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**Summary**

The state of contemporary economics had been a subject of discussion even before the most recent global financial crisis. The one-sidedness of the discipline has frequently been lamented and calls are often made for its pluralisation. Nevertheless, there is neither a consensus over the form of pluralism that is required (whether this is a theory, method, or paradigm pluralism, for example), nor agreement among economists over the underlying diagnosis of a lack of pluralism. Even the justification for this pluralistic norm—i.e. whether it should be seen in terms of an ethics of fairness and tolerance or as the imperative of academic freedom—remains disputed and is often unclear. The present paper aims to shed some light on these ambiguities.

**Keywords:** pluralism, philosophy of science, heterodoxy, orthodoxy, mainstream

**JEL classification**: B 40, B 41, B 50

# 1. Introduction: The Return of the 'Pluralism Debate'*

The recent global financial crisis dealt a heavy blow to economics.[1] The latter has come under fire from political circles, which have reproached it both with its inability to see the crisis coming and its incapacity even to give a plausible retrospective explanation of it and to develop acceptable counter-measures against future crises (cf. Besley/Hennessey 2009; Merkel 2014). What is in question here is the **practical serviceability of economics as the source of its legitimacy**. Those involved in economic affairs at the practical level have noted that certain theoretical notions (such as the theory of efficient financial markets and the system of rating financial assets based upon it) were partly responsible for the crisis, since they assumed a capacity for risk assessment, and attributed to the financial markets a forecasting ability, that proved to be erroneous and fatal (cf. Cassidy 2009; Heise 2009a; Storbeck 2009). What is in question here is the **responsibility** of economics. Furthermore, students of the subject have complained about the oppressive dominance of a single scientific paradigm and the lack of historical perspective they are provided with (cf. ISIPE 2014). Critical, heterodox academics, meanwhile, have voiced their dissatisfaction with the increasing marginalisation of non-mainstream approaches and the associated effects on their publication prospects, access to (public) funding, and thus career prospects.[2] Here it is a question of **academic independence and integrity** and a constitutionally protected **right to academic freedom**.[3]

These criticisms of the current state of economics can be summarised in terms of a common demand: critics have lamented the lack of pluralism in the economic sciences and have therefore called for the pluralisation of the discipline:

> *We are dissatisfied with the dramatic narrowing of the curriculum that has taken place over the last couple of decades. This lack of intellectual diversity does not only restrain education and research. It limits our ability to contend with the multidimensional challenges of the 21st century - from financial stability, to food security and climate change. The real world should be brought back into the classroom, as well as debate and a pluralism of theories and methods. Such*

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[1] This article originally began: 'The recent global financial crisis caused great consternation within economics.' A commentator on the paper, however, pointed out that this was not at all the case; at best, the global financial crisis led to a short pause for thought (cf. e.g. Blanchflower 2009, Caballero 2010, Kirman 2010, Pesaran & Smith 2011), but not to a wide-ranging discussion on the state of the discipline and its need for reform. Morgan (2015) shows that this was the case in universities in the UK; in Germany the situation was doubtless not greatly dissimilar; cf. Burda (2013).

[2] 1993 saw the founding of the 'International Confederation of Associations for Pluralism in Economics' (ICAPE), which brings together numerous national and international societies and associations, "all of which are united by their concern about the theoretical and practical limitations of neoclassical economics. In addition, they share the conviction that the current dominance of the subject by mainstream economics threatens academic freedom and is contrary to the norm of methodological pluralism." (ICAPE).

[3] Academic freedom not only includes protection from restrictive state intervention in the practice of a discipline (a 'subjective right to defence'), but also the principle according to which the state is required to ensure free academic enquiry in its universities. This responsibility can in principle be entrusted to the academic community itself, but only when the latter does not erect its own barriers to access (cf. Garnett 2011).

> *change will help renew the discipline and ultimately create a space in which solutions to society's problems can be generated.* (ISIPE 2014)

This is how the call for pluralisation was formulated in a statement published in 2014 by over 70 students' organisations from over 30 countries.[4]

This statement bears a strong resemblance to an appeal made by a group of economists (including a number of Nobel Prize winners) in the American Economic Review in 1992:

> *We the undersigned are concerned with the threat to economic science posed by intellectual monopoly. Economists today enforce a monopoly of method or core assumptions, often defended on no better ground than it constitutes the 'mainstream.' Economists will advocate free competition, but will not practice it in the marketplace of ideas. Consequently, we call for a new spirit of pluralism in economics, involving critical conversation and tolerant communication between different approaches. Such pluralism should not undermine the standards of rigor; an economics that requires itself to face all the arguments will be a more, not a less, rigorous science.*

The ultimate aim of such a pluralisation is also clearly formulated in this appeal:

> *We believe that the new pluralism should be reflected in the character of scientific debate, in the range of contributions in its journals, and in the training and hiring of economists* (Abramovitz 1992)

Here it is then a question of ensuring non-discriminatory access to economic, social, and symbolic capital in Pierre Bourdieu's sense, since the latter plays a central role in shaping the competitive conditions of the academic field (cf. Bourdieu 1992).

If we look a little further back in time, it is also evident that the demand for greater pluralism was a crucial element of attempts to reform the universities in the student movements of the 1960s—a period when the battle cry 'pluralisation!' triggered a debate on the dominant understanding of academic enquiry:

> *It is difficult for conflicts between methods as methods to arise—on different paths, one does not get in one another's way. The demand for scientific pluralism, understood as a demand for method pluralism, can only constitute a rather non-committal recommendation to take into consideration all possible methods, or at least as many methods as possible; […]. The keenness and combativeness of the conflicts we are currently witnessing, however, is due to the fact that such a consensus is lacking; they are not disputes* within *scientific enquiry, but* about *it. The expression 'scientific pluralism' has recently come into use to characterise this situation. It refers not to an obvious and unproblematic variety of methods (or theories or disciplines) within a science, but rather to the problem that the character, status, concept, and limits of scientific enquiry are themselves disputed, that different conceptions of scientific enquiry, along with their various claims to truth and relevance, are in conflict, and, furthermore, that there is nothing that stands outside of this conflict—neither methods, theories, nor a disciplinary canon, nor even criteria that could be used to evaluate them* (von Brentano 1971: 476-7.).

This glance back in time not only shows that we are now witnessing a re-vitalisation of this debate; it also allows us to see, in the light of the deconstructive endeavours of the 1960s and 70s, the deeper ground and the severity of the rejection of the demand for

[4] There have been many other public appeals for greater pluralism, including: Auroi et al. (2011), Chesney et al. (2011), Sent (2006), and Thielemann et al. (2012).

pluralism (which was often pithily expressed in the slogan '*Marx an die Uni*' ('Marx to the university!'); cf. e.g. Herkommer 2013: 271ff.; Peter 2014).

That the (German) social sciences in general and economics in particular have now been faced with such calls for pluralism for more than four decades without any apparent result[5] may have a number of causes:

- On the one hand, the **ambiguity** over what exactly is meant by pluralism (e.g. disciplinary, theory, method, or paradigm pluralism, to name just a few possible variations; cf. Dutt 2014: 480), may be so great that an attempt to implement the demand in the form of a pluralisation strategy would necessarily run aground due to the lack of a common basis and clearly defined goals (cf. Dutt 2014; Sent 2006: 179ff.).
- On the other hand, pluralism may also meet with significant **internal resistance** when, from an epistemological perspective, it is equated with relativism, obscurantism,[6] or scientific immaturity.[7]
- Or, finally, the **diagnosis** of a lack of pluralism might simply be contested. As the academic responsible for early career researchers at the German Economic Association (*Verein für Socialpolitik – VfS*), Rüdiger Bachmann, states: "In my view, the discipline is indeed very pluralistic. I think it is a shame when some suggest [Bachmann is referring to the students involved in the '*Plurale Ökonomen*' ('Plural Economists') network] that they are the only critical voices […] since the methods and theories within the mainstream are very diverse. The fields of research include economy and law, family economics, development economics; and then the classics: labour markets, public finance. The methods used include numerical models, traditional statistical methods, and more recently field experiments—I myself like to use surveys to study people's expectations. So there is a great variety" (Bachmann 2015a: 87). In addition, the well-known methodologist David Colander has spoken of the 'death of neoclassicism' as the monistic mainstream paradigm (Colander 2000), since the mainstream has long been epistemologically pluralised (Colander/Holt/Rosser 2004).

In the following, we shall then first be concerned to examine the concept of pluralism more carefully.[8] We shall also aim to relate the various aspects of scientific pluralism to one another in order to illuminate the apparent paradox of how one can affirm the existence of scientific pluralism and reject it as a norm, and yet still regard the status

[5] A recent study showed that an earlier, quantitatively very limited process of pluralisation within a small number of German universities has long since been reversed through the marginalisation of heterodox economists; cf. Heise/Thieme (2015a); Heise/Thieme (2015b).

[6] As Jean Tirole, the 2014 winner of the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel (generally referred to as the 'Nobel Prize' in order to share in the reputation of the 'real' Nobel Prize), put it in an open letter to the French Education Minister: Tirole (2014).

[7] Thomas Kuhn's influential theory of scientific progress (1972) can be interpreted as stating that, as a science develops, a certain paradigm comes to impose itself as the 'normal science.' The pluralistic coexistence of a number of paradigms would thus imply a low level of development.

[8] In 2006, Robert Garnett complained that "Pluralism remains an undertheorized topic in economics" (Garnett 2006: 527). Though the literature on the topic has grown since then (see the post-2006 literature referenced below), Garnett's analysis is still valid today.

quo in economics as acceptable—this seems to me the position adopted by Bachmann (2011: 263ff; 2015b), which is highly representative of the mainstream. Furthermore, a clearer conception of what pluralism amounts to is also needed to expose those who would illegitimately seek to jump on board the pluralism wagon.[9] These tasks, however, can only be carried out on the basis of a theoretical discussion of the epistemological capacities of economics in its search for 'absolute truth.' Finally, the paper closes with a proposal for conceptualising pluralism and a number of reflections on the politics of scientific enquiry.

## 2. Preliminary Theoretical Considerations: Truths, Errors, and their Difference

Though economics is generally seen as a strongly methodical and methodological social science, methodological reflection and training is not accorded an especially prominent place within the discipline.[10] This may be because, in the wake of two explicit *'Methodenstreits'* ('method disputes),' a consensus has been established that positivism provides us with a solid methodology that does not need to be questioned further. This is a rather recent view, however, and it is surely not possible to say that this broad consensus is the result of an intensive and profound theoretical discussion;[11] it has rather arisen under the influence of attempts to professionalise and legitimise a maturing discipline,[12] in response to the increasing scientific hegemony of the USA,[13] and particularly the standardising power of a few elite US universities.[14]

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[9] The Witten Institute for Institutional Change (WIWA), for example, awards a prize to young scholars for pluralism in economics. The institute's description of pluralism runs as follows: "Pluralism in economics in the meaning of the invitation exclusively refers to the diversity of theoretical approaches and normative positions; nominations are generally not tied to any particular schools of thought. The only criteria are originality and creativity of published papers" (WIWA). Yet here the notion of 'pluralism in economics' loses any distinctive character and is equated with a simple variety that can be found in any discipline regardless of the range of its objects.

[10] In many of the best-known economics textbooks there is either no systematic account of the discipline and its methodology (cf. e.g. Bofinger 2015, Mankiw/Taylor/Ashwin 2015, Samuelson 2010, Samuelson/Nordhaus 2010, Stiglitz/Walsh 2013, Blanchard/Illing 2014) or at best only an uncritical, unreflective introduction to positivism (cf. Burda/Wyplosz 2013, Mankiw 2015, Mankiw/Taylor 2014, Woll 2011); cf. also Lawson 1994.

[11] Some have even spoken of a genuine aversion to methodological discussion, at least in post-war German economics; cf. Hesse (2010: 256). Caldwell (1985: 233) also notes that "(s)ome economists openly disparage methodological work, because they consider it a waste of time."

[12] On this point, cf. Fourcade (2009: 125ff.) and Morgan/Rutherford (1998).

