1 Introduction: the changing character of economic methodology

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In the slightly more than half century from the late 1930s, when economic methodology began to be seen as a distinct domain of investigation and a separate field within economics (Hutchison, 1938), to well into the 1990s, philosophy has played a dominant role in determining how economic methodology was understood by its practitioners. Indeed the history of economic methodology during this period can be broadly understood as the successive application of series of different philosophical views regarding the nature of good scientific theorizing: the early embrace of logical positivist thinking, the move to a Popperian falsificationism, its replacement by the Lakatosian research program approach, the turn to language and rhetoric, and most recently the arguments for realism (Blaug, 1992 [1980]; Caldwell, 1994 [1980]; Davis et al., 1998; Hands, 2001; Davis et al., 2004; Kincaid and Ross, 2009; Boumans and Davis, 2010). Thus the field of economic methodology has traditionally been defined in terms of doctrines that have come from outside of economics, primarily the philosophy of natural science, that were simply (often simplistically) applied to economic theorizing. But by the late 1990s economic methodology had begun to be pursued differently. Economic methodologists began to set aside the normative methodological agendas associated with philosophical imports, and increasingly sought to elicit and describe the methodological reasoning they found implicit in economists' thinking. This has now made what goes on inside of economics more central to the field of economic methodology than what comes from outside of it, and has arguably made research in economic methodology more immediate to the concerns of economists themselves.

At the same time, this shift in orientation has coincided with the emergence of renewed interest in methodological reasoning – if not in the field itself – on the part of economists involved in a number of influential new research programs, including experimental economics, behavioral economics, neuroeconomics, evolutionary economics, complexity and computational economics, ecological economics, and the subjective well-being approach. In each of these new research programs practitioners have sought to differentiate their programs from the post-war economics

2 *The Elgar companion to recent economic methodology*

mainstream associated with neoclassical economics and classical game theory, not only by marking out their theoretical differences from standard views, but also by emphasizing their own departures from standard methodological strategies (Davis, 2007). In some instances this has involved a reappropriation of well-known figures in the history of economic methodology and the philosophy of science. Vernon Smith (2008), for example, has referred to Karl Popper and Imre Lakatos to defend experimentalism. Colin Camerer (2006) has defended the realism of behavioral economics by criticizing the ‘as if’ instrumentalist reasoning of Milton Friedman. Others have emphasized the methodological reasoning of past economists, as for example in Luigino Bruni and Robert Sugden’s (2007) reappraisal of Pareto’s thinking as a way of appreciating behavioral economics, and in Paul Zak’s (2008) return to Adam Smith’s early ideas in his defense of neuroeconomics. Many have simply set out methodological arguments as ways of introducing how their research programs are different from more conventional ones. Thus Alan Kirman (2011) explains complexity economics in terms of the different ways in which knowledge is produced, Geoffrey Hodgson and Thorbjørn Knudsen (2010) apply Darwin’s evolutionary reasoning to recast economic systems as evolutionary, and Amartya Sen (2009) argues for a new methodological strategy for incorporating justice into normative economics.

The emergence of the new research programs in recent economics, however, has a further significance for economic methodology in that many of these programs borrow significantly from thinking in other sciences, and thus draw on and translate practitioner reasoning in these other sciences into explanatory concerns that occupy economists. Behavioral economics has its origins in psychology, experimental economics applies laboratory methods to economics long employed in many sciences, neuroeconomics is based on neuroscience, evolutionary economics comes from evolutionary biology, complexity reasoning is widespread throughout science, and the capability approach makes use of anthropological reasoning. Thus the economic methodology associated with these recent research programs employs a diverse array of different types of scientific thinking. On the one hand, there are new strategies of empirical investigation based on the different ways in which laboratory techniques and simulation methods have been adapted to economics; on the other hand, there are concepts new to (or little used in) economics, such as reference points and endowment effects (behavioral economics), emergence (evolutionary and complexity economics), happiness (subjective well-being), sustainability (ecological economics), and the brain (neuroeconomics).

