vital to establish a degree of consensus and authority upon which the progress of science depends.

Similarly, the economist George Shackle (1967: 295) understood the essential role of established authority within a body of knowledge. Indeed, scientific innovation is impossible without an established foundation: 'reconstruction must inevitably use much of the old material. Piety is not only honourable, it is indispensable. Invention is helpless without tradition.'

Kitcher's argument ties in with other research on the social and contextualized nature of knowledge and cognition. Instead of assuming that individuals proceed largely by building representative models of their world in their brains, psychologists and others now argue that human cognition also depends on its social and material environment and the cues provided by structured interactions with individuals and artefacts. Human cognitive capacities are thus irreducible to individuals alone: they also depend upon social structures and material cues. This

[14] While Kitcher's approach is pioneering and useful, there are several points of possible contestation, including his emphasis on rationality (while ignoring many of the problems and ambiguities surrounding that concept), his all-too-quick rebuttal of the problem of theory-ladenness of observation, and his gravitation towards an analytical framework that in some respects resembles neoclassical economics (Mirowski 1995). But much of his core argument can survive the removal of these flaws.

is true for science as much as any other organized human activity. Science becomes institutionalized, to create 'epistemic communities' and 'machineries of knowing'.[15]

Kitcher also considered the diversity of motivations among researchers, accepting that they can vary from moral commitment to the advancement of knowledge, to self-interest, pursuit of status, esteem or monetary gain. For Kitcher, motivational purity in science is neither necessary nor possible. Scientific advance depends on particular institutions and incentives that channel and combine varied individual incentives towards the general growth of knowledge.

Kitcher emphasized the importance of both an adequate consensus and of doctrinal variety within the scientific community of a discipline. Sufficient consensus is a requirement for a critical mass of attuned scholars, with a division of labour to scrutinise and guide emerging research, and to provide essential criticism and expertise.

Other writers have similarly used social epistemology to suggest that some consensus is essential to establish a working bedrock of assumptions and results. For example, Kristina Rolin (2008: 115) developed a 'contextualist theory of epistemic justification to argue that scientific communities have an interest in collective knowledge because it enables them to establish a context of epistemic justification.'

On the other hand, if the consensus is overwhelming, then radical innovations would be stifled by orthodox criticism; any dissent would be starved of effective critical dialogue, guidance, funding and attention. Kitcher (1993, ch. 8) thus established a notion of 'optimal' diversity in a scientific discipline. For scientific progress to be likely, there has to be not only a sufficient diversity of views and approaches for innovation, but also an adequate consensus to limit endless questioning and criticism. Neither diversity nor consensus should crowd out the other.

In the social sciences, sociology is an obvious candidate for a discipline that may suffer from excessive diversity and insufficient consensus, at least since the 1970s and the end of the Parsonian dominance. Sociology exhibits a wide diversity of approaches and a limited evaluative consensus (Mouzelis 1995).

The case of mainstream economics is more complex, because the discipline now exhibits a diversity of theory, including varieties of game theory and of behavioural and experimental economics (Davis 2006). This diversity has been a source of theoretical innovation, particularly through cross-pollination, such as with behavioural game theory, or behavioural finance. But in other respects, diversity is less evident within mainstream economics, particularly in the accommodation of ideas from outside the discipline.[16]

Elsewhere I have examined some limitations of Kitcher's framework to the diagnosis of problems within mainstream economics, including the problem of dominance of mathematical technique over theoretical and empirical substance, alleged by Blaug (1997) and others

---

[15] The quoted phrases are from Haas (1992) and Knorr-Cetina (1981) respectively. See also, for example, Toulmin (1972), Fuller (1988), Longino (1990), Lave and Wenger (1991), Hutchins (1995), Wenger (1998), Nooteboom (2000), Lorenz (2001), Nelson and Nelson (2002), Fuller and Collier (2004), Nonaka et al. (2006) and Rolin (2008).

[16] Hodgson and Rothman (1999) found that the most highly-cited journals in economics were edited by people from a narrow range of (principally US) academic institutions and published works by authors from a similarly restricted set of universities. Pieters and Baumgartner (2002, p. 504) examined inter-journal citation patterns in the mid-1990s and found that 'economics builds only slightly on knowledge from its sister disciplines' and lacks variety in terms of material from other social sciences. A major study by Fourcade et al. (2015) confirmed this insularity.

(Hodgson 2013b). Uskali Mäki (2005) and others have highlighted the importance and potential sub-optimality of positive feedback in the development of science, including with the process of increasing mathematical formalism.

The example of economics suggests that Kitcher under-states the need to maintain an over-arching concern for empirical or practical relevance. Some vital features of science are orthogonal to the questions of consensus and diversity. As Steve Fuller (1988) argued, the establishment of consensus does not necessarily imply any revelation of truth. Nevertheless, that consensus may be the best guide we have, especially when it is strong. Hence, without having been trained in climatology, many educated citizens accept that climate change is a problem because they are aware of the overwhelming consensus among experts in that area.

8. The screening of scientific knowledge by the scientific community

It should be recognized that consensus, while necessary to a degree, will involve control by a group or network that will evolve rule-of-thumb criteria to consider whether a particular contribution by a researcher is to be taken seriously or ignored. At root of the problem here is the need to process vast amounts of information, and to take short-cuts in doing so. We may not like institutionalized screening processes, but they are necessary because of information overload, bounded rationality and the absence of omniscience.[17]

Because of the huge amounts of knowledge involved and the multiple specialist skills required to understand it, the scientific community may be disposed to use simpler rather than wide ranging, multi-faceted or complex criteria. Hence generally, the institutional affiliation of the scholar will matter, as will his or her count of publications in recognized journals. Today there are published global rankings of universities, departments and journals. In particular disciplines, further additional criteria of questionable merit may emerge.

