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Making the incommensurable comparable: a comparative approach to pluralist economics education

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Demands for pluralism in economics education have been widespread in recent years. As change in the universities is slow and piecemeal, we present a comparative approach to economics which builds the intellectual basis for the online learning platform Exploring Economics (www.exploring-economics.org). This approach is committed to a vision of theoretical and methodological pluralism and is grounded in concepts derived from biology, the history of economic thought, the philosophy of science and international political economy. We find central categories in which the ten schools of economic thought selected show meta-theoretical patterns which may not only serve as a guide to economics education but may also be relevant for economics research.

Keywords: *economics education, teaching of economics, pluralist economics, philosophy of economics, taxonomy, meta-analysis*

JEL codes: *A2, B4, B5, Z13*

1 INTRODUCTION

Demands for change in economics have become prominent since the financial crisis of the late 2000s. While criticisms of the discipline had been levelled from within the heterodox community in economics for a long time (see, for example, Hodgson et al. 1992; Mäki 1997; Dow 2004; Fine/Milonakis 2009; Hodgson 2009; Lee 2011; Kapeller 2012), the financial crisis not only reinforced these criticisms but expanded their range. Critical voices have subsequently been raised from within the mainstream of the discipline (for example, Krugman 2009), by economic policy-makers (for example, Blanchard et al. 2010; Turner 2012; Haldane 2017) and by the wider public as in Queen Elizabeth's well-known address at the London School of Economics (Pierce 2008).

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Students of economics also joined the debate. Building upon previous activities, such as the post-autistic movement in the 2000s, student initiatives formed in many parts of the world demanding economics education that is committed to the ideal of pluralism in theories, methods and disciplines (ISIPE 2014). While their critique also highlights the potential consequences of mainstream research for society, their main focus lies on changing economics education. Regarding economics teaching in higher education, the narrowing-down of economics education to the neoclassical theory can be exemplified by the notion of a few economics textbooks becoming the standard for teaching in many parts of the world (van Treeck/Urban 2016). The existence of pluralist teaching materials (for example, Snowdon et al. 1994; Earl 1995; Dow 1996; Himmelweit et al. 2001; Earl/Wakeley 2004; and more recently Groenewegen 2007; Reardon 2009; van Staveren 2011; Jäger/Springler 2012; Mixon/Cebula 2014; Elsner et al. 2015) could not contribute to changes in economics education on a larger scale (Earl 2010: 219). Recent research confirms the notion that economics teaching all over the world – with regards to university curricula – is far away from being pluralist (Wigstrom 2010; Thornton 2012; PEPS Economie 2014; Beckenbach et al. 2016; ISIPE forthcoming). More recent intentions to bring plurality into teaching like the CORE project developed *inter alia* by Wendy Carlin and Samuel Bowles have been criticized by the student movement for only including extensions from an otherwise mainstream approach (PEPS Economie 2015, not published).

The aim of this paper is to propose a vision of pluralist economics which can be relevant for learning and teaching, online and offline, as well as potentially guiding research endeavours. While it is not our intention to define once and for all what a pluralist education in economics entails, we aim to develop frameworks in which the diversity of perspectives and methodologies are structured in a way that reflects the complexity of the issue but remains comprehensible. In our view, a comparative approach that sets diverse perspectives in relation to one another is the most feasible way of developing such a framework. Even though research on pluralist education in economics and its impact is scarce, the existing literature emphasizes the importance of comparisons and strong – or even caricatured or ideal type – contrasts between theoretical perspectives (Harvey 2011; Mearman et al. 2011). First case studies suggest that a pluralist teaching method, which offers a comparison amongst different economic perspectives – sometimes referred to as the ‘contending perspectives model’ – has the potential to strengthen students’ ability for critical thinking (Barone 1991; Elsner 2006; Mearman et al. 2011; Cooper/Ramey 2014). Demands from economics students similarly emphasize the importance of a comparative assessment of economics alongside problem-based learning (Cambridge Society for Economic Pluralism 2014; PEPS Economie 2014).

We survey ten economic schools of thought present in contemporary academic research and discourse and set out to present them in a common and comparable framework. To do so we developed a typology based on meta-theoretical considerations that have been used in extant comparative research on economic paradigms. The dimensions of the typology comprise ontological, epistemological, methodological, political, axiological and theoretical considerations (Dobusch/Kapeller 2012; Dutt 2014). Subsequently, more fine-grained questions regarding the meta-theoretical fields were given to students with knowledge in the respective schools of thought, who then produced texts grounded in the literature of the perspective, which provide tentative answers to the questions. Each text was then reviewed by a senior academic, who is either a representative of the respective school of thought or has a reputation for having studied it thoroughly. Lastly, answers were coded, compared and sorted for graphical representation. This typology forms the basis for the ‘orientation’ part of the learning platform Exploring Economics and also

provides an ordering scheme by which Massive Open Online Courses (MOOCs), video lectures, graphics and articles on economic issues can be searched.

