



THE RHETORIC OF ECONOMICS AND FLECK'S CONSTRUCTIVISM AS A COHERENT ALTERNATIVE TO THE SCIENTIFIC REALISM IN THE PHILOSOPHY OF ECONOMICS

Mariusz Maziarz

Wroclaw University of Economics, Poland

In this article, I analyze the case study of the Reinhart-Rogoff controversy from two perspectives: (1) scientific realism, the most popular approach to the philosophy of economics and (2) two constructivist approaches: the rhetoric of economics coined by Deidre McCloskey and constructivism developed by Ludwik Fleck. I aim at showing that the two explanations of the controversy present in the literature are inappropriate because of being committed to the philosophical assumptions of the scientific realism. On the contrary, if the Reinhart-Rogoff controversy is understood appropriately, i.e. as a result of alternative, similarly justified methodological decisions, then the constructivist approach offers a better descriptive adequacy and a more fruitful methodology. Additionally, I aim at showing that Fleck's constructivism and McCloskey's rhetoric of economics together constitute a coherent and attractive alternative for the scientific realism.

Keywords: Scientific realism, Rhetoric of economics, Fleck's constructivism, Philosophy of economics, The Reinhart-Rogoff affair.

Introduction

Those who practice economics as a science are said to be realists since they believe that there is a world (*relata*) to which economic theories and models correspond and what they describe. In detail, most economists were raised as methodologists by Mark Blaug, who authored the most popular textbook on methodology and philosophy of economics. Mark Blaug is said to belong to the Popperian, critical realist tradition¹. However, the philosophers of economics (Bhaskar,² Cartwright,³ Hardt⁴, Maki⁵ and Marshall⁶ are the most prominent examples) and the philosophers of the social sciences, being aware of the pitfalls of the falsificationism, mostly support scientific realism. The current state of the discipline is peculiar since this philosophical perspective was coined after the logical positivism exited the scene of the

¹ M. Blaug, *The methodology of economics or how economists explain*, London 1980.

² R. Bhaskar, *A Realist Theory of Science*, Londyn 2008.

³ N. Cartwright, *Hunting Causes and Using Them*, Cambridge 2007.

⁴ Ł. Hardt, *Studia z realistycznej filozofii ekonomii*, Warszawa 2013.

⁵ U. Maki, *Philosophy of Economics*, Helsinki 2012.

⁶ A. Marshall, *Principles of Economics*, Nowy Jork 1997.

philosophical discussions due to the weight of criticism. The scientific realism is aimed at explaining the success achieved by science.

The questions whether economics can legitimately be called “science” and – particularly – a successful science stays open. But, as I aim at showing in this article, the recent developments in econometrics showed that scientific realism does not set an appropriate framework for a methodological discussion. For instance, Maziarz⁷ argued that empirical macroeconomics is impossible to be interpreted in a realist way because of the inherent contradictoriness of various models. Additionally, Lawson⁸ convinced the participants of the Realist Workshop that the project of econometrics is doomed because there are no covering laws or constant regularities in economics.

In spite of the difficulties, most of the philosophers interested in economics still support scientific realism. Below, I aim at showing that the Reinhart-Rogoff controversy was misunderstood because of this philosophical commitment. On the contrary, the appropriate explanation of the contrary results arrived at by the two teams of cliometricians implies the epistemological theories coined by Fleck and McCloskey. The line of argument is following. In Section 2 and Section 3, I briefly discuss the rhetoric approach coined by McCloskey and the constructivism coined by Fleck, respectively. In Section 4, I discuss a recently widely discussed case of two contradictory articles known in the economic literature as the Reinhart-Rogoff affair (cf. Maziarz's recent article⁹). In Section 5, I present the explanations based on the scientific realism and the two post-modernist approaches. Finally, I conclude that the philosophy of scientific realism, in contrary to the rhetoric of economics and Fleck's constructivism, lacks descriptive adequacy and does not deliver appropriate methodological constraints.

The Rhetoric of Economics

In her famous book, McCloskey¹⁰ attacked the then-current state of economics that, as she believed, was based on pretending of being based on strict methodology and mathematization, but lacked utility for policy-makers and delivered no appropriate description of how economies work. McCloskey may seem to argue against any methodology. Her opinion is grounded in an observation that any rules of scientific research limit researcher's potential and creativity: (...) *adding methodological constraints to science cannot in general be wise (because they) will strike economists as obvious. Constraints, after all, constrain. The contrary notion that a rule-bound methodology is good for you has been much questioned recently by philosophers*¹¹. However, she opposed *Methodology* (i. e. capital letter – M) only and defined this concept in terms of modernism, falsificationism etc..