An important set of issues, consequently, that has been added to the domain of economic methodology concerns how explanations in

economics reflect relationships between different types of reasoning employed in economics and other sciences. This contrasts with the first half century or so of the history of the field when its subject of investigation – the nature of explanation in economics – was developed in terms of a general, ‘one size fits all’ understanding of scientific explanation appropriate in essentially the same way to all sciences. Recent explanations in economics that incorporate the influences of other sciences upon economics lack this sort of conceptual uniformity, since they show how disparate conceptual resources associated with different sciences get combined in hybrid types of explanations.

A precursor example of this kind of explanation, where the direction of influence rather runs in the opposite direction from economics to other sciences, are those explanations of economics imperialism in the 1980s that focused on the export of Chicago School and Public Choice School rational choice explanations to other social sciences (see Mäki, 2008). But these explanations generally focused less on conceptual relationships between reasoning in economics and in other fields than on how economists sought to simply replace existing explanations in other sciences with ones from economics. That is, they ignored the processes of hybridization that occur when sciences accommodate and adapt concepts and methods from other sciences within the scope of their existing disciplinary concerns.

The more recent ‘reverse’ imperialism phenomenon, in which concepts and principles from other sciences have been adopted and deployed in the new research programs in economics, involves a process in which the traditional concerns of economics have been modified to make space for new concepts and methods from other sciences. This raises many issues regarding what the definition and core concerns of economics as a science can be said to be (Davis, 2010), so the methodological examination of this recent history offers many avenues for research and future investigation.

This volume provides a selection of significant chapters that reflects the expanding horizons of economic methodology. Their authors draw on a wide range of contributions to the various subfields in economics that experienced significant change during the last two decades, while also surveying and explaining many of the recent new developments in methodological thinking stimulated by these research programs. In general, the emphasis in these chapters rests on understanding the thinking of the practitioners, but the authors of these chapters also bring to bear the more than a half century of careful thinking about the nature of methodological thinking in economics.

The volume is divided into six parts, each focusing on a few aspects of the recent economic literature. Part I is concerned with one of the areas of economics that has exhibited both significant growth and profound

change during the last few decades: the literature on individual or agent choice associated with behavioral economics, experimental economics, neuroeconomics, and related fields.

Chapter 2 by Floris Heukelom provides a methodologically focused historical overview of behavioral economics and the psychological literature that influenced it. Starting in the 1950s he traces certain ideas from the research on behavioral decision research in psychology – the work of Ward Edwards, Eric Wanner, Daniel Kahneman, Amos Tversky, and others – and their influence on recent behavioral economics (both as a descriptive scientific theory and also in its more welfare-oriented forms such as libertarian paternalism). One of Heukelom's main themes is the importance of the distinction between rational choice theory as a scientific descriptive or positive theory of individual behavior and as a normative theory of rationality: what one ought to do in order to be rational. He shows that this distinction was emphasized early in the psychological literature and continues to be endorsed by recent behavioral economists. The standard behavioral criticism of textbook rational choice theory is that it repeatedly fails to predict and/or explain the behavior of real economic agents (hence the many well-known 'anomalies'), and yet in the policy domain – in nudging and such – it continues to be the standard for how economic agents ought to (or ought to be encouraged to) act. Heukelom argues that this is a direct carry-over from the earlier psychological literature on behavioral decision theory.

Ana C. Santos's Chapter 3 reflects on the major methodological debates within recent experimental economics. Starting with the early experiments versus theory literature that focused on testing various aspects of standard microeconomic theory, through the debate over internal and external validity, to the more recent emphasis on policy intervention, the field of experimental economics has always been characterized by active methodological engagement. In some cases resources from the philosophy of natural science (for example falsificationism) have been directly involved, but more often the debates are quite naturalistic and driven by the actual (although changing) practices of the field itself. Santos employs the distinction between technological experiments (concerned with knowledge claims about institutions and structures) and behavioral experiments (emphasizing knowledge claims about behavior, particularly anomalous behavior) as a general framework for helping us to understand these various methodological debates.