This paper is structured as follows. Section 2 reviews research and concepts from different scientific fields that were used for developing the typology. The criteria established are then applied to economics. In Section 3, the typology that compares different schools of thought ('perspectives') according to their epistemological, ontological, axiological and methodological stances is presented. From the comparison of the perspectives according to the meta-theoretical criteria some general remarks about the relations of different economic schools of thought can be inferred. These are presented in Section 4, while Section 5 concludes the article.

2 SEARCHING FOR A TYPOLOGY OF ECONOMIC SCHOOLS

2.1 Developing a typology

The branch of science in which typologies, systematizations, taxonomies and the like are most frequently used is biology or, more specifically, zoology. This is due to the fact that natural scientists have to deal with organizing millions of species in comprehensible and manageable categories. Historically in zoology there have been two broad traditions of classification. The first tradition in this field, also called the *old systematics*, starts with Aristotle and was further developed by the Swedish naturalist Linnaeus in the eighteenth century. The old systematics departs from a Platonian '(ideal) type philosophy', where categories are developed *a priori* and the analysed objects are static. Furthermore, the employed categories must be exhaustive and mutually exclusive. The *new systematics*, developed mostly in the twentieth century, by contrast has traded off the philosophical consistency of the old systematics for greater descriptive accuracy and greater compatibility with evolution. Hence, instead of ideal types, larger samples of species are measured, with the use of statistics and considerations on context such as ecology, geography and genetics being included. Due to the implications of evolution, mutually exclusive categories are abandoned and sometimes replaced by overlapping, hybrid or 'fuzzy' categories (Mayr et al. 1953; see also Mearman 2010).

Applying these insights to the classification of economic schools, we opted for starting with an *old systematics* approach, mostly for pragmatic reasons. Still, one has to take seriously that evolutionary development as well as the fluidity and fuzziness of categories are also an important issue in the (eco)system of economic theorizing (cf. Dequech 2007). Therefore, in our approach we aim to transcend strict binaries, where possible, and develop middle categories (see also Goertz/Mahoney 2012: ch. 13 on the development of such middle categories in social science research). Another important consideration that has to be made regarding the classification in human societies is the potential of typologies to be performative, either in an emancipatory or a repressive way. An example of the former is the 'Nursing Interventions Classification' that highlighted formerly ignored work, while the typology of race developed by the South African apartheid regime is an example of the latter (Mearman 2010: 11). Against this background it is important to reflect upon the potential effects of the typology suggested herein. One tentative deficiency is a bias toward 'western traditions' in economic thought, which therefore fails to address calls for a decolonialization of economics. In an expanded version of this typology we will hopefully be able to include further categories.

2.2 Deriving a typology for economic thinking

The first step in developing a typology for economics is to reflect on what would be the 'types'. A look into the literature on comparative approaches to economic theorizing

suggests that schools of thought – which we will also call ‘perspectives’ subsequently – are a good starting point. Relying on the Kuhnian idea that there is a scientifically legitimate role for differences in theorizing in the face of epistemological uncertainty, scholars such as Deirdre McCloskey and Sheila Dow have found it useful to refer to schools of thought as concepts for communication and exchange (McCloskey 1990; Dow 2004: 277, 281, 283). Even though according to Thomas Kuhn (1996) a strict commensurability of scientific paradigms is impossible, since each paradigm can only be judged in its own terms, other philosophers of science such as A.F. Chalmers (2009) have argued to the contrary. Different paradigms might refer to the same object of inquiry and hence be compared in terms of either objective or intersubjective knowledge about such a given object. Indeed, Kuhn himself later acknowledged the possibility of communication between paradigms by means of ‘translation’ (Dow 1990; 2004: 279, 287).

Proceeding along the line of economic perspectives we have to assess what exactly makes up an economic perspective. This requires:

1. *the selection of ‘perspectives’, which*
 - entails a *principled identification* of perspectives that are (i) important for the discussions in the field of economics and (ii) sufficiently different in their assessments to make a comparison meaningful;
 - entails a *distinction in form and content* rather than *historical–sociological* terms;
 - is broad enough to *capture the essence of (ideal–typical) perspectives*.
2. *the selection of categories, which*
 - allows for systematic comparisons between perspectives;
 - can be applied to each of those perspectives and will give the reader a sufficiently clear idea about their fundamental differences – these categories have to be able to make meaningful statements about (almost) all of the surveyed perspectives;
 - are able to highlight the differences that have historically been relevant in the debates of the economic discipline, the social sciences and society more broadly.

2.3 Review of relevant research

The academic traditions within economics that are pluralist–comparative in orientation, and henceforth can provide an entry point for our analytical project are the history of economic thought, the philosophy of economics and international relations/international political economy.

