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*Reclaiming the University:  
transforming economics as a discipline*

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# Reclaiming the University: transforming economics as a discipline

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**Abstract:** Economics as a discipline is currently in disarray. In the aftermath of the global financial crisis, academic experts, students, commentators, practitioners and politicians all questioned the status of academic economics and many called for a ‘new economic thinking’. Nearly a decade later, however, there is little evidence of a transformation in research and teaching. The present study first clarifies what is meant by a transformation of economics as a discipline, since this remains an ill-defined term and may be interpreted in very different ways. It then establishes the conditions of a successful transformation of the discipline in terms of intra-disciplinary and extra-disciplinary factors. The paper argues that economics as a discipline cannot be expected to trigger this transformation by itself (i.e. via self-regulation), since the ‘market for economic ideas’ is prone to market failure. In addition, the influence of external factors and actors on the market may serve to distort the congruence between the individual researcher’s utility and societal welfare. External incentives are therefore required to establish constitutional guardrails that ensure fair competition between ideas.

**Keywords:** pluralism, transformation, mainstream economics, heterodox economics, regulation

Economics as a discipline is in disarray. In the aftermath of the global economic crisis, academic experts, students, commentators, practitioners, and politicians all questioned the status of academic economics and many called for a ‘new economic thinking’ (see e.g. Dow 2012).

There are a range of scientific research programmes (SRPs) that might be considered potential candidates to replace the neoclassical Dynamic Stochastic General Equilibrium (DSGE) model as a mainstream paradigm and the basis of a new orthodoxy. These include post-Keynesianism, complexity economics, and

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evolutionary economics. Some commentators have nonetheless claimed that what is needed now is not just another mainstream model, but rather a more thoroughgoing transformation of economics into a pluralist social science in which no dominant mainstream can marginalise other paradigms simply because they employ a different ontology (see e.g. Fullbrook 2003: 8-9).

Nearly a decade after the onset of the financial crisis, however, there is little evidence of any transformation in economic research and teaching (see e.g. Yalcintas 2016, Stillwell 2016). Furthermore, economic policy based on mainstream economics is still prevalent (see e.g. Crouch 2011, Mirowski 2013). What is needed, then, is not simply another plea for pluralism in economics and a demonstration of its advantages (if not necessity, see e.g. Heise 2017a), but rather a consideration of the conditions of a transformation of the economic discipline and an explanation of the resilience of the current mainstream (see e.g. Stütze 2016) [1].

To this end, it is first of all crucial to clarify what it would mean to *transform* economics as a discipline, since this is an ill-defined term that has been interpreted in very different ways. From a practical perspective, ambiguity and misunderstanding as to what is meant by such a transformation may provoke unnecessary opposition to it. From an academic perspective, it may also give rise to very different methodological approaches and subsequently to highly divergent conceptions of the road ahead.

The first section of the paper will clarify the concept of transformation. The second will discuss the desirability of transformation, and on this basis will discriminate between different transformation paths and single out one preferred path. In section three, the conditions of a successful transformation will be elaborated with reference to both intra-disciplinary and extra-disciplinary factors. Finally, section four will draw a number of conclusions concerning the potential steps that may be taken toward transforming the discipline, as well as considering further interdisciplinary research efforts that may promote pluralism within and beyond the epistemic community of academic researchers.

## Transforming economics

In order to shed some light on the potential ways in which economics as a discipline might be transformed, [2] we first need to begin with its ambitions as a science. If science is a means of generating knowledge that can not only claim to objectively

establish 'truth' but also to do so in an intersubjectively verifiable way, then economics is in trouble. From a constructivist perspective, no such objective truth exists, what is considered truth is in fact socially constructed and the 'one world one truth' hypothesis is simply rejected. From a positivist perspective, by contrast, objective knowledge does exist, yet on account of the nature of the object of enquiry (the economic system as an 'open system') and the methodological restrictions of the discipline (as a non-experimental science, it is subject to the Duhem-Quine-thesis), there is no ultimate method of discriminating between different paradigmatic approaches (Heise 2017a: 22ff.). The best we can hope for is therefore conjectural knowledge, which can be regarded as the 'truth' as long as it has not been clearly falsified by empirical evidence or deductive shortcomings. A plurality of alternative, competing, and potentially incommensurable paradigms is thus not only possible, but also desirable in a discipline that sees competition as facilitating new insights (Hayek 1968). It also follows that the relativism of the constructivists – which calls the discipline's scientific status into question simply through its rejection of objective truth – is not a necessary position, though not an entirely refutable one either. On the other hand, the monist 'one-world, one-truth paradigm' is only tenable under the restrictive and rather implausible assumption that the economic system is a 'closed' and exhaustively analysable system.

### *Radical pluralism*

One potential approach would seek to transform economics from a discipline dominated by a monist, 'one world one truth' paradigm into an endeavour predicated on a relativist and radical pluralist 'no objective truth' paradigm (see e.g. Samuels 1997). Since this approach not only denies the 'one world one truth' hypothesis but also rejects fallibilist positivism in favour of an 'anything *necessarily* goes' methodology (Samuels 1997: 68, emphasis in the original), it leaves itself open to being labelled 'obscurantist'. Moreover, it should be emphasised that such a transformation would not be supported by those who defend the discipline's scientific status.

### *Paradigm pluralism*

Another form of transformation would involve rejecting the monist approach as too restrictive and untenable, and instead advocating paradigm pluralism as a scientific imperative (see e.g. Heise 2017a). This form of transformation would not question

the methodological necessity of fallibilist positivism nor the 'one world one truth' hypothesis. It would nonetheless contend that the aim of enquiry is not to establish 'objective truth,' but rather to provide 'conjectural knowledge' that may well be plural. In order to distinguish this form of transformation from that outlined under the heading of 'radical pluralism,' it would be necessary to agree on a set of standards determining which paradigms should be allowed to compete within this pluralist framework and which would have to be rejected as 'obscure,' so as not to jeopardise the discipline's scientific status.

### *Scientific revolution*

A third kind of transformation could be described as a 'scientific revolution'. It would involve replacing the now-dominant neoclassical DSGE paradigm with any other paradigm, while continuing to regard positivist fallibilism as an adequate methodology and leaving the monist 'one world one truth' claim intact (see e.g. Davidson 2004). This transformation would regard the recent global financial crisis as the empirical anomaly that generated a crisis in neoclassical economics, and would aim to establish another paradigm, such as post-Keynesianism, Marxism or complexity economics as the new orthodoxy. Such a transformation would be in line with Kuhn's contentions concerning scientific progress, yet rather than helping to establish a pluralistic discipline, it would only serve to replace one dominant paradigm with another. As Max Planck (1928: 22) noted, such transformations are not supported by the successful proponents of the old mainstream, but rather by a younger generation of scientists aware of the shortcomings of the old paradigm and the potential of the new.

### *Methodological pluralism*

The fourth potential form of transformation would have a far more limited scope. In the course of the professionalisation of economics during the first half of the 20<sup>th</sup> century, not only did fallibilist positivism come to be accepted as the methodology appropriate to the discipline's claim to be a 'quasi-natural science', formal deductivism also came to be established as the only acceptable method of theorising (see e.g. Debreu 1991, Mirowski 1991). Mathematics thus came to be regarded as the only acceptable language of economic theory, to such an extent that formal deductivism has been described as the most comprehensive characteristic of mainstream neoclassical economics (see Lawson 2013) – to the detriment of

all approaches that reject such mathematical formalism. The fourth form of transformation would therefore aim to establish a methodological pluralism, so that non-formal and potentially narrative-based approaches (such as the economics of order (*Ordnungsökonomik*) or Hayekian and Austrian economics, which reject formal inquiry as a 'pretence of knowledge' would also receive acceptance (see e.g. Rosen 1997: 147ff., Erlei 2015).

