Introduction

If one stresses the role of metaphors in the practice of economics, then one is often accused of promoting a rhetorical approach to economic theorizing, namely the idea that economics is just storytelling devoid of any attempts to discover the real workings of the socio-economic world. D. McCloskey, a leading proponent of a rhetorical approach, proclaims in this context: “Economics is literary, too. Saying that something is 'literary' means that one can speak of it as people speak about drama, poetry, and novels, and the study of them” (1984, p. 104). Next, she claims that the most obvious of literary tools used in economics is the metaphor which serves to make economics rhetorically attractive. Moreover, many supporters of such a postmodern vision of economics subscribe to the central relativist thesis that the truth is relative to a specific paradigm, system, culture, or conceptual scheme (cf. Boylan and O’Gorman, 1995, p. 86) [1]. So, the truth is not defined in terms of an adequate correspondence between the sentence and the real, but rather as a purely epistemological notion – the truth does not depend on the objective reality, but rather on actors’ beliefs about it. That is at odds with the central tenet of realism that the world exists autonomously of people investigating it and hence the sentences of a theory are true or false in virtue of how the actual is - independently of ourselves (Newton-Smith, 1981, p. 21). I do not agree with the above-described reasoning in which using metaphors leads to treating economics as storytelling and hence denying realism in favor of relativism. I aim to show in this paper that the presence of metaphors at every level of economic theory signifies the researchers’ attempts to explain the real causes of economic phenomena rather than a desire only to entertain or convince an audience. Therefore, good economic theorizing usually equals metaphorizing economic phenomena well.

The paper is organized as follows. The subsequent section introduces the metaphor and offers some insights into the way good metaphorizing should be defined. What follows is a comparison between metaphors and models. Next, I show some examples of metaphors that have gained considerable attention in economics and I also analyze their impact on economic policy-making. The conclusions follow.

Metaphor and reference

Reflection on the role and function of metaphor can be dated back to Aristotle’s Poetics where we find the classical statement that “A metaphor is the application [to something] of a name belonging to something else” (1987, p. 28). So, in metaphorizing we attribute to one object (the so-called primary subject) a name belonging to another one (secondary subject), while the characteristics of the latter do not normally belong to
the former (Black, 1962) [2]. Or, in other words, we speak about these objects as if they were one and the same. We have plenty of examples of such metaphors both in everyday language as well as in the most celebrated literary works, including Aristotle (Achilles is a lion), Shakespeare (Juliet is the Sun), or Joyce (History is a nightmare). Although metaphor is but one of many ways of comparing two things, it is not a simile. Aristotle does not claim that Achilles is like a lion, but Achilles is a lion. Therefore, in crafting metaphors, is signifies on the one hand ‘is not’ and on the other ‘is like’. So, the role of metaphor in invoking the real (e.g. a lion) lies in underlining the crucial characteristics of the primary subject (here e.g. courage and strength of Achilles). This is achieved by treating the primary subject as being identical to the secondary one, which functions as an archetypical bearer of these characteristics (everyone understands that lion signifies courage and strength). Thus metaphors are vehicles that carry the meaning between objects. It is unsurprising since in Greek metaphor is made up of the words, meta, signifying ‘over’ and pherein, meaning ‘to carry’ (Henderson, 1994, p. 344). However, a lot has changed in the use of the metaphor since Aristotle – now metaphorizing is not only restricted to nouns but encompasses also verbs that serve as secondary subjects, e.g., I burn with anger, or prepositions, for instance, I will see you in an hour. Also, modern studies on metaphor concentrate on the non-literary use of them, including the role of metaphors in science. This is at odds with the desire associated with the Enlightenment to get rid of metaphors and to have science based upon observation and reason. The resurgence of interest in metaphors in science is largely due to a general shift in the philosophy of science from formulating the suggestions of what form science should take to just focusing on the ways the researchers do science (Cartwright, 1999).