Criticism of these criteria and rankings is easy: they are all obviously flawed to some degree. But once we understand the social nature of science, and the need for an interacting scientific community to process huge amounts of complex knowledge and to establish some consensus over what is valuable and important, then some reliance on rough-and-ready measures is necessary and unavoidable. But problems arise when flawed measures become ingrained to an extent that they are difficult to challenge or improve.

Consider a possible screening criterion within sociology. The leading sociologist Niklas Luhmann (2005: 199) claimed he was deliberately keeping his prose enigmatic to prevent it from being understood 'too quickly', which might produce simplistic misunderstandings. Complaints concerning deliberate obscurantism and over-elaborate language were made decades ago by C. Wright Mills (1959: 40) against Talcott Parsons. One may conjecture that the capacity to use and tolerate obscurantist language, to dress-up relatively simple ideas, has emerged as a prominent screening criterion in this discipline. Its potential defects are obvious.

Ever since economists became afflicted by mathematics-envy, the capacity to use mathematics has become the foremost criterion (whether we like it or not) for deciding whether a researcher's contribution is to be taken seriously by the mainstream. In addition, the type of mathematics must be sufficiently familiar to be understandable after postgraduate training, but

[17] I use the term 'bounded rationality' in Simon's (1957) original sense of limited cognitive and computational capacity. In the face of large amounts of complex information. Simon (1957: 199) wrote: 'It is only because individual human beings are limited in knowledge, foresight, skill, and time that organizations are useful investments for the achievement of human purpose'.

sufficiently difficult to screen out the unmathematical reader. Notably, there is strong path-dependence in the assumptions and type of mathematics used: different mathematical approaches or assumptions take a long time to be established.[18]

Because science is unavoidably a social process involving a screened social community, then some kind of selection criteria are going to be used to determine entry into the elite. In economics, before the formalist revolution of the 1950s, these criteria were more wide-ranging and difficult to manage. Once (a particular type of) mathematics became the shibboleth, then this became a primary criterion. The use of mathematics as a screening device may be more important than any implied ontology. But in any case we may concur with Blaug, Coase, Friedman, Lawson and others that the over-emphasis on mathematical technique is a major cause for concern. It has crowded out other skills and forms of knowledge that are necessary to understand the real-world economy.

In the face of a huge body of complex knowledge, some screening processes are necessary to maintain the boundaries of a viable, expert, scientific community with some degree of consensus. But the cases of both economics and sociology show that these boundary-maintaining mechanisms can have different degrees of effectiveness and can be distorting and partly dysfunctional. While some consensus is necessary, its particular nature and scope are also important. Also important are the criteria used to admit or exclude researchers into the conversations among those upholding the consensus.

9. The social pathology of heterodoxy

The above considerations place heterodox economics in a difficult position: establishing sufficient consensus and cooperation to build and make progress is tricky. Dissent from the mainstream is an inadequate screening device within heterodoxy. Problem arise when deciding what work is to be taken seriously and establishing some adequate agreement over what is important. These difficulties are compounded by fundamental lack of agreement over what 'mainstream' and 'heterodox' mean.

The work of Kitcher and others on the roles of the scientific community and the importance of social epistemology carries some insights for the broader community of heterodox economists. It highlights issues that may help to explain its limited cumulative advance and its waning influence within departments of economics.

Consider first the individual *incentives* to do research in heterodox economics. Of course, the intrinsic attraction of a particular heterodox theory, or a critical repulsion from a mainstream approach, may prompt heterodox curiosity. But these (positive or negative) intrinsic factors are insufficient to sustain a scientific community. A scientist must eat, live, be clothed and pay the rent. Even among the most dedicated and honourable of scientists there must be monetary or other incentives. Any viable scientific community must be able to bring different kinds of people on board and motivate them for long periods of time.

Lee (2009) and others have showed the self-declared community of heterodox economists has diminished dramatically in global size and influence since the 1970s, particularly in higher-status, Anglo-American departments of economics (Lee and Harley 1997, 1998). Of course,

[18] Game theory was introduced into economics by von Neumann and Morgenstern (1944). It took about forty years for it to become widely adopted, and only after a major internal theoretical crisis in the prevailing general equilibrium paradigm (Rizvi 1994). Several prominent post-Keynesian economists use mathematics, but because different assumptions are used, their work does not guarantee entry into the mainstream citadel.

this is partly due to the superior resources and adaptability of mainstream economics, as well as to the changing intellectual and ideological landscape.

Any decline in the influence of heterodox economics, at least in departments of economics, diminishes incentives – including career progression, status or remuneration – for researchers to devote their lives to this path. This affects the recruitment of younger economists to the area: heterodoxy then comes with manifest high career risks and apparently limited chances of success. This creates a vicious circle of decline.