[13] Though the 'method disputes' that have gone down in the history of economics have taken place within German-language scholarship, similar debates have occurred elsewhere (cf. e.g. Moore 2003). The particular influence that the USA has exerted on the development of economics in Germany is sometimes referred to as a process of '(self-)Americanisation (cf. Hesse 2010: 320ff.; Coats 1996).

[14] On the methodological standardisation of economics cf. Heise/Thieme (2015). On the standardising power of the elite US universities cf. Graham/Diamond (1997), Lebaron (2006: 92ff.), and Fourcade/Ollion/Algan (2015). Friedman's influential article, 'The Methodology of Positive Economics' (Friedman 1953), played a leading role in this process of methodological standardisation.

### *Changing Conceptions of Economics*

Well into the 20th century—and thus long after the historic 'Methodenstreits' of the end of the 19th century and the beginning of the 20th century—economics ('*Volkswirtschaftslehre*' or '*Nationalökonomie*') in Germany was oriented by the idea that scientific enquiry is concerned with the historically and geopolitically rooted 'interpretation' of specific societal developments, and the exertion of political influence on the basis of value judgements. The so-called 'historical school' combined these elements and joined forces with the German Economic Association (*Verein für Socialpolitik - VfS*) to form an organisation that aimed to effect social and political change. In the universities, economics (*Nationalökonomie*) was part of the multidisciplinary *Staatswissenschaften*, which also included normatively loaded legal and political sciences. The 'historical school' was certainly not devoid of theory, but it did not aim to arrive at objective, universally valid certainties;[15] it rather sought to influence social processes on the basis of inductively acquired—i.e. empirical—experience and data.

The above methodological disputes did not primarily revolve around whether scientific enquiry should be based upon deduction—i.e. drawing general conclusions from individual or representative derivations by means of certain hypotheses ('theory')—or upon induction—drawing conclusions about a given case on the basis of many empirical observations. They were rather concerned with the appropriate **scientific conception** of a discipline that was just beginning to break away from the *Staatswissenschaften* and thereby seeking to draw a clear distinction between sociology and political science as 'interpretive' disciplines and economics as an 'explanatory' discipline modelled on the natural sciences. Rather than being oriented around normative intervention ('advocacy'), economics was to strive for **objective knowledge** of actual economic processes ('objectivity') or, as John Neville Keynes (1891: 34) put it, for "a body of systematized knowledge concerning what is." In his famous article, 'The Methodology of Positive Economics,' Milton Friedman added: "Positive economics is in principle independent of any particular ethical position or normative judgement. […] Its task is to provide a system of generalizations that can be used to make correct predictions about the consequences of any change in circumstances" (Friedman 1953: 4). This kind of positivism is not value-free, since it always rests on certain hypotheses[16] and perspectives (including the research questions chosen), which

[15] The main champion of the 'historical school' in the disputes, Gustav Schmoller, saw for himself how his grandfather's biological research on the continuity of species refuted the natural-scientific conception of an unchanging, pregiven nature (cf. Backhaus/Hansen 2000: 315). Yet although nature was shown not to have an unchanging form with objectively recognisable properties and law-like regularities, for Schmoller this conclusion was even less transferable to social, economic, and societal relations.

[16] With regard to Imre Lakatos' notion of a research programme, which consists of an indispensable set of assumptions (a 'hard core') on the one hand, and a 'protective belt' of changeable hypotheses on the other, Blaug (1980: 34) states: "The hard core, as we have said, consists of empirically irrefutable beliefs and hence amounts to what others have called 'metaphysics.' In other words, there is no positivist obsession in Lakatos to get rid of metaphysics once and for all. […] it is simply that the metaphysics of science is deliberately kept out of sight in the hard core, much like the playing cards in a game of poker are kept out of sight in the hands of the dealer, while the real game of science takes place in terms of the

can be selected and shaped by the researchers themselves and which are not simply given with the object of investigation. Nevertheless, the propositions and conclusions yielded via deductive methods must be intersubjectively verifiable and in this sense free of value judgements.[17]

### *The Distinction between Knowledge and Non-Knowledge*

This transformed conception of economics made it necessary to draw a sharp distinction between 'objective knowledge' ('truth') as the intended and purported result of scientific activity, and the 'opinions,' 'prejudices,' or even 'errors' that result from non-scientific activity. In other words: it demanded basic agreement over which methods produce knowledge that can be considered as 'truth' or as scientifically established knowledge (and which methods can be rejected as producing 'errors' or at least dismissed as being scientifically untenable). The notion that this distinction between truth and error can always and unambiguously be drawn goes back to Francis Bacon (1561 – 1626): "If truth is manifest, truth is there to be seen" (Boland 1997: 98). With Immanuel Kant (1724 – 1804) and David Hume (1711 – 1776), however, it became clear that empirical experience (induction) and logical derivation (deduction) cannot simply be distinct from one another, since the 'induction problem' (i.e. the possibility that the $n^{th}$ confirmation of an empirical phenomenon might be falsified on its repetition)[18] shows that empirical experience (however well-developed our empirical methods may be) is not sufficient to establish objective knowledge. And 'pure reason' alone, i.e. the deduction of 'synthetic *a priori* knowledge,'[19] as Kant put it, remains an empty category that cannot produce any certainty; the latter is only achieved *a posteriori* (retrospectively, on the basis of empirical experience) by comparing our predictions with empirical experience. Friedman (1953: 4) thus observes that: "Its [positive economics'] performance is to be judged by the precision, scope, and conformity with experience of the predictions it yields. In short, positive economics is,

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cards in the hands of the players, that is, the falsifiable theories in the protective belt."

[17] The scientific notion of positivism was rejected by the 'critical theorists' in the so-called positivism dispute of the early 1960s. On the one hand, the anti-positivists wished to return to 'value-led understanding'; on the other, they rejected the contention that genuinely scientific knowledge can only be based on what is observable (and so what can be empirically tested); this would mean that much of the value-oriented theory underlying (Marxist) 'critical theory' would have to be considered unscientific—and the same would also be true of other paradigms. Since the 'positivism dispute' explicitly revolved around the scientific basis of sociology and had little impact in the sphere of economics, it will remain a footnote here to the broader story we are concerned with (an overview of the dispute is given in Beed 1991).

[18] In order to explain the problem of induction, it is often pointed out that anyone who might be asked—however young or old they may be—has necessarily had the experience of waking up again every morning. If we were to use this experience to derive conclusions about the future and claim that human beings are immortal, however, this would be contradicted by the universal experience that all human beings eventually die (but since this conclusion is also the result of inductive reasoning, it too cannot be certain).

[19] *A priori* = in advance. Kant distinguishes between analytic and synthetic judgements. Analytic judgements are contained within the object in question; they do not bring us any new knowledge (e.g. 'the gray horse' is white); synthetic judgements, by contrast, provide us with new knowledge, since they are not already contained within the object (e.g. 'the horse eats grass'). This distinction between analytic and synthetic judgements would later take on crucial significance in epistemology.

or can be, an 'objective' science, in precisely the same sense as any of the physical sciences."

### *Open and Closed Systems*

Modern economics thus sets itself the task—and here it resembles the natural sciences and departs from the 'interpretive' social sciences—of acquiring knowledge that can be considered 'objective,' that is not based on value judgements, and that therefore **constitutes 'truth**.' In order for this to be possible, it must of course be assumed that such truth exists in the first place—i.e. that there is only one correct explanation of our social and economic phenomena, which is independent of the ideological, religious, or ethnic background of the observer. This in turn implies the singularity of reality as a cognitive and veristic category—or the '**one world, one truth'** principle (cf. Mäki 2002: 124ff.). However reasonable the idea might seem that all observers are confronted with one and the same reality and that there is therefore only one (correct) 'explanatory' truth of this reality, the 'one world, one truth' principle is contested by relativists and constructivists. Relativists object that even for 'one world' there may be many possible explanations, since these are always culturally and historically specific. Constructivists, on the other hand, maintain that reality itself (and not only the explanation we give of it)—at least in its social, if not its material, dimensions[20]—is always constructed by the observer.[21]

In calling into question the self-conception of economics as a discipline, the relativist and constructivist rejection of ontological and veristic monism[22] is itself in need of justification. As a meta-theoretical approach, relativism can be contested by turning its own claim ('absolute knowledge is impossible') back against it. The constructivist position, on the other hand, needs to be considered in a little more detail in relation to the philosophy of science. The systems that can be understood to constitute our social reality are comprised of elements (e.g. agents) and their relations or interconnections (actions) (cf. Loasby 2003). In closed systems,[23] all of the elements are connected to one another and the development of the system is deterministic (or stochastic, if we admit contingent deviations). Depending on the number of elements and relations it contains, such a system may be extremely complicated (and on account of the cognitive limits of the observer, may never be grasped in its entirety), yet it cannot be complex.[24]

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[20] On this conception, theories can be understood as kaleidoscopes, each of which gives a different picture of reality.

[21] An important distinction between 'different facets of a social reality' (the existence of which is uncontroversial) and 'different social realities' (which is what the constructivists have in mind) is not always made here; cf. e.g. Samuels (1972: 306).

[22] The constructivist view is roughly the following: "looked at differently, there are different definitions of problems, different methods for obtaining data, different methods for drawing conclusions from data, different methods for the collation and reconciliation of differing conclusions drawn from data; hence a diversity of ways of conceiving and solving problems, with competing and complementary resolutions and emphases, and with fundamental incompleteness a characteristic of each" (Samuels 1972: 307).

[23] On the difference between closed and open systems cf. also Dow (2004: 283).

[24] Since this system can only take on one state, we would speak here of a complexity level of zero. More complex systems are able to take on a variety of states (cf. Cramer 1993: 275ff.). Complexity is often confused with complicatedness, not only in everyday language, but also in scientific communication: "In a broad, general sense, complex merely means complicated" (Dequech 2001: 913); cf. also Schianchi (1997: 125) or Rodrik (2015: 37ff.) .

In such a system, all of the elements can in principle be clearly described, or, in Kant's terminology, they contain within themselves 'analytic *a priori* judgements.' In the literal sense, then, these systems are fully analysable. In open systems, by contrast, not all of the elements are connected to one another; such systems are thus non-deterministic and not fully analysable. Depending on how many elements they contain and the number of missing links between them, such systems may be both very complicated and very complex.[25] Open systems must then be conceived in terms of 'synthetic *a priori* judgements', i.e. **ontological propositions** that do not rest on empirical experience and that are not already contained within the elements themselves. In order to reduce their complexity, open systems can also be converted into closed systems by invoking certain hypotheses—i.e. what is in reality an open system can be considered in theoretical abstraction as a closed system, in the hope that this will not lead one on to the wrong track.

We are now in a position to gain a better understanding of the ontological claims made by the relativist and the constructivist. If our social and economic reality amounts to an open, non-fully analysable (i.e. complex) model, then there cannot be just one (true) theoretical representation of it; rather, all possible representations can and must enter into competition with one another: "Since our representations are always incomplete, innovation is always possible; we can change the set of elements, revise the internal linkages between them or redefine the external connections. […] since the discovery of better alternatives is necessarily a matter of trial and error, there are clear advantages in encouraging many people to use their imagination" (Loasby 2003: 301). In other words: the ontological (and veristic) monism underlying the 'one world, one truth' principle can only be defended if the object of investigation is understood as a closed system.[26] And though it is seldom explicitly acknowledged,[27] this is precisely the premise of the mainstream, neoclassical model of economics: "It is indeed the proclaimed virtue of general equilibrium reasoning that it takes into account all the possible interactions between all the elements that are included in the model; therefore, if uncertainty about future possibilities appears to prevent the completion of the set of connections between present decisions and their full set of consequences, then we must agree that the imaginative response of Arrow and Debreu in extending the set of elements to include all future dates and all possible states of the world – which are fully connected to every other element in the model – was methodologically appropriate" (Loasby 2003: 291). The systemic closure assumed by the neoclassical orthodoxy in the construction of the

[25] The greater the number of potential states a system can take on, the more complex it is. In order to reduce this complexity (scientific thought does nothing else), hypotheses can simply be made concerning the missing links between elements. In this way, systems that are in fact open can be considered as closed from a scientific perspective, and theoretical innovations can be brought about by changing the hypotheses concerning the missing links.