### *Critical political economy*

Finally, a fifth form of transformation might aim to subvert the discipline's scientific pretension to establish objective knowledge in the name of a desire to normatively intervene in the process of societal development and reform (see e.g. Stilwell 2016, Jakobson 2017), thus replacing 'objectivity' with 'advocacy'. Such a transformation would to a certain extent take us back in time to the economic debates of the end of the 19<sup>th</sup> century. At this time, proponents of the German historical school and of ('old') American institutionalism made the case within their respective scientific societies (the American Social Science Association and the Verein für Socialpolitik) for the necessity of a methodological foundation oriented toward 'political economy', which would replace 'objective knowledge' based on deductive theorising with 'historical understanding' derived from historico-empirical investigations (see e.g. Furner 2011, Fourcade 2009: 78ff.). These historical *Methodenstreits* led to a separation between economics, which stressed its scientific 'objectivity', and economic sociology, which lowered its scientific ambitions and focussed on acquiring an understanding of historically and institutionally specific situations and phenomena, as well as on social reform (see e.g. Stilwell 2016: 45). The fifth form of transformation would therefore aim to secure the (interdisciplinary) reintegration of economic sociology into economics, or at least the blurring of the methodological division between the disciplines.

### *Internal and external agents of change*

The different forms of transformation clearly differ greatly in terms of their scope. Two of these transformation types – scientific revolution and methodological pluralism – can be described as 'internal', since the relevant agents of change and their motivations are firmly rooted within economics as a discipline. In the case of a scientific revolution in the Kuhnian sense, the agents of change would be the younger generation of scientists who would decide to pursue a new paradigm.

The older generation, by contrast, would continue to defend the old hegemonic paradigm simply because a paradigm shift would devalue their human capital and scientific merits. Such a transformation would not be based on a collective, organised movement but on the activities of individuals. Methodological pluralism, on the other hand, would be supported by those who value methodological freedom more than the constraints imposed by the demand for professionalisation and standardisation. It would be opposed by those who see it as endangering the scientific legitimacy of the discipline. The chances of these transformations succeeding would depend on the power exerted by the older, mainstream generation in their function as gate-keepers (of journals, universities, and so on) and on the availability of formal or informal incentives such as journal publishing opportunities and third-party funding allocations. In an academic discipline as hierarchically structured as economics (see e.g. Fourcade, Ollion, Algan 2015), internal resistance can be expected to be strong, and a collective (internal) struggle would potentially be required to effect transformation.

**Table 1** Different Forms of Transformation

|  | Key emphasis             | Sphere Concerned                              | Scope  | Institutional incentives/ obstructions | Actors involved                   |
|--|--------------------------|---|--|--|-----------------------------------|
| <b>1. Transformation from neoclassical to post-Keynesian, Marxist, or other paradigm dominance</b> | Scientific revolution    | Internal (to the academic economic community) | Accepting positivistic fallibilism, rejecting constructivism/ relativism | Path dependencies                      | (young) economists                |
| <b>2. Transformation from formal deduction to narrative-based abduction</b>                        | Methodological pluralism | Internal                                      | Accepting positivistic fallibilism, rejecting constructivism/ relativism | Standardisation/ professionalisation   | epistemic community of economists |



|   | <b>Key emphasis</b>        | <b>Sphere Concerned</b>  | <b>Scope</b>   | <b>Institutional incentives/ obstructions</b>                     | <b>Actors involved</b>  |
|---|----------------------------|--|--|---|---|
| <b>3.<br/>Transformation from monism to pluralism</b>           | Paradigm pluralism         | Internal and external (society as a whole, pluralist interest groups)        | Accepting positivistic fallibilism, rejecting constructivism/ relativism | Standardisation, ontological ignorance and resistance             | economists, students, institutions (e.g. trade unions, political actors (seeking to aid academic freedom) |
| <b>4.<br/>Transformation from objective enquiry to advocacy</b> | Critical political economy | Internal and external (science always embedded in broader social structures) | Rejecting positivistic fallibilism, accepting constructivism/ relativism | Methodological resistance (charges of 'relativism/ obscurantism') | Social scientists   |
| <b>5.<br/>Transformation from monism to radical pluralism</b>   | Radical pluralism          | Internal and external  | Rejecting positivistic fallibilism, accepting constructivism/ relativism | Methodological resistance   | Social scientists   |

Source: Author's work

The other three forms of transformation – paradigm pluralism, critical political economy and radical pluralism – involve both internal and external motives. Internally, paradigm pluralism can be seen as imperative [3] to the advancement of the discipline. Critical political economy and radical pluralism, on the other hand, lack a sound – i.e. scientific – basis for their implementation. The particular ontological premises of radical pluralism and the interdisciplinary claims of critical political economy, which serve to blur methodological boundaries, need not and likely will not be shared by the academic economic community. Radical pluralism and critical political economy are fundamentally interdisciplinary in nature, and

many of the relevant agents of change are situated within academic disciplines outside economics, such as sociology, political science, and philosophy. Likewise, a shift toward paradigm pluralism would have to contend with an ontologically standardised discipline and would also need to rely on external support. This might come from consumers of economic insights and education such as students, trade unions, and other social groups who are dissatisfied with mainstream equilibrium analysis and market apologetics and hungry for other approaches. In addition, the state in its regulative capacity has a responsibility to ensure that the discipline is appropriately organised and governed so that it can remain pluralistic and allow academic freedom to prevail.

## **Which form of transformation should we pursue?**

In light of the range of possible forms of transformation, it is necessary to choose a preferred path that is not simply arbitrary, but rather consistent and comprehensible. Which option we should pursue of course depends on our priorities: The likelihood of success? The path of least resistance? The path with the broadest support? Since transformation is not in itself an objective but only a means of leaving behind an undesirable state of affairs for a more desirable one, the desirability of the outcome could be used as a criterion here. But isn't desirability a purely subjective criterion that cannot serve as a basis for a consistent and comprehensible decision? This would certainly be the case if our tastes and inclinations were to frame our desire. What we are concerned with here, however, is the desired state of an academic discipline with its own unique history, development, and nature. Desirability in this instance does not therefore depend on the subjective preferences of individuals or groups but rather refers to developments that are either inevitable from a functional perspective or collectively acceptable insofar as the decision maker's own academic position is unknown (i.e. hidden behind a 'veil of ignorance' [4]).

### *Do we need a paradigm shift?*

Against this backdrop, let us first turn to the purely internal forms of transformation, which was labelled 'scientific revolution' and 'methodological pluralism'. According to Thomas S. Kuhn, a scientific revolution has two necessary preconditions: firstly, the dominance of the mainstream paradigm needs to be undermined either by empirical evidence that is difficult to reconcile with the

existing body of mainstream theory or by a flaw in its deductive reasoning that calls into question the accuracy of its conclusions. Secondly, since science does not allow for a theoretical vacuum, there needs to be a competing paradigm that not only explains all the evidence adequately explained by the dominant paradigm to date, but also sheds light on the empirical or theoretical trigger of the crisis in this dominant paradigm [5]. These preconditions, however, are necessary but not by themselves sufficient. Whether a *momentum crucis* should spark a scientific revolution depends on the capacity of the dominant paradigm to resolve those problems with which it is faced and/or on its ability to call into question its potential competitors.