On the other hand, McCloskey accepted a set of practical rules called *method with a small m* (McCloskey 1998, p. 159). A number of principles are said to be helpful. What to do when the data are biased or when it is hard to coin a reason for an observed phenomenon, how to write scientific prose and how to avoid mistakes of statistical significance are only a few examples of the method of economists¹².

The rhetoric of economics is accused of being self-contradictory. Despite McCloskey called economics a successful science¹³, economists, before *Rhetoric of economics*, are said to believe in Methodology (understood as a modernist philosophy of science, the received view in the philosophy of science) and incremental improvement of economic theories that finally leads to a true description of economic reality. Hence, McCloskey advises: *[t]he best you can do, then, is to recommend what is good*

⁷ M. Maziarz, *The unrealistic realist philosophy of econometrics*, “Journal of Economic Issues”, in press.

⁸ T. Lawson, *Central Fallacies of Modern Economics*, “Cambridge Realist Workshop”, 17th October 2016, Clare College, London.

⁹ M. Maziarz, *The Reinhart-Rogoff Controversy as 'Emerging Contrary Result' Phenomenon*, “Journal of Economic Methodology”, in press.

¹⁰ D. McCloskey, *The Rhetoric of Economics*, Wisconsin, 1998.

¹¹ D. McCloskey, *The Rhetoric of Economics*, Wisconsin, 1998, p. 159.

¹² *Ibidem*.

¹³ *Ibidem*, p. XIX.

for science now, and leave the future to the gods. What is good for science now, to recur to an earlier theme, is good scientists, in most meanings of "good."¹⁴

What does it mean to be a good scientist? McCloskey identifies a good economist with a good rhetor as s/he uses language and does it with self-awareness and attention to other minds present in a discussion (McCloskey 1998, p. XIX; p. 5). The so-called Sprachethik is based on the following rules: *Don't lie; pay attention; don't sneer; cooperate; don't shout; let other people talk; be open-minded; explain yourself when asked; don't resort to violence or conspiracy in aid of your ideas* (McCloskey 1998, p. 160). The author of *Rhetoric of economics* points out the following synonyms to the term 'good': *moral, honest, hard-working* (McCloskey 1998, p. 169). The next factor that differentiates good from bad economists is the novelty of their research and contribution to a conversation¹⁵. What is more, good economists appropriately use statistical significance tests, i.e. differentiate economic and statistical significance.¹⁶ According to McCloskey's point of view, a coefficient that is economically significant is one whose value shows that a relation is important for academia or policy purposes. On the other hand, statistical significance means that it is less likely than an arbitrarily chosen p-value that randomly correlated variables will lead to an obtained estimation. According to McCloskey's advice, one should pay attention to the latter.¹⁷

The rhetoric of economics can be easily understood as an invitation to irrationality, relativism, and arguing for an argumentation's sake, especially if one takes into account the following statements: *[t]here is no "absolute sense" in which a description is good or bad. The sense must be comparative to a standard, and the standard must be argued¹⁸; [t]hese are particular arguments, good or bad. After making them, there is no point in asking a last, summarizing question: "Well, is it True?" It's whatever it is - persuasive, interesting, useful, and so forth¹⁹* McCloskey named the capital-T Truth the realist, correspondence definition. It states that true sentences, hypotheses and model implications refer to how the (economic) world is. Therefore, the above-cited sentence suggests that she is antirealist. On the other hand, McCloskey states that *commitments are either true or false²⁰*, admits being a realist²¹ (however Maki disagrees²²) and at the same time commits herself²³ to pragmatic considerations of rightness.²⁴

The rhetoric of economics seems to be inconsistent in terms of defining truth (further examples are given by Maki²⁵). These opposite points of view on truth presented by McCloskey make it hard to decide whether her ontological viewpoint is realist or instrumentalist. In the former case, economic models should be judged by comparing them to their *relata*. In the latter case, models are tools that should be used as long as they offer sufficient predictive adequacy or are applicable to economic policy-making. Epistemic guidance, I believe, is way more important for economists than ontological commitments of a philosophical viewpoint.

A proper understanding of McCloskey's ideas may demand to take into account the way she²⁶ interpreted the famous Friedman's essay 'The Methodology of Positive Economics'²⁷, i. e. not as a

¹⁴ Ibidem, p. 186.

¹⁵ Ibidem, p. 162.

¹⁶ Ibidem, p. 159.

¹⁷ D. McCloskey, *The Rhetoric of Economics*, Wisconsin, 1998, p. 136.

¹⁸ Ibidem, p. 114.

¹⁹ Ibidem, p. 180.

²⁰ Ibidem, p. 154.

²¹ D. McCloskey, *Modern Epistemology Against Analytic Philosophy: A Reply to Maki*, "A Journal of Economic Literature", 1995, vol. 33, pp. 1319-1332.