Of course, the broad heterodox community is aware of this problem. But the strategic response has been limited. As Stephen Toulmin (1972) pointed out, most sciences exhibit a gravitation toward their orthodox mean. His analysis of conceptual evolution identified established journals as tending to institutionalize orthodox views. He argued for the founding of new journals as an important counterweight, and a source of variation. Heterodox economists have founded several new generalist journals, a few of which have been relatively successful, including the *Cambridge Journal of Economics.*

So far so good. But there is also a frequent tendency by heterodox economists to disregard established rankings or conventional citation impact data, on the (partly valid but over-dismissive) grounds that they are flawed or biased (Lee and Harley 1997, 1998). There have also been periodic unsuccessful attempts to set up alternative 'heterodox' ranking systems. But the shunning of established rankings is much more likely to diminish rather than to enhance the repertoire of necessary incentives to attract and retain heterodox researchers.

Further questions concerning incentives relate to the problem of *quality control*. Time and research budgets are limited. No researcher can go to every workshop or conference. An important criterion in making a decision whether or not to attend a particular academic event is its expected quality. This matters for feedback on one's own presentation, and the expectation of learning something useful from other participants.

Perceived quality enhancement is paramount for heterodox economists. It is crucial within a university department where a researcher may be competing against mainstream economists for promotion, funding or other support. It is vital at the national and international levels where the reputation of 'heterodox economics' is at stake.

The maintenance of high quality has become a particularly serious problem within the community of heterodox economists, for several reasons. The high level of internal theoretical diversity within heterodoxy, and the lack of a consensus on its nature and common core, reduces the proportion of well-informed experts in a particular heterodox area at any particular heterodox meeting, compared with a more specialist congregation. Hence the chances of good critical feedback are lower, simply as a consequence of the relatively high degree of diversity, and of the lack of consensus on several core issues.

In addition, a common heterodox spirit of hostility to 'the mainstream' – however understood or defined – can make critical interventions at a heterodox event appear as hostile to the solidarity of the persecuted group. They can be perceived as attacks by an enemy within. The critic may then feel unwelcome.

Unrestricted tolerance of diversity leads to a failure of quality control: anything goes. If things go too far, scholars in broad heterodox communities will lack sufficient rigorous criticism and scepticism to sharpen and improve their arguments, so that they can eventually be published in the higher-quality journals, whether heterodox or mainstream.

Several of Kitcher's points are appropriate here. In particular, his notion of a trade-off between diversity and consensus is highly relevant. Heterodox economics lacks a consensus on issues as fundamental as its nature and boundaries, making critical development more difficult and thwarting possibilities for the cumulative development of its scientific knowledge. Pluralism and diversity are welcome as potential sources of innovation, but new ideas need to be developed in a climate of intense expert scrutiny, based on teams of well-informed specialists.

Just as contemporary heterodox economics suffers from an internal problem of insufficient consensus to balance its diversity, the very nature of being 'heterodox' – in opposition to an orthodoxy – brings further problems, as with (relatively rare) parallel cases in different disciplines.

The great heterodox economist Joan Robinson noticed one of these. It applies to departments of English literature. Robinson's (1933) first published paper was on the Shakespeare authorship controversy, where she saw merit in the argument that the plays and poems were probably not written by William Shakspere (as typically spelt in the original records) from Stratford-upon-Avon.[19] She pointed out that groups that oppose the consensus view that the Stratford man was the author have attracted dissidents who have invented fanciful theories and have opposed orthodoxy with weak arguments. She noted the similarity with economics: groups that define themselves in opposition to orthodoxy can attract people who misunderstand the mainstream, oppose it on faulty grounds or posit flaky alternative ideas. Even if the opposition is right and orthodoxy is wrong, the opposition can be seriously impaired by low-quality criticism in its ranks. In her honour, we may describe this as *the Joan Robinson problem* – it applies potentially to any academic heterodoxy.

While pluralism is insufficiently balanced by consensus, heterodox economists also need to take pluralism itself more seriously. To sharpen their arguments, they should engage with advocates of orthodox positions, who tend to be outside their community. This is difficult to do, partly because mainstream scholars have limited incentives to enter the broad heterodox arena. But dialogue with expert outsiders is needed to obtain critical feedback and to refute, sharpen or reinforce the dissenting position.

This pluralist strategy would mean opening up a constructive and sustained dialogue with mainstream, behavioural, evolutionary, new-institutional, Austrian and other economists. The scope would be much broader than Lee's (2008) restrictive listing of 'heterodox economics', and it would be in strong contrast to his declaration of disengagement from the mainstream. It would further require critical engagement with modellers and econometricians, despite Lawson's proposal to exclude them from the heterodox camp.

A more effective pluralist strategy might not only require serious dialogue with some branches of mainstream economics, but also where relevant with other disciplines, such as sociology, history, law and political science. Furthermore, pluralism also means engaging in conversation with economists and others who may take up different ideological or policy positions, including those that support free markets or private ownership. The aim should be to explore the theoretical underpinnings of any policy position, rather than to judge everything according to an *a priori* ideology.

But it may be too late. For several reasons, it may no longer be possible to establish fruitful and extensive dialogue with the mainstream, making effective, critical and productive pluralism

[19] For a powerful, updated argument see Poynton (2011).

problematic. Mario Cedrini and Magda Fontana (2017) have established that mainstream economics is itself fragmenting into diverse specialisms. The building of bridges may have become more difficult. It is generally harder to besiege multiple citadels than one.