[26] To put this as clearly as possible: it is not enough here that the relevant economic and social reality *can* be taken as a closed system; it *must* ***unequivocally*** be taken as such a system. As we saw above, we can treat any system—whether closed or open—as a closed system in order to reduce its complexity; in such cases, however, the representation of a closed system would only be one **possible representation, not its one 'true'** representation.

[27] Neither in Blaug's influential book on economic methodology (Blaug 1980) nor in the textbooks on macroeconomics noted above is there any reference to the difference between open and closed systems.

'general equilibrium theory' would thus appear to meet the methodological requirements of positivistic model construction.[28]

### *Verificationsm, Fallibilism, and the Duhem-Quine Thesis*

'Positive economics' thus calls for a methodology capable of endowing propositions with a level of scientific knowledge that would generally be interpreted as 'truth.' As we have seen, in order to assume that there is such a singular truth at all, we need to impose certain **ontological restrictions** on our object of investigation. And neoclassical mainstream economics does indeed impose such restrictions: "The mechanistic worldview of classical economics implies that there is a basically fixed, discernible national economic structure that can be used to make predictions" (Roos 2015: 384; own translation). The 'discernibility' of such a structure implies the possibility of theoretical analysis here. On this approach, theoretical deduction delivers 'analytic *a priori* judgements' that are on the one hand consistently derivable and thus intersubjectively verifiable, and on the other have to be reconciled with the empirically experienceable reality. Such a methodology is often thought to bring together the human and natural sciences (cf. e.g. Popper 1957: 130). In light of the induction problem, however, empirical tests—contrary to the individual practice of the majority of scientists (cf. Blaug 1980): XIIIff.)—can neither verify nor confirm the predictions and the underlying model in question, but can at best serve to falsify them. According to one of the best-known proponents of neo-positivist fallibilism, Karl Popper, while the truth of things is singular (given the ontological restrictions discussed above), there can be no certain knowledge of this truth, but at best only '**conjectural knowledge**.' Science is thus not in a position to reveal the truth but only to limit error. And any intersubjectively verifiable claim can be considered as conjectural knowledge[29] until an empirical proof is given to the contrary.[30] Science is therefore always 'critical' insofar as every scientist ought to critically examine—i.e. seek to falsify—his results through empirical testing. And even if the scientist himself, as a 'knowledge producer,' should be little inclined to subject his own results to an overly critical regard, the scientific community will test any proposed conjectural knowledge before temporarily accepting it—until it is refuted on the basis of new data or better measuring techniques.[31]

Here we might again recall that this process of trial and error ultimately has the task of discriminating between competing explanatory approaches in the search for the 'one'

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[28] As Dani Rodrik (2015: 10) notes in this regard: "Training in economics consists essentially of learning a sequence of models. […] Models are a source of pride. Hang around with economists and before long you will encounter the ubiquitous mug or T-shirt that says, 'Economists do it with models'." This is precisely the problem that many social scientists who hold a different conception of science find with economics. Yet the economist, of course, sees things differently: "In truth, simple models of the type that economists construct are absolutely essential to understanding the workings of society" (Rodrik 2010: 11).

[29] This applies in principle both to 'analytic *a priori* judgements' and 'synthetic *a priori* judgements.'

[30] Here it is necessary to pass both an *ex post* explanatory test and an *ex ante* predictive test.

[31] Indeed, the publication of many papers on related themes can be seen as an attempt to falsify the results of scientific enquiry. Sometimes the results of empirical studies are also reproduced by other scientists using the same data—and here they can only be falsified if methodological mistakes were made in the original study. Such apparently rare cases quickly develop into 'scandals'; cf. the recent 'Reinhart-Rogoff' case: Amann/Middleditch 2015; Cassidy 2013; Hendon/Ash/Pollin (2014).

truth of things. The criteria invoked may include the accuracy of fit, predictive capacities, simplicity (following 'Ockham's razor'), and robustness of these models and theories. According to the fallibilists, at the end of this process (which may involve a long period of competition between various theories), the best conjectural knowledge will prevail (cf. Spinner 1974: 74), thus minimising the likelihood of error through the greatest possible approximation to the 'truth.'[32] An interminable competition between a number of incompatible theories[33] could then only be due to the refusal of part of the scientific community to acknowledge the superiority of another, better explanation of reality. This refusal, however, would have to be rejected as either ideologically motivated or irrational.

And yet, there is a catch: this process of rationally choosing between different propositions of course only works if there is no disagreement or doubt about whether a theory has really been falsified or has to be replaced by another proposition with greater explanatory power. Yet this demands unequivocal measuring techniques and unambiguous 'experimental designs.' The propositions that are to be falsified must then be capable, along with all of their conditions, of being unambiguously described and tested. In non-experimental contexts, however, this is simply not possible, since theories always consist of interlinked axioms and hypotheses or, in Imre Lakatos' terms, of a hard core of assumptions and a 'protective belt of auxiliary hypotheses.' The claim that only individual hypotheses (normally *ceteris paribus* propositions, which are supposed to provide stable boundary conditions in the construction of economic models) can be falsified, rather than entire theories, has been attributed to Pierre Duhem (1861 – 1916) and Willard Van Orman Quine (1908 – 2000). By changing certain background hypotheses in the protective belt, it is at least possible to escape an *ex post* falsification even if an *ex ante* predictive test has been failed. The hope that fallibilism might then provide a reliable method for rationally deciding between theories falls apart in the face of the Duhem-Quine thesis (cf. Cross 1982). As Blaug (1980: 26) states:

> *We have now reached one of our central conclusions: just as there is no logic of discovery, so there is no demonstrative* ***logic*** *of justification either; there is no formal algorithm, no mechanical procedure of verification, falsification, confirmation, corroboration, or call it what you will. To the philosophical question 'How can we acquire apodictic knowledge of the world when all we can rely on is our own unique experience?' Popper replies that there is no certain empirical knowledge, whether grounded in our own personal experience or in that of mankind in general. And more than that: there is no sure method of guaranteeing that the fallible knowledge we do have of the real world is positively the best we can possess under the circumstances. A study of the philosophy of science can sharpen our appraisal of what constitutes acceptable empirical knowledge, but it remains a provisional appraisal nevertheless. We can invite the most severe criticism of this appraisal, but what we cannot do is to pretend that there is on deposit somewhere a perfectly objective method, that is, an intersubjectively demonstrative method, that will positively compel agreement on*

[32] It is surely in this sense that Bachmann asserts: "Good ideas prevail in the end, especially today when the costs of reaching a global audience are at an all-time low" (Bachmann 2015b: 650). In doing so, he misappropriates Yalcintas' (2013) notion of 'epistemic costs,' namely the idea that the labour time expended on the elaboration and development of a theory or large-scale interpretation of reality (a paradigm) leads to path dependence. This makes it less likely that such theories or paradigms will be rejected even when they are falsified, and thus serves to cast doubt on the notion of the purifying power of the scientific ideas market.

[33] The coexistence of competing theories or paradigms is seen here as an indication of the 'immaturity' of a scientific discipline, either in the sense that the falsification process has not yet come to an end, or in the Kuhnian sense that a 'scientific revolution' is underway.

> *what are or are not acceptable scientific theories (Blaug 1980: 26; emphasis in original).*

Economics thus cannot consistently meet the high scientific standards it sets itself, but this does not mean that we are then reduced to a form of 'anything goes' nihilism (cf. Tiedemann 1993: 121ff. and the further discussion below). For it would clearly be a mistake to conclude that, since purely rational discrimination between competing theories is impossible, any hypothesis, however it might have been arrived at, can be regarded as 'conjectural knowledge.'[34] Positivistic fallibilism—whether in the form of critical rationalism, critical realism, or dialectical materialism (cf. Portsmann 2002)—sets standards for the logical rigour of the deduction of model-based predictions and their empirical falsifiability (cf. Davis 2012: 13) that pure empiricism, historicism, and phenomenalism (as alternative methodologies) cannot and indeed do not wish to meet (since they subscribe to a very different conception of science).[35]

## 3. Scientific Pluralism: Conceptual Clarification and Application to Economics

Before we can consider the consequences of the preceding theoretical reflections for our conception of science and scientific practice within economics, we first need to clarify the concept of pluralism and its theoretical foundations. To this end we shall first consider the following statement:

> *Since no theory can take into account all factors there is scope for pluralism in economic theory. Theories may be discriminated according to which factors they take into consideration in explaining a certain phenomenon. However, even if two theories were to take into account the same set of factors there would still be scope for pluralism: the importance attributed to each of these factors and their interaction may be conceptualized differently. […] In both cases discussed it could be argued that the alternative theories are not really alternative but complementary, that is, each of them contributes to a better understanding of the phenomenon under discussion. To seek dominance for one theory over the others with the possible result that all rival theories are extinguished amounts to advocating scientific regress. To paraphrase Voltaire: In a subject as difficult as economics a state of doubt may not be very comfortable, but a state of certainty would be ridiculous* (Kurz/Salvatori 1997: 234).

This citation was chosen because it serves to illustrate a range of problems that crop up in the pluralism debate (cf. also Lawson 2010: 102): Firstly, it is unclear what kind of pluralism is in question here. In the literature, various kinds of pluralism are discussed, including ontological, epistemological, paradigmatic, methodological, theoretical, and other forms of pluralism, all of which might be intended here.[36] Secondly, it is not clear

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[34] Langmuir (1989) speaks here of 'pathological science,' which can be clearly distinguished from acceptable conjectural knowledge.

[35] Samuels (1993: 244) describes this as 'sensible nihilism': "One does not have to assume either perfect knowledge or complete ignorance of the future. One can work in various points in the middle range. But one does have to maintain, consciously and explicitly, a sense of limits." One could equally well understand this position as 'sensible anti-nihilism.' On the basis of a discussion of the Keynes-Hayek debate on business cycle theory, Scheall (2015) presents the thesis of the impossibility of rational paradigm choice and shows that although this must lead to pluralism, it need not lead to nihilism.

[36] King (2002a) interprets Kurz and Salvatori's account of pluralism as a plea for a multiplicity of complementary theories in response to a multi-faceted reality. This is a notion of pluralism

what underlies this call for pluralism: is it the complicatedness or complexity of the object of investigation, or is it the particular epistemological challenges of the discipline ('a subject as difficult as economics') that makes a plurality of theories, methods, or paradigms necessary? Furthermore, the conclusion that the reduction of the various theoretical alternatives to one dominant theory (or is rather 'paradigm' intended here?) would amount to a scientific regress can neither be reconciled with the notion of the pursuit of (unambiguous) truth nor with the standardising demands and the specific qualities of the 'market for economic knowledge.'[37] And it is in such terms that Mariyani-Squire/Mossa (2015: 200) offer "…a thumbnail sketch of what a genuine science of economics would amount to: it would ideally be a discipline that sought a complete, objective account of the 'laws of motion' which would causally explain the 'characteristics' and 'function(ing)' of the investigator-independent economic 'system' in its parts and as a whole. Although this conception of an economic science does not deny ontological complexity and diversity and does not deny human fallibility, it does lend itself to an ultimately monistic paradigmatic vision of the future of the economics discipline." Sheila Dow (2004: 282) describes the monistic impetus of the economic sciences in a very similar, though qualified manner: "Were it defensible, a monist approach would be more satisfactory." Pluralism thus cannot be derived in the form of an ethical norm (e.g. of tolerance) that might be accepted or rejected depending on one's standpoint, but must rather be presented as the only acceptable model of enquiry in light of the rejection of the possibility of monism ('were it defensible').[38] Yet this first of all requires a clearer delineation of the concept of pluralism.

### *Plurality, Pluralisation, Pluralism*

While the term 'plurality' simply describes a certain state, independently of its desirability as a norm, 'pluralisation' refers to the process of transition from a state of singularity to one of plurality. Both terms are derived from the Latin *pluralis*, which means 'multitude' or 'belonging to more than one.' 'Pluralism,' by contrast, is a **philosophical doctrine** based on a norm that goes beyond the simple defence of a multitude of possibilities. 'Pluralism' thus does not simply refer, in a quantitative manner, to a multitude of elements; these elements must also contain within themselves the qualitative possibility of being opposed (i.e. incompatible) or being incomparable (incommensurable) with one another. In this sense, then, 'pluralisation' does not simply describe the process of transition from a state of singularity to a state of simple

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that is unlikely to be rejected by any serious scientist.