²² U. Maki, *Diagnosing McCloskey*, "Journal of Economic Literature", 1995, vol. 33, pp. 1300-1318.

²³ U. Maki, *How to Combine Rhetoric and Realism in the Methodology of Economics*, "Economics and Philosophy", 1988, vol. 4 (01), pp. 89-109.

²⁴ D. McCloskey, *The Rhetoric of Economics*, Wisconsin, 1998, p. 214.

²⁵ U. Maki, *Diagnosing McCloskey*, "Journal of Economic Literature", 1995, vol. 33, pp. 1300-1318.

²⁶ D. McCloskey, *The Rhetoric of Economics*, Wisconsin, 1998, pp. 145-146.

²⁷ M. Friedman, *The Methodology of Positive Economics*, D. Hausman (ed.) *The Philosophy of Economics. An Antology*, Cambridge 2007, pp. 145-178.

modernist credo but a postmodernist and persuasion-oriented text. Then, McCloskey, despite being antirealist (as Maki²⁸ and Zamora-Bonilla²⁹ argued), agreed that commitments are true or false in order to make the rhetoric of economics more persuasive. Summing up, the method advised by McCloskey is based on being 'good', i. e. persuasive, honest and coherent. Now, I am going to discuss the philosophical perspective of Fleck's constructivism that – in contrary to McCloskey's rhetoric of economics – is focused on the process of development of scientific knowledge and delivering a descriptive account rather than deconstructing logical positivism and setting up a minimal methodological framework necessary for a science to develop.

Fleck's Constructivism

Ludwig Fleck coined his constructivist approach³⁰ by developing his theory of thought styles, which later inspired Kuhn's breakthrough work³¹ on the history of science. Fleck was a microbiologist and a philosopher of science who published his thoughts on the sociology of science in 1935 in Germany. His book *Genesis and Development of a Scientific Fact* got no attention before the second half of the twentieth century but the situation changed due to Kuhn's reference to Fleck's work in 1962 and the English translation published in 1979 by the University of Chicago Press.

Up to date, there is a limited number of articles focused on the philosophy of economics that consider it in terms of a collective, epistemic activity as described by the early twenty-century microbiologist from Poland. A few authors refer to Fleck's works as an inspiration for Kuhn's concept of a paradigm. Furthermore, Scheuer³² applied the theory of thought collectives to show that the current epistemological crisis of economic thought is caused by the philosophical presuppositions of modernism what justifies my viewpoint that McCloskey and Fleck posit their methodological approaches in opposition to the mainstream, realist philosophy of economics.

Fleck based his investigations in the philosophy of science on case studies grounded in the development of medical theories on syphilis and differentiation of findings depending on anatomic observations. His main conclusion states that a scientist's point of view is shaped or even determined by a thought collective (Ger. Denkkollektiv) and thought style (Ger. Denkstil) one belongs to. A thought collective is *a community of persons mutually exchanging ideas or maintaining intellectual interaction, (...) it also provides the special "carrier" for the historical development of any field of thought, as well as for the given stock of knowledge and level of culture*³³.

In accordance with Fleck's constructivism, belonging to the collective is strictly connected to specific psychological and traditional factors. Hence it is not the so-called empirical observation but a thought style what makes scientists picture the reality in the way they do. Therefore, viewing a scientific fact as *distinguished from transient theories as something definite, permanent, and independent of any subjective interpretation by the scientist*³⁴ is a mistake. In fact, Fleck clearly highlighted that *scientific observation differs when two different thought styles are involved*.³⁵ In addition, a comparison of the XVII and XVIII century textbooks on anatomy to the modern ones encouraged Fleck to conclude that scientific thinking is not devoid of feeling. Working in the early twentieth century Fleck seems to anticipate further developments in the philosophy of science. Today, the consensus of opinion states that testing a theory is

²⁸ U. Maki, *Diagnosing McCloskey*, "Journal of Economic Literature", 1995, vol. 33, pp. 1300-1318.

²⁹ J. Zamora-Bonilla, *Conversation, realism, and inference*, A. Lehtinen et al. (eds.), *Economics for Real: Uskali Maki and the Place of Truth in Economics*, pp. 241-251.

³⁰ L. Fleck, *The Genesis and Development of a Scientific Fact*, E. Trenn, R. Merton (eds.), Chicago 1979.

³¹ Th. Kuhn, *The Structure of Scientific Revolutions: 50th Anniversary Edition*, University of Chicago Press, Chicago 2012.

³² B. Scheuer, *Metodologia ekonomii w perspektywie konstruktywistycznej*, Wrocław 2015.