10. Conclusion: the impasse of heterodoxy and possible alternative strategies

Whatever the difficulties, any strategy to change a discipline must engage with its established, consensus positions, and open a conversation with those defending them. In regard to economics, this is becoming increasingly difficult. But there are now substantial and highly influential international networks of economics scholars *outside departments of economics*, in business schools, innovation studies, sociology, philosophy, political science and elsewhere. Many of these arenas are open to dialogue. The broader project of changing social science is still possible.

But the 'heterodox' label means minority dissent. It is a negative definition, rather than one building on positive ground. It means being in opposition, not just for now – but as long as the label is used. The use of 'heterodox economics' label to organize, incentivize and empower criticism of the mainstream has several major problems, especially when we consider the social mechanisms of scientific scrutiny and development. We have to consider that organizing under the 'heterodox' label is severely problematic and has been largely a failure.

The 'post-Keynesian' label obviously refers to a set of approaches that take into account the contribution of Keynes. This is more definite than 'heterodox' but severe differences exist over what defines 'post-Keynesianism' and what should be included within it. These differences remain unresolved, impairing the use of this label as well.

This article suggests that 'heterodox' and 'post-Keynesian' economists might have congealed into groups, despite their theoretical differences, partly because of their shared ideological orientation toward leftist economic policies. This hypothesis is not proven here: it would require an extensive opinion survey of the academics involved.

After several decades, with an evident decline of influence of self-described 'heterodox' and 'post-Keynesian' approaches in departments of economics (Lee and Harley 1997), it is time for a serious re-evaluation of strategy. That urgency is compounded by the realization that mainstream economics has changed relatively little after the Great Crash of 2008.

Given the evidence and arguments produced here, a viable strategy must address the need (i) for a *raison d'être,* (ii) for incentives for researchers in the field, (iii) for quality control and quality enhancement, and (iv) for a degree of consensus in the field to avoid endless dispute over fundamentals, to help build cumulative knowledge and in turn to reinforce (ii) and (iii). Deficiencies in these terms help explain the decline of influence of self-described 'heterodox' and 'post-Keynesian' approaches.

Several possible alternative strategies come to mind. In Australia and elsewhere there have been attempts to set up separate departments of 'Political Economy', within which 'heterodox' economists, including Marxists and 'post-Keynesians' could congregate. The creation of new, separate departments entails some funding and new academic positions. It thereby creates new incentives, but these are limited by the number and funding of 'Departments of Political Economy' that can be created alongside orthodox Departments of economics. Few universities can afford the luxury of both, and the 'Political Economy' option is risky and unproven. There is still the problems of a positive *raison d'être* – other than the negative definition of opposition to the mainstream. Without a *raison d'être* the building of sufficient consensus is also difficult.

Another strategy is to enter other departments, outside economics, where economists of various kinds can find a home. Foremost among these refugee outposts are business schools. Many mainstream and non-mainstream economists have migrated to business schools since the 1980s. This option has allowed heterodox approaches to survive: but other pressures and concerns have come into play. Organizing and strategizing heterodoxy in this fragmented business-school environment of multiple disciplines and specialisms creates new challenges.

Competition between business schools pushes them to fight for positions in different rankings. If you are labelled as an 'economist' of any kind, then you are obliged to take the rankings seriously, including those of journals in mainstream economics. Anyone in a business school is competing with colleagues over promotion, conference funding, and so on. The heterodox economist is thus obliged to demonstrate the quality of his or her research by referring to mainstream criteria.

Perhaps the possibility of organising viable intra-disciplinary dissent becomes even more limited than it is in departments of orthodox economics. While the retreat of heterodox economists into business schools has served as a means of survival, it has done little to solve the problems of dissenting identity and *raison d'être.*

A third possible strategy is for a subset of 'heterodox economists' to abandon a generalist mission and organize around a particular approach that has evident success and future potential. A notable area of advance by some post-Keynesian economists, which achieved some recognition during and after the 2008 Great Crash, was the work on financial fragility by Hyman Minsky and his followers. To this may be added the related and impressive body of 'modern monetary theory'.[20] This work has a huge potential impact on monetary policy, financial regulation and the development of a new world financial order. This makes it potentially viable as a school – working toward a future community and global network of scholars, with funding, incentives, consensus and cumulative research.

This third strategy addresses the problem of a *raison d'être* by establishing an identity over points (a) and (b) above. The objects of study under *raison d'être* (a) would become money and the financial system in modern economies, and the defining theoretical approach under (b) would entail assumptions about uncertainty, the nature of money, the role of finance and so on.

But if it is to develop further and have an impact, this school requires a narrower approach and more concentrated focus than the broader 'post-Keynesian' movement had previously adopted. Such concentration and consensus is necessary to focus on ongoing, empirically-grounded research that repeatedly demonstrates to others the superiority of the core principles and ideas of this school.

This third strategy will take off only if its practitioners publish in existing major journals, or they quickly establish high profile and influential journals of their own, using all the necessary tricks to seek attention and citations. Every which way, the mainstream must be persuaded to pay attention, or this third strategy will fail.

So far in this area, despite widespread complaint in the media and elsewhere about the failures of orthodoxy, mainstream approaches have endured and proved difficult to push aside (Hodgson 2009). In response, the temptation of these modern monetary theorists might be to withdraw from dialogue, and to focus on doctrinal incantation rather than forceful, nagging, empirically-grounded demonstration. Such a retreat would be fatal.

---

[20] See, for example, Minsky (1986), Dymski and Pollin (1994), Wray (1998, 2012, 2016).