[37] The specific qualities of this 'market for economic knowledge' are elaborated in Heise/Thieme (2015). The market revolves around the provision of 'public goods' in the form of credence goods whose value is not determined by market prices but by recognition from the scientific community. Furthermore, since this is a 'shrinking market' (there tends to be a surplus of economic knowledge producers) with high sunk costs, a demand arises for 'production standards' (in order to reduce the uncertainty of human capital development) and a range of implicit forms of standardisation through path dependence and lock-in effects (cf. also Yalcintas 2016).

[38] "The monistic maintenance of the disciplinary status quo through the exclusion of any alternative theories—and thus of practically *any genuinely effective opposition* (since contrary facts are not by themselves sufficient to falsify sophisticated, well-established, and potentially tried and tested theories)—*robs experience of its critical function*, which remains latent or in a weak state as long as it does not receive theoretical stimulation" (Spinner 1974: 76; emphasis in original).

multiplicity, but rather to a state of plurality, which involves incompatibilities and incommensurabilities. Where these properties are lacking, we would speak rather of 'variation' or 'differentiation,' and the resultant state would not be a plurality, but a 'variety' or a 'multitude.'

### *Forms of Scientific Pluralism*

In the literature (cf. e.g. Dow 1997; Mäki 1997; Mariyani-Squire/Moussa 2015) a number of forms pluralism are discussed, including:

- Ontological pluralism
- Methodological pluralism
- Epistemological pluralism
- Method pluralism
- Theoretical pluralism
- Paradigmatic pluralism

What is first of all necessary is to enquire into the essence of the object of economic enquiry—its **ontology**. If we can be absolutely certain that our social reality is singular (i.e. that there are no material or socially constructed parallel worlds) and that it can thus be regarded as a closed system and in principle fully analysable, then an ontological monism would be justified and ontological pluralism (as a description of a state of affairs, not as a scientific norm) would at best have to be seen as an indication of the immaturity of the discipline. If we do not have such certainty, then an ontological scepticism or relativism (where we are confronted with a number of parallel worlds) or an ontological pluralism (where we are confronted with open systems) is the necessary consequence.[39] Scepticism and relativism deny the existence of 'absolute truths'; pluralism, on the other hand, does not deny their existence, but rather the scientist's capacity to establish these beyond any doubt.[40] The ontological pluralist thus does not have to reject the claim that our social reality is a closed system at the epistemological level (an assumption that can simply serve to reduce complexity); but he cannot grant it the status of an axiom.

At this **epistemological level**, which is concerned with the axiomatic dimensions of a research programme (in Lakatos' terminology, or a 'paradigm' in that of Kuhn), a monistic position equally requires the analytic *a priori* certainty of a closed system in which the relations between the various elements can be unambiguously specified. If, however, it is not possible to unequivocally and impartially determine all of the relations between the elements of the social system, the resultant *a priori* synthesis of the object of investigation will call for an epistemological pluralism. An axiomatic explanation of social reality as a **system of symmetrical exchange relations**, for example, cannot then have an *a priori* privilege over other kinds of explanation, such as

[39] That relativism and scepticism are not to be equated with pluralism is shown for example by Terkivatan (2006: 29ff.).

[40] De Langhe (2010a) claims to have discovered a 'pluralism paradox.' In his view, this lies in the fact that, in the face of a number of equally well-justified, competing explanations of reality, the pluralist must either give up the claim to truth underlying the choice of one of these explanations—and thus the basis of science in general—or must give up the claim that all of these explanations are equally well-justified—and thus the foundation of pluralism. This, however, is only a problem for the relativist/sceptic, but not for the pluralist, who certainly makes a claim to truth, but due to the methodological limits of the discipline does not assert it against other paradigms in a discriminating manner.

those which place **hierarchical creditor-debtor relations or relations of subordination** in the foreground. Even an approach that takes **individual rationality** as the basis of relations within a social system in which mechanico-hydraulic dynamic regularities are postulated does not have any *a priori* privilege over a biologistic explanation (such as swarm/collective intelligence or rationality; cf. e.g. Bonabeau/Dorigo/Theraulaz 1999), which supposes the existence of **organic relations** between complex, self-regulating systems (cf. e.g. Hodgson 1997: 142ff.; Beinhocker 2013).[41]

While epistemological pluralism logically follows from ontological pluralism (cf. Dow 1997: 91), ontological monism in no way justifies epistemological monism. In other words: if one defines scientific pluralism in ontological terms, one can defend a form of monism (and thus reject pluralism) even if one grants an epistemological plurality. If one advocates pluralism beyond the epistemological level, however, one must *ipso facto* advocate ontological pluralism and potentially even a form of scepticism/relativism (and thus reject ontological monism).

Table 1: Forms of Scientific Pluralism

| Form of Pluralism | Characteristics | Expression | Monism presuppositions |
|---|---|---|---|
| **Ontological pl.** | Rejection of the 'one world, one truth' principle. | • Acceptance of parallel worlds<br>• Acceptance of reality as an 'open system' | • Existence of only one social reality.<br>• This social reality constitutes a 'closed system' |
| **Methodological pl.** | Rejection of a universal test of scientific validity | 'Anything goes' | Existence of only one social reality |
| **Epistemological pl.** | Rejection of a universal axiomatic | Various axiomatic systems are admitted in the form of an '*a priori* synthesis.' | Social reality fulfils the criteria for '*a priori* analysis' |
| **Method pl.** | Rejection of a universal method | In addition to formal deduction and advanced econometrics, other methods (including abduction, social experiments, narration) are also acknowledged | - (Not justifiable) |
| **Theoretical pl.** | Rejection of an all-encompassing theory | Various complementary theories in different fields of enquiry | Simplicity of social reality, whose simple regularities can be captured through an all-encompassing approach |
| **Paradigmatic pl.** | Rejection of a universal research programme ('paradigm') | Coexistence of various paradigms, which differ in terms of their axiomatics, methods, and heuristics | As a closed system, social reality must be fully analysable |

[41] It is of course constitutive of pluralism that this point can be inverted. When Coricelli/Dosi (1988: 126; my emphasis) claim, for example, that "the project of building dynamic models with economic content and descriptive power by relying solely on the basic principles of rationality and perfect competition through the market process *has generally failed*," then this statement must be rejected at least until a universally accepted proof of this falsification has been given. The fact that the approach described by Coricelli/Dosi is still followed by the majority of professional economists does not necessarily indicate the success of the falsification.

The methodological and epistemological levels are sometimes seen as corresponding to one another (e.g. Samuels 1997). Yet what is at issue at the **methodological level**, which is not to be confused with the method level (cf. Sent (2006: 179) or Dutt (2014: 482), who does precisely this), is the process of distinguishing between truth and error. On a naturalistic conception of economics, methods such as historicism and phenomenalism are incapable of establishing 'objective' knowledge. The alternative constituted by positivistic fallibilism acknowledges that the relevant ontological restrictions do not allow 'truths' to be affirmatively demonstrated, but do allow errors to be excluded. Nevertheless, as we saw above, the limitations of test procedures in non-experimental surroundings (the Duhem-Quine thesis) mean that the 'conjectural knowledge' arrived at in this way cannot necessarily be reduced to a single piece of conjectural knowledge. The dubiousness of such scientific knowledge, however, only justifies a departure from monism if the singularity of social reality is rejected at the ontological level. In such a case, when even the existence of 'objective truth' is challenged and thus no procedure for distinguishing between different claims is required, there is also no justification for the rational restriction of such a procedure. The methodological 'anything goes'[42] position that is defended on these grounds therefore differs from a methodological pluralism that cannot be theoretically justified.[43]

In contrast to the methodological level, the **method level** is concerned with the techniques that allow us to present intersubjectively verifiable results. As we have seen, positivistic fallibilism requires a combination of deductive and inductive methods. And since a wide range of techniques are to be found among the inductive methods of the quantitative and qualitative social sciences in particular, we can speak here of method pluralism as a norm in modern economics, and of method plurality as representing the current state of the discipline. The choice and combination of methods used in any given case has to depend on the relevant research question and must ensure argumentative rigour while also testing the fallibility of the 'conjectural knowledge' acquired. A method monism that made use of only one technique could not be theoretically justified. 'Method monism,' however, might be conceived more narrowly as the exclusive acceptance of a specific form of deduction, such as formal-mathematical reductionism, which is an essential feature of the neoclassical mainstream (cf. Dutt 2014: 482, Lawson 2013), and which prompted Frank Hahn (1992) to advise his colleagues "to avoid discussions of 'mathematical economics' like a plague." In this case, we would be dealing with a highly controversial[44] yet successful standardisation

[42] The expression 'radical pluralism' (in contrast to 'structured pluralism'; cf. Dow 2004) is sometimes used instead of 'anything goes.' Since we shall reserve the term 'methodological pluralism' to describe the acceptance of a number of competing discrimination processes, however, we shall not speak of 'pluralism,' but rather of 'anything goes' or 'nihilism' where it is a question of the rejection of such processes.

[43] If methodological pluralism is nonetheless advocated here (e.g. Dow 1997, Dow 2004, Dusek 2008 Samuels 1997), this is either due to a failure to clearly distinguish between methodological, ontological, and method pluralism, or to the characterisation of an 'anything goes' position in terms of 'radical pluralism'—a characterisation that I would reject for the reasons given above.

[44] What is controversial here is not formalisation in general, but rather the notion that it is a necessary condition of scientific validity. This notion is not only criticised by mathematics-averse economists, but also by economists with a very strong mathematical orientation, such

of the notion of science, one that equates argumentative rigour and neutrality with mathematisation and brands any other form of argument as inferior (cf. Lucke 2006, Schmidt/aus dem Moore 2010). The rejection of narrative techniques within deductive approaches, along with alternative methods such as abduction (cf. Mabsoud 2015), cannot be plausibly justified in this manner, and at best this rejection amounts to an unfortunate 'method-absolutism' (cf. Funke 2009: 82). To defend such an absolutism on the grounds that the use of non-formal procedures would constitute a "regression to an obsolete *status quo ante*" (Schmidt/aus dem Moore 2010: 174; own translation, my emphasis), is to fail to see that method pluralism precisely does not allow for the one-sided privileging of certain methods.

Epistemological pluralism also needs to be distinguished from **theoretical pluralism**. At the epistemological level, what is at issue is whether competing explanatory systems have to be accepted (pluralism) or rejected (monism). At the theory level, however, what is in question is whether our social reality can be explained by means of an all-encompassing model (monism) or whether a number of approaches (pluralism) are required in order to capture all of the facets of our object of investigation. Now it is a central feature of a mature science that it differentiates this object and develops a range of custom-fit theories, each of which is rooted in a pregiven epistemology, paradigm, or research programme. Examples include adding dynamic elements to basic static models or devoting independent theories (that are nonetheless compatible with basic epistemological models) to individual objects of investigation (e.g. cross-border trade relations in the field of 'international economics' or deeper considerations of the labour market beyond quantitative employment regulations in macro models within the field of 'labour economics,' etc.). Since such a multiplicity of theories would lack the opposition that, on our reading at least, is inherent to the concept of 'pluralism,'[45] we would do better to speak of 'theory multiplicity' or 'theory differentiation,' rather than 'theory pluralism' here. However that may be, it can hardly be seriously disputed that an object of enquiry as complicated as that of economic interaction calls for a variety of theoretical approaches—regardless of whether one subscribes to ontological, epistemological, or methodological monism, pluralism, or scepticism/relativism. On the other hand, ontological and epistemological pluralism necessarily requires a 'true' theoretical pluralism, rather than a mere multitude of theoretical approaches.