³³ L. Fleck, *The Genesis and...* op. cit., p. 39.

³⁴ L. Fleck, *The Genesis and...* op. cit., p. XXVII.

³⁵ *Ibidem*, p. 133.

impossible and each experiment is, in fact, an attempt to falsify the whole system of knowledge. Also, if an experiment fails, theories are modified instead of being abandoned.

Furthermore, his theory seems to be exceptionally well suited to explain how facts are constructed on the grounds of economics since most (if not all) of phenomena are impossible to experience (observe, quantify, measure) without a theory. Fleck explicitly pointed out that it is *a thought style which determines the formulation of every concept*³⁶. Belonging to a thought style can be understood as *the readiness for (...) directed perception, with corresponding mental and objective assimilation of what has been so perceived. It is characterized by common features in the problems of interest to a thought collective, by the judgment which the thought collective considers evident, and by the methods which it applies as a means of cognition. The thought style may also be accompanied by a technical and literary style characteristic of the given system of knowledge*³⁷.

The analyses of the concept of syphilis and its evolution along the history of medicine from the concept of carnal scourge through the empirical-therapeutic one to a few modern, experimental-pathological views on the disease of unitarians, dualists and adherents to the identity theory made Fleck conclude that *if syphilis can be defined in various ways, the definition selected still determines some conclusions*³⁸ (of a research). Moreover, Fleck observed that alternative methods of investigation often leads to differentiated results: *both thinking and facts are changeable, if only because changes in thinking manifest themselves in changed facts*³⁹. Therefore, contrary to Fleck's opponents (i.e. positivists from the Vienna Circle) who believed that a scientific fact is something constant, a fixed ground that knowledge is built on, it might be more fruitful, argued Fleck⁴⁰, to understand it as something that owes utility. Nowadays, according to the minimal scientific realism coined by Maki,⁴¹ unobservable facts are said to be possibly describable by science in true (understood in a referential manner) and objective way.

For the appropriate understanding of a scientific fact, I need to mention Fleck's division of knowledge on active and passive elements. The former term was coined to refer to those elements of knowledge that directly depend on constructed definitions, calculation methods, measurements etc.⁴² Passive elements of knowledge, on the other hand, consists of relations among the active elements and are not directly influenced. It seems to *be real, objective and true*⁴³ relation even though it is only true in relation to the active elements that it is based on. Since the active elements of knowledge are shaped by a thought style, Fleck clearly highlighted that *scientific observation differs when two different thought styles are involved*⁴⁴ what, I will argue, is exemplified in the case study described below. Moreover, I want to show that scientific realism is unable to deal with the situations when the scientific scene is divided in judgment on whether a theory is right or a fact exists. Below, I briefly discuss the Reinhart-Rogoff affair and reconstruct the explanation delivered by those philosophers of economics who support scientific realism. Additionally, I coin the approach based on the philosophies of McCloskey and Fleck and argue that (1) they offer a better descriptive adequacy and (2) are consistent with each other.

The Reinhart-Rogoff affair

Before delivering a brief description of the case study, let me highlight that the aim of this article is presenting a novel approach to the philosophy of economics rather than discussing the Reinhart-Rogoff affair in details or delivering a solution to the sound question if austerity at the Treasure is indeed

³⁶ Ibidem, p. 133.

³⁷ Ibidem, p. 99.

³⁸ Ibidem, p. 8.

³⁹ Ibidem, p. 50.

⁴⁰ Ibidem, p. 72.

⁴¹ U. Maki, *Scientific realism as a challenge to economics (and vice versa)*, "Journal of Economic Methodology", 2011, vol. 18 (01), pp. 1-12.

⁴² L. Fleck, *The Genesis and...* op. cit., p. 89.

⁴³ Ibidem, p. 10.

⁴⁴ Ibidem, p. 133.

unavoidable, for such analysis, cf. Maziarz's article⁴⁵. In 2010, Reinhart and Rogoff published the paper⁴⁶ focused on the relation between public debt and pace of economic development. They conducted an econometric exercise based on a new dataset describing public indebtedness and GDP growth since 1800 for the developed countries and concluded that the debt to GDP ratio exceeds the level of 90%, economic growth slows.