A final suggestion is quite different from the others and has two versions. Reflecting the growing global recognition of the importance of institutions, the object of study (*raison d'être* (a) above) would be the institutions (and organizations) of the economy. The theoretical approaches could be broad and inclusive, encouraging contributions to the study of economic institutions from other disciplines, including philosophy, law, sociology and political science. A narrower version would adopt the same orientation to institutions regarding item (a) but confine item (b) to particular techniques and approaches that are prominent in mainstream economics. These object-focused strategies may have a better chance of creating consensuses and incentives for cumulative scientific advance.[21]

The self-described heterodox community needs to consider its future strategic options, especially in the light of research on the sociology of scientific communities, their social epistemology, and the drivers of scientific advance. One thing is sure, the strategy of using 'heterodox economics' as a banner to organise dissent from the mainstream has been at best of limited success, and this is not simply because of mainstream or rightist ideological resurgence.

[21] The more inclusive strategy is adopted by the World Interdisciplinary Network for Institutional Research (WINIR), which was founded in 2013 and is as large as several heterodox associations. With the European Association for Evolutionary Political Economy (EAEPE), WINIR is a major shareholder in the company that owns the *Journal of Institutional Economics.* The narrower strategy is adopted by the Society for Institutional and Organizational Economics (SIOE – formerly the International Society for New Institutional Economics (ISNIE), founded in 1996).

References

Aldrich, Howard E., Geoffrey M. Hodgson, David L. Hull, Thorbjørn Knudsen, Joel Mokyr and Viktor J. Vanberg (2008) 'In Defence of Generalized Darwinism', *Journal of Evolutionary Economics,* **18**(5), October, pp. 577-96.

Arrow, Kenneth J. (1994) 'Methodological Individualism and Social Knowledge', *American Economic Review (Papers and Proceedings)*, **84**(2), May, pp. 1-9.

Bhaskar, Roy (1986) *Scientific Realism and Human Emancipation* (London: Verso).

Bhaskar, Roy (1989) *Reclaiming Reality: A Critical Introduction to Contemporary Philosophy* (London: Verso).

Bhaskar, Roy and Collier, Andrew (1998) 'Introduction: Explanatory Critiques', in Archer, Margaret S., Bhaskar, Roy, Collier, Andrew, Lawson, Tony and Norrie, Alan (eds.) (1998) *Critical Realism: Essential Readings* (London: Routledge), pp. 385-94.

Blaug, Mark (1997) 'Ugly Currents in Modern Economics', *Options Politiques*, **18**(17), September, pp. 3-8. Extended and revised in Mäki, Uskali (ed.) (2002) *Fact and Fiction in Economics: Models, Realism and Social Construction* (Cambridge and New York: Cambridge University Press), pp. 35-56.

Blaug, Mark (2003) 'The Formalist Revolution of the 1950s', in Samuels, Warren J., Biddle, Jeff E. and Davis, John B. (eds) (2003) *A Companion to the History of Economic Thought* (Malden, MA and Oxford, UK: Blackwell), pp. 395-410.

Cedrini, Mario and Fontana, Magda (2017) 'Just another Niche in the Wall: How Specialization is changing the Face of Mainstream Economics', *Cambridge Journal of Economics*, forthcoming.

Chick, Victoria and Dow, Sheila C. (2005) 'The Meaning of Open Systems', *Journal of Economic Methodology*, **13**(3), September, pp. 363-81.

Coase, Ronald H. (1988) *The Firm, the Market, and the Law* (Chicago: University of Chicago Press).

Colander, David C., Holt, Richard P. F. and Rosser, J. Barkley, Jr. (2004) 'The Changing Face of Economics', *Review of Political Economy*, **16**(4), October, pp. 485-499.

Collier, Andrew (1994) *Critical Realism: An Introduction to Roy Bhaskar's Philosophy* (London: Verso).

Daly, Herman E. (1974) 'The Economics of the Steady State', *American Economic Review (Papers and Proceedings)*, 64(2), May, 15-21.

Davidson, Paul (1980) 'Post Keynesian Economics', *Public Interest*, Special Edition, pp. 151-73

Davis, John B. (2003) *The Theory of the Individual in Economics: Identity and Value* (London and New York: Routledge).

Davis, John B. (2005) 'Heterodox Economics, the Fragmentation of the Mainstream and Embedded Individual Analysis', in Robert Garnett and John Harvey (eds) (2005) *The Future of Heterodox Economics* (Ann Arbor, MI: University of Michigan Press), pp. 53-72.

Davis, John B. (2006) 'The Turn in Economics: Neoclassical Dominance to Mainstream Pluralism?' *Journal of Institutional Economics*, **2**(1), April, pp. 1-20.

Dequech, David (2007) 'Neoclassical, Mainstream, Orthodox, and Heterodox Economics', *Journal of Post Keynesian Economics*, **30**(2), Winter, pp. 279-302.

Dewey, John (1929) *The Quest for Certainty: A Study of the Relation of Knowledge and Action* (New York: Minton, Balch).

Dow, Sheila C. (2007) 'Varieties of Methodological Approach in Economics', *Journal of Economic Surveys*, 21(3), July, pp. 447-465.

Dymski, Gary A. and Pollin, Robert (eds) (1994) *New Perspectives in Monetary Macroeconomics: Explorations in the Tradition of Hyman P. Minsky* (Ann Arbor, MI: University of Michigan Press).