What remains to be discussed is only the **paradigmatic level**, which has been touched on above a number of times. Though the term 'paradigm' is derived from Kuhn's theory of scientific revolutions, the paradigmatic level can best be described in terms of the different dimensions of Lakatos' 'scientific research programmes' (cf. Lakatos 1974). Alongside the epistemological and method-related dimensions already discussed, there is also a heuristic dimension, which is a defining feature of the paradigmatic level (cf. Homann 1988: 88ff., Heise/Thieme 2015: 250). Here it is a question of postulates, 'model predictions' (Graf 1978), or 'ideal types' (cf. Kapeller 2012: 124ff.) that anyone who subscribes to a given paradigm would have to share ('positive heuristics') or at least not call into question ('negative heuristics'). The paradigmatic level thus brings together the epistemological level and the method level and, in addition, introduces a further level which makes it possible to introduce a distinction between a true

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as Robert Solow (2005).

[45] As Helmut Spinner (1974: 238) writes: "Theory pluralism is given if and only if there is a plurality of theories that stand in a mutually critical relation to one another."

'paradigmatic pluralism' and simple 'paradigm variation.'[46] Paradigm **variation** allows for alternative axiomatic explanatory systems at the epistemological level and/or alternative deductive or inductive approaches at the method level, all of which share the same heuristic, whereas paradigmatic **pluralism** involves the adoption of different heuristics, which must be based on an epistemological difference, but not necessarily on method pluralism. If, on the one hand, method monism cannot be theoretically justified, and, on the other, method pluralism does not constitute a necessary condition of paradigmatic pluralism, then the heuristic and epistemic dimensions are sufficient to allow us to make consistent statements concerning paradigm variation and paradigmatic pluralism (cf. Table 2).

Table 2: Paradigmatic monism, paradigm variation, and paradigmatic pluralism

| | | **Epistemological Level** | |
|---|---|---|---|
| | | **Pluralism** | **Monism** |
| **Heuristic Level** | **Monism** | Paradigm variation | Paradigmatic monism |
| | **Pluralism** | Paradigmatic pluralism | - |

While paradigmatic monism necessarily entails the extremely restrictive assumption of an epistemological and heuristic monism, the acceptance of competing explanatory systems at the epistemological level does not necessarily entail paradigmatic pluralism if a uniform (positive or at least negative) heuristic is adopted. Such a form of paradigm variation has to be distinguished from true paradigmatic pluralism, which only arises when axiomatic variation is accompanied by heuristic openness.[47]

The following tables show the internal connections between the various forms of monism and pluralism we have discussed. It is evident here that paradigmatic monism entails ontological monism, but also that it is compatible with method and theoretical pluralism. Epistemological pluralism is also conceivable within a paradigmatic monism, and this combination is characteristic of the positions that are sometimes described as

[46] This distinction is sometimes captured in terms of 'intraparadigmatic pluralism' versus 'interparadigmatic pluralism.' In light of the above qualification concerning the concept of pluralism, however, I shall speak of paradigm variation rather than intraparadigmatic pluralism.

[47] The majority of economists—even those who regard themselves as critics of the orthodoxy—do not seem to acknowledge this distinction. Rodrik's (2015) new book, in any case, which according to Margaret Levi (on the back cover of the book), "clarifies the considerable power of economics and its substantial limits," has nothing to say on the legitimate coexistence of incompatible or incommensurable paradigms, and applies the concept of pluralism only to theories, methods (here pluralism is defended) and methodologies (here pluralism is rejected).

the 'Colander edge' or as those of 'dissenters' within a paradigm,[48] and which we referred to above in terms of (mere) 'paradigm variation.'

Table 3: Forms of Scientific Monism

| | Paradigmatic Monism | Ontological Monism | Epistemolo-gical Monism | Methodolo-gical Monism | Method Monism | Theoretical Monism** |
|---|---|---|---|---|---|---|
| Paradigmatic Monism | | Yes | no | yes | no | no |
| Ontological Monism | yes | | no | yes | no | no |
| Epistemological Monism | yes | Yes | | Yes | no | no |
| Methodological Monism | no | No | no | | no | no |
| Method Monism* | - | - | - | - | | - |
| Theoretical Monism | yes | Yes | yes | Yes | no | |

Notes: * not theoretically justifiable; ** theoretical monism also includes theory variation/differentiation among object-specific but compatible theories (see above). The table is to be read across the rows: monism x corresponds to/presupposes/is compatible with monism y.

Table 4: Forms of Scientific Pluralism

| | Paradigmatic Pluralism | Ontological Pluralism | Epistemolo-gical Pluralism | Methodolo-gical Pluralism** | Method Pluralism | Theoretical Pluralism |
|---|---|---|---|---|---|---|
| Paradigmatic Pluralism | | yes | yes | no | yes | yes |
| Ontological Pluralism | Yes | | yes | no | yes | yes |
| Epistemological Pluralism | No | yes | | no | yes | yes |
| Methodological Pluralism* | - | - | - | | - | - |
| Method Pluralism | No | no | no | no | | no |
| Theoretical Pluralism | No | no | no | no | no | |

Notes: * not theoretically justifiable; ** methodological pluralism explicitly does not include a methodological 'anything goes' (see above). The table is to be read across the rows: pluralism x corresponds to/presupposes/is compatible with pluralism y.

[48] These terms were introduced into the literature by Dobusch/Kapeller (2012: 1036-7.); Colander/Holt/Rosser (2004) themselves speak of the 'cutting edge' or the 'edge of economics.' What is meant here is that scientific progress often takes place through the transformation of certain core assumptions at the epistemological level, while a given (negative) heuristic is maintained, so that novelty is produced through paradigm variation. Behavioural economics offers one example of such variation, since it limits the assumption of the rationality of actors without calling into question the market clearing heuristic. In the wake of the recent global financial crisis, such behavioural approaches are often used to model financial markets. This is regarded as the 'cutting edge' of economics (cf. eg. McDonald 2009), as is illustrated by the awarding of the Nobel Prize to the behavioural economist Robert Shiller for his work on financial markets—particularly in collaboration with the traditional economists Eugene Fama and Lars Hansen.

The theoretical assumptions of paradigmatic monism contained within ontological monism—i.e. the endorsement of the 'one world, one truth' hypothesis and the claim that social reality is a closed system—are nevertheless so rigid and unjustifiable that ontological pluralism becomes irrefutable as a theoretical norm. This gives rise to a domino effect, which runs from epistemological pluralism, through method and theoretical pluralism, and up to **paradigmatic pluralism as the only adequate model of economic enquiry**—any restriction of this pluralism would have to be rejected as a violation of scientificity and academic freedom. Nevertheless, a thoroughgoing notion of pluralism derived in this way does not by itself justify methodological pluralism or even an 'anything goes' position. These depend on the kind of repudiation of the 'one world, one truth' hypothesis advocated by the sceptic and the relativist. In other words: one does not have to be a rigid sceptic or relativist to accept thoroughgoing scientific pluralism as a model of economic enquiry. On the other hand, one must accept inadmissibly restrictive premises in order to reject such scientific pluralism as a model of enquiry.

## 4. On the (Dire) State of Contemporary Economics

The criticism of economics introduced at the beginning of this paper tends to lament the fact that the current state of the discipline is less plural than a thoroughgoing scientific pluralism would require. At the same time, however, the description of the discipline in these terms is also regarded as a cognitive misjudgement and the establishment of a monistic paradigm is celebrated as an indication of a mature (i.e. highly developed, high-performing) 'normal science.' How might we assess these apparently conflicting appraisals on the basis of the above analysis? Here it is necessary to introduce a conceptual opposition that paradigmatically underpins the notion of pluralism, namely that between heterodoxy and orthodoxy. Orthodoxy refers to the paradigm that uses the dominant heuristic in a discipline. Heterodoxy, by contrast, refers to all of the paradigms that reject this heuristic. The relative dominance[49] of a given heuristic is of course time and context dependent, and can therefore change over the course of time. In the sociology and history of science, many studies have now appeared on the formation of dominant paradigms.[50] For our purposes, however, what is particularly important is the relation between heterodoxy and orthodoxy: paradigmatic pluralism requires the mutual acceptance of and conflict between propositions and methods,[51] along with access to all of the forms of capital (economic, social, symbolic, and cultural) that allow

[49] 'Dominance' here means no more than that a relative majority of scientists feel obliged to use the orthodox epistemology, methods, and heuristics. The term 'orthodoxy' often seems to imply not just a quantitative majority, but also the disparagement of other approaches as heretical. Even if this may seem to be the case—particularly in the eyes of heterodox scientists—orthodoxy refers here only to the truth claim that is also shared by pluralists.

[50] Cf. e.g. Heise/Sander/Thiele (2016), Heise (2014), Hesse (2010), Fourcade (2009), Maeße (2013), Maeße/Pahl/Sparsam (2016).

[51] In this regard, Dobusch/Kapeller (2012: 1043ff.) distinguish between 'selfish,' 'disinterested,' and 'interested' pluralism, where 'selfish pluralism' sees this mutual acceptance only as a means of ensuring its own continued existence, 'disinterested pluralism' goes no further than mutual tolerance, and 'interested pluralism' strives toward the ecumenical ideal of a common pluralistic paradigm. How a 'pluralistic paradigm' can reconcile incompatible and incommensurable theories and heuristics seems to me wholly unclear; perhaps what the authors have in mind here is an 'eclectic paradigm,' which refers to the practice of drawing on various different paradigms depending on the object of investigation.

a position to be established in the scientific field. What is crucial here is that a 'true' paradigm pluralism be established, and not merely a form of paradigm variation that, in combining epistemological pluralism with heuristic monism (cf. Table 2), only serves to expand the orthodoxy and transform it into the 'mainstream.' A paradigmatic monism, by contrast, would be characterised by the elevation of the orthodoxy to the status of a 'normal science,' which at best might still tolerate other mainstream paradigms and thus allow for paradigm variation. Heterodox paradigms, however, would be dismissed as non-scientific or at least as not properly belonging to the discipline, and would therefore be excluded from access to resources.

It is rather uncontroversial to say that neoclassical economics[52] constitutes the dominant contemporary orthodoxy within the economic discipline.[53] Since its application in treating economic questions does not need to be explicitly justified, since the neoclassical model of resource allocation determines the uncontested canon in textbooks on economics,[54] and since the vast majority of research articles (if they have any theoretical basis at all) employ theories and models rooted in neoclassical economics, the latter can be considered to enjoy the monistic status of a 'normal science.' This is all the more true insofar as the heterodoxy is largely ignored by the orthodoxy (cf. Colander 2010: 45; Kapeller 2010b; Lee 2011: 575), is excluded from the largest economics journals (King 2002b: 133ff.), and is largely blocked from significant (academic) positions ('symbolic capital') and funding sources (cf. Heise/Sander/Thieme 2016, Lee 2004, Mata 2009, Maeße 2013). Finally, the fact that certain crucial 'dissenters' within the mainstream have pledged their allegiance to the dominant heuristic paradigm has served to cement the monistic position of the orthodoxy.[55]

In light of the above theoretical discussion, we would then have to speak of the dire current state of economics insofar as it is bound to a paradigm monism. Here it does not help to point to the theoretical and method **variety** (sometimes unreflectively presented as a method **pluralism**) within the economic discipline, since, as Table 3 shows, such forms of pluralism can easily be reconciled with an unjustifiable paradigmatic monism. This now allows us to gain a better understanding of the position advocated by the representative of the *Verein für Socialpolitik* that we noted at the outset. On the one hand, this position seeks to justify the repression of heterodox approaches on the

[52] Under the heading, 'neoclassical economics,' we include both dynamic stochastic general equilibrium modelling (DSGE) and Neo-Keynesianism; on this and the classification of other theories with respect to the orthodoxy-heterodoxy opposition cf. Heise/Thieme (2015a); Heise/Thieme (2015b) and Appendix A. Cf. also Lawson (2013); Arnsperger/Varoufakis (2006), Blaug (1980: 137ff.).

[53] Studies by Colander/Klamer (1987), Klamer (2007), Frey/Humbert/Schneider (2007) and Heise/Sander/Thieme (2016) not only indicate this contemporary dominance, but also show that it has increased in the last three decades, both in Germany and in the USA (the world's scientific hegemon).

[54] In sharp contrast to textbooks on sociology, in which various schools of thought or paradigms are quite naturally presented alongside one another without prejudicing a 'mainstream.'