I will suggest further insights into the ways metaphors are currently conceptualized in a later section, but it would be appropriate at this point to elaborate on metaphors as such. First, they are not restricted to short phrases but can take the form of the so-called extended metaphor where a given metaphor can be remetaphorized again and again; take for instance the following passage from Sailing to Byzantium by W.B. Yeats – “An aged man is but a paltry thing, A tattered coat upon a stick” (cf. Hills, 2012). Second, it is not required for the primary and secondary subject to refer to the actual. They can be purely fictional entities, e.g. The hobbits are Middle-earth’s hope. Third, one may have a whole network of metaphors with internal structure and dynamics, e.g. in monetary economics we often link together such metaphors as ‘liquidity of money’, ‘money flow’, ‘[Money] is the oil which renders the motion of the wheels [of trade]’ (Hume), or ‘inflation as a wavy sea’ (Menger). Fourth, analogies are not equal to metaphors – they precede the forming of the latter. So the role of analogy lies in noticing similarities between two domains, e.g. money circulation and water flow, and only then making one of these domains a source for secondary subjects in creating metaphors (e.g. the water-based metaphors of money circulation) (Morgan and Boumans, 2004). Fifth, metaphors having the same designate may have different meanings, e.g. although in saying ‘evening star’ and ‘morning star’ we refer to the same object in the sky, the sense of each is different. Sixth, metaphors, and
networks of metaphors in particular, although consisting only of fictional entities, may represent the real structure of causes operating in the world, e.g. the law of demand can be depicted as a pattern regulating exchange between virtual persons operating in virtual space (see, for example, Epstein and Axtell, 1996) [3]. That is particularly important for us, since it means that we may have a poem-like description of the economy serving our epistemological goal of correctly analyzing the workings of the socio-economic world. However, the condition sine qua non for such an insightful *poem-economics* is that the researcher at first make an attempt to represent the actual, which is not restricted to Humean observables, but may consists of unobservables such as causes, tendencies, structures, capacities, and processes (cf. Mäki, 2009).

Although each of these insights deserves deeper analysis, we will focus for now on the last point. Here I must refer to McCloskey’s proclamation of the literary character of economics. If, according to her, “each step in economic reasoning [...] is metaphor” (1983, p. 502), then the status of economics depends on the kind of metaphors it is built upon. However, at the outset, she is quite ambiguous on this issue – at one point she states that metaphors in economics have ornaments (no-attempt to refer to the actual) (ibid., p. 504), at another that they do not have them (attempt to describe/understand the real is undertaken) (ibid., p. 503), or that metaphors are cognitive heuristics indispensable in economics (ibid., p. 507). Nevertheless, at the end of the day, in her well-known book *The Rhetoric of Economics* (1985), which develops the insights in her 1983 paper, she is quite clear that the correspondence theory of truth, which states that the truth or falsity of the statement is determined by its relation to the world and not to other statements, is wrong (1985, p. 48), and hence making attempt to describe the real is not epistemologically superior to theorizing without a desire to refer to the actual. Therefore, she abandons the so-called non-epistemic notion of truth, namely the view that the sentence is true only in virtue of how accurately it describes the mind-independent world [4]. She illustrates her position be referring to economics in the following way:

“If we decide that the quantity theory of money or the marginal productivity theory of distribution is persuasive, interesting, useful, reasonable, appealing, acceptable, we do not also need to know that it is *True*” (ibid., pp. 46-47, italics in original).

But, metaphors built without attempting to refer to the actual have only a purely rhetorical value and they are not research tools the ones inquiring into the dynamics of the real economy are interested in. Following Levy (2012) we can call them *whole-cloth fictions* (imaginary objects). On the other hand, the metaphors formed while attempting to depict the world can be called *worldly fictions* (imaginative descriptions of actual things). However, once the researcher abandons the correspondence theory of truth – as McCloskey did, then she will always finish with metaphors that do not take into consideration the real state of affairs. So, realism, even in its minimal form, meaning that the world exists independently of ourselves and is epistemologically accessible, is a guarantee that metaphors can serve as research tools for science, including economics. On the
other hand, if one denies realism, as McCloskey appears to do, then the metaphors produced will be just purely ornamental entities and the poetry based upon them not poetry in Aristotelian sense [5].

After sketching here the basic tenets of the science of metaphors we may now focus on economics and show what role metaphors play in that particular science. My task is thus to somehow comment critically on Smith’s position as stated in the Theory of Moral Sentiments that “The beauty of poetry is a matter of such nicety, that a young beginner can scarce ever be certain that he has attained it […] . Mathematicians, on the contrary, who may have the most perfect assurance, both of the truth and of the importance of their discoveries” (2010, p. 88). Is it really such a dichotomical division between mathematicians who are so perfect in their understanding and poets whose work does not represent any epistemological value added? Do we really need to subscribe to Smith’s argument, deeply rooted in the Enlightenment’s denial of any substantial role for metaphors (or poetry in general) in science, that metaphorizing is of no value for economics? In the next section I will present a rejection of Smith’s statement and show that the condition sine qua non for allowing the entrance of mathematics into economics was an important change in the way economics was done in the 19th century, namely a move from dealing with words, to theorizing with laws, and finally with models (cf. Morgan, 2012). However, and this I will demonstrate, models in economics can be conceptualized to a huge extent as metaphors.