In a non-experimental science such as economics, paradigms cannot be falsified by empirical anomalies. Such anomalies may necessitate repair work within the 'protective belt' of the paradigm's auxiliary assumptions but are not able to oblige its followers to abandon it without further ado. They may nonetheless cast doubt on the 'progressiveness' of the dominant paradigm and tempt younger researchers in particular to try out other more promising approaches [6]. Such an evolution, which may ultimately lead to a paradigm shift, may still be obstructed if the gate-keepers of the scientific system remain attached to the old paradigm and are in a position to deter most (younger) researchers from engaging with alternatives. The recent global financial crisis has of course been described as a *momentum crucis* by many economists (e.g. Stiglitz 2017) and a number of theoretical approaches – such as information economics, complexity economics, and post-Keynesian economics – have been singled out as potential contenders for a new economic mainstream.

There are nonetheless three important countervailing forces that such a shift would have to contend with. Firstly, proponents of the DSGE mainstream have been quick to re-integrate the global financial crisis into their explanatory cosmos – either by simply denying that DSGE modelling cannot explain it (see e.g. Cochrane 2011a, Cochrane 2011b, Minford 2010) or by arguing that some additional elements may suffice to reconcile DSGE modelling with major economic disruptions (see e.g. Benes, Kumhof, Laxton 2014, Del Negro, Giannoni, Schorfheide 2014, and many of the contributions to the Spring-Summer 2018 issue of the Oxford Review of Economic Policy). Secondly, many competing paradigms such as complexity economics or information economics cannot be regarded as genuine paradigmatic alternatives to the DSGE, but must rather be understood as epistemological variations on the mainstream paradigm, even if they were formerly regarded as 'dissenters' (see e.g. Heise 2016, Heise 2017a) [7]. Thirdly, key gate-keepers

in the academic economic field, such as influential scientists with significant symbolic capital (e.g. Nobel Prize winners) and influential economic institutions with considerable economic and social capital (e.g. elite US universities and high-ranking economic journals) have shown little inclination to overhaul their approaches and their policies. Furthermore, outspoken critique of these influential individuals and institutions is often regarded simply as a means of gaining attention for dissenting approaches (see e.g. Heise 2014).

In sum, it would seem safe to say that a paradigm revolution in economics is neither likely [8], nor at present desirable. It is far more likely that the mainstream will become even more fragmented and varied than it already was on Colander/Holt/Rosser's 2004 description, as a result of the decisions of individual scientists.

### *More methodological pluralism?*

Although economics has seen immense growth in methods on the back of the 'empirical and experimental turn' that has marked the last three decades (see Hamermesh 2013, Kim et al 2006), this has only strengthened the fallibilistic dimension of its positivistic methodology. Formal deductivism remains the backbone of economic research, such that non-formal theoretical papers are unlikely to be published in core mainstream journals and non-formal schools of thought such as the economics of order and constitutional economics (*Ordnungsökonomik*) and Hayekian or Austrian economics (which intentionally reject the mathematization of economics as a 'pretence of knowledge') are unlikely to be accepted as part of 'modern economics' [9]. Insofar as economics has come to be regarded as an axiomatic, deductive science, it is no surprise that mathematics has become a key tool in economic enquiry: the rigor of its formal logic and its economy of exposition makes it attractive to researchers endeavouring to produce objective, interpersonally verifiable results that are 'right' in a formal sense [10].

Nevertheless, in light of the long and inconclusive debate on the use and applicability of mathematics in economics (see e.g. Beed/Kane 1991), Dany Rodrik (2015: 31ff.) would seem a little naïve in claiming that:

The reason economists use mathematics is typically misunderstood. It has little to do with sophistication, complexity, or claims to higher truth. Math essentially plays two roles in economics, neither of which is cause for glory: clarity and consistency. [...] So math plays a purely instrumental role in economic models. In principle, models do not require math, and it is not the math that makes the model useful or scientific.

Rodrik may be right that mathematics plays a purely instrumental role in economics, yet its role is certainly not limited to making theory clearer and more consistent. In the context of the post-war professionalisation of the discipline, it surely also served to underscore the accuracy and objectivity of a science that has a host of significant political and social implications. Furthermore, the use of a language that is inaccessible to the layman or even to other social scientists served to make the discipline less accessible to non-experts (see Beed/Kane 1991: 603) [11].

Since mathematization has been pursued particularly by proponents of (DS) GE modelling as a means of formalising allocation-oriented market solutions and optimisation problems, the quest for formalisation can also be interpreted as an attempt to maintain control over the epistemological and ontological core of economics as a discipline [12]. Whether this amounts to a hidden agenda or is simply an unintended consequence of mathematization, this ought to be the starting point for a consideration of the desirability of (greater) methodological pluralism. It is worth bearing in mind that while it is impossible to make any scientifically tenable claim by wholly excluding non-formal, narrative methods of enquiry, there may be certain cases in which particular ontological premises make the application of formal reasoning questionable. Mathematics and the social sciences are not natural bedfellows (see Mirowski 1991: 53f.). Indeed, Habermas (1968: 143ff.) argues that only an ontological openness [13] that leaves space for abduction allows for rational scientific enquiry, while mathematical deduction is simply a form of applied logic that does not by itself provide any scientific knowledge. Ontological openness is therefore a necessary precondition for any economic discipline that claims to be a science rather than an art or a purely logical activity, and it is formal reasoning rather than narrative approaches that requires justification.

Any marginalisation of economic paradigms or schools of thought purely on the grounds that they use non-formal methods is entirely unjustifiable. On the other hand, the ontology of social and economic exchange presupposed by mainstream market economics lends itself to formalisation. As long as formalisation is not used to privilege a certain ontology, it should be tolerated and may indeed only serve an instrumental purpose. Both the historical proximity between Americanisation and mathematization [14] and the fact that the ontological dimensions of economic paradigms have been almost completely neglected or lost in economic theorising since its postwar Americanisation seems to suggest a certain bias toward the use of formal methods in economics. By contrast, the number of Nobel prizes awarded to proponents of non-formal economics – including Elinor Ostrom, Robert Vogel,

Douglass North, Amartya Sen, Daniel Kahneman, and James Buchanan – and the number of non-formal faculties even in the US (see e.g. Klamer 1995) seem to speak against the idea of a lack of methodological pluralism. A desire for a shift in emphasis towards non-formal, narrative methods in economics is then surely a reflection of personal inclinations rather than an objective necessity.

### *Anything goes or critical political economy?*

If a transformation will not and need not come about purely by means of internal forces, perhaps it might be stimulated by other sources within philosophy and the social sciences. Constructivism argues that any reality, whether social or natural, is constructed and that the truth claims of science in general and the social sciences (including economics) in particular have to be rejected. From this perspective, no rigid methodological rule can be formulated or imposed on economics, and a radical form of pluralism is advocated instead. Furthermore, since scientific research cannot produce 'objective knowledge', economics is called upon to take a critical perspective on human circumstances and to attempt to intervene to improve living standards for all. Further justification for such a transformation of economics into a critical form of political economy and for an alliance with the other social sciences is often sought within a tradition stretching back to Adam Smith, David Ricardo and Karl Marx (see Stilwell 2016).