[55] These include: in behavioural economics, Vernon Smith (2003: 505); in evolutionary economics, Carsten Hermann-Pillath (2002: 21); and in complexity economics, the leading figures at the Santa Fe institute, Kenneth Arrow (1988: 275ff.) and Blume/Durlauf (2001). The heuristic that characterises the contemporary mainstream is the market clearing logic manifested in Walras' law as a model solution, which as little excludes disequilibria as temporary phenomena as disequilibrium dynamics as its investigative focus and methodological basis.

grounds that they have lost the battle of ideas.[56] On the other, it celebrates a theoretical and method pluralism (Bachmann 2015a; 2015b, Erlei 2015). Since paradigmatic monism is compatible with a plurality of methods and theories, nothing logically prevents such a combination—particularly when 'plurality' in fact means variation or differentiation. If we also allow that method pluralism (i.e. the acknowledgement that inductive and deductive methods must always be combined within fallibilistic positivism) may be compatible with method absolutism (i.e. conceiving formal-mathematical deduction as the implicit standard of scientificity) then we can gain a clearer understanding of a frequently voiced intra-paradigmatic criticism. It is particularly the '*Ordnungsökonomen*' and the members of the 'Austrian school'[57]—whose members reject formal-deductive analysis as being based on a 'pretence of knowledge' (cf. Hayek 1975: 441)—who have called for greater acceptance of non-formal approaches or even for a method pluralism that would also allow narrative approaches to be considered scientifically defensible: "In my view, one can agree with the pluralists that there is currently very little acceptance of non-mathematical approaches and that there is probably a selective distortion which disadvantages non-formal theories. Mathematics undoubtedly allows certain thoughts to be formulated more clearly and unambiguously; yet there is no good reason why one should not be able to gain new and important insights in other ways too" (Erlei 2015; own translation). Though this criticism is certainly justified, and though the **means of discriminating** against such 'dissenters' (the 'selective distortion') may be very similar to those encountered by heterodox economists, it should be noted that the **basis** for the discrimination is quite different in each case: the ordoliberal dissenters constitute the 'collateral damage' produced by a standardisation process that emphasises professionalisation, but not by a lack of method or theoretical pluralism. The heterodox economists, on the other hand, see themselves as being excluded from a field governed by a paradigmatic monism, on account of their rejection of the 'mainstream heuristic.'

Finally, our analysis also sheds further light on the meaning of the 'Colander edge': David Colander (2000) is one of the most prominent advocates of the view that the 'normal science' of neoclassical economics has long since given way to a theoretical pluralism, and thus feels justified in speaking of the 'death of neoclassical economics.' On this view, the call for pluralism which suggests that monism represents the current state of the discipline (on account of the narrow-mindedness of its adherents) would then have to be rejected both in substance and on strategic grounds.[58] As Tables 3 and 4 show, however, theoretical pluralism and epistemological pluralism by no means entail paradigmatic pluralism. When Colander, in a later work co-written with Richard Holt and Barkley Rosser Jr., speaks of the 'changing face of mainstream economics,' it is

[56] It might be noted here that such arguments never feel the burden of having to verify such claims by means of logical or empirical falsification; in a circular manner, they rather take the quantitatively weak position of such heterodoxies within the scientific field as sufficient proof of their failure.

[57] *Ordnungsökonomik* and the 'Austrian school' differ from neoclassical economics in respect of their methods, but not in terms of their epistemology and heuristics (cf. Heise 2009b: 385ff. Heise/Thieme 2015a: 254). For this reason it would be inappropriate to classify them as 'heterodox' (as do e.g. Schubert 2015, Dobusch/Kapeller 2012: 1037); they are rather 'dissenters' within the mainstream.

[58] "Seeing the mainstream's rejection of their ideas as due to the mainstream's closed-mindedness may make heterodox economists feel better, but it is not a way to open up dialogue between mainstream and heterodoxy" (Colander 2010: 36).

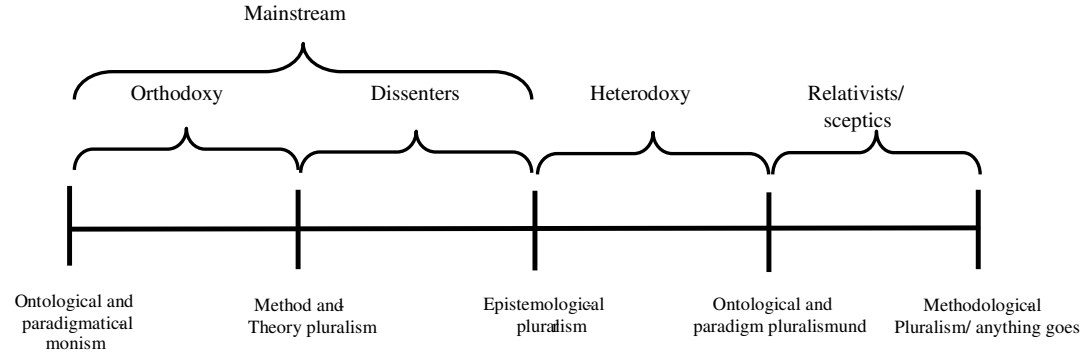
clear that what he has in mind is indeed an epistemological pluralism (cf. Table 2), which provides a basis for paradigm **variation** (i.e. theories at the 'Colander edge' which contain a number of axiomatic or method-specific innovations) within the mainstream,[59] but not necessarily for a paradigmatic **pluralism** that would spell the 'dissolution of the mainstream' or an 'opening up of the mainstream.'

## 5. Conclusion: The Necessity for a Pluralisation of Economics

The essence of the foregoing reflections is simple: the only appropriate model of enquiry in the economic discipline is a thoroughgoing scientific pluralism that culminates in an ontological and paradigmatic pluralism. This should not be misconceived as an ethically motivated norm of fairness or tolerance, but is rather a **scientific imperative**. Furthermore, a more extensive methodological pluralism or 'anything goes' position, which denies the ontology of the 'one world one truth' principle in the manner of the sceptic or the relativist, is not to be categorically excluded, but is also not a logical consequence of ontological and paradigm pluralism (cf. Figure 1).

If one regards the historical '*Methodenstreits*' essentially as a conflict over the unifying conception of a scientific discipline, one will also see in the call for methodological pluralism a historical rupture between economics and economic sociology, which has its own disciplinary and academic orientation (cf. Maurer 2011). It is therefore not inappropriate to consider the pluralisation of the economic discipline in terms of the relation between the orthodoxy, the mainstream, and the heterodoxy.

Figure 1: Pluralism and Paradigms




Here we can see (cf. Figure 1) that the economic discipline is characterised by an ontological and paradigmatic monism in which neoclassical economics constitutes the 'normal science.' Though the latter allows for method and theoretical pluralism, and comes to form a 'mainstream' (i.e. facilitates epistemological pluralism and paradigm variation) through the inclusion of 'dissenting' schools of thought or paradigms, including information economics, complexity economics, and behavioural and evolutionary economics, it nevertheless excludes heterodox paradigms such as Post-

[59] This would appear to be what Rodrik (2015: 63ff.) has also described as the 'horizontal progress' of economics—i.e. a form of paradigmatic expansion or variation that rejects the 'vertical progress' constituted by the replacement of one paradigm by another.

Keynesianism, Neo-Ricardianism, or Marxism[60] on the basis of heuristic differences. The interpretative pre-eminence of the mainstream is so great that even mainstream paradigms that do not adopt a formal-mathematical, deductive approach (such as the *Ordnungsökonomik* tradition and the 'Austrian school') are discriminated against. This not only results in the loss of economics' legitimacy, but also of its academic freedom and capacity for critical reflection—the very resources that determine the progressive character of a discipline.

A healthy form of economics would not then be marked by an adherence to a 'normal scientific' paradigmatic monism, but rather by a state of competition between a wide range of heuristics, all of which would potentially be subject to empirical falsification. Within the sphere of economics so conceived, it would be taken as given that advocates of the various different paradigms should mutually acknowledge, communicate with, and criticise one another, and, as a necessary precondition of such engagement, would allow one another access to those resources which make it possible to maintain a position within the scientific field.[61]

Pluralism entails neither relativism nor nihilism, nor the application of an eclectic approach or the elaboration of 'pluralistic paradigms'; it merely entails the absence of discrimination against ontologies, paradigms, and methods that are subject to scientific critique and an acceptance of the limitations of the economic discipline (and the social sciences in general): namely that there is no certain, universally accepted knowledge ('truth'), but rather only 'conjectural knowledge' that could be falsified at any time.

In light of the criticism of the discipline discussed at the outset, we can surely doubt that such a modest form of economics would lose social and scientific legitimacy (on this cf. Leuschner 2012). And yet a vague hope of legitimacy of course cannot provide a sure theoretical foundation for an academic discipline. Finally, on such a scenario, economics would no longer be able to elevate itself above other social-scientific disciplines in which a wide-ranging pluralism is taken for granted (cf. in regard to sociology e.g. Greshoff/Lindemann/Schimank 2007).

In a number of prior studies (cf. Heise 2014, Heise/Sander/Thieme 2016, Yalcintas 2016), doubts have been raised as to whether economics can achieve the necessary pluralisation from within its own scientific community.[62] Put in the language and logic

[60] For an explanation of this classification and a discussion of the potential ambiguities of these paradigms, cf. Heise/Thieme (2016).

[61] This characterisation of an acceptable—i.e. plural—form of scientific exchange by no means excludes the possibility that the scientist as an individual should be committed to only one paradigm and should regard this as being superior to all other paradigms. This seeming paradox can be resolved if we draw a distinction between 'pluralism at the individual level' and 'pluralism at the collective level' (cf. De Langhe 2010b).

[62] The reasons for this include: the overly unequal endowment of the mainstream and the heterodoxy with economic, social, cultural, and symbolic capital; the resultant strength of the mainstream within the scientific field; path dependence; and the prevalent formal and informal incentive structures. The mainstream is also able to bolster its position by placing itself at the head of, and seeking to guide, a reform movement under the motto 'rethinking economics.' At the international level, this role has been taken on by the 'Institute for New Economic Thinking' founded by the financial speculator George Soros (cf. Häring 2014). In Germany, the '*Stifterverband*' (an association supported by German industry) has used its 'rethinking economics' [*Ökonomie neu denken*] initiative not exactly to support the overcoming of

of the discipline itself, it would seem that the 'market for economic ideas' has experienced a **market failure**, which can only be rectified via external intervention. This is not the place, however, to elaborate the precise form that such a 'regulated pluralism' would have to take, nor the mode of its implementation—this task will need to be left to further studies.

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monism, but rather to anxiously question whether, within new forms of economic thinking, "the pendulum is swinging directly from an excessive belief in the market to an uncritical acceptance of state intervention? Is the acceptance and legitimacy of social market economics in danger?" (Stifterverband 2016).