Don Ross writes about neuroeconomics from the vantage point of someone with experience as an economist, a philosopher of mind, and a practitioner of neuroeconomic research. His Chapter 4 is a critical review of the methodological issues raised during the first decade of this rapidly

expanding field. He argues that two fundamentally different approaches to neuroeconomics have emerged during its short history: the approach of Paul Glimcher and others in the early literature on neuroeconomics which is associated with computational learning theory; and a later approach – revisionist behavioral economics – that uses the technologies of neuroscience, particularly functional magnetic resonance imaging (fMRI), to test standard rational choice-based theories of individual behavior. The latter literature has discovered numerous anomalies and is generally quite critical of mainstream economic theory, while the former is methodologically much closer to what Ross calls ‘standard, not revisionist, microeconomics’. Ross defends the scientific potential, and in certain cases progress, of the more pro-rational choice program of Glimcher, and criticizes the approach to neuroeconomics taken by behavioral economists. In the last portion of the chapter Ross explains the most recent developments in the Glimcher approach – his subjective value theory – and gives a general endorsement of the research program (although he remains skeptical about certain aspects).

The last chapter in Part I overlaps a bit with the welfare and policy-based literature discussed in Part II, but also addresses recent developments in the economics of behavior and choice. Chapter 5 by Anna Alexandrova and Daniel M. Haybron assesses the revival of the subject of happiness within recent economics. They suggest that a positivist-inspired skepticism about subjective states – methodological minimalism – moved economists away from happiness and experienced utility during much of the twentieth century. The result, they argue, was a microeconomic theory of behavior and choice that focused on utility, but utility that was devoid of the hedonistic subjective states of the earlier theory and simply identified utility with choice. They call this approach – the mainstay of economic minimalism – ‘revealed preference methodology’ (although ‘contemporary revealed preference methodology’ might be a better term). They argue that this methodological approach was parsimonious and amenable to mathematical formalism, but sacrificed fidelity to the economic world that the discipline was trying to explain. In the second half of the chapter they use this methodological framework to discuss a number of recent developments in the economics of happiness and related literature.

Part II contains four chapters on a variety of topics related to welfare economics and microeconomic policy. Some of these chapters overlap a bit with chapters in Part I, but generally have more of a welfare and policy focus, and are less concerned with the prediction and explanation of individual behavior.

In Chapter 6 Erik Angner examines the recent movement toward subjective measures of well-being and away from the more traditional

individual preference satisfaction view of welfare. He argues that these two contested frameworks are based on two fundamentally different views of measurement. The traditional view of welfare is based on a measurement-theoretic approach that is deductive, emphasizes individual preference satisfaction, and relies on observable choice data. Alternatively, the newer subjective approach to welfare – often, but not exclusively associated with experimental psychology and behavioral economics – is based on a psychometric approach to measurement. It is more inductive, focuses on mental states, and utilizes questionnaires and other types of survey data. Angner argues that while there is no evidence that one approach has a clear advantage over the other – on the grounds of realism, ‘realisticness’ or fidelity – recognition of the fact that they are based on quite different notions of measurement helps to explain many features of, and positions taken in, the ongoing debate between these two approaches to welfare.

Chapter 7 by Luigino Bruni and Pier Luigi Porta addresses some of the same issues as Chapter 5, but offers a different take on the material. Bruni and Porta examine the recent revival of experienced utility and happiness from a historical and methodological perspective. They discuss experienced utility in section 7.2 and then turn to the related research on happiness in section 7.3 of the chapter. In section 7.2 they trace the literature on hedonistic experienced utility in economics from Jeremy Bentham, through a number of early neoclassicals, and on to the recent revival by Daniel Kahneman and others. They argue that there were two phases to Kahneman-inspired work on experienced utility: an early descriptive research focusing on framing and reference-dependence; and the later more welfare-focused literature linked directly to hedonism and informed by the recent literature on neuroeconomics. In section 7.3 Bruni and Porta discuss the Easterlin paradox and make the case that such empirical results about the relationship between income and happiness can be (and usually are) interpreted in hedonistic utilitarian terms, but they can also be interpreted in terms of Aristotle’s *Eudaimonia*. They close the chapter by making the case for thinking about happiness in an Aristotelian way.