Eaton, B. Curtis (1984) 'Review of *An Evolutionary Theory of Economic Change* by R. R. Nelson and S. G. Winter', *Canadian Journal of Economics*, 17(4), November, pp. 868-71.

Eichner, Alfred S. (1976) *The Megacorp and Oligopoly: Micro Foundations of Macro Dynamics* (Cambridge and New York: Cambridge University Press).

Fleck, Ludwik (1979) *Genesis and Development of a Scientific Fact,* translated by F. Bradley and T. J. Trenn from the German edition of 1935 (Chicago: University of Chicago Press).

Fleetwood, Steve (2017) 'The Critical Realist Conception of Open and Closed Systems', *Journal of Economic Methodology,* 24(1), March, pp. 41-68.

Fourcade, Marion, Ollion, Etienne and Algan, Yann (2015) 'The Superiority of Economists', *Journal of Economic Perspectives*, 29(1), Winter, pp. 89-114.

Fullbrook, Edward (ed.) (2009) *Ontology and Economics: Tony Lawson and his Critics* (London and New York: Routledge).

Fuller, Steve (1988) *Social Epistemology* (Bloomington: Indiana University Press).

Fuller, Steve and Collier, James H. (2004) *Philosophy, Rhetoric and the End of Knowledge: A New Beginning for Science and Technology Studies,* 2nd edn. (Mahwah, NJ and London: Lawrence Erlbaum).

Friedman, Milton (1999) 'Conversation with Milton Friedman', in Brian Snowdon and Howard Vane (eds) (1999) *Conversations with Leading Economists: Interpreting Modern Macroeconomists* (Cheltenham: Edward Elgar), pp. 122-44.

Glimcher, Paul W., Dorris, Michael C., and Bayer, Hannah M. (2005) 'Physiologic Utility Theory and the Neuroeconomics of Choice', *Games and Economic Behavior*, **52**, pp. 213-56.

Haas, Peter M. (1992) 'Introduction: Epistemic Communities and International Policy Coordination', *International Organization,* **46**(1), pp. 1-35.

Hahn, Frank H. (1991) 'The Next Hundred Years', *Economic Journal*, **101**(1), January, pp. 47-50.

Hands, D. Wade (2001) *Reflection without Rules: Economic Methodology and Contemporary Science Theory* (Cambridge and New York: Cambridge University Press).

Hayek, Friedrich A. (1945) 'The Use of Knowledge in Society', *American Economic Review*, **35**(4), September, pp. 519-30.

Hodgson, Geoffrey M. (1999a) *Evolution and Institutions: On Evolutionary Economics and the Evolution of Economics* (Cheltenham: Edward Elgar).

Hodgson, Geoffrey M. (1999b) 'Marching to the Promised Land? Some Doubts on the Theoretical and Policy Affinities of Critical Realism' with a response by Andrew Collier and a rejoinder, *Alethia,* **2**(2), October, pp. 2-13.

Hodgson, Geoffrey M. (2004) *The Evolution of Institutional Economics: Agency, Structure and Darwinism in American Institutionalism* (London and New York: Routledge).

Hodgson, Geoffrey M. (2006) *Economics in the Shadows of Darwin and Marx: Essays on Institutional and Evolutionary Themes* (Cheltenham: Edward Elgar).

Hodgson, Geoffrey M. (2007) 'Meanings of Methodological Individualism', *Journal of Economic Methodology* **14**(2), June, pp. 211-26.

Hodgson, Geoffrey M. (2009) 'The Great Crash of 2008 and the Reform of Economics', *Cambridge Journal of Economics,* **33**(6), November, pp. 1205-21.

Hodgson, Geoffrey M. (2012) 'Introduction' to Geoffrey M. Hodgson (ed.) (2012) *Mathematics and Modern Economics* (Cheltenham UK and Northampton USA: Edward Elgar), pp. xiii-xxxii.

Hodgson, Geoffrey M. (2013a) *From Pleasure Machines to Moral Communities: An Evolutionary Economics without Homo Economicus* (Chicago: University of Chicago Press).

Hodgson, Geoffrey M. (2013b) 'Dr Blaug's Diagnosis: Is Economics Sick?' in Marcel Boumans and Matthias Klaes (eds) (2013) *Mark Blaug: Rebel with Many Causes* (Cheltenham UK and Northampton MA: Edward Elgar), pp. 78-97.

Hodgson, Geoffrey M. and Lamberg, Juha-Antti (2017) 'The Past and Future of Evolutionary Economics: Some Reflections Based on New Bibliometric Evidence', *Evolutionary and Institutional Economics Review,* published online.

Hodgson, Geoffrey M. and Rothman, Harry (1999) 'The Editors and Authors of Economics Journals: A Case of Institutional Oligopoly?' *Economic Journal*, **109**(2), February, pp. F165-F186.

Hutchins, Edwin (1995) *Cognition in the Wild* (Cambridge, MA: MIT Press).

Infante, Gerardo, Lecouteau, Guilhem and Sugden, Robert (2016) 'Preference Purification and the Inner Rational Agent: A Critique of the Conventional Wisdom of Behavioural Economics', *Journal of Economic Methodology,* 23(1), March, pp. 1-25.

King, John E. (2002) *A History of Post Keynesian Economics since 1936* (Cheltenham MA and Northampton MA: Edward Elgar).

Kitcher, Philip (1993) *The Advancement of Science: Science without Legend, Objectivity without Illusions* (Oxford and New York: Oxford University Press).