**Reference List**


Abramovitz, M. et al. (1992); Plea for a Pluralist and Rigorous Economics; in: *American Economic Review*, Vol. 82, No.2, p. XXXV

Amann, J., Middleditch, P. (2015); Revisiting Reinhart & Rogoff after the Crisis: a Time Series Perspective, Centre for Growth and Business Cycle Research Discussion Paper No. 198, University of Manchester, Manchester

Arnsperger, C., Varoufakis, Y. (2006); What is neoclassical economics; in: Post-Autistic Economics Review, No. 38, article 1

Arrow, K.J. (1988); Workshop on the Economy as an Evolving Complex System: Summary; in: Anderson, P.W., Arrow, K.J., Pines, D. (eds.); *The Economy As An Evolving Complex System*, Redwood

Auroi, C. et al. (2011); 'Aufruf: Forschung **un**d Lehre in Wirtschaftswissenschaften, Finance und Management sollen erneuert werden mit dem Ziel, dem Allgemeinwohl besser zu dienen,' Geneva, Fribourg, Zurich (available at: http://www.responsiblefinance.ch/aufruf/, accessed on 22nd February 2016)

Bachmann, R. (2011); Zum Neueren Methodenstreit – Rückblick und Ausblick; in: Caspari, V., Schefold, B. (Hrsg.); Wohin steuert die ökonomische Wissenschaft?, Frankfurt, pp. 259 – 268

Bachmann, R. (2015a); Erkennen, was Quatsch ist; in: brand eins, 17.Jg., H.11, pp. 86 - 89

Bachmann, R. (2015b); Leserbrief zu ‚Aus dem Gleichgewicht' von Arne Heise; in: Forschung und Lehre, 22. Jg., H.8, p. 650

Backhaus, J., Hansen, R. (2000); Methodenstreit in der Nationalökonomie; in. Zeitschrift für allgemeine Wissenschaftstheorie, Vol. 31, No.2, pp. 307 – 336

Beed, C. (1991); Philosophy of science and contemporary economics: an overview; in: Journal of Post Keynesian Economics, Vol. 13, No.4, pp. 459 – 494

Beinhocker, E.D. (2013); Reflexivity, complexity, and the nature of social science; in: Journal of Economic Methodology, Vol. 20, No.4, pp. 330 - 342

Besley, T., Hennessey, P. (2009); Letter in response to a question of Queen Elisabeth, British Academy of Science, London

Blanchard, O., Illing, G. (2014); Makroökonomie, Halbergmoos 2014

Blanchflower, D. (2009); The future of monetary policy, open lecture at Cardiff University, March 24th 2009, available: http://194.61.178.65/publications/Documents/speeches/2009/speech382.pdf

Blaug, M. (1980); The Methodology in Economics, Cambridge

Blume, L., Durlauf, S. (2001); The Interaction-Based Approach to Socioeconomic Behavior; in: Durlauf, S., Young, P. (eds.); *Social Dynamics*, Cambridge (Mass.)

Böhme, G., van den Daele, W., Krohn, W. (1972); Alternativen in der Wissenschaft; in: Zeitschrift für Soziologie, Jg.1, H.4, pp. 302 - 316

Bofinger, P. (2015); Grundzüge der Volkswirtschaftslehre, Halbergmoss

Boland, L.A. (1997); Critical economic methodology. A Personal Odyssey, London

Bonabeau, E., Dorigo, M., Theraulaz, G. (1999); Swarm Intelligence. From Natural to Artificial System, Oxford

Bourdieu, P. (1992); *Homo Academicus*, Frankfurt

Burda, M. (2013); Antwort des Präsidents des Vereins für Socialpolitik auf den offenen Brief des 'Netzwerks Plurale Ökonomik' vom 11.09.2012, available at: https://www.socialpolitik.de/docs/Antwort_VfS.pdf (accessed on 1st March 2016)

Burda, M., Wyplosz, C. (2013); Macroeconomics: A European text, Oxford

Caballero, R.J. (2010); Macroeconomics after the Crisis: Time to Deal with the Pretense-of-Knowledge Syndrome; in: Journal of Economic Perspectives, Vol. 24, no.4, pp. 85 – 102
Caldwell, B.J. (1988); The case for pluralism; in: N. de Marchi (ed.); The Popperian Legacy in Economics, Cambridge, pp. 231 – 244
Cassidy, J. (2009); How Markets Fail. The Logic of Economic Calamities, New York
Cassidy, J. (2013); The Reinhart and Rogoff controversy: A summing up; in: The New Yorker of April 26th
Chesney, M. et al. (2011); Baseler Manifest für ökonomische Aufklärung, Zentrum für Religion, Wirtschaft und Politik, Basel
Coats, A.W. (1996); Introduction; in: Coats (ed.); The Post-1945 Internationalization of Economics, Annual Supplement to Volume 28 of History of Political Economy, Durham, pp. 3 – 11
Colander, D. (2000); The death of neoclassical economics; in: Journal of the History of Economic Thought, Vol. 22, No.2, pp. 129 - 143
Colander, D. (2010); Moving beyond the rhetoric of pluralism. Suggestions for an 'inside-the-mainstream' heterodoxy; in: Garnett/Olsen/Starr (2010), pp. 36 - 47
Colander, D., Holt, R.P., Barkley Rosser Jr., J. (2004); The Changing Face of Mainstream Economics, in: Review of Political Economy, Vol. 16, No. 4, pp. 485 - 499
Colander, D., Klamer, A. (1987); The Making of an Economist; in: Journal of Economic Perspectives, Vol. 1, No.2, pp. 95 - 111
Coricelli, F., Dosi, G. (1988); Coordination and Order in Economic Change and the Interpretive Power of Economic Theory; in: Dosi, G., Freeman, C., Nelson, R., Silverberg, G., Soete, L. (eds.); Technical Change and Economic Theory, London, pp. 124 - 147
Cramer, F. (1993); Chaos und Ordnung – Die komplexe Struktur des Lebendigen, Frankfurt/Leipzig
Davis, J. (2012); Samuels on Methodological Pluralism in Economics; Department of Economic Working Paper 2012-01, Marquette University, Milwaukee
De Langhe, R. (2010a); How monist is heterodoxy?; in: Cambridge Journal of Economics, Vol. 34, No.3, pp. 793 – 805
De Langhe, R. (2010b); Why should I adopt pluralism?; in: Garnett/Olsen/Starr (2010), pp. 87 - 98
Dequech, D. (2001); Bounded Rationality, Institutions, and Uncertainty; in: Journal of Economic Issues, Vol. 25, No. 4, pp. 911 - 929
Dobusch, L., Kapeller, J. (2012); Heterodox United vs. Mainstream City? Sketching a Framework for Interested Pluralism in Economics; in: Journal of Economic Issues, Vol. XLVI, No.4, pp. 1035 - 1057
Dow, S. C. (1997); Methodological Pluralism and pluralism of methods; in: Salanti/Screpanti (1997), pp. 89 – 99
Dow, S. C. (2004); Structured Pluralism; in: Journal of Economic Methodology, Vol. 11, No.3, pp. 275 – 290
Dow, S.C. (2012); Foundations for New Economic Thinking, Houndsmill
Dusek, T. (2008); Methodological Monism in Economics; in: The Journal of Philosophical Economics, Vol. 1, No. 2, pp. 26 - 50
Dutt, A.K. (2014); Dimensions of Pluralism in Economics, in: Review of Political Economy, Vol. 26, No.4, pp. 479 – 494
Erlei, M. (2015); Was ist richtig an der Kritik heterodoxer Ökonomen?; in: Wirtschaftliche Freiheit. Das ordnungspolitische Journal. 23rd September 2015

(available at: http://wirtschaftlichefreiheit.de/wordpress/ ?p=18020, accessed on 15th February 2016)
Fourcade, M. (2009); Economists and Societies. Discipline and Profession in the United States, Britain and France, 1890s to 1990s, Princeton: University Press
Fourcade, M., Ollion, E., Algan, Y. (2015); The Superiority of Economists; in: Journal of Economic Perspectives, Vol. 29, No.1, pp. 89 - 114
Frey, B.S., Humbert, S., Schneider, F. (2007); Was denken deutsche Ökonomen. Eine empirische Auswertung einer Internetbefragung unter den Mitgliedern des Vereins für Socialpolitik im Sommer 2006; in: Perspektiven der Wirtschaftspolitik, Vol. 8, No.4, pp. 359 - 377
Friedman, M. (1953); The Methodology of Positive Economics; in: Friedman; Essays in Positive Economics, Chicago, pp. 3 – 42
Fullbrook, E. (ed.) (2008); Pluralist Economics, London
Funk, L. (2009); Kontroverse volkswirtschaftliche Interpretationen zur Finanzmarktkrise – einige kritische Anmerkungen; in: Sozialer Fortschritt, H. 4, pp. 79 – 83
Garnett, R. F. jr. (2006); Paradigms and pluralism in heterodox economics; in: Review of Political Economy, Vol. 18, No.4, pp. 521 - 546
Garnett, R., Olsen, E.K., Starr, M. (eds.) (2010); Economic Pluralism, Abingdon
Garnett, R. f. jr. (2011); Pluralism, Academic Freedom, and Heterodox Economics; in: Review of Radical Political Economy, Vol. 43, No.4, pp. 562 - 572
Graf, H.-G. (1978); 'Muster-Vorhersagen' und 'Erklärungen des Prinzips' bei F.A. von Hayek, Tübingen
Graham, H.D., Diamond, N. (1997); The Rise of American Research Universities: Elites and Challengers in the Postwar Era, Baltimore
Greshoff, R., Lindemann, G., Schimank, U. (eds.) (2007); Theorienvergleich und Theorienintegration – Disziplingeschichtliche und methodische Überlegungen zur Entwicklung eines paradigmenvermittelnden ‚conceptual framework' für die Soziologie, Diskussionspapier der AG Soziologische Theore Nr. 1-2007, Carl-von-Ossietzky Universität Oldenburg
Häring, N. (2014); George Soros' INET: An Institute to Improve the World or a Trojan Horse of the Financial Oligarchy?; in: Real World Economic Review, No.67, pp. 90 - 96
Hahn, F. (1992); Reflections; in: Royal Economics Society Newsletter No. 77, April
Hands, D.W. (2001); Reflection Without Rules: Economic methodology and Contemporary Science Theory, Cambridge
Hayek, F.A. von (1975); The Pretence of Knowledge; in: Swedish Journal of Economics, Vol. 77, No.4, pp. 433 – 442
Heise, A. (2009a); Toxische Wissenschaft? Zur verantwortung der Ökonomen für die gegenwärtige Krise; in: Wirtschaftsdienst, 89. Jg., H. 12, pp. 842 - 848
Heise, A. (2009b); A post keynesian theory of economic policy – filling a void; in: Journal of Post Keynesian Economics, Vol. 31, No.3, pp. 383 – 401
Heise, A. (2014); The Future of Economics in a Lakatos-Bourdieu Framework; in: International Journal of Political Economy, Vol. 43, No.3, pp. 70 - 93
Heise, A., Sander, H., Thieme, S. (2016); Das Ende der Heterodoxie? Entwicklung der Wirtschaftswissenschaften in Deutschland, Wiesbaden (im Erscheinen)
Heise, A., Thieme, S. (2015a); Die Marginalisierung der heterodoxen Ökonomik. Ein sozialökonomischer Erklärungsversuch; in: Jahrbuch 'Ökonomie und Gesellschaft' 27: Sozialökonomie – ein Zukunftsprojekt, Marburg, pp. 241 – 282

Heise, A., Thieme, S. (2015b); Zur De-Pluralisierung der Wirtschaftswissenschaft nach 1970: Explorationen in einem wissenschaftlichen Macht- und Kampffeld; in: Schmollers Jahrbuch, Vol. 135, No.2, pp. 155 – 187

Heise, A., Thieme, S. (2016); The short rise and long fall of heterodox economics. Explorations in a scientific field of power and struggle; in: Journal of Economic Issues (forthcoming)

Hendon, T., Ash, M., Pollin, R. (2014); Does high public debt consistently stifle economic growth? A critique of Reinhart and Rogoff; in: Cambridge Journal of Economics, Vol. 38, No. 2, pp. 257 – 279

Herkommer, S. (2013); Ein umgedrehtes U. Soziologie an der Freien Universität Berlin; in: Kubiki, K., Lönnendonker, S. (eds.); Gesellschaftswissenschaften an der Freien Universität Berlin, Göttingen, pp. 265 -278

Hermann-Pillath, C. (2002); *Grundzüge der Evolutionsökonomik*, München

Hesse, J.-O. (2010); Wirtschaft als Wissenschaft. Die Volkswirtschaftslehre in der frühen Bundesrepublik, Frankfurt

Hodgson, G.M. (1997); Metaphor and pluralism in economics: mechanics and biology; in: Salanti/Screpanti (1997), pp. 131 - 154

Homann, K. (1988); Rationalität und Demokratie, Tübingen

ICAPE (undated); ICAPE's history; (available at: http://www.icape.org/History.html, accessed on 22nd February 2016)

ISIPE (2014); Internationaler studentischer Aufruf für eine plurale Ökonomik; (available at: http://www.isipe.net/home-de/, accessed on 22nd February 2016)

Kapeller, J. (2010); Some critical notes on citation metrics and heterodox economics; in: Review of Radical Political Economics, Vol. 42, No. 3, pp. 330-337

Keynes, J.N. (1891); The Scope and Method of Political Economy, London

King, J.E. (2002a); Three Arguments for pluralism in Economics; Journal of Australian Political Economy, Vol. 50, pp. 82 – 88

King, J. E. (2002b); A History of Post Keynesian Economics since 1936, Cheltenham

Kirman, A. (2010); The Economic Crisis is a Crisis for Economic Theory; in: CESIfo Economic Studies, Vol. 56, No. 4, pp. 498 – 535

Klamer, A. (2007); Does this Have to Be our Future?, in: Colander, D. (ed.); The Making of an Economist, Redux, Princeton, pp. 277 - 233

Kurz, H.D., Salvatori, N. (1997); On critics and protective belts; in: Salanti/Screpanti (2007), pp. 232 – 255)

Lakatos, I. (1974); Falsifikation und die Methodologie wissenschaftlicher Forschungsprogramme; in: Lakatos, I., Musgrave, A. (eds.); Kritik und Erkenntnisfortschritt. Braunschweig, pp. 89-190.