Unlike in the 1960s and 1970s, however, when the renaissance of classical political economy helped drive a temporary pluralisation of the discipline, the renewed interest in political economy today is not based on a desire to break a theoretical deadlock (as was the case with Sraffa's solution to the problem of finding a value-standard that would be independent of functional income distribution). The desire to transform economics into an interdisciplinary form of political economy rests entirely on individual preferences and cannot claim to be either functionally necessary or broadly acceptable on the assumption of a 'veil of ignorance'. Moreover, an anything-goes pluralism rests on fringe ontological assumptions that cannot possibly be accepted as necessary (Heise 2017a: 31) [15].

## **Paradigm pluralism and the desirability of transformation**

If the extremes of paradigm monism [16] and radical pluralism are both rejected on the basis of their unrealistic assumptions, paradigm pluralism remains the only

logical alternative. It would then be scientifically imperative for the flourishing of the discipline and the creation of an environment of academic freedom. Paradigm pluralism does not entail any eclectic paradigm usage nor the construction of a pluralist paradigm (whatever that may be), nor does it preclude the individual researcher's insistence on the superiority of the paradigm he or she has chosen to use [17]. It only requires us to accept that, due to the nature of economics' object of enquiry and its methodological restrictions, it may not be possible to determine that any one paradigm is superior to others and a plurality of paradigms must therefore not only be tolerated but also regarded as healthy for the discipline. In other words, paradigm pluralism must become part of the cultural capital of economics (as it is in the other social sciences).

In order to distinguish 'paradigm pluralism' from 'radical pluralism' and, moreover, to acknowledge the fact that science is conducted in epistemic communities with shared common beliefs about what makes the discipline scientific (see e.g. Kitcher 1993) – i.e. about the demarcation line between science and non-science and disciplinary boundaries – we need first to establish some commonalities (see e.g. Dow 2007). These help to prevent endless discussions within the epistemic community concerning the scientific content of research statements, though they also harbour the risk of suppressing valid criticisms and valuable new insights. In light of this trade-off, and the fact that the 'marketplace for economic ideas' is not a perfect market but rather an embattled field in which various actors endowed with vastly different quantities of economic, social and cultural capital compete very imperfectly (see e.g. Merton 1968, Knorr-Cetina 1982, Heise, Thieme 2016), these commonalities cannot be determined by (powerful) individual actors in this very field but must be arrived at using a heuristic device such as Rawls' 'veil of ignorance'. In order to be acceptable, such commonalities require the assent of all scientists, independently of their position in the field. Assuming that a researcher were in a weak position in the field, he or she would not accept any standard that would undermine his or her ability to gain the most significant reward within it: recognition and reputation. He or she would then oppose the imposition of restrictions on the ontological, epistemological, and methodological realms for fear of marginalisation. In truth, methodical and epistemological pluralisation is important in ensuring 'product differentiation' in the market for economic ideas, while ontological pluralisation lies at the very root of the knowledge creation process [18]. Nevertheless, the quest for methodological monism cannot be rejected if the scientific status of the economic discipline [19] and the demarcation line separating it from the other social sciences are to be left intact [20].



Following a series of *Methodenstreits* during the formative phase of the discipline around the turn of the 19<sup>th</sup> century, [21] the epistemic community of academic economists has ultimately clung to a methodological monism of the fallibilist positivist type as its common theoretical basis and disciplinary demarcation line (see Blaug 1980: 47ff). Accepting this paradigm was a necessary step in the consolidation and professionalisation of the discipline on the basis of a shared understanding of its scientific core. It nevertheless need not be allied with an ontological restriction to the principle (or pre-analytic vision) of social exchange as the basic constituent of economic interactions, as has been the case from the origins of economic theorising in ancient times [22].

## What are the conditions of transformation?

Now that 'paradigm pluralism' was established as the most desirable state for economics as a social science, it is also important to note that there will only be seen to be a pressing need for such a transformation if there is a general consensus that the discipline is in a 'dire state'. Although studies have been conducted in various countries documenting the growing lack of paradigm pluralism, i.e. the marginalisation of heterodox approaches after the temporary, small-scale, and regionally very limited pluralisation of the 1960s and 1970s, [23] there have also been a number of statements and claims to the contrary. Colander, Holt, Rosser (2004, 2009), for example, have argued for some time that mainstream economics has been turning into what they call 'mainstream pluralism'. Others have claimed that there is no lack of pluralism (see e.g. Bachmann 2015) or that where there is such a lack, it is due to the failure of heterodox paradigms to establish themselves as genuine alternatives to mainstream economics (MacKenzie 2017) [24]. On closer inspection, however, all such claims that deny the discipline is in a 'dire state' are either based on a mistaken interpretation of pluralism (i.e. confuse theoretical, methodical, or epistemological plurality with paradigm pluralism) or fail to distinguish between variation and pluralism [25,26].

In light of the fact that economics was far closer to its ideal state in earlier phases of its development (before interwar pluralism transformed into post-war neoclassicism, see Morgan/Rutherford 1998), we need to examine the forces that drive the evolution of economic ideas at a paradigmatic rather than a theoretical level. As several studies have shown (see e.g. Goodwin 1998, Heise 2016, Kellecioglu 2017), these forces are as external as they are internal. Internally, we can only



grasp the paradigmatic development of economics as a discipline once we appreciate the peculiarities of the 'market for economic ideas'. The output that is 'economic knowledge' is an international public good, which also has the character of a credence good. The market for such goods is not governed by price, its token is rather a form of 'recognition' or 'reputation' that is not awarded by the consumers of the good (i.e. by students or the public) but by fellow producers ('peers'). Furthermore, the academic job market tends to be a 'shrink market', i.e. a market in which there is a quasi-permanent excess of supply [27]. This renders it very risky - particularly when the specificity of the required human capital (and its high sunk costs) is taken into account.

Such a market calls for standardisation in order to more clearly distinguish between 'truth' and 'error' or 'objective knowledge' and 'unjustified claims'/subjective values', and to reduce the risks of human capital investment. As previously argued, in order neither to eliminate the welfare enhancing effects of competition, nor to mitigate the process of 'product differentiation' (i.e. to transform a 'shrink market' into a 'niche market'), in a perfect 'market for economic ideas', standardisation would be limited to the methodological dimension. In the real world, however, network externalities and learning effects create path dependencies that serve as implicit standards (see e.g. Morgan 2015). In maximising individual utility but not overall welfare, these standards may impose ontological and even epistemological limitations. In other words, as long as the standardisation process is not regulated, the result will be determined by internal and external incentives that favour one paradigm over another.

This is where external factors become especially important, since they can significantly influence the potential benefits of using a given paradigm. These benefits either stem from its 'progressiveness' as a scientific tool (if 'truth seeking' is the driving force behind the research) or from the number of other researchers using the paradigm. The latter 'network effect' serves to maximise the potential recognition and reputation enjoyed by the paradigm's adherents. Although these motives need not exclude each other, they are not necessarily identical. On the one hand, this is because the 'progressiveness' of a paradigm is difficult to objectively determine and on the other, because financial incentives (in the form of academic positions or funding) and non-financial incentives (such as publication space in journals or board membership at prestigious institutions) may influence the researcher's paradigm choice. Since the latter incentives can be classified as external

to academic production, the standardisation process might easily come to reflect these external interests rather than internal requirements.