Metaphors and models

It is rather paradoxical that Adam Smith who first presented a strong skepticism towards metaphors, later, in The Wealth of Nations, introduced one of the most famous economic metaphors, namely the one of the invisible hand. Subsequent authors also quite often started investigations into the workings of the economy by metaphorizing its various elements, for example by subscribing to the mechanistic world hypothesis under which the economy is depicted as resembling a machine, replete with ‘price mechanism’, ‘equilibrium’, ‘frictions’, and ‘elasticities’. The inflow of metaphors, based on secondary subjects taken from physics, into economics was so intensive in the 19th century that many started to call economics the physics of social sciences. P. Mirowski states even that what is called ‘energy’ in physics and ‘utility’ in economics is fundamentally the same metaphor, “performing many of the same explanatory functions in the respective contexts, […] not to mention many of the same mathematical formalisms” (1991, p. 4). So, the mathematical apparatus taken to account for energy changes can be equally well used in the science of economics while analyzing consumers’ behavior. That is why we have so many constraint maximization problems in economics, often couched in technical terms of Lagrangians and Hamiltonians. Therefore, taking secondary subjects from a given domain (here: physics) leads to importing reasoning techniques (here: mathematics) from that very realm (cf. Hacking, 1992, p. 10). Consequently, and many would claim paradoxically, the metaphorization of economics in the 19th played an important role in its subsequent mathematization.
The construction of 19th century neoclassical economics undertaken as if many of its concepts and techniques were identical with those of physics eased the mathematization of the science of Walras and Marshall. Likewise the popularization of modeling techniques played an important role in formalization of economics. The models entered into economics in its early days through the works of Quesnay (Tableau Economique), Ricardo (Farm Accounting Scheme), Marshall (Trade Diagram) and Edgeworth (Exchange Diagram), to name only the most important contributors. From the very beginning the essence of modeling has been to build isolated artificial worlds by considering some factors absent (ceteris absentibus), negligible (ceteris neglicts), or simply unchanged (ceteris paribus) (Boumans, 2005). Also, models incorporate deliberate distortions, e.g. the assumption that agents are perfectly rational. So, they are not only pure isolations, but isolations with extra content (Frigg and Hartman, 2006, p. 742). Model formation requires also imagination and creativity on the side of modelers in order to hypothesize how the economy might work and how its workings can be described (Morgan, 2012, p. 21). Modeling is not only driven by a logical process of picking out the most important factors responsible for phenomena under investigation, but also it is a process of creatively constructing the model world. In other words, the model builder acts as an artist, since they both use creativity and imagination in building the artificial realms. As Frigg (2010, p. 251) puts it clearly “models share important aspects in common with literary fiction,” or in Cartwright’s words “a model is a work of fiction” (1983, p. 153) and an “intellectual construction” (ibid., p. 144). However, while being a fiction a given model is not a purely rhetorical construct decoupled from the actual; on the contrary, it is constructed in order to represent the crucial characteristics of the socio-economic world. A nice example of creativity in modeling comes from monetary economics where researchers put a lot of effort into representing the money flow. They did it, for instance, by constructing the Phillips-Newlyn hydraulic analogy of US money flow, which can be depicted using diagrams (e.g., Morgan, 2012, p. 35), and the diagrams as such can be explained in verbal terms as a fable. Thus, economic models are conceptually close to metaphors resulting from researchers’ desire to refer to the actual.

There are more similarities between models and metaphors, however, here we will concentrate on the two most important ones, namely the way we decide whether a given model or metaphor is a good one and the natural tendency of metaphors to function in networks. So we shall begin with the first similarity. The very essence of comparing various models lies in deciding whether a given model isolates correctly – it cannot isolate too much (all important causal factors must be present in its explanans), however, on the other hand, it cannot isolate too little (the number of factors in its explanans must be restricted to the ones playing a crucial role in accounting for a given explanandum), and finally it cannot isolate wrongly (a given factor cannot be incorrectly deemed important/unimportant in forming the explanation) (cf. Mäki, 2004, p. 320). The way we decide on the goodness of metaphors is very similar. What we check is whether the primary subject is correctly characterized by the secondary. If one wants to stress the Achilles’s strength and courage,
one would not say *Achilles is a dolphin*. Just as the very essence of modeling is to minimize the risk of falsely treating unimportant factors as crucial ones and hence getting rid of essential explaining items from the model, the focus of the metaphor-maker is on minimizing the risk of choosing the secondary subject incorrectly. Moreover, both in the case of models and metaphors the truth-goal is a pragmatic one – we have to believe truths that are important for us (Foley, 1993). By *important for us* I mean the ones that are important *vis-à-vis* the researchers’ goals, e.g. institutional economists, explaining determinants of economic growth, would focus on law, culture, tradition, inter alia, and consequently would not place emphasis on technology as such. On the other hand, the researchers analyzing the growth creating role of R&D would investigate patent policies, systems of innovation, and links between business and academia, and consequently would omitting institutional factors in their models. Thus subjectivity is present in choosing the goals of study, but once the goal is chosen, the appraisal of models/metaphors is usually done as described above.