Langmuir, I. (1989); Pathological Science. Transcribed and edited by R. N. Hall; in: Physics Today, Vol.42, No.10, pp. 36 - 48

Lawson, T. (1994); Why Are So Many Economists So Opposed To Methodology?; in: Journal of Economic Methodology, Vol.1, No.1, pp. 105 – 133

Lawson, T. (2010); Ontology, modern economics, and pluralism; in: Garnett/Olsen/Starr (2010), pp. 99 - 113

Lawson, T. (2013); What is this 'school' called neocalssical economics?; in: Cambridge Journal of Economics, Vol. 37, No. 4, pp. 947 - 983

Lebaron, F. (2006); 'Nobel' Economists as Public Intellectuals: The Circulation of Symbolic Capital; in: International Journal of Contemporary Sociology, Vol.43, No.1, pp. 87–101

Lee, F. S. (2004); To Be a Heterodox Economist: The Contested Landscape of American Economics, 1960s and 1970s; in: Journal of Economic Issues, Vol. 38, No.3, pp. 747-763
Lee, F.S. (2009); ); A History of Heterodox Economics: Challenging the mainstream in the twentieth century, London
Lee, F. S. (2011); Heterodox Economics, Tolerance, and Pluralism: A Reply to Garnett and Mearman; in: Review of Radical Political Economy, Vol. 43, No.4, pp. 573 – 577
Leuschner, A.; Die Glaubwürdigkeit der wissenschaft. Eine wissenschafts- und erkenntnistheoretische Analyse am Beispiel der Klimaforschung, Bielefeld
Loasby, B. (2003); Closed Models and Open Systems; in: Journal of Economic Methodology, Vol. 10, No.3, pp. 285 – 306
Lütke, C. (2001); Ökonomische Wissenschaftstheorie, Würzburg
Lucke, B. (2006); Ablösung der Ordnungspolitik durch mathematische Methoden?; in: Wirtschaftsdienst, H. 1, pp. 7 – 10
Mabsoud, R. (2015); Abduction and economics: the contributions of Charles Pierce and Herbert Simon; in: Journal of Economic Methodology, Vol. 22, No.4, pp. 491 – 516
McDonald, I.M. (2009); The Global Financial Crisis and Behavioural Economics; in: Economic Papers, Vol. 28, No.3, pp. 249 - 254
Mäki, U. (1997); The one world and the many theories; in: Salanti/Screpanti (1997), pp. 37 - 47
Maeße, J. (2013); Eliteökonomen. Wissenschaft im Wandel der Gesellschaft, Wiesbaden
Maeße, J., Pahl, H., Sparsam, J. (2016); Innenwelt der Ökonomie, Wiesbaden
Mankiw, G.N. (2015); Principles of Economics, Stamford
Mankiw, G.N., Taylor, M.P. (2014); Macroeconomics, New York
Mankiw, G,N., Taylor, M.P., Ashwin, A. (2015); Volkwirtschaftslehre für Schule, Studium und Beruf, Stuttgart
Mariyani-Squire, E., Moussa, M. (2015); Fallibilism, Liberalism and Stilwell's Advocacy for Pluralism in Economics; in: Journal of Australian Political Economy, Vol. 75, pp. 194 – 210
Mata, Tiago (2009); Migrations and Boundary Work: Harvard, Radical Economists, and the Committee on Political Discrimination; in: Science in Context, Vol. 22, No. 1, pp. 115-143
Maurer, A. (2011); Prekäre Verhältnisse? Wirtschaftssoziologie und Sozialökonomie auf der suche nach der verlorenen Einheit; in: Caspari, V., Schefold, B. (eds.); Wohin steuert die ökonomische Wissenschaft? Ein Methodenstreit in der Volkswirtschaftslehre, Frankfurt, pp. 59 - 88
Merkel, A. (2014); Rede von Frau Bundeskanzlerin Merkel zum 5. Treffen der Nobelpreisträger; available at: http://www.bundesregierung.de/Content/DE/Rede/2014/08/2014-08-20-lindau.html
Moore, G. (2003); John Neville Keynes's Solution to the English Methodenstreit; in: Journal of the History of Economic Thought, Vol. 25, No.1, pp. 5 – 38
Morgan, J. (2015); Is Economics Responding to Critique? What do the UK 2015 QAA Subject Benchmarks Indicate?, in: Review of Political Economy, Vol. 27, No. 4, pp. 518-538,
Morgan, M. S., Rutherford, M. (1998); American Economics: The Character of the Transformation; in: Morgan and Rutherford (eds.); From Interwar Pluralism to Postwar Neoclassicism, Durham: Duke University Press, pp. 1 – 26

Pessaran, M.H., Smith, R.P. (2011); Beyond the DSGE Straitjacket; in: The Manchester School, Vol. 79, pp. 5 - 16
Peter, L. (2014); Marx an die Uni. Die ‚Marburger Schule' – Geschichte, Probleme, Akteure, Köln
Popper, R. (1957); The Poverty of Historicism, London
Porstmann, Reiner (2004); Wissenschaftstheoretische Grundfragen in den Wirtschaftswissenschaften; Teil II: Vergleich moderner Wissenschaftsprogramme, Norderstedt
Rodrik, D. (2015); Economics Rules. The Rights and Wrongs of the Dismal Science, New York
Roos, M.W. (2015); Die Komplexitätsökonomik und ihre Implikationen für die Wirtschaftspolitik; in: Perspektiven der Wirtschaftspolitik, Jg.16, No. 4, pp. 379 – 392
Salanti, A., Screpanti, E. (eds.) (1997); Pluralism in Economics. New Perspectives in History and Methodology, Cheltenham
Samuels, W. J. (1972); The History of Economic Thought as Intellectual History; in: History of Political Economy, Vol.6, pp. 305 – 323
Samuels, W. J. (1993); In (limited but affirmative) defence of nihilism; in: Review of Political Economy, Vol. 5, No.2, pp. 236 – 244
Samuels, W. J. (1997); The case for methodological pluralism; in: Salanti/Screpanti (1997), pp. 67 – 79
Samuelson, P. (2010); Economics, New York
Samuelson, P., Nordhaus, W.D. (2010); Volkswirtschaftslehre 2010
Scheall, S. (2015); Slaves of the defunct: the epistemic intractability of the Haye-Keynes debate; in: Journal of Economic Methodology, Vol. 22, No. 2, pp. 215 - 234
Schianchi, A. (1997); Comment; in: Salanti/Screpanti (1997), pp. 124 – 130
Schmidt, C.M., aus dem Moore, N. (2010); Die Methodendiskussion in den Wirtschaftswissenschaften vor dem Hintergrund der Finanzkrise; in: Jens, U., Romahn, H. (eds.); Methodenpluralismus in den Wirtschaftswissenschaften, Marburg, pp. 143 – 182
Schubert, C. (2015); ‚Pluralismus' in der VWL: Bewegt Euch; in: Wirtschaftliche Freiheit. Das ordnungspolitische Journal. 11th September 2015 (available at: http://wirtschaftlichefreiheit.de/wordpress/?p=17969, accessed on 15th February 2016)
Sent, E.-M. (2006); Pleas for Pluralism; in: Fullbrook, E. (ed.); Real World Economic. A Post-Autistic Reader, London, pp. 177 – 184
Smith, V. L. (2003); Constructivist and Ecological Rationality in Economics; in: Frängsmayr, F. (ed.); *The Nobel Prizes 2002*, Stockholm, pp. 502- 561
Solow, R.W. (2005); How Did Economics Get That Way & What Way Did It Get?; in: Daedalus, Fall, pp. 87 - 100
Spinner, H. (1974); Pluralismus als Erkenntnismodell, Frankfurt
Stifterverband (2016); Ökonomie neu denken. Die Wirtschaftswissenschaften zwischen Wirtschaft und Wissenschaft. 3. Konferenz; (available at: www.stifterverband.org/oend, accessed on 22nd February 2016)
Stiglitz, J.E., Walsh, C.E. (2013); Makroökonomie, München
Storbeck, O. (2009); Die Jahrhundertkrise, Stuttgart
Terkivatan, A. (2006); Pluralistischer Monismus, Berlin

Thielemann, U. et al. (2012); Für eine Erneuerung der Ökonomie. Memorandum besorgter Wissenschaftlerinnen und Wissenschaftler, Berlin (http://www.mem-wirtschaftsethik.de/memorandum-2012/, accessed on 22nd February 2016)

Tiedemann, P.; Über den Sinn des Lebens. Die perspektivische Lebensform, Darmstadt 1993

Tirole, J. (2015); *Brief an die französische Bildungsministerin Fioraso*. (http://assoeconomiepolitique.org/wp-content/uploads/Lettre-de-jean-Tirole.pdf , accessed on 22nd February 2016)

Woll, A. (2011); Volkswirtschaftslehre, München 2011

Yalcintas, A. (2013); The Problem of Epistemic Cost: Why Do Economists Not Change Their Minds (About the "Coase Theorem")?; in: American Journal of Economics and Sociology, Vol. 72, No.5, pp. 1131 – 1157

Yalcintas, A. (2016); Intellectual Path Dependence in Economics, Abingdon

Appendix A: Classification of Economic Paradigms

| Axiomatic | Methodology | Heuristic | Paradigm | Theoretical School |
|---|---|---|---|---|
| **- Rationality hypothesis<br>- Ergodicity hypothesis<br>- Substitutionality hypothesis** | Formal-mathematical, deductive, positivistic reductionism + highly developed empiricism/experimentalism | Acceptance of the stability of market clearing as a 'model solution' | DSGM | - New classical macroeconomics<br>- Neo-Keynesianism<br>- Standard Keynesianism |
| **Questioning a number of core hypotheses** | Formal-mathematical, deductive, positivistic reductionism + highly developed empiricism/experimentalism | Acceptance of the stability of market clearing as a 'model solution' | DSGM dissenters | - Behavioural economics<br>-Neuroeconomics<br>- Complexity economics (partially)<br>- Evolutionary economics (partially) |
| **- Rationality hypothesis<br>- Ergodicity hypothesis<br>- Substitutionality hypothesis** | Rejection of formal-mathematical, deductive, positivistic reductionism. | Acceptance of the stability of market clearing as a 'model solution' | DSGM dissenters | - *Ordnungsökonomie*<br>- The Austrian School |
| **- Rationality hypothesis<br>- Ergodicity hypothesis<br>- Substitutionality hypothesis<br>- Asymmetrical information distribution hypothesis** | Formal-mathematical, deductive reductionism + highly developed empiricism/experimentalism | Rejection of the stability of market clearing as a 'model solution' | Dissenters/Heterodoxy | - Information economics |
| **Questioning a number of core hypotheses** | Acceptance of formal-mathematical deduction + narrative analysis | Rejection of the stability of market clearing as a 'model solution' | Heterodoxy | - Post-Keynesianism<br>- Socioeconomics/socioeconomic institutionalism<br>- Regulation theory/Marxism<br>-Complexity economics (partially)<br>- Evolutionary economics (partially) |
| **- Rationality hypothesis<br>- Ergodicity hypothesis<br>- Substitutionality hypothesis** | Formal-mathematical, deductive reductionaism + highly developed empiricism/experimentalism | Rejection of the stability of market clearing as a 'model solution' | Heterodoxy | - Neo-Ricardianism |