Three years later, Herndon, Ash, and Pollin attempted to replicate their research and reported⁴⁷ three main drawbacks: the spreadsheet error, selective data exclusions and "unconventional" weighting of the summary statistics. Correcting for the indicated pitfalls changed the conclusion drawn from the data: according to Herndon, Ash, and Pollin, high levels of public indebtedness are not necessarily correlated with an economic slump. Few economists discovered that the differentiation of the results was caused by the different averaging schemes applied by these two groups of econometricians.⁴⁸ Moreover, the two alternative cliometric techniques are justified by the econometric methodology to a similar degree⁴⁹ but most of the commentators presented the point of view that one of the methods is right and the other flawed. Such controversies do not happen so rarely as many philosophers of science may think. On the grounds of economics, there are many examples of situations when researchers possess the same data but cannot agree on the "facts" or stylized facts (general relationships across time and space as defined by Kaldor⁵⁰) drawn from them. In accordance with Goldfarb's rough estimate⁵¹, approximately 10% of empirical analyses published in "American Economic Review" instantiate emerging contrary/recalcitrant result phenomenon (ERR). The cliometric research on expansionary fiscal contraction hypothesis or the question whether (or to what degree) the prices are sticky are just a few examples of subfields of econometrics where ERR emerged. Similarly to the controversies in econometrics, macroeconomic theories are also differentiated. Simplifying, the neoclassical theory is opposed to the post-Keynesian approach because of divergent assumptions on price adjustments. According to the neoclassical approach, prices adjust immediately. On the contrary, the post-Keynesian theory states that they are sticky, i.e. equilibrium is reached due to changes in quantities of traded goods instead of changes in prices⁵².

The Two Approaches to the Reinhart-Rogoff Controversy

At present, there are two explanations of the Reinhart-Rogoff controversy. On one hand, several commentators highlighted the influence of the spreadsheet error. On the other hand, a few economists supported the point of view according to which only one of the two methodologies is right. Both these incorrect explanations are grounded in scientific realism.

Scientific realism was coined in the second half of the twentieth century in order to explain the success of science. According to scientific realism, economic theories and models resemble, isolate or idealize reality. Therefore, as Maziarz⁵³ argued, only one of two contrary hypotheses (H1: $a > 0$; H2: $b < 0$) can be true. Additionally, because of its sources (scientific realism was originally established with interest in sciences and physics, especially), scientific realists state that methods employed by researchers develop

⁴⁵ M. Maziarz, *Cięcia budżetowe. Przegląd najnowszych badań*, "Ekonomia XXI Wieku", 2(10), pp. 9-21.

⁴⁶ C. Reinhart, K. Rogoff, *Growth in a Time of Debt*, "American Economic Review: Papers and Proceedings", 2010, vol. 100, pp. 573-578.

⁴⁷ Th. Herndon, M. Ash, R. Pollin, *Does high public debt consistently stifle economic growth? A critique of Reinhart and Rogoff*, "Cambridge Journal of Economics", 2014, vol. 38(2), pp. 257-279.

⁴⁸ M. Maziarz, *Being Good (an Econometrician) is not Enough!*, "Economy/Culture/Values METAECONOMICS", 2015, 3.

⁴⁹ J. Hamilton, *Reinhart-Rogoff and Herndon-Ash-Pollin: a few further comments*, "Econbrowser. Analysis of current economic conditions and policy", 2013, http://econbrowser.com/archives/2013/04/reinhartrogoff_1, (access: 18th January 2016).

⁵⁰ N. Kaldor, *Capital accumulation and economic growth* London 1961.

⁵¹ R. Goldfarb, *Now you see it, now you don't*, "Journal of Economic Methodology", 4(2), pp. 221-244.

⁵² B. Scheuer, *Introduction. Philosophical foundations of modern economics*,, PWN, Warsaw 2017.

⁵³ M. Maziarz, *The unrealistic realist philosophy of econometrics*, "Journal of Economic Issues", in press.

gradually and lead to more and more truthful descriptions. In other words, the verisimilitude of theories gradually improves.

Employing scientific realism implies that there is a real, constant, causal relation between public indebtedness and pace of economic development and science (among many other goals) is also aimed at discovering it. Because of this philosophical presupposition and the belief in gradually improving and unified econometric methodology, the indicated reason for the differing results is a methodological flaw committed by Reinhart and Rogoff. On the other hand, a detailed analysis of the methodological arguments favoring the alternative methodologies⁵⁴ shows that there are groups of economists that undertake alternative methodological commitments and strongly oppose each other. Therefore, considering the Reinhart-Rogoff affair in accordance with Fleck's constructivism is more fruitful and offer a better descriptive adequacy.

According to Fleck's constructivist approach, belonging to a thought style determines views and presuppositions researchers hold. Therefore, the econometricians belonging to different thought styles does not find the alternative methods as equally useful, right or appealing. On the contrary, the case study of the Reinhart-Rogoff affair exemplify Fleck's philosophical position since Reinhart and Rogoff or Herndon, Ash and Pollin and those econometricians who hold their point of view on methodology strongly opposed each other. They chose alternative methods and obtained the results that are assumed to be contradictory. However, taking into account Fleck's point of view that the findings describe relations among different passive elements of knowledge (e.g. differently defined average GDP growth, alternatively indicated years of fiscal contractions etc.), the views of both supporters and opponents of a hypothesis can be said to be right since they consider differently constructed realities, i.e. their conclusions are incomparable.