David Colander examines the methodological history of welfare economics in Chapter 8. The central thesis of his chapter is that ‘classical’ welfare economics (which includes the welfare economics of some neo-classical economists such as Marshall and Robbins) was quite different from the neoclassical welfare economics that has dominated economic theory since the end of World War II. In particular, the classical economists did not assume that it was possible to go directly from abstract economic models to policy recommendations. For the classicals the economic world is quite subtle and complex, making it impossible to do effective policy analysis without considering various social, political and

philosophical (particularly ethical) issues, and without understanding the historical and institutional details of the particular situation. For them abstract economic theory was useful for policy analysis, but it was only one piece of the policy puzzle. Neoclassical welfare economics harbors no such doubts about the adequacy of economic theory; it is assumed that Walrasian welfare economics is sufficiently general to subsume all of the important issues and can be applied to policy in a fairly straightforward manner. One of the examples discussed in the chapter is Abram Bergson; Colander argues that he made a sharp distinction between economic welfare and social welfare – with the former being just one small part of the latter – while the generation of welfare economists that elaborated and extended his analytical framework effectively ignored this (classical) distinction. Colander closes the chapter with a plea for history, history of economic thought and moral philosophy (an education more like the classical received) in the graduate education of contemporary economists in order to help them better understand the complexities of the policy realm.

Chapter 9 by Uskali Mäki and Caterina Marchionni examines the field of geographical economics which emerged during the 1990s as the result of work by Paul Krugman and others. The central message of the chapter is that any simplistic methodological dichotomy that either praises geographical economics for its real-world and empirical focus, or (as is more often the case) criticizes it for its emphasis on disciplinary conventions and pure theory, will fail to understand the field, particularly the complexity of its methodology and standard practices. Although geographical economics is ‘constrained by the characteristic disciplinary conventions of conventional economics’ and it is therefore ‘pretty much economics as usual’, these features are not necessarily in conflict with it being ‘world-oriented’ or partly shaped by ‘matters of fact’. Much of the chapter examines the three key achievements of geographical economics – the recovery of space, its grounding in microfoundations, and its ability to unify a number of previously disparate subjects – and the role that its particular (contrastive) explanatory strategy has played in the development of the field (particularly with respect to unification).

Part III contains three chapters on recent developments in complexity theory and computational economics. The omnipresence and range of powers of the digital computer has opened the door to new modeling techniques in economics that were simply not available to the economists of previous generations. In some cases these new tools are complements to the traditional tools of economic analysis and provide new techniques for modeling long-standing economic questions, and in other cases they are substitutes that radically transform the economic questions being

considered. The chapters discuss a variety of methodological questions associated with this recent computer-based literature.

In Chapter 10 Paola Tubaro examines some of the methodological issues associated with the rapidly growing field of agent-based computational economics (ACE). ACE is a broad class of computer models that explain various aggregate stylized facts as emergent properties of the repeated interactions of individual heterogeneous agents. The field is broadly interdisciplinary with applications in the other social sciences, ecology, biology, and a number of other fields in addition to economics. In general the results that emerge from agent-based computational models in economics are ‘profoundly different’ from the properties of the equilibria in ‘received economic theories’. Tubaro discusses four main methodological issues in ACE: how it functions as an experimental methodology; the variety of different decision rules employed within ACE; the question of whether ACE can, or how it can, be validated and/or verified (and how it provides explanations); and the broad diversity of modeling techniques employed in ACE. Various applications of ACE are discussed including research on loyalty, reputation and endogeneity of preferences.

The following chapter by Paul L. Borrill and Leigh Tesfatsion (Chapter 11) also discusses agent-based modeling and covers some of the same methodological issues discussed by Tubaro. The main difference is that Borrill and Tesfatsion focus on agent-based modeling (ABM) in general rather than ACE in particular. They argue that classical mathematics is often inappropriate for the social sciences, and the ABM approach to modeling systems ‘as collections of autonomous interacting entities’ often provides a much more useful tool for analyzing complex social interactions. The agents or entities in ABM are both distributed and connected; distributed in the sense that each agent responds to local interactions (with path-dependency so that two agents, that are initially the same, can end up quite different after a number of interactions), and connected because each is embedded in a network of interactions with other entities. The result is a type of ‘controlled computer experiment’ that allows the experimenter to ‘investigate how large-scale effects arise from the micro-level interactions of dispersed autonomous agents’. Borrill and Tesfatsion end their detailed methodological discussion of ABM with two illustrative examples: a model of wholesale electrical power markets and an agent-based model of the storage and management of information.