In sum, the dire present state of academic economics is due partly to internal and partly to external forces. The internal forces reflect the particularities of the 'market for economic ideas', the external forces represent the intrusion of economic interests and normative values into a scientific discipline committed to objectivity and truth claims similar to those of the natural sciences. Goodwin (1998) has clearly described the transformation of US economics from a state of paradigm plurality at the beginning of the 20<sup>th</sup> century into one of neoclassical dominance from the 1950s on. As he puts it:

It is difficult for the present-day academic economist, accustomed to teaching mainly the children of contented and politically conservative middle-class parents the wonders of the free market system, to appreciate that not long ago this discipline was widely feared as the seat of radicalism and the means to corruption of the young' (Goodwin 1998: 54).

This process, which came about during the professionalisation of the discipline, is not the result of superior truth claims driving out inferior truth claims on the path toward a mature 'normal science' (in Kuhn's terms) or of a more 'progressive' scientific research programme superseding 'degenerative' programmes (in those of Lakatos). It rather reflects a cold war-era desire on the part of the (American) 'patrons of economics', namely higher education institutions, the government, the business community, and charitable foundations, to replace the 'bad guys' (i.e. heterodox economists of Marxian, Keynesian or institutionalist descent) with the 'good guy' of neoclassical economists, which 'had all the virtues many of the 'plural brethren lacked' (Goodwin 1998: 61). The aim in doing so was to ensure '...that traditional religious and economic values [...] – values that had made the nation great – had (no longer, A.H.) been banished from the training grounds of the elite' (Goodwin 1998: 59).

Furthermore, both the moderate flourishing of pluralism during the 1960s and 1970s and the ensuing marginalisation of heterodox paradigms demonstrate the importance of external forces. The civil rights and student movements, in conjunction with various theoretical developments [28] that undermined the theoretical rigour of mainstream neoclassical economics, served to pressure the 'patrons of economics' into letting some of the 'bad guys' back in to the US higher education system. Elsewhere, the massive expansion and reform of university

systems and the temporary 'democratisation' of recruitment procedures at the professorial level facilitated the emergence of a number of pluralist strongholds, alongside a majority of traditional economic departments that held firm against the 'winds of change'. The subsequent marginalisation of heterodox economics took place largely through a vastly unequal endowment of economic, social and institutional capital (see Heise, Thieme 2016) and the triumph of ranking analyses and institutionalised forms of 'quality control' (which measure publication output by impact and citation scores). These clearly tend toward the 'mainstreamisation' of economics (see e.g. Lee 2007, Lee, Pham, Gyun 2013).

## **By way of a conclusion: where do we go from here?**

Despite the discipline's miserable performance in predicting and coping with the recent global financial crisis, there would appear to be no need for a paradigm shift in economics. There is also no need to dispense with its strict methodological standards, or to seek to initiate an interdisciplinary, 'normative turn' towards an advocacy-oriented science. These forms of transformation may be desirable from various individual perspectives, but they are not otherwise necessary.

What the economic discipline does urgently require, however, is a transformation of its present state of paradigm monism. This is marked by an exceedingly dominant neoclassical DSGE mainstream that incorporates a number of dissenting epistemologies accepting a market-oriented ontology as a negative heuristic. This paradigm monism now needs to be transformed into a paradigm pluralism that remains open to other ontologies. What is called for, in short, is a 'pluralist turn' [29]. Pluralism in this sense is a scientific imperative in order to ensure academic freedom and to provide a stimulating environment for knowledge creation (or the competition of economic ideas). Furthermore, it is the only possible means of giving economics the status of a science, rather than merely an exercise in applied logic or – worse – pure empiricism.

There are nonetheless a range of strong internal and external forces that serve to undermine competition between economic ideas. This tends to result in some paradigms becoming dominant and others being marginalised. At the internal level, the peculiarities of the 'market for economic ideas' serve both to drive demand for and help supply some of the standards required to describe the required commonalities of an epistemic community. Nevertheless, if this standardisation process is not regulated, its outcome will be unlikely to reflect the collective

assumptions of the community and will instead favour the individual assumptions of those market actors who are endowed with a greater share of economic, social, and institutional capital, i.e. those that are more powerful. External factors, such as the provision of financial or other incentives by actors outside the epistemic community (whether charitable foundations, the business community, the government, or other collective actors influencing the researcher's paradigm choice) open the way to the intrusion of vested interests and ideologies into the discipline. At the same time, however, they may serve to counter-balance certain existing imbalances.

In order to successfully transform economics as a discipline, it is first and foremost necessary for the state, in its capacity as regulator, to step in to safeguard academic freedom. Academic freedom is not only a protective norm that prevents inappropriate external interventions, but also a constructive norm that obliges the state to make it possible for all members of the epistemic community to conduct their research, irrespective of the paradigm they choose to espouse. This entails a certain degree of paradigm pluralism, not necessarily within every academic unit (whether research centre, department, faculty, or university), but within the overall institutional scope of the legislator. This is not the place to go into the details of a possible regulatory framework. Ensuring an optimal regulatory design may require us to draw on the resources of constitutional economics and institutional economics, as well as mechanism design theory. It should be emphasised, however, that regulating commodity markets is usually regarded far less critically than regulating the market for (economic) ideas, since such intervention is often felt to undermine its own intention of promoting academic freedom (see e.g. Coase 1974). In this regard, Coase (1974: 386) offers an explanation of the frequent difference in views where commodity markets and ideas markets are concerned:

The market for ideas is the market in which the intellectual conducts his trade. The explanation of the paradox is self-interest and self-esteem. Self-esteem leads the intellectuals to magnify the importance of their own market. That others should be regulated seems natural, particularly as many of the intellectuals see themselves as doing the regulating. But self-interest combines with self-esteem to ensure that, while others are regulated, regulation should not apply to them. And so it is possible to live with these contradictory views about the role of government in these two markets. It is the conclusion that matters. It may not be a nice explanation, but I can think of no other for this strange situation [30].

In order to draw the legislator's attention to the welfare enhancing effects of a regulated pluralism and to mitigate the sense of undue intervention, broad internal and external support should be mustered from the epistemic community, students, politicians, trade unions and (parts of) the business community to counterbalance the external forces favouring 'economics as usual'. In order to better assess the chances (and potential limitations) of making 'plural economics' the object of a civic movement and to design a promising strategy to lead the discourse on the 'future of economics' or 'new economic thinking', we might draw on the sociology of epistemic communities and movements, the Gramscian political theory of hegemonic discourses, [31] and political theories of system transformation. Ultimately, history has indicated the importance of these external forces (for better and worse) in shaping the economic profession.

## Endnotes

[1] It has been argued that economics is currently in a transitional state characterised by a battle for hegemony (see Decker 2018). Assuming that this is not an overly optimistic view of the state of the discipline, the present article considers a number of possible paths towards its transformation. It should be emphasised at this point that the article only addresses those paths that are related to pluralism in economics. Other transitional paths, such as a transformation in favour of ethical economics (see e.g. DeMartino 2011, DeMartino/McCloskey 2016), are not considered here.

[2] The transformation paths outlined in the following sections have all been discussed in the literature on economic pluralism. If we assume with Jackson (2018) that economics is presently marked by an 'orthodox/heterodox divide' (where heterodox economics is dominated, yet tolerated by mainstream economics), we can also imagine another transformation resulting in an 'orthodox hegemony' (i.e. the exclusion of heterodox economics). This transformation is not considered here, firstly because I believe this is already a more accurate description of the status quo, and secondly because such a transformation would clearly not fulfil the requirements outlined in the introduction.