2.3.1 History of economic thought

In the history of economic thought a common way of approaching the subject is to trace the development of economic theorizing by chronologically examining the work of renowned scholars. Another often-used approach rests upon the identification of sociologically defined schools of thought and the recasting of historical debates between those different perspectives and their intellectual and institutional development (see, for example, the contributions to Morgan/Rutherford 1998; Milonakis/Fine 2009). These practices are common in other (pluralist) disciplines such as sociology and – when aiming at pluralist economics education – constitute a great improvement over standard economic teaching.

However, certain shortfalls are also apparent. First, the differentiation of perspectives as ‘schools of thought’ is often based on historical association or affiliation, that is,

sociological categories, rather than theoretical content or meta-theoretical orientations and is hence rather unsystematic. Second, the comparison of different schools of thought is often embedded in the debates between contending schools, which means that the focus is usually laid on specific theoretical propositions (or even policies), rather than meta-theoretical or methodological differences.

2.3.2 *Philosophy of economics*

Research grounded in the philosophy of economics often expands beyond sociological classifications and specific theoretical disputes by adding more methodological and meta-theoretical questions. As Sheila Dow observes, during the second half of the twentieth century differentiations among schools, which had initially been focused on *theoretical differences* – such as in the early discussion of the capital controversy that was thought to be fought inside a common methodological framework – gradually carried over to a higher level as it was revealed that differences in understanding were rooted in ‘methodological, epistemological and ultimately ontological differences’ (Dow 2004: 277). David Dequech (2007: 288, 300) labels this analytical approach ‘intellectual’ insofar as it stresses common theoretical and to some extent also methodological convictions and is as such different from sociological classifications. However, many scholars so far have employed *ad hoc* categorizations that are based on their own experiences or the self-identification of scholars (Hirte/Thieme 2013: 9, for a synopsis of such categorization efforts). Another problem with research that compares economic perspectives in terms of higher-order categories derived from the philosophy of science is that it is often dedicated to comparing a mainstream or orthodoxy with an opposing non-mainstream or heterodox, or alternatively comparing one contending perspective with the neoclassical school. So far the most rigorous and comprehensive categorizations – which we are aware of – have been developed recently by Amitava Krishna Dutt, who has analysed neoclassical economics and some competing perspectives according to their ontological, epistemological, methodological, normative, prescriptive and theoretical dimensions (Dutt 2014), and by Leonhard Dobusch and Jakob Kapeller, who present a similar approach (Dobusch/Kapeller 2012). To our knowledge, no categories have been developed which gauge meta-theoretical questions for *all or most* economic schools of thought.

2.3.3 *International political economy*

In addition to the analysis examined so far, drawing upon a method commonly used in the neighbouring discipline of international relations (IR) as well as the more closely related discipline of international political economy (IPE) offers important insights. Although especially parts of the so-called ‘American IPE’ have increasingly become dominated by rational choice theorizing and econometrics, IPE is committed to a political vision of the economy which is reflected in a multi-perspectivist understanding of academic reasoning (Cohen 2007). Furthermore, the dominant narrative in IPE is heavily influenced by the neighbouring and often overlapping field of IR. Following the success of social constructivism in the 1990s, research in IR has been understood as a discipline characterized by contending perspectives, while staying committed to a ‘rationalist’ understanding of ‘scientific progress’. This means that the existence of different paradigms is regarded as a necessary and enduring condition for evaluating the plausibility of explanations with regard to a complex and changing reality. Reflecting these traditions, the didactic method

of both IR and IPE is comparative, which is due to the fact that these traditions explicitly emphasize a multi-perspective way of approaching their subject of inquiry. The method of comparison used in those disciplines makes reference to ontological, epistemological concepts as well as to preferred methods and central axioms of each theoretical perspective (for example, Realism, Liberalism, Marxism, Constructivism, Feminism). As one introductory IPE textbook states:

All theories in IPE incorporate foundational assumptions about how the world works and what there is to know about it, for without such assumptions they would be empty of both content and explanatory value. The goal for students of IPE is not simply to recognize what these foundational assumptions are with respect to different theoretical perspectives. It also involves the more challenging job of assessing the explanatory or normative value of different theoretical perspectives in relation to empirical evidence, while avoiding the problem of selection bias. (Broome 2014: 2)

In broad terms the goal of our enquiry can be described as offering a similar guidance adapted to the needs and idiosyncrasies of economics.

3 THE TYPOLOGY FOR A COMPARATIVE APPROACH TO PLURALIST ECONOMICS EDUCATION

Drawing on the history of economic thought and combining the concepts of the philosophy of economics and IPE with the requirements of establishing a typology, we present economic perspectives and categories and explain their selection. We aim at taking a meta-perspective on economic theories as well as relying on the general familiarity of the researchers and contributors with the underlying (and often implicit) categories. The selection method is thus based more on a pragmatic understanding than on a clearly defined procedure.