K. Vela Velupillai and Stefano Zambelli’s Chapter 12 is a broad historical and methodological discussion of computation in economics and computational economics. It begins with a history of the origins of computational economics – particularly the Cambridge Growth Project – and a discussion of the methodological issues associated with the use of digital

(as opposed to analog) computers in economic modeling. One of the arguments is that most contemporary economists – even those working within computational economics – do not realize that there exists a long and extremely diverse ‘noble tradition of computation in economics’. The main body of the chapter is a detailed discussion of four specific topics in the epistemology of economic computation: the connection with behavioral economics (classical and recent); the literature on computable general equilibrium theory; the topic of computable economics more generally; and the literature on agent-based computational economics examined in the previous two chapters. Much of the discussion of these four topics is critical. Two of the main themes are that classical behavioral economics (associated with the work of Herbert Simon and others) was very computationally oriented – seeking ‘computable foundations for boundedly rational choice and satisficing decisions’ – and that this computational aspect has been lost by contemporary behavioral economists. And that neoclassical-based computational economics – such as Arrow–Debreu-based computable general equilibrium theory – rests on inadequate computational and constructivist foundations. These, and other criticisms, reflect contemporary economists’ ‘lack of anchoring in the noble traditions broached by the pioneers’.

One of the recent growth areas in economics has been the intersection of economics and evolutionary biology. Although the field has origins going back to the early twentieth century it has exploded in a variety of different directions in recent years. There now exists a number of quasi-autonomous research programs with the broad field of evolutionary economics. Some of these subfields have linkages to topics discussed in previous chapters – behavioral economics, neuroeconomics and computational economics in particular – but some of the literature draws on resources from evolutionary biology and philosophy of biology that are not directly connected with these other areas of recent development within economics. Part IV contains three chapters on various topics in the history and philosophy of this evolutionary literature.

Geoffrey M. Hodgson provides a philosophically focused survey of evolutionary economics focusing on ontological issues in Chapter 13. After a brief discussion of the history of the field, emphasizing its broad diversity, Hodgson turns to the major ontological divergences among contemporary evolutionary economists. He examines debates on dualism versus monism and the plurality regarding demarcated entities, but the main focus is ‘generalized Darwinism’. Generalized Darwinism – a modification of Richard Dawkins’s ‘universal Darwinism’ – is the thesis that the core Darwinian principles of random variation and selective retention ‘have a wider application than to biology alone’. In section 13.7 of the chapter Hodgson

argues for a middle ground – a ‘strategy of reconciliation’ – between the two main positions in the debate: identifying generalized Darwinism with reduction to biology and treating these Darwinian ideas as mere analogies with no ontological force.

In Chapter 14 Kurt Dopfer provides an alternative interpretation of the evolution of evolutionary economics. He opens the chapter with a discussion of Richard Nelson and Sidney Winter’s *An Evolutionary Theory of Economic Change* (1982) as the origin of many of the current debates within contemporary evolutionary economics. Evolutionary economics ‘deals with the structural evolution of knowledge of economic operations’, whereas neoclassical economics ‘analyzes ongoing economic operations under the assumption of given knowledge’. Dopfer explores the question of economics as a cultural science and (following the author’s earlier work) offers *Homo sapiens oeconomicus* as proper characterization of the economic agent in evolutionary economics, and argues that the field of evolutionary economics itself should be a subset of complexity-based evolutionary archaeology. Much of the second half of the chapter is concerned with the ‘meso’ level of processes, situated between the micro and the macro, and how the investigation of such processes by evolutionary economics would give us a much better understanding of economic dynamics, particularly economic growth, as an ‘endogenously self-generating, self-adapting and continuously self-restructuring process’.