[3] It is important to emphasise that paradigm pluralism is not a position based on an ethics of fairness and tolerance and advocated by those marginalised by the dominant mainstream, but rather a scientific imperative that is crucial for the flourishing of the discipline. This needs to be recognised and acknowledged by

academic economists from all theoretical and paradigmatic backgrounds, not only those from the heterodox camp.

[4] This concept was of course first introduced by John Rawls to objectify the wholly subjective concept of 'justice' (see Rawls 1971).

[5] It might be argued that Sraffa's critique of neoclassical capital theory did not depose neoclassical economics as the dominant mainstream paradigm (contrary to the expectations of many Sraffians) because it was purely critical and did not provide a constructive alternative capable of taking over from the neoclassical paradigm.

[6] I am aware that I am mixing Kuhnian and Lakatosian elements here. I believe Kuhn is more adept at coining memorable terms such as paradigm or paradigm shift, while Lakatos provides a more profound dimensional description of paradigms (i.e. 'scientific research programmes') and the temporary and changing status of paradigms as either 'progressive' or 'degenerative'. It therefore seems to me fruitful to make eclectic use of Kuhnian and Lakatosian concepts.

[7] Farmer (2017) even recently attempted to interpret post-Keynesianism as a DSGE variant.

[8] In a conversation between three Nobel Prize winners – Robert Solow, Michael Spence and Joseph Stiglitz – none of the participants mentioned any transformation of the discipline that could be regarded as a quest for a paradigm shift, see Andersen (2011).

[9] Schmidt, aus dem Moore (2010: 170ff.), for instance, emphasise the historical merits of a non-formal economics of order, but are sceptical of its future prospects within an internationalised (US-centered) modern economic discipline.

[10] Debreu (1986: 1261) acknowledges that 'Deductive reasoning about social phenomena invited the use of mathematics from the first'. And Paul Krugman (1996), who was awarded the Nobel Prize for his contributions to international trade theory, adds that 'International trade in particular happens to be a subject in which a page or two of algebra and diagrams is worth 10 volumes of mere words.'

[11] Krugman (1996) is again rather bold in this regard: 'The opponents of mainstream economics dislike people like me not so much for our conclusions as for our style: They want economics to be what it once was, a field that was comfortable for the basic literary intellectual...'

[12] Tony Lawson in particular has repeatedly pointed out that a science's degree of formalisation depends on its ontology (see e.g. Lawson 2003). An insistence on a high level of formalisation is therefore at the same time an insistence on a particular ontology – in the present case, the ontology of social and economic exchange in a Walrasian context. Any call for formalisation as a means of ensuring 'quality' standards can then be seen as a simple screening device.

[13] 'Ontological openness' means here that the essence of the object of inquiry is not determined in advance but is (potentially the most critical and creative) part of the knowledge creation process through which an academic discipline becomes a science. While mainstream economics rests on the ontological presupposition of (intertemporal) exchange relations, Marxian economics is based on power relations, and post-Keynesian economics on nominal obligations. Whether complexity economics' assumption that the economy is a 'complex adaptive system' can be seen as a distinct ontological presupposition (as Thornton (2017: 56) believes) remains an open question (see Heise 2017b).

[14] In Germany, for instance, the 'Americanisation' and 'mathematisation' of economics are used almost synonymously to connote its 'modernisation' (see e.g. Hesse 2012).

[15] This is not to say that such assumptions are to be rejected altogether. Yet just like the closed system assumptions of mainstream exchange economics (which form the basis of the monist 'one world one truth' paradigm), the radical pluralists' assumption that there is no possible objective knowledge cannot form the ontological consensus of the epistemic community of economists.

[16] Which, incidentally, does not exclude a variety or even a plurality of methods, theories and epistemologies (see Heise 2017a: 24ff.). Contrary to what Vines, Wills (2018) appear to believe, however, this does not involve a pluralism in any genuine sense.

[17] It has been argued that pluralism might leave no room for rational choice between paradigms (see e.g. Langhe 2009), so that a form of paradigm indifference might come to paralyse the discipline. Nevertheless, paradigms differ in terms of their epistemological, methodological and ontological dimensions. It should therefore be regarded as rational to choose the paradigm whose axiomatic structure and pre-analytic vision suits the individual researcher best. In fact, given the nature of science in general and economics in particular, this is the only honest way to

conduct research (as opposed to allowing it to be influenced by career or funding-related motives).

[18] As Schumpeter (1954: 41) states: 'Analytic effort is of necessity preceded by a preanalytic cognitive act that supplies the raw material for the analytic efforts... This preanalytic cognitive act will be called Vision. It is interesting to note that vision of this kind not only must precede historically the emergence of analytic effort in any field but also must re-enter the history of every established science each time somebody teaches us to see things in a light of which the source is not to be found in the facts, methods, and results of the pre-existing state of the science'.

[19] As Blaug (1980: 248) asks: 'what events, if they materialized, would lead us to reject that program? A program that cannot meet that question has fallen short of the highest standards that scientific knowledge can attain'.

[20] This clearly does not mean that other methodological approaches need to be refuted, but rather that research based on different methodological approaches is not economic in nature but rather sociological, historical, or philosophical (see e.g. Louzeck 2011: 459).

[21] For a historical account of the German *Methodenstreit* and the formation of economics as a discipline see e.g. Louzeck (2011), on the English *Methodenstreit* see e.g. Coats (1954), Moore (1999: 53), who writes: 'The English *Methodenstreit*, or 'battle of methods', was a methodological debate between the historical economists, or historicists, and the orthodox economists (first the quasi-classical then the neoclassical) that took place over the period 1865 – 1914. The historicists called for a realist, inductive, relativist, dynamic, and sociological methodology, while the orthodox economists insisted upon an abstract, deductive, universalist, static, and isolationist methodology'.

[22] Although the ontological basis of economic theory is very rarely addressed directly, money has been principally declared a 'medium of exchange' from the very beginning of 'academic' reflection upon it. Furthermore, theorising that is based on a Walrasian general equilibrium is clearly an analytic exercise in intertemporal exchange. Finally, the frequent use of the term 'market economy' to describe the essence of the object of economic enquiry provides a subtle indication of the predominance of an ontology of bartering or exchange.

[23] During the 1960s and 1970s, many countries witnessed the expansion of academic education, which involved the founding of numerous new universities,



the rise of the student movement and its campaign for student and civic rights, curricular reform, and a more critical stance among the (social) sciences, and the appointment of greater numbers of heterodox staff. Since then, however, the process of pluralisation has again been reversed, see e.g. Heise/Sander/Thieme 2017, Heise/Thieme 2016 for Germany, Corsi/D'Ippolito/Ludici (2010) for Italy, AFEP (2009) for France, and Klamer (2007) and Katzner (2011) for the USA.

[24] As MacKenzie (2017) maintains: 'As for economists, we rejected Marx and Veblen about a century ago, not because of political views, which were varied, but rather because their theories were seen as fatally flawed'. In fact, the theories of Marx and Veblen have not been refuted on theoretical or empirical grounds.

[25] While pluralism always involves some form of incompatibility, incommensurability, or general opposition, variation does not.

[26] There may of course be another reason why the lack of pluralism in today's academic economics is not seen as problematic, namely, because pluralism is mistakenly conflated with relativism and obscurantism, see for example the letter written by the 2014 Nobel Prize winner Jean Tirole to the French Minister of Science (Tirole 2014).

[27] This is not an accidental feature but a necessary (and only rarely and temporarily unfulfilled) condition of the academic principle of 'selection of the best'.