3.1 Perspectives

The literature from the history of economic thought as well as the discussions based on the philosophy of science from within the economics discipline and from the outside make it possible to group a total of ten broad perspectives, each of which is more or less sub-differentiated. Different combinations of three to seven of these perspectives are presented in historical (Colander et al. 2004; Milonakis/Fine 2009), methodological and philosophical (Lee 2011: 544; Dobusch/Kapeller 2012: 1037), sociological (Pahl 2011) and empirical, that is, survey design (Frey et al. 2010: 319; di Maio 2013) work. Sequencing these perspectives on the basis of their unit of analysis (going from small to big) the following list ensues:

1. Behavioural economics
2. Austrian economics
3. Neoclassical economics
4. Feminist economics
5. Marxist economics
6. Institutional economics
7. Post-Keynesian economics
8. Evolutionary economics
9. Complexity economics
10. Ecological economics

3.2 Categories¹

3.2.1 Ontology

a. Central economic problem

Ontology is the scientific, philosophical field which is concerned with the study of ‘what is’. Applied to economic knowledge we can pose the question: which is the central, independent or even exogenous problem that must be analysed in theory and answered by policy measures? The relative emphasis of one problem or dynamic inside a theoretical framework often acts both as a magnifier and as a blinder for other dynamics (cf. Moldaschl 2015). Or as Stephen Resnick and Richard Wolff (2006: 7) put it, such concepts are entry points which open the analysis for gauging reality and close it at the same time. Morgan Marietta and Mark Perlman describe central economic problems as culturally and historically enduring frameworks or legacies that shape the theories developed and their reception in society (Marietta/Perlman 2000). As such they are not unlike Max Weber’s famous ‘switchmen’, who create certain world images and prescribe political actions based on them (Weber 1946: 280). While historically there has been an ample variety of such concepts, most of which probably have a justified claim to describe an important part of the reality connected to economic activity, we chose to focus on four ‘economic problems’ in particular.

Marietta and Perlman (2000: 156), after doing a historical survey, present *scarcity* as one of the most prominent central economic problems that *inter alia* Malthus, Smith, Ricardo, Hicks and Samuelson were concerned with. Dobusch and Kapeller also name scarcity as one central economic problem and regard it as mainly addressed by the neoclassical paradigm. For the Keynesian school of thought they identify *unemployment* as the central economic problem (Dobusch/Kapeller 2012: 1039). *Uncertainty*, though, appears to be a more general and appropriate identification of the central problem in the theorizing of not only Keynes, but also Schumpeter, Arrow and many more (Marietta/Perlman 2000: 156). We furthermore include the pre-ontological category of *change*, as suggested by Dobusch and Kapeller (2012: 1039), into our scheme for gauging key elements present in older research fields such as institutional economics and in more recent ones such as evolutionary and complexity economics. Additionally, a strong legacy is present in *social or governmental order*, as it is found in the thinking of Aristotle, Hobbes, Marx, Schmolter or Sen (Marietta/Perlman 2000: 156). We have not included this category because we did not find it to be commensurate with the categories introduced before, but it remains potentially relevant for further categorization efforts. Our last category is *dominance*, which might also be referred to as differentials in power. The importance of the dominance of one group over others in an economic context and the associated struggles can be found in Marx and Engels (*inter alia* 1848 [1967]) as well as in theories addressing the colonial (for example, Galeano 1971), gendered (for example, Folbre 1994), and cultural as well as institutional (for example, Veblen 1899) dimensions of the economy.

b. Main unit of analysis

The next ontological category deals with the main unit of analysis, meaning the ‘things’ that drive economic processes and the level of analysis which henceforth is regarded as the most adequate for analysis. Dobusch and Kapeller (2012: 1039) present a differentiation between the micro-level and individuals as main units of analysis, the meso-level with institutions, emergent phenomena and interactive processes and the macro-level with

1. The categories move from the ‘foundational’ and abstract (= ontological) to the practical dimension.

economic aggregates. Concerning this matter, Ha-Joon Chang (2014: 166–169) refers to individuals, classes and institutions as central units of analysis. Building on these existing categorizations and the elaborations of the different perspectives, our categorization includes *individuals* on a *micro level*, *groups* (class, gender, race) and *institutions* on a *meso level* and *systems* (including biosystems) on a *macro level*.