In the third and final chapter in this part, Chapter 15, Jack Vromen offers yet another interpretation of recent debates within evolutionary economics – including the generalized Darwinism discussed by Hodgson in Chapter 13. Vromen argues that many of the efforts to strengthen the application of Darwinian ideas to the social and cultural sciences render the evolutionary approach so general and abstract that they end up being a Darwinism ‘not worth fighting for’. Much of the chapter is a discussion of recent arguments by Peter Godfrey-Smith and how they might be used to improve the current received view within evolutionary economics: generalized Darwinism and formal models of replicator dynamics in particular. With respect to generalized Darwinism, Vromen argues that giving the three Darwinian principles of variation, replication and selection an abstract generalized interpretation leads to explanatory weakness and too much reliance on auxiliary hypotheses. With respect to replicator dynamics, he makes the case that such mathematical models place too much emphasis on technique and not enough on empirical relevance. The chapter ends by supporting the Godfrey-Smith approach, but also offering some suggestions about where it too may have problems.

Unlike the previous sections, Part V is concerned with macroeconomic theory and policy. Outside of a few periods when one particular research

program dominated the field – such as IS-LM Keynesianism during the 1960s and dynamic stochastic general equilibrium (DSGE) models quite recently – macroeconomics has traditionally been a very contested field: theoretically, empirically and methodologically. Whether it was Keynesianism versus monetarism, new classical versus new Keynesian, or other debates, one strategy has often been to capture the epistemological high ground by challenging the scientific credibility of the opposition. The four chapters in this section take very different points of view, but they all suggest that the recent macroeconomic and financial crisis has reopened the door to a host of debates within macroeconomics. Some of these debates have been with the profession since the early years of the Keynesian revolution and others are quite recent, but they all involve methodological issues in a serious way.

Pedro Garcia Duarte's Chapter 16 examines the DSGE approach to business cycles. He explains that as the DSGE literature evolved during the late 1990s and early 2000s it involved a combination of ideas from both real business cycle and new Keynesian theorizing. He explains the class of facts that these models attempt to explain, and the basic impulse response approach that they take to such explanation. After a detailed discussion of the basic theoretical structure of the standard DSGE model – emphasizing the representative agent microfoundations and the absence of any financial sector – Duarte turns to some specific methodological issues. He examines the debate over calibration versus estimation in the empirical implementation of DSGE models and argues that the general tendency has been away from the former and toward the latter. He also discusses the debate over the use of the representative agent, with supporters arguing that it provides a 'natural objective' for social welfare – the social welfare being the utility of the representative agent – and critics noting how problematic it is for policy analysis and also that it conflicts with earlier theoretical results in both social choice theory and (heterogeneous agent) Walrasian models. Duarte closes the chapter with a discussion of the many criticisms that have been raised against the DSGE model in the aftermath of the recent financial crisis and concludes that it is too early to know the outcome of the debate.

Katarina Juselius's Chapter 17 examines the recent literature on empirical macroeconomics. The central thesis is that the theory-first approach that currently dominates empirical macroeconomics should be replaced by the more data-based approach of cointegrated vector autoregressive (CVAR) models that give 'the data a rich context in which they are allowed to speak freely'. Theory-first standard practice starts with a static mathematical model and then expands it to include stochastic components, while CVAR starts with a statistically well-specified model that is more capable

of dealing with disequilibrium and the non-stationarity of data. In addition to being more true to the data than the dominant approach, Juselius argues that the CVAR methodology is more falsificationist (and less verificationist) oriented and more effective in detecting regime shifts. A substantial portion of the chapter is dedicated to criticizing the real business cycle (RBC) based models of Peter Ireland that employ a vector autoregressive (VAR) approach to empirics. She also argues that the macroeconomic data is more consistent with the theoretical framework offered by imperfect knowledge economics (IKE) than with most rational expectations-based models. She closes the chapter with a defense of CVAR as a partial solution to the problem of the poor performance of DSGE-based models in predicting or explaining the recent financial crisis.