The second important similarity between models and metaphors comes from the fact that metaphors often function in networks. Weinrich in his somehow forgotten contribution to the theory of metaphor states the following in that respect:


Nowadays we have many arguments supporting such a claim resulting from research in cognitive science. It turns out that metaphors are crucial for the way people make sense and categorize their experience (Gibbs, 1992, p. 572). That is so because long-term memory is to a great extent metaphorically structured (see e.g. Lakoff and Johnson, 1980 for a well-known early treatment of this issue), and hence people think *metaphorically* due to some fundamental characteristics of their cognitive systems. Therefore, metaphor is not only a linguistic but rather a conceptual phenomenon [6]. Once a subject sees the metaphor she will immediately *mentally* link it to other metaphors already accessible in her cognitive apparatus. Also, agents analyze cognitively the interplays between various metaphors (mental experimenting) before engaging in real actions. If so, then understanding the world through metaphors is deeply embedded in the way we make sense of reality. Interestingly, then, one can notice that playing (cognitively) with interconnected metaphors is very similar to modeling techniques, since in *playing* with models one should first construct models’ ingredients and then analyze the dynamic relations between them. In economics, and probably in other social sciences using models, the components of models are very often metaphors. Take, for instance, monetary economics where models describing the money markets are plenty of such metaphors as ‘money flow’, ‘price sickness’, ‘elasticity of demand for money’, ‘money reservoir’, and many others. Thus such models are just networks of metaphors. Thus when comparing the models what is needed is first to check whether their metaphors are correctly formed, and second whether their metaphors rightly fit with other metaphors in the
network. It is hardly imaginable to have in the same network metaphors taken from ‘physical’, ‘chemical’, or ‘organic’ domain, since taking metaphors from a given realm means using the analytical methods from that very area and these techniques are often conflicting ones. However, one needs to bear in mind that this is an area which requires further research.

From metaphors to economic theories and policies

The debate on the nature of metaphors and their role in economic inquiry is not purely theoretical, but can inform us on how developments in economics can influence economic policy making and in subsequent steps the real economy. To illustrate this point, I will use a two very simple examples of metaphors. First, I will address ‘human capital’ – a metaphorical description of skills and knowledge that are at people’s disposal - in order to show how metaphors can affect economic policies. Second, we will examine the ‘great moderation’ – a metaphorical depiction of a reduction in the volatility of US business cycle fluctuations starting in the late-1980s.

The metaphor of ‘human capital’ was originally coined by Theodore Schultz, an agricultural economist and the recipient of 1979 Nobel Prize in Economics, as a description of human skills and knowledge. He treated rural families’ sacrifices in upbringing and instructing children as a form of investment – instead of buying a new tractor they just spend money on educating their children (Schultz, 1963). However, the mere coinage of that metaphor did not immediately make science of human capital. What was needed was to link that metaphor to the ways economists generally think about various forms of capital, including studies on public investments in capital goods, analysis of capital formation, and so on. The metaphor of ‘human capital’ resonated perfectly well with neoclassical economics. For example, following the contributions by Solow, Dommar, and Swan it was clear that the crucial role in stimulating growth is played by capital accumulation. Then, in the next step, human capital immediately entered into the framework of neoclassical growth models. Hence public investments in that kind of capital gained a strong legitimization. Now, let us imagine T. Schultz seeing ‘moral resolve’ instead of ‘human capital’. First, probably his contemporaries would not understand that metaphor as belonging to economics and this would not allow its incorporation into neoclassical theory. Second, even if treated as an economic metaphor, the idea of ‘moral resolve’ would lead T. Schultz into the camp of moral philosophers, claiming that bad economic outcomes reflect some kind of loss of ‘moral resolve’ (cf. Klamer and McCloskey, 1994, p. 40). Nowadays, so many years after Schultz’s initial insights into the role of human capital, it is clear that this very metaphor largely transformed the way economists understand many economic processes.