c. Human nature and reductionism

Diverging ideas about what lies at the core of human nature have been central to most philosophical and political considerations. Ha-Joon Chang (2014: 166–169) compares different schools of thought according to their understanding of individuals as selfish, rational, boundedly rational or layered (instinct – habit – belief – reason). Dimitris Milonakis and Ben Fine show how the understanding of human nature in the neoclassical school of thought has changed strongly over past centuries (for example, from Mill's ethical to Bentham's hedonist utilitarianism). They also reveal how the relevance of context decreased with successive neoclassical thinkers who later strongly engaged in mathematical formalization (Milonakis/Fine 2009). Both Steve Keen and Philip Mirowski argue that economists came to follow an atomistic understanding of society and economy, similar to how physicians described the world at the beginning of the twentieth century. They regard this way of theorizing as mostly outdated since the natural sciences then recognized and theorized that systems work in complex and unstable rather than mechanistic ways (Mirowski 1992; Keen 2011: 187–192, 223–225). While we include a continuum of an *atomistic* to *contextual* conceptualization of the world into our categorization, we leave the understanding of *human nature* to be described by each school of thought for gauging diversity and evolution.

d. Conception of time

Another central difference between the economic schools of thought lies in whether time is regarded as affecting economic outcomes historically, logically or not at all in the long term. Steve Keen points to the specialty of neoclassical economics to capture economic processes in states of equilibrium with the assumption that changes in the determining variables during the 'adjustment' process do not affect the outcome. In contrast to this, most social scientists understand the economy as a continuous process, non-reversible and with constant change (Hodgson 2001). Recent attempts to depict and quantify such dynamics and path-dependencies have employed computer simulations and more complex mathematics (Keen 2011: 195–220). Our categorization thus involves the scale of *static*, a *middle category*, and *dynamic*.

3.2.2 Epistemology

a. Link between scientific inquiry and the real world

The question of 'correspondence' between the concepts used in scientific discourse and the real world has been around since the times of classical philosophy and resembles the discussions on universalism versus nominalism. In the social sciences a more contemporary debate ranges around the questions of whether a theory can grasp the world in a *realistic* fashion or whether theory is *constructivist*, thus having an impact on the things it observes and theorizes. Albeit issues of social construction are prominent in other disciplines like anthropology, political science and sociology (see Hacking 1999 for an overview), in economics the theme has not been of much concern. Arne Heise (2016: 10), referring to the work of Mäki, summarizes the non-constructivist, that is, realist position, often used and seldom

problematized in economics, as the ‘one world – one truth’ principle. This means that there is only one reality and that humans are capable of referring to this reality and communicating it without much complication. The opposing view holds that referring to the objective reality in the social sciences is impossible and that communication is only possible by referring to human-made constructions (cf. Sayer 2000: 33). Meanwhile a *middle category* is provided by those such as critical realists or moderate social constructivists, who acknowledge the possibility for science to refer to the real world, yet at the same time emphasize the fallibility of scientific knowledge and its situatedness inside a social context (cf. Sayer 1992; Lawson 2006; Heise 2016).

b. Object- or perspective-driven theory

This question might be conceptualized in a somehow similar way to the discussions on whether a research question is *substantive*, that is, addressing a particular puzzle of societal relevance, or *analytic*, that is, addressing a particularly relevant gap inside a theoretical framework (Sil/Katzenstein 2010: 418). In addition to developing its analytical framework, in our view, a perspective-driven theory seeks to expand its reach to other fields or objects as can be seen in the discussions on economic imperialism (Fine/Milonakis 2009). Hence a *perspective-driven* theory is rooted in a certain way of theorizing that can be applied to any object, whereas in an *object-driven* theory an object determines the interest of the perspective and then multiple ways of understanding and explaining the object are employed. Lawson (2006; 2013) has, for instance, prominently characterized neoclassical economics as a school of thought that defines itself through a perspective or a thinking style, that is, mathematical modelling. Similarly, Milonakis and Fine in their reconstruction of the *Methodenstreit* identify a preoccupation with perspective with the marginalists, who sought to establish a theory that could serve as a template for explaining all economic phenomena (Milonakis/Fine 2009: 94–96). The German Historicists’ eclecticism regarding methods, on the other hand, as well as their interest in the development of historically specific institutions of socio-economics makes them the ideal type for an object-driven paradigm (cf. Hodgson 2001: 59–61 and Rieter 2002: 136–137 for persistent themes that were important to the school’s research).

3.2.3 Methodology and methods: preferred analytical methodology and preferred means of hypothesis generation

While there are different usages of the term methodology in social science, for our purpose we follow the definition by Arne Heise, who identifies methodology as the rules or the understanding which is employed to demarcate what counts as justified knowledge (Heise 2016: 20). This contrasts with equating methodology with the concrete methods employed, even though different methodological understandings will privilege certain methods as more reliable. Reflecting on methodology, we separate on the theoretical level between a *formalistic* and a *broad reasoning* (cf. Dow 1990) approach, while on the empirical level we differentiate between a *standardized and prescriptive* framework and an *idiosyncratic and context-dependent* framework. Regarding the use of concrete methods we have chosen to include the common differentiation between *inductive* and *deductive* hypothesis generation. Though both are central parts of theory generation (under a positivist vision of science), the neoclassical school of thought especially turned to ‘test’ their axioms quantitatively, and to develop a negligence towards inductive and qualitative approaches (cf. Morgan/Rutherford 1998).