In addition to offering a better descriptive adequacy of the Reinhart-Rogoff affair in comparison to the scientific realism, the constructivist approach is more fruitful in solving the problem of contradictory findings. Deciding whether the hypothesis in favour of which Reinhart and Rogoff argued is true is, taking into account the present macroeconomic environment, a fierce question for economic policy-makers. Especially considering the fact that there are, to my best knowledge, no appropriate, widely supported theoretical accounts of the 90% threshold and the expansionary fiscal contraction hypotheses, the results obtained by econometricians constitute the only available evidence. It might be fruitful to understand economic fact as something that owes utility⁵⁵ and decide (if preferring one of the contrary points of view is unavoidable due to, for instance, the mentioned economic policy purpose) which of the contrary hypotheses is true (or should be favoured, at least) on the grounds of the utility delivered by different active elements of economic knowledge. In this case, economic policy decisions should be based on these active elements of knowledge (and implied by them passive ones) that are useful in reaching economic agent's goals.

The philosophical issues that arose from the Reinhart-Rogoff affair do not lie within the scope of interest of economists and the philosophers of economics only but are common for many disciplines. Fleck faced the same question when he was analyzing the development of the concept of syphilis and indicated belonging to different thought styles as the factor that shapes the divided opinions of scientists. In addition, his observation perfectly suits the above-described case studies. Namely, conventions (such as choosing averaging scheme or a method of indicating when governments cut spending), in spite of seeming to be equally possible from the point of view of logic, are felt to vary in utility for research for scientists committed to a thought style⁵⁶.

Even though the scientific fact is often believed by practicing economists to be independent of theories or any subjective judgment, constant and definite, there is no economic (and also microbiologic) observation without assumptions. Fleck⁵⁷ discussed two case studies. First, he analyzed a number of

⁵⁴ M. Maziarz, *It's all in the eyes of beholder*, op. cit.

⁵⁵ L. Fleck, *Genesis and Development...* op. cit., p. 72.

⁵⁶ L. Fleck, *Genesis and Development...* op. cit., p. 9.

⁵⁷ *Ibidem*, p. 89.

descriptions of a bacterial colony observation and concluded that it is impossible to describe any observation without theoretical commitments. Second, he showed how beliefs held by scientists shape their views. In antiquity, the idea of an analogy between male and female genitals was held and made then-current anatomists reshape their observations in order to suit this assumption⁵⁸.

Economics, because of its closeness to the business and economic policy, seems to be much more submissive to the presuppositions held by researchers. Everyone who starts her/his higher education in the field of social sciences is committed to some beliefs, for instance in economic freedom, self-regulatory markets or, on the contrary, welfare state, the necessity of government interventions etc. These commitments, reshaped by economic education and social interactions with other members of a thought style constitute everyone's point of view on such issues as the necessity of cutting government spending. In Fleck's words, *contradictory moods have random influence upon undirected vision. There is a rivalry among visual fields of thought. Nothing is factual or fixed. Things can be seen almost arbitrarily in this light or that. There is neither support, nor constraint, nor resistance and there is no "firm ground of facts."*⁵⁹.

It is easy to disregard the constructivist approach to the methodology of economics by accusing Fleck's constructivism and McCloskey's rhetoric of being an invitation to arbitrariness and a justification for data mining directed at getting the desired result. However, in accordance with the constructivist approach, scientists do not arbitrarily choose methods that lead to the desired result. The choice is determined by belonging to a thought style. Such a misunderstanding can be committed especially by someone who starts studying Fleck's work and reads: *there is probably no such thing as complete error or complete truth*⁶⁰, hence the term should be considered on the ground of beliefs held by a thought style. However, the constructivist approach cannot be understood as an invitation to arbitrariness. Even though methods and, consequently, facts are shaped by – for instance – beliefs, education and historical factors, it does not mean that theories, hypotheses, and facts are entirely separated from reality. Fleck coined the terms *active* and *passive* knowledge in order to differentiate terms that directly depend on definitions or methodological choices from the latter.

Passive knowledge, on the other hand, consists of relations among active elements of knowledge and is not directly influenced by, for instance, economists. It seems to *be real, objective and true* relation (1979, p. 10). The terms active and passive knowledge can easily be exemplified by the case study of the researches conducted by Reinhart and Rogoff, and Herndon, Ash, and Pollin. In this case, the methods of calculating averages illustrate the active knowledge and the findings, i.e. average GDP growth estimates, the passive knowledge that in spite depending on active elements, *alone could not even be formulated*⁶¹.