Next, we will focus on a relatively new metaphor, that of the ‘great moderation’. It was originally created by Stock and Watson (2003) in order to describe a period of low volatility in the US business cycle. So, in their formulation that metaphor is precisely the following: “decline in volatility [of US economy from the late-80’s till the beginning of the new century]” (p. 161) is “great moderation” (p. 162). The authors put
the first usage of the term in inverted commas signaling to their audience that it is taken from outside standard macroeconomic vocabulary. Some of their most influential proponents, including B. Bernanke (2004), did the same – placing the term for the first time in inverted commas and then subsequently without. The word moderation suggests, however, that we should have a moderator, i.e. something making the business cycle moderated [7]. So, at the very center of that metaphor there is a desire to explain the ‘great moderation’ in term of a moderator. In his now famous 2004 speech B. Bernanke offers such an explanation: “My view is that improvements in monetary policy, though certainly not the only factor, have probably been an important source of the Great Moderation”.

Therefore, the moderator is US monetary policy. Thus the coinage of the ‘great moderation’ metaphor has given a strong legitimization for conceptually linking the dynamics of the business cycle to monetary policy. Had Stock and Watson seen ‘institutional calmness’, suggesting the existence of structural features of the economy that improved its ability to absorb shocks, we can speculate that the result would have been a stronger focus of economists’ interest on the institutional fabric of the market and consequently a greater emphasis on regulatory reforms in the event of the crisis. Therefore, although more in-depth studies are needed here, we may suppose that the US authorities’ reaction to the Great Recession has been to some extent influenced by the theoretical developments inspired by the metaphor of ‘great moderation’.

The two cases described above show that metaphors matter for the ways economists comprehend the world and craft economic policies. Metaphors are so successful in providing economists with explanations since they give them cognitive means to chart the unknown. That is due also to the fact that metaphorizing is the “process by which new perspectives on the world come into existence” (Schön, 1979, p. 254). Paraphrasing the well-known passage from M. Proust one can thus claim that the real voyage of discovering the world through metaphors consists in seeking new landscapes by the virtue of having new eyes (metaphors).

Conclusions

My aim in this paper was to close the gap between rhetoric and realism. It is with no doubt that economists try to make their theories rhetorically attractive by using metaphors, stories, narratives, and other rhetorical devices. However, and this is what I have tried to demonstrate, metaphors do not necessarily lead to ambiguities and imprecision, but can play an important role in explaining the real. Thus, I do not agree with those claiming that they are fine for poets, but anathema for scientists. Moreover, the use of metaphors is not only compatible with realism, but forms the very essence of it, since it is hardly imaginable to model the economy without metaphorizing its various aspects. Nevertheless, there is a fundamental precondition for successfully combining rhetoric with realism in economics – compatibility between the two is only assured
when researchers attempt to refer to the real world while crafting their theories. If such an attempt is undertaken, then even the most rhetorically oriented economics with fables and poems may still serve its goal of explaining the workings of the economy. As Mäki (1988, p. 108) rightly claims there are many arguments against realism in economics that are really challenging, but the idea that communicative practices in economics are just of rhetorical character is not the one among them. I totally agree with him.

Endnotes:

[1] In this context, postmodern simply means the rejection of the idea that science is the mirror of nature, but rather it emerges from social context (Rorty, 1980).

[2] Apart from Black’s distinction between the primary and secondary subject, other authors’ terminologies consist of subject vs. predicate (Richards, 1936), or target vs. import (Klamar and Leonard, 1994, p. 27).

[3] I refer here to the idea of structural correspondence that can be understood as whole or partial isomorphism (see, e.g., French and Ladyman, 1999).

[4] I do not want to say that McCloskey subscribes to some specific epistemic conception of truth which generally conceptualizes the truth of the statement in terms of its compatibility with other statements, but rather that she follows the Kuhnian plea for the abandonment of correspondence theory. Or, more precisely, for her truth is the characteristic of good conversation and the sentence is true if people believe that it is true (e.g. the sentence snow is white is not true due to the fact that snow is white as proponents of the correspondence theory would say, but because people believe that snow is white). In Diagnosing McCloskey (1995) U. Mäki summarizes her ideas as follows: “The truth (with small t) of a statement consists in its coherence with a certain set of beliefs, that humans end up with in an ongoing conversation before the ideal limit of all, conversation” (p. 1306). Such an idea is quite similar to the consensus theory of truth by J. Habermas; however, further discussion on this issue is beyond the scope of this paper.

[5] In this context, it is worth reminding the reader that it is again Aristotle who – probably due to his strong commitment to the correspondence theory of truth, always understood poetics as being superior to history, since the former is better in fitting out the universal while the latter illuminates only the particular – “Poetry, therefore, is a more philosophical and a higher thing than history: for poetry tends to express the universal, history the particular” (Aristotle, Poetics, section I, part IX).

[6] That claim forms the core of the conceptual theory of