3.2.4 Axioms: core or paradigmatic concepts of the perspective

Axioms in the understanding advanced here refer to central themes that guide research. As such they are unlike hypotheses or theories that are developed in accordance with empirical observations and tested against empirical data. Instead, they are more like hunches or heuristics that guide the formulation of hypotheses. Our understanding is derived from the work of Imre Lakatos, who differentiates between negative heuristics (unfalsifiable axioms) and positive heuristics (strategies for how to develop more elaborate hypotheses from axioms) as the preanalytic 'hard core' of a paradigm (Lakatos 1978). Terminological expressions on the other hand are not self-evident statements but rather certain codes and concepts that are typically employed within a perspective. Whereas Dobusch and Kapeller, from whom we take the inspiration to include the axiological and terminological dimensions of different paradigms, develop a separation between the two (Dobusch/Kapeller 2012: 1039), we chose to group those two dimensions together, because we found it difficult to come up with a crisp separation for each of the analysed perspectives and chose not to impose an arbitrary boundary.

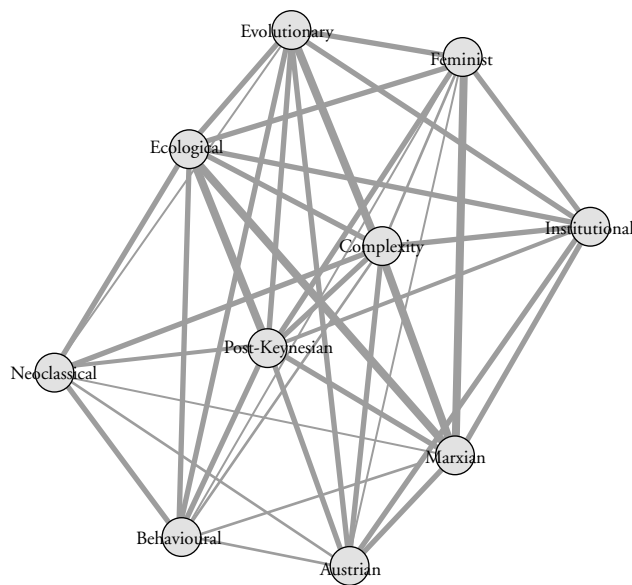
3.2.5 Ideology/values

Ideals refer to normative convictions that describe which things are considered to be 'good' in the realm of economics. Politics or policies on the other hand are concrete measures that are considered to bring the economy into a normatively 'better' state. In practice, statements and opinions often include both values and policy suggestions. Since many theories in the social sciences go beyond description in their ambition but conclude that the attainment of certain characteristics or states of the economy are desirable, it was possible to identify a list of normative goals as well as concrete policy suggestions associated with each of the perspectives.

4 RESULTS

The categorization in combination with the content of the perspective web-pages which have been academically reviewed are visualized in infographics. Aggregating the information of these graphics helps to draw some general conclusions on the ecosystem of economic schools of thought. We developed an aggregate measure of the similarities of the perspectives by surveying the nine infographics, where perspectives are put into a category and assigned a score of one for each time two perspectives are inside the same category. This means that scores for one perspective in relation to another range from 0 to 9. With 10 perspectives in total, 45 relationships can be studied. The results of this coding of the links between the perspectives are graphically displayed in Figure 1, which was made using R's *igraph* package.

As can be evidenced from Figure 1, the network is very connected, with graph density equalling 0.93. All but four perspectives have at least one commonality with all other perspectives. Of those four, feminist and behavioural economics have eight connections each, whereas neoclassical and institutional economics are the most isolated with seven connections respectively. Focusing on these last two for the moment, one can observe that neoclassical economics fails to engage with approaches that emphasize analysis of group and macro phenomena as well as dynamism. Hence there are no connections to feminist and institutional economics, while the connection scores to both evolutionary economics and Marxian political economy are only equal to one. The relative isolation of neoclassical



Source: Own representation.

Figure 1 Network of perspectives

economics in meta-theoretical terms when compared to heterodox schools is something that has also been emphasized by Tony Lawson (2006: 498). Institutional economics on the other hand owes its relative isolation to the eclecticism and inductivism that it displays regarding methodological standards. This isolates the perspective completely from schools of thought that connect a methodological and epistemological natural science ideal with microfoundations (behavioural and neoclassical, score = 0) and leads to lower scores in relation to macro perspectives that equally follow a more rigid methodology such as post-Keynesian and ecological economics.