[28] Including Sraffa's 'Production of Commodities by Means of Commodities' and the resulting 'Cambridge capital controversy'.

[29] As Fullbrook (2012) points out, it is only after such a pluralist turn that the economic discipline could really resemble its role model, physics.

[30] When Bachmann (2017: 846) speaks of 'forced pluralisation' with respect to state-facilitated academic freedom, he appears to fall victim to exactly the kind of double standard that Coase refers to. Vanberg (2010: 46f.) likewise sees a need for the regulation of the market for ideas in order to guarantee its welfare enhancing functioning, yet he believes that such regulation will ultimately come about through epistemic self-regulation: 'Temporary and local reward systems may well evolve or be established deliberately that distract from the unbiased pursuit of truth in science. Yet, however extended such periods and localities may be, it cannot prevent truth-seeking scientists at other times and in other locations to refute error and

to push the frontiers of science closer to the truth. Likewise, temporary and local rules and incentive structures may evolve or be established deliberately in markets that favor other than consumer interests. Yet, this cannot and will not prevent advantage-seeking human beings from exploring more attractive alternative options ...the principles of selection that prevail in research institutes and universities, the constraints that national rules and regulations define for scientific work, and conventions that come to prevail in professions such as economics may be epistemically dysfunctional, but man's ineradicable interest in knowing how the world around him works will be an incessant force that tends to select in favor of more informative theories, and stubborn reality will be an inescapable ultimate selector between conjectures that are compatible with the facts and those that are not'. In light of the above-mentioned characteristics of good 'economic knowledge' (as a credence good), Vanberg's optimism would seem not to be grounded in rigorous enquiry but in his arbitrary faith in self-regulation.

[31] Adopting a Gramscian perspective may, for instance, highlight the fact that the transformation of economics favoured here will only be truly successful if the transformation trajectory takes the form of a 'counter-hegemony' (see e.g. Carroll 2010). Another kind of trajectory, termed 'passive revolution' would seek to keep as much of the status quo (i.e. the dominance of the present mainstream), intact while superficially supporting pluralism as a 'new economic thinking'. This might be achieved by blurring the essential difference between paradigm pluralism and epistemological variation. Traces of such an approach can in fact be discerned in what has been called the 'changing face of mainstream economics' promulgated by initiatives such as the influential, Soros-sponsored 'Institute for New Economic Thinking' (INET), see e.g. (Haering 2014).

## References

Andersen, C. (2011), 'Rethinking economics in a changed world. Three Nobel laureates discuss what the crisis has taught us', *Finance and Development*, 48(2), 50-52.

Association Francaise d'Economie Politique (AFEP) (2009), 'Evolution of the economics professors' recruitment since 2000 in France. The End of Pluralism', <http://assoéconomiepolitique.org/wp-content/uploads/FAPE-State-of-Pluralism-in-France-Final-Version.pdf>.

- Bachmann, R. (2015), 'Erkennen, was Quatsch ist', *brand eins*, 17.Jg., H.11, 86–89.
- Bachmann, R. (2017), 'Zur aktuellen Pluralismusdebatte in der Ökonomik: Ansichten eines wohlwollenden Pluralismusskeptikers', *Wirtschaftsdienst*, 97 (12), 843 – 847.
- Beneš, J., Kumhof, M., & Laxton, D. (2014), 'Financial crises in DSGE models: selected applications of MAPMOD', International Monetary Fund Working Paper 14/56.
- Blaug, M. (1992), *The Methodology of Economics or How Economists Explain*, Cambridge University Press.
- Carroll, W. K. (2010), 'Crisis, movements, counter-hegemony: in search of the new', *Interface*, 2(2), 168-198.
- Coase, R. H. (1974), 'The market for goods and the market for ideas', *The American Economic Review*, 64(2), 384-391.
- Coats, A. W. (1954), 'The historicist reaction in English political economy 1870-90', *Economica*, 21(82), 143-153.
- Cochrane, J. H. (2011), 'How did Paul Krugman get it so wrong?', *Economic Affairs*, 31(2), 36-40.
- Cochrane, J. H. (2011), 'Understanding policy in the great recession: Some unpleasant fiscal arithmetic', *European Economic Review*, 55(1), 2-30.
- Colander, D., Holt, R., & Rosser Jr, B. (2004), 'The changing face of mainstream economics', *Review of Political Economy*, 16(4), 485-499.
- Corsi, M., D'Ippoliti, C., & Lucidi, F. (2010), 'Pluralism at risk? Heterodox economic approaches and the evaluation of economic research in Italy', *American Journal of Economics and Sociology*, 69(5), 1495-1529.
- Crouch, C. (2011), *The Strange Non-death of Neo-liberalism*, Cambridge: Polity.
- Davidson, P. (2004), 'A response to King's argument for pluralism', *Post-autistic economics review*, 24(1).
- Debreu, G. (1986), 'Theoretical models: mathematical form and economic content', *Econometrica*, 54, 1259 – 1270.

- Debreu, G. (1991), 'The mathematization of economic theory', *The American Economic Review*, 81(1), 1-7.
- Decker, S. (2018), 'Towards a critical and transdisciplinary economic science?', in Decker, S., Elsner, W., Flechtner, S. (eds), *Advancing Pluralism in Economics. International Perspectives on a Textbook Science*, London (forthcoming).
- Del Negro, M., Giannoni, M.P., Schorfheide, F. (2014), 'Inflation in the Great Recession and new Keynesian models', *Federal Reserve Bank of New York Staff Reports*, No. 618.
- DeMartino, G. F. (2011), *The Economist's Oath: On the Need for and Content of Professional Economic Ethics*, Oxford University Press.
- DeMartino, G. F., & McCloskey, D. N. (eds.) (2016), *The Oxford Handbook of Professional Economic Ethics*, Oxford University Press.
- Erlei, M. (2015), 'Was ist richtig an der Kritik heterodoxer Ökonomen', *Wirtschaftliche Freiheit. Das ordnungspolitische Journal*, 23<sup>rd</sup> September.
- 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', *Journal of Economic Perspectives*, 29 (1), 89 – 114.
- Fullbrook, E. (ed) (2003), *The Crisis in Economics: The post-autistic economics movement: the first 600 days*, Routledge.
- Fullbrook, E. (2012), 'To observe or not to observe: complementary pluralism in physics and economics', *real-world economics review*, 62(4), 20-28.
- Furner, M.O. (2011), *Advocacy and Objectivity: A Crisis in the Professionalisation of American Social Science, 1865 – 1905*, New Brunswick: Transaction Publishers.
- Goodwin, C. D. (1998), 'The patrons of economics in a time of transformation', *History of Political Economy*, Supplement, 30, 53-81.
- Habermas, J. (1968), *Erkenntnis und Interesse*, Frankfurt a. Main: Suhrkamp.