The differentiation between active and passive elements of knowledge makes a better understanding of the case studies possible. In accordance with Fleck's constructivism, a thought style shapes methodological choices committed by cliometricians. However, the results arrived at are not intentionally strived for and does not determine the methods applied. On the contrary, the results exemplify the passive elements of knowledge and they describe real (in terms of corresponding with the world) relations between the concepts constructed between the economists. I should highlight here that there is an alternative interpretation of Fleck's theory coined by radical constructivists, cf. *Aspects of Radical Constructivism*⁶². Accepting the Fleck's constructivism helps in understanding the analyzed case study not in terms of contradictory hypotheses but as alternative descriptions of the economic reality.

The difference between the conclusions drawn by Reinhart and Rogoff, and Herndon, Ash and Pollin is an outcome of different active elements of knowledge. However, the passive elements (i.e. the hypotheses) of knowledge can both be true since they describe relations between constructed terms such as, for instance, "average" or "public debt". The hypotheses described above seem contradictory on the

⁵⁸ Ibidem, p. 33.

⁵⁹ Ibidem, p. 92.

⁶⁰ L. Fleck, *Genesis and Development...* op. cit., p. 20.

⁶¹ Ibidem, p. 10.

⁶² E. von Glasersfeld, *Aspektos del constructivismo radical*, M. Pakman (ed.) *Construcciones de la experiencia humana*, Barcelona 1996, pp. 23-49.

grounds of the realist philosophy of economics. However, the assumption that the hypotheses describe relations between the constructed terms allows dismissing the contradiction.

Even though methodological commitments are strongly shaped by a thought style and economists will probably advocate for one of the hypotheses (namely, the one coherent with their thought style), sometimes it is possible to have a grasp of the situation. For instance, policy-makers, not belonging to thought styles, need to choose one of the points of views in order to intervene or suspend from the active macroeconomic policy. Due to the high practical value of economics (similarly to medicine or microbiology and in contrary to, for instance, theoretical mathematics), it might be more fruitful to understand a scientific fact not in the modernist way, i.e. as fixed grounds that knowledge is built on, but as something that owes utility⁶³. Assuming the instrumentalist understanding of facts, those active elements of knowledge (and implied by them passive ones) should be preferred that are useful in reaching economic agent's goals.

However, it should be highlighted that the instrumentalist solution to the problem of theory appraisal is temporary since thought styles and facts seen by scientists evolve and constructing a coherent theory in the future might be supposed. As Fleck wrote: *both thinking and facts are changeable, if only because changes in thinking manifest themselves in changed facts*⁶⁴. The microbiologist discussed the development of the concept of syphilis and concluded that there are no constant, time- and context-independent terms: *there was only the then-current concept available*⁶⁵. A similar conclusion can be drawn from the analysis of the Reinhart-Rogoff controversy. There are no such things as constant, single methods of calculating the average, estimating the value of GDP in a particular year for a considered country etc. In the same manner, economic knowledge in general evolves and what is considered as fact changes. For instance, theoretical descriptions of a relation between inflation and unemployment strongly evolved in the past several decades⁶⁶. In fact, the development of knowledge in any field shows that contrary perceptions are present at the early stages of development and facts understood as *something fixed and proven (...)* exist *only in vademecum science*⁶⁷ understood as a set of theories and statements widely accepted by a thought collective of, for instance, economists.

Concluding Remarks

In summary, the Reinhart-Rogoff controversy is today misunderstood in the literature. Commentators either highlight the influence of the miscoded Excel formula or believe that only one of the two sets of cliometric techniques is right and justified. Above, I argued that these explanations are grounded in the most popular approach to the philosophy of economics, namely – scientific realism.

On the contrary, the appropriate understanding of the grounds why two teams of econometricians arrived at contrary results when mining the same data implies a constructivist philosophy of science. Since such approaches to economic methodology are rare in number and not widely recognized, I attempted to coin a consistent and fruitful theory connecting descriptive ideas of Ludwik Fleck and normative analyses of Deidre McCloskey. Additionally, I showed that the two theories deliver an adequate description of the process of knowledge construction during econometric research. On one hand, the rhetoric of economics coined by McCloskey as a criticism of the modernist methodology is helpful in establishing research practice aimed at openness and clearness of the methodological discussions. On the other hand, taking into account the most significant conclusions drawn from the analysis of the Reinhart-Rogoff affair in terms of Fleck's constructivism, i.e. the division of opinions held by economists on methodological issues, the influence of irrational factors on positions defended by economists in methodological debates and the problem of underdetermination of scientific theories, I can legitimately

⁶³ L. Fleck, *Genesis and Development...* op. cit., p. 72.