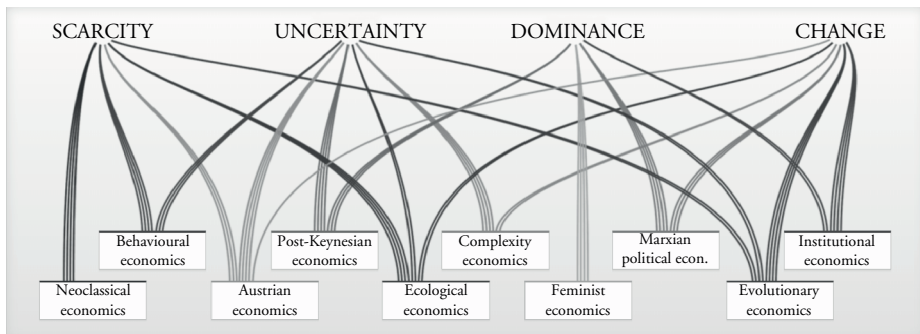
Apart from looking at the absence of connections it is also interesting to look at the strongest meta-theoretical similarities, evidenced by the thickest lines in the network. The greatest score of 8 was given to two connections only, namely the one between Marxian political economy and feminist economics and to post-Keynesian and ecological economics. The first association is not surprising, since there are historical connections between the two perspectives and the Marxian political economy perspective web-pages also incorporates elements from a broader social science use of Marxian theory. The second association however is somewhat surprising and can mostly be attributed to the perspectives having a macro focus and a historicized and dynamic understanding of economics while at the same time they largely reject constructivism. Other strong connections with scores of seven can be found between Marxian political economy and ecological economics as well as between feminist and evolutionary economics.

Leaving the description of aggregate similarities and differences aside, we now focus on the position of single perspectives. First, it becomes apparent that behavioural economics is situated in the middle category in 5 of the 7 infographics that have such a middle category (for example, reductionism, dynamics, hypothesis generation). The most interesting of these comparisons is the perspective- vs object-driven theory comparison, where

behavioural economics is the only school of thought that was not sorted into one of the extremes. This, according to the perspective web-pages, is due to an ongoing debate on whether the description of human behaviour or a certain conception of rationality and decision-making should guide research. In behavioural economics those tensions exist between the focus on the object of economic decisions and the affiliation to established (neoclassical) theories. It can be inferred from its overall middle position that behavioural economics is still a contested field uniting many different approaches under its umbrella. Another interesting finding is that Austrian economics is the only perspective that was coded as being constructivist. Whereas constructivism and the focus on cultural phenomena are often associated with post-positivist scholarship of social scientists of a left-wing persuasion, the radical subjectivism of the Austrian school and its hermeneutical methodology puts it into this category.

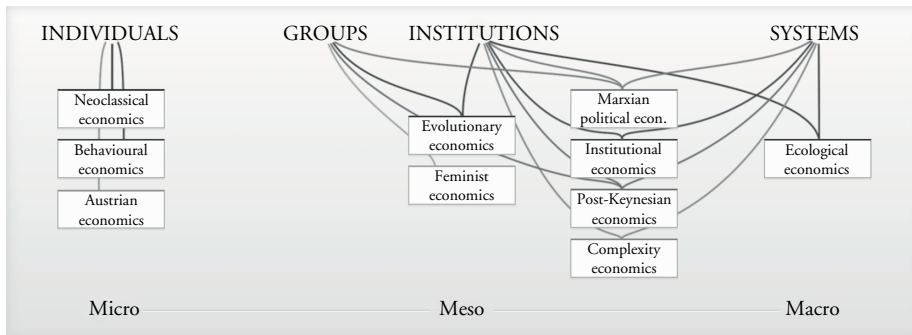
Taking the central economic problem of the perspectives into consideration, uncertainty and change result as the most frequently theorized legacies, while scarcity and dominance are also very relevant concepts. It stands out that the neoclassical school of thought ideal-type is only related to 'scarcity' as its main constituency (Figure 2). Next to scarcity, behavioural and Austrian economics theorize against the background of insecurity (and change). Gauging scarcity related to the limits of the ecosystem, ecological economics is furthermore constructed around the problems of uncertainty and change. Departing from a socially more conscious approach, Marxian, feminist, post-Keynesian and institutional economics view *inter alia* dominance as the central economic problem (critical theory approach), whereas the other theories with their focus on addressing uncertainty or scarcity rather represent a 'problem solving' approach (Cox 1981: 128).