- Haering, N. (2014), 'George Soros' INET: an institute to improve the world or a Trojan horse of the financial oligarchy?', *real-world economics review*, 67, 90–96.
- Hamermesh, D. S. (2013), 'Six decades of top economics publishing: who and how?', *Journal of Economic Literature*, 51 (1), 162- 172.
- Hayek, F. A. v. (1968), *Der Wettbewerb als Entdeckungsverfahren*, translated by Marcellus S. Snow, Kieler Vorträge No. 56, (Engl. version: Hayek, F. A. v. (2002), 'Competition as a discovery procedure', *Quarterly Journal of Austrian Economics*, 5 (3), 9-23).
- Heise, A. (2014), 'The future of economics in a Lakatos–Bourdieu framework', *International Journal of Political Economy*, 43(3), 70-93.
- Heise, A. (2016), "Why has economics turned out this way?" A socio-economic note on the explanation of monism in economics', *The Journal of Philosophical Economics: Reflections on Economic and Social Issues*, 10(1), 81-101.
- Heise, A. (2017), 'Defining economic pluralism: ethical norm or scientific imperative', *International Journal of Pluralism and Economics Education*, 8(1), 18-41.
- Heise, A. (2017), 'Whither economic complexity? A new heterodox economic paradigm or just another variation within the mainstream?', *International Journal of Pluralism and Economics Education*, 8(2), 115-129.
- Heise, A., Hirte, K., Ötsch, W., Pühringer, S., Reich, A., Sander, H., & Thieme, S. (2015), 'Ökonomen und Ökonomie. Eine wissenschaftssoziologische Entwicklungsanalyse zum Verhältnis von Ökonomen und Ökonomie im deutschsprachigen Raum ab 1945', Abschlussbericht eines HBS-Projektes, Hamburg/Linz.
- Heise, A., Sander, H., & Thieme, S. (2017), 'Die Entwicklung der heterodoxen Ökonomik innerhalb der deutschen Wirtschaftswissenschaft und ihre Marginalisierung', in *Das Ende der Heterodoxie?*, Wiesbaden: Springer VS, pp. 53-126.
- Heise, A., & Thieme, S. (2016), 'The short rise and long fall of heterodox economics in Germany after the 1970s: explorations in a scientific field of power and struggle', *Journal of Economic Issues*, 50(4), 1105-1130.

- Hesse, J. O. (2012), 'The 'Americanisation' of West German economics after the Second World War: Success, failure, or something completely different?', *The European Journal of the History of Economic Thought*, 19(1), 67-98.
- Jackson, W.A. (2018), 'Strategic pluralism and monism in heterodox economics', *Review of Radical Political Economics*, forthcoming.
- Jakobsen, O. (2017), *Transformative Ecological Economics: Process Philosophy, Ideology and Utopia*, Taylor & Francis.
- Katzner, D. W. (2011), *At the edge of Camelot: Debating Economics in Turbulent Times*, Oxford University Press.
- Kellecioglu, D. (2017), 'How to transform economics? A philosophical appraisal', *The Journal of Philosophical Economics*, 11(1), 1-26.
- Kim, E. H., Morse, A., & Zingales, L. (2006), 'What has mattered to economics since 1970', *Journal of Economic Perspectives*, 20(4), 189-202.
- Kitcher, P. (1995), *The Advancement of Science: Science without Legend, Objectivity Without Illusions*, Oxford University Press.
- Klamer, A. (1995), 'A rhetorical perspective on the differences between European and American economists', *Kyklos*, 48(2), 231-240.
- Klamer, A. (2007), 'Does this have to be our future', in D. Colander, *The Making of an Economist, Redux*, Princeton University Press, pp. 227-233.
- Knorr-Cetina, K. D. (1982), 'Scientific communities or transepistemic arenas of research? A critique of quasi-economic models of science', *Social Studies of Science*, 12(1), 101-130.
- Krugman, P. (1996), 'Economic culture wars', *Slate*, October (available at: [http://www.slate.com/articles/business/the\\_dismal\\_science/1996/10/economic\\_culture\\_wars.html](http://www.slate.com/articles/business/the_dismal_science/1996/10/economic_culture_wars.html), retrieved: 21.11.2017).
- Langhe, R. (2009), 'Why should I adopt pluralism', in Garnett, R., Olsen, E.K., Starr, M. (eds), *Economic Pluralism*, London: Routledge, pp. 1 – 11.
- Lawson (2003), *Reorienting Economics*, London/New York: Routledge.

- Lawson, T. (2013). 'What is this 'school' called neoclassical economics?', *Cambridge Journal of Economics*, 37(5), 947-983.
- Louzek, M. (2011), 'The battle of methods in economics. The classical Methodenstreit— Menger vs. Schmoller', *American Journal of Economics and Sociology*, 70(2), 439-463.
- MacKenzie, D.W. (2017), 'The case against pluralism. Foundation of economic education', <https://fee.org/articles/the-case-against-pluralism-in-economics>, 08 December 2017.
- Merton, R. K. (1968), 'The Matthew effect in science: the reward and communication systems of science are considered', *Science*, 159(3810), 56-63.
- Minford, P. (2010), 'The banking crisis as Dynamic Stochastic General Equilibrium', *CESifo Economic Studies*, 56(4), 554-574.
- Mirowski, P. (1991), 'The when, the how and the why of mathematical expression in the history of economic analysis', *Journal of Economic Perspectives*, 5(1), 145-157.
- Mirowski, P. (2013), *Never Let a Serious Crisis Go to Waste: How Neoliberalism Survived the Financial Meltdown*, Verso Books.
- Moore, G. C. (1999), 'John Kells Ingram, the Comtean Movement, and the English Methodenstreit', *History of Political Economy*, 31(1), 53-78.
- Morgan, J. (2015), 'Is economics responding to critique? What do the UK 2015 QAA subject benchmarks indicate?', *Review of Political Economy*, 27(4), 518-538.
- Planck, M. (1928), *Wissenschaftliche Autobiographie*, Leipzig: Barth.
- Rawls, J. (1971), *A Theory of Justice*, Cambridge (MA): Harvard University Press.
- Rodrik, D. (2015), *Economics Rules: The Rights and Wrongs of the Dismal Science*, WW Norton & Company.
- Rosen, S. (1997), 'Austrian and neoclassical economics: any gains from trade?', *Journal of Economic Perspectives*, 11(4), 139-152.
- Samuels, W. (1997), 'The case for methodological pluralism', in: Salanti, A., Screpanti, E. (eds), *Pluralism in Economics. New Perspective in History and Methodology*, Cheltenham: Edward Elgar, pp. 67 – 79.

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.

Schumpeter, J. A. (2006), *History of Economic Analysis*, Routledge.

Stiglitz, J. E. (2018), 'Where modern macroeconomics went wrong', *Oxford Review of Economic Policy*, 34(1-2), 70-106.

Stilwell, F. (2016), 'Heterodox economics or political economy?', *World Economics Association Newsletter*, 6(1), 1-3.

Stützle, I. (2016), 'Hätte, müsste, sollte – die Kritik der Neoklassik', in *Oxi – Wirtschaft anders denken*, 21<sup>st</sup> of June 2016, <https://oxiblog.de/kritik-der-neoklassik/>, 12 January 2018.

Thornton, T. B. (2016), *From Economics to Political Economy: The Problems, Promises and Solutions of Pluralist Economics*, Routledge.

Tirole, J. (2014), 'Letter to Madam Fiorosa', [http://assoeconomiepolitique.org/wp-content/uploads/TIROLE\\_Letter.pdf](http://assoeconomiepolitique.org/wp-content/uploads/TIROLE_Letter.pdf), 04 January 2018.

Vanberg, V. J. (2010), 'The "science-as-market" analogy: a constitutional economics perspective', *Constitutional Political Economy*, 21(1), 28-49.

Vines, D., & Wills, S. (2018), 'The rebuilding macroeconomic theory project: an analytical assessment', *Oxford Review of Economic Policy*, 34(1-2), 1-42.

Yalcintas, A. (2016), *Intellectual Path Dependence in Economics: Why Economists Do Not Reject Refuted Theories*, Routledge.

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