Knorr-Cetina, Karin D. (1982) 'Scientific Communities or Transepistemic Arenas of Research? A Critique of Quasi-Economic Models of Science', *Social Studies of Science*, 12, pp. 101-30.

Kuhn, Thomas S. (1962) *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press).

Lave, Jean and Wenger, Etienne (1991) *Situated Learning: Legitimate Peripheral Participation* (Cambridge: Cambridge University Press).

Lawson, Tony (1997) *Economics and Reality* (London and New York: Routledge).

Lawson, Tony (2003) *Reorienting Economics* (London and New York: Routledge).

Lawson, Tony (2004) 'On Heterodox Economics, Themata and the Use of Mathematics in Economics', *Journal of Economic Methodology*, **11**(3), September, pp. 329-40.

Lawson, Tony (2006) 'The Nature of Heterodox Economics', *Cambridge Journal of Economics*, **30**(4), July, pp. 483-505.

Lawson, Tony (2013) 'What is this 'School' called Neoclassical Economics?' *Cambridge Journal of Economics,* 37(5), September, pp. 947-98.

Lee, Frederic S. (1998) *Post Keynesian Price Theory* (Cambridge: Cambridge University Press).

Lee, Frederic S. (2008) 'Heterodox Economics', in Durlauf, Steven N. and Blume, Lawrence E. (eds) (2008) *The New Palgrave Dictionary of Economics*, 2nd edn. (London and New York: Palgrave Macmillan) online. Downloadable at http://www.hetecon.net/division.php?page=about&side=heterodox_economics.

Lee, Frederic S. (2009) *A History of Heterodox Economics: Challenging the Mainstream in the Twentieth Century* (London and New York: Routledge).

Lee, Frederic S. and Harley, Sandra (1997) 'Research Selectivity, Managerialism and the Academic Labor Process: The Future of Nonmainstream Economics in U.K. Universities', *Human Relations*, **50**(11), November, pp. 1427-60.

Lee, Frederic S. and Harley, Sandra (1998) 'Peer Review, the Research Assessment Exercise and the Demise of Non-Mainstream Economics', *Capital and Class*, no. 66, Autumn, pp. 23-52.

Longino, Helen E. (1990) *Science as Social Knowledge: Values and Objectivity in Scientific Inquiry* (Princeton: Princeton University Press).

Lorenz, Edward H. (2001) 'Models of Cognition, the Development of Knowledge and Organisational Theory', *Journal of Management and Governance*, **5**, pp. 307-30.

Luhmann, Niklas (2005) 'Unverständliche Wissenschaft: Probleme einer theorieeigenen Sprache' in Luhmann, Niklas (2005) *Soziologische Aufklärung 3: Soziales System, Gesellschaft, Organisation* (Wiesbaden: VS Verlag), pp. 193-205.

Mäki, Uskali (1992) 'On the Method of Isolation in Economics', *Poznan Studies in the Philosophy of the Sciences and the Humanities*, **26**, pp. 319-54.

Mäki, Uskali (1994) 'Isolation, Idealization and Truth in Economics', *Poznan Studies in the Philosophy of the Sciences and the Humanities*, **38**, pp. 147-68.

Mäki, Uskali (2005) 'Economic Epistemology: Hopes and Horrors', *Episteme,* 1(3), February, pp. 211-12.

Mearman, Andrew (2006) 'Critical Realism in Economics and Open-Systems Ontology: A Critique', *Review of Social Economy*, **64**(1), March, pp. 47-75.

Mearman, Andrew (2011) 'Who do Heterodox Economists Think They Are?' *American Journal of Economics and Sociology*, 70(2), pp. 480–510.

Mills, C. Wright (1959) *The Sociological Imagination* (Oxford and New York: Oxford University Press).

Minsky, Hyman P. (1986) *Stabilizing an Unstable Economy* (New Haven: Yale University Press).

Mirowski, Philip (1995) 'Philip Kitcher's *Advancement of Science:* A Review Article', *Review of Political Economy,* **7**(2), pp. 227-41.

Mohun, Simon and Veneziani, Roberto (2012) 'Reorienting Economics?' *Philosophy of the Social Sciences,* 42, 126-145.

Mouzelis, Nicos (1995) *Sociological Theory: What Went Wrong? Diagnosis and Remedies* (London and New York: Routledge).

Nash, Stephen J. (2004) 'On Closure in Economics', *Journal of Economic Methodology*, **11**(1), March, pp. 75-89.

Nelson, Katherine and Nelson, Richard R. (2003) 'The Cumulative Advance of Human Know-How'**,** *Philosophical Transactions of the Royal Society of London: Mathematical, Physical and Engineering Sciences*, **361**, no. 1809, August, pp. 1635-53.

Nelson, Richard R. and Winter, Sidney G. (1982) *An Evolutionary Theory of Economic Change* (Cambridge, MA: Harvard University Press).

Neumann, John von and Morgenstern, Oskar (1944) *The Theory of Games and Economic Behavior* (Princeton: Princeton University Press).

Nonaka, Ikujiro, von Krogh, Groeg, and Voelpel, Sven (2006) 'Organizational Knowledge Creation Theory: Evolutionary Paths and Future Advances', *Organization Studies*, 27(8), pp. 1179–1208.

Nooteboom, Bart (2000) *Learning and Innovation in Organizations and Economies* (Oxford and New York: Oxford University Press).