⁶⁴ Ibidem, p. 50.

⁶⁵ Ibidem.

⁶⁶ M. Friedman, *Inflation and Unemployment: Nobel lecture*, "Journal of Political Economy", vol. 85., pp. 451-472

⁶⁷ L. Fleck, *Genesis and Development...* op. cit., p. 124.

say that the research program of scientific realism is fruitless in solving these problems and, what the inappropriate explanations of the Reinhart-Rogoff controversy exemplified, is likely to lead to misunderstandings.

McCloskey's advice on how economics should be practiced promise a more useful economic knowledge achievable in the future thanks to a proper argumentation, defending one's positions due to rational reasons, being aware of the alternative voices present in the discussion etc. Therefore, McCloskey's rhetoric of economics and Fleck's constructivism constitute a coherent philosophical position that should be preferred over scientific realism by the methodologists and the philosophers of science which research interests focus on economics.

Acknowledgment

I would like to thankfully acknowledge the support from the National Science Centre, Poland (under grant no. 2015/19/N/HS1/01066).

References

1. Bhaskar R., *A Realist Theory of Science*, Londyn 2008.
2. Blaug M., *The methodology of economics or how economists explain*, London 1980.
3. Cartwright N., *Hunting Causes and Using Them*, Cambridge 2007.
4. Fleck L., *The Genesis and Development of a Scientific Fact*, E. Trenn, R. Merton (eds.), Chicago 1979.
5. Friedman M., *Inflation and Unemployment: Nobel lecture*, "Journal of Political Economy", vol. 85., pp. 451-472.
6. Friedman M., *The Methodology of Positive Economics*, D. Hausman (ed.) *The Philosophy of Economics. An Anthology*, Cambridge 2007, pp. 145-178.
7. Glasersfeld E., *Aspektos del constructivismo radical*, M. Pakman (ed.) *Construcciones de la experiencia humana*, Barcelona 1996, pp. 23-49.
8. Hamilton, *Reinhart-Rogoff and Herndon-Ash-Pollin: a few further comments*, "Econbrowser. Analysis of current economic conditions and policy", 2013, http://econbrowser.com/archives/2013/04/reinhartrogoff_1, (access: 18th January 2016).
9. Hardt Ł., *Studia z realistycznej filozofii ekonomii*, Warszawa 2013.
10. Herndon Th., M. Ash, R. Pollin, *Does high public debt consistently stifle economic growth? A critique of Reinhart and Rogoff*, "Cambridge Journal of Economics", 2014, vol. 38(2), pp. 257-279.
11. Kaldor N., *Capital accumulation and economic growth* London 1961.
12. Maki U., *Diagnosing McCloskey*, "Journal of Economic Literature", 1995, vol. 33, pp. 1300-1318.
13. Maki U., *How to Combine Rhetoric and Realism in the Methodology of Economics*, "Economics and Philosophy", 1988, vol. 4 (01), pp. 89-109.
14. Maki U., *Philosophy of Economics*, Helsinki 2012.
15. Maki U., *Scientific realism as a challenge to economics (and vice versa)*, "Journal of Economic Methodology", 2011, vol. 18 (01), pp. 1-12.
16. Marshall A., *Principles of Economics*, Nowy Jork 1997.
17. Maziarz M., *The Reinhart-Rogoff Controversy as Emerging Contrary Result Phenomenon*, "Journal of Economic Methodology", in press.
18. Maziarz M., *Being Good (an Econometrician) is not Enough!*, The International Conference "Economy/Culture/Values META-ECONOMICS", 2015, 3.

19. Maziarz M., *Cięcia budżetowe. Przegląd najnowszych badań*, "Ekonomia XXI Wieku", 2(10), pp. 9-21.
20. Maziarz M., *It's all in the eyes of beholder*, "Cambridge Journal of Economics", in press.
21. Maziarz M., *The unrealistic realist philosophy of econometrics*, "Journal of Economic Issues", in press.
22. McCloskey D., *Modern Epistemology Against Analytic Philosophy: A Reply to Maki*, "A Journal of Economic Literature", 1995, vol. 33, pp. 1319-1332.
23. McCloskey D., *The Rhetoric of Economics*, Wisconsin, 1998.
24. Reinhart C., K. Rogoff, *Growth in a Time of Debt*, "American Economic Review: Papers and Proceedings", 2010, vol. 100, pp. 573-578.
25. Scheuer B., *Metodologia ekonomii w perspektywie konstruktywistycznej*, Wrocław 2015.
26. Zamora-Bonilla J., *Conversation, realism, and inference*, A. Lehtinen et al. (eds.), *Economics for Real: Uskali Maki and the Place of Truth in Economics*, pp. 241-251.