Answering the question from which 'thing' inquiry should start, if knowledge about the economy is to be acquired, most perspectives regard either institutions and systems or individuals as central (Figure 3). This position is particularly emphasized by institutional economics, complexity economics and ecological economics which are mainly concerned with the creation and durability of formal and informal rules and regulations, or ecosystems. The driving forces of the economy are gauged to be groups, institutions and systems, or more specifically classes, production and consumption regimes and capitalism in Marxian and post-Keynesian economics. Much in contrast to this, neoclassical economics with its representative agent and firm, and behavioural economics, *inter alia* with borrowing from psychology and Austrian economics, ascribe the course of economic development to individual behaviour. Evolutionary economics is positioned between groups and



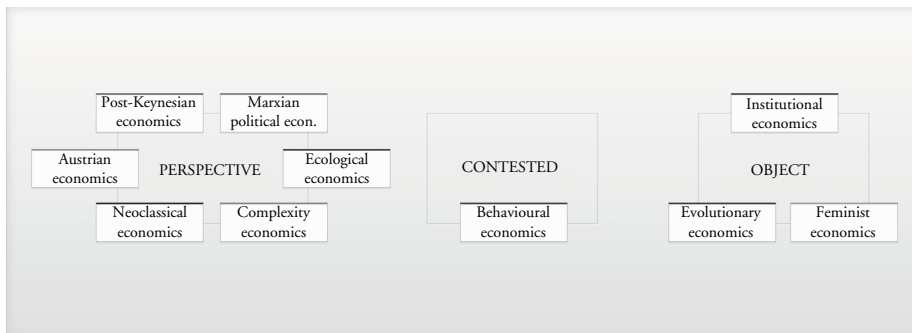
Source: Own representation, based on <https://www.exploring-economics.org/en/orientation/>.

Figure 2 Which problem or problems are central to the economy?



Source: Own representation, based on <https://www.exploring-economics.org/en/orientation/>.

Figure 3 Which 'thing' should inquiry start from if we want to acquire knowledge about the economy?



Source: Own representation, based on <https://www.exploring-economics.org/en/orientation/>.

Figure 4 Does the perspective apply a certain mode of thought, generally, or study a focused object?

institutions, because it holds that processes on the macro level can only be explained by reference to the meso level. In feminist economics different perceptions and rights of groups are the focus of analysis, although their (re-)creation and (re-)production through institutions and systems are also analysed by some strands of this school of thought.

Figure 4 presents the results of the question if a perspective is perspective- or object-driven. Three perspectives can be considered as object-driven, namely feminist economics, institutional economics and evolutionary economics. Feminist economics focuses on the object's gender and gender relations and does so from a variety of perspectives, including neoclassical methods. Institutional economics focuses on social and legal institutions, and evolutionary economics on change processes such as growth, institutional or technological change and development. Five perspectives are considered to be perspective-driven, including neoclassical economics for regarding economic phenomena with the pre-ontological concepts of scarcity, decision and efficiency or applying a 'modelling approach', and Austrian economics which emphasizes the importance of the economic principle and subjectivism. Also, Marxian political economy is considered to be perspective-driven, since it applies

pre-ontological concepts (for example, theories of power and hegemony or dialectical materialism) to different realms of the economy.

4.1 Limitations

A few limitations and potential shortcomings should be noted. First, it might be useful to think of the results as a representation of the way we chose to conceptualize the different schools of economics instead of a factual description of their true nature. This means that on the one hand commonalities and differences rest on the non-exhaustive means of comparison, which we identified by surveying work in the philosophy of science and economics, the history of economic thought and international political economy. Certain differences and similarities that could have been constructed by taking a different approach are thus potentially omitted. On the other hand, the comparison can only be as good as the perspective web-pages. By having sought academic review, we are confident that we have captured important parts of each of the perspectives, yet omissions and errors are still possible. Second, a further source of errors lies in the coding or the sorting of the perspectives into categories. The coding was performed by a team of three coders with backgrounds in different parts of economics. Though we think that subjective bias was reduced by revising the coding on multiple occasions, the procedure fell short of best practices advocated by scholars engaging in qualitative codings of texts (for example, Campbell et al. 2013). Lastly, a more practical limitation is that the coding for complexity economics could not be done appropriately, since the production of the perspective web-page was delayed. Still, categories were assigned to the perspective based on the background knowledge of the coders, but these are far less reliable than those of the other perspectives.

5 CONCLUSIONS

The paper has developed a typology of the different schools of economics by drawing from a range of literature including the history of economic thought, economic methodology, the philosophy of science and international political economy. The resulting conceptualization offers a tool for the teaching of pluralist economics according to a contending perspectives method, emphasizing the different underlying assumptions and meta-theoretical positions of some of the most prominent schools of thought in economics. Even though one has to be cautious regarding the categorization and development of ideal types the results apart from their educational purpose do arguably also provide some analytical insights. As the discussion of the results shows, meta-theoretical commonalities and differences can be traced by applying the typology. Such an approach holds promise of adding value to discussions in the history of economic thought as well as to recent contributions in International Political Economy, which so far have mostly relied on network theoretical and genealogical methods to visualize the spread and impact of different economic ideas (Ban 2016; Ban et al. 2016).

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