Pieters, Rik and Baumgartner, Hans (2002) 'Who Talks to Whom? Intra- and Interdisciplinary Communication of Economics Journals', *Journal of Economic Literature*, **40**(2), June, pp. 483-509.

Platt, Michael L. and Glimcher, Paul W. (1999) 'Neural Correlates of Decision Variables in Parietal Cortex', *Nature*, July 15, **400**(6741), pp. 233-8.

Poynton, A. J. (2011) *The Man who was Never Shakespeare* (Tunbridge Wells: Parapress).

Pratten, Stephen (2007) 'Realism, Closed Systems and Abstraction', *Journal of Economic Methodology',* 14(4), December, pp. 473-497.

Rizvi, S. Abu Turab (1994) 'The Microfoundations Project in General Equilibrium Theory', *Cambridge Journal of Economics*, **18**(4), August, pp. 357-77.

Robinson, Joan (1933) 'Shakespeare and Mr Looney', *Cambridge Review*, 54, 12 May, pp. 389-90.

Rolin, Kristina (2008) 'Science as Collective Knowledge', *Cognitive Systems Research,* 9(1-2), March, pp. 115-124.

Rutherford, Malcolm H. (2001) 'Institutional Economics: Then and Now', *Journal of Economic Perspectives*, **15**(3), Summer, pp. 173-94.

Salanti, Andrea and Screpanti, Ernesto (eds) (1997) *Pluralism in Economics: New Perspectives in History and Methodology* (Aldershot: Edward Elgar).

Sen, Amartya K. (1977) 'Rational Fools: A Critique of the Behavioral Foundations of Economic Theory', *Philosophy and Public Affairs*, **6**(4), pp. 317-44.

Sen, Amartya K. (1979) 'Personal Utilities and Public Judgements: Or What's Wrong With Welfare Economics', *Economic Journal*, 89(3), September, pp. 537-58.

Shackle, George L. S. (1967) *The Years of High Theory: Invention and Tradition in Economic Thought 1926-1939* (Cambridge: Cambridge University Press).

Simon, Herbert A. (1957) *Models of Man: Social and Rational* (New York: Wiley).

Simon, Herbert A. (1959) 'Theories of Decision-Making in Economic and Behavioral Sciences', *American Economic Review*, 49(2), June, pp. 253-83.

Simon, Herbert A. (1986) 'Rationality in Psychology and Economics', *Journal of Business*, **59**(4), Part 2, October, pp. S209-S224.

Smith, Adam (1759) *The Theory of Moral Sentiments; or, An Essay Towards an Analysis of the Principles by which Men Naturally Judge Concerning the Conduct and Character, First of their Neighbours, and Afterwards of Themselves* (London and Edinburgh: Millar, and Kincaid and Bell).

Spash, Clive L. (2009) 'The New Environmental Pragmatists, Pluralism and Sustainability', *Environmental Values,* **18**(3), pp. 253–256.

Spash, Clive L. (2012) 'New Foundations for Ecological Economics', *Ecological Economics,* **77**(1), pp. 36-47.

Spash, Clive L. and Ryan, Anthony (2012) 'Economic schools of thought on the environment: investigating unity and division', *Cambridge Journal of Economics,* 36, pp. 1091-1121.

Sraffa, Piero (1960) *Production of Commodities by Means of Commodities: Prelude to a Critique of Economic Theory* (Cambridge: Cambridge University Press).

Sugden, Robert (2000) 'Credible Worlds: The Status of Theoretical Models in Economics', *Journal of Economic Methodology*, **7**(1), March, pp. 1-31.

Toulmin, Stephen E. (1972) *Human Understanding: The Collective Use and Evolution of Concepts* (Princeton: Princeton University Press).

Veblen, Thorstein B. (1898) 'Why Is Economics Not an Evolutionary Science?' *Quarterly Journal of Economics*, **12**(3), July, pp. 373-97.

Vromen, Jack J. (2010) 'On the Surprising Finding that Expected Utility is Literally Computed in the Brain', *Journal of Economic Methodology*, **17**(1), March, pp. 17-36.

Waring, Marilyn (1988) *If Women Counted: A New Feminist Economics* (New York: Harper and Rowe).

Wenger, Etienne (1998) *Communities of Practice: Learning, Memory and Identity* (Cambridge: Cambridge University Press).

Wilson, Matthew C. (2005) 'Institutionalism, Critical Realism and the Critique of Mainstream Economics', *Journal of Institutional Economics*, **1**(2), December, pp. 217-31.

Wittgenstein, Ludwig (1953) *Philosophical Investigations,* 1st edn. (Oxford: Basil Blackwell).

Woolley, Frances R. (1993) 'The Feminist Challenge to Neoclassical Economics', *Cambridge Journal of Economics*, **17**(4), December, pp. 485-500.

Wray, L. Randall (1998) *Understanding Modern Money: The Key to Full Employment and Price Stability* (Cheltenham and Lyme, NH: Edward Elgar).

Wray, L. Randall (2012) *Modern Money Theory: A Primer on Macroeconomics for Sovereign Monetary Systems* (London and New York: Palgrave Macmillan).

Wray, L. Randall (2016) *Why Minsky Mattes: An Introduction to the Work of the Maverick Economist* (Princeton NJ and Oxford UK: Princeton University Press).

Wright, Erik Olin (1994) *Interrogating Inequality: Essays on Class Analysis, Socialism and Marxism* (London: Verso).