Roger E. Backhouse and Bradley W. Bateman explore various methodological issues in the history of Keynesian macroeconomics in Chapter 18. After noting the financial crisis-induced revival of Keynesian ideas, they trace through the main methodological debates that have occurred in the history of the Keynesian literature. They note that while the monetarist critique of the 1960s was critical of Keynesian policy, it accepted the general methodological framework of the (then) dominant IS-LM model. This was not the case with the rational expectations, new classical, and real business cycles macroeconomics that came later. In these cases the challenge – particularly the microfoundations challenge – was methodologically more serious. The three main Keynesian responses were the ‘disequilibrium’ approach, the new Keynesian methodology, and post-Keynesianism. The disequilibrium approach was relatively short-lived, but the other two continue to be established Keynesian frameworks: the new Keynesian is more mainstream (essentially ‘bolting’ Keynesian ideas on to the core DSGE model) and post-Keynesian is more anti-neoclassical. In addition to these three versions of Keynesian macroeconomics, they also discuss the more politically and philosophically focused revival of Keynesian theory initiated by Keynes’s biographer Robert Skidlesky, and the recent Keynesian literature that draws on some of insights from behavioral economics. Backhouse and Bateman ultimately conclude that it is the behavioral approach – in both behavioral macroeconomics and behavioral finance – that ‘resonates most closely with the way Keynes argued in the *General Theory*’, but maintain an ‘eclectic view’ about how the Keynesian research program will evolve and how it will influence macroeconomic theorizing in the near future.

L. Randall Wray presents a defense of a particular interpretation of Keynesian economics in Chapter 19. After a rather sharp attack on the inability of various neoclassical-based macroeconomic theories to predict, offer insight into the causes of, or recommend policies for the recent

financial crisis, Wray turns to the particular Hyman Minsky-inspired version of Keynesian macroeconomics that he defends. He argues that the central thesis of the *General Theory* was that firms produce ‘what they expect to sell’ and there is no reason to believe that these decisions will be ‘consistent with the full employment level of output in the short run or in the long run’. He then discusses Minsky’s financial instability thesis in detail, emphasizing how its key assumptions regarding the way that market economies operate differs from those of neoclassical-inspired macroeconomic theory. The main instabilities for Minsky involve the difference between private and public default risk and the financial sector’s ‘tendency toward explosive euphoria’. The last part of the chapter focuses on policy, in particular how much Wray’s interpretation of Keynes’s policy recommendations differ from the textbook, pump-priming view. The chapter closes with the argument that Keynesian economists, unlike neoclassical macroeconomists, did in fact ‘see it coming’.

Part VI contains two chapters discussing the (current) relationship between the economics profession and the general public. Chapter 20 by Philip Mirowski concerns the economic profession’s overall response to the financial crisis – particularly in contact with the media – and emphasizes how this response differs from what most discussions of economic methodology might lead one to expect. The final chapter by Tiago Mata examines recent changes in the economic profession through the window of the new world of economic blogs.

Philip Mirowski starts by reviewing the ‘shellacking’ that the economics profession has taken over its seeming inability to predict, explain or recommend policy solutions for the financial crisis, but the main focus of the chapter is the profession’s response to these criticisms. Mirowski’s general framework for his analysis of the response is a combination of the theory of cognitive dissonance from social psychology, and the Duheimian underdetermination thesis from philosophy of science. He argues that the ‘failure to predict’ indictment was particularly hard hitting since the profession has long paid lip service to Friedman’s methodological claim that the accuracy of a theory’s predictions is the only thing that matters to the success of a scientific theory, and also because recent macroeconomics has been so focused on expectations and perfect foresight (some of the things that Keynesian theory ostensibly lacked). The second half of the chapter is an extended discussion of the three main disciplinary ‘responses’ to the crisis-based criticism: rejection of the perfect rationality assumption by behavioral economists; a renunciation of the efficient market hypothesis; and the argument for the abandonment of the DSGE model. Mirowski examines each of these responses in detail, but generally concludes – consistent with cognitive dissonance and the Duheim thesis – that the majority amount

to relatively minor modifications within the protective belt of neoclassical economics rather than substantive attempts to forge a new paradigm.

Tiago Mata in Chapter 21 uses the framework of contagion, conformity, paranoia and alienation to examine the rise of economics blogs during the last few years. He provides information about who is writing for blogs, who is reading the blogs, the topics covered, and the characteristics of the blogs that are most successful. He discusses a number of important, and perhaps rather surprising, features of the economic blogosphere. One is that even though they are technically quite public conversations, they often end up being relatively inward-looking (bloggers writing to/for other bloggers). Another feature is that the economists involved in blogging do not seem to be alienated from, or shunned by, the profession in other aspects of their professional lives. It remains to be seen if this new and growing means of communication among economists and with the general public will fundamentally alter the discipline's theory, practice or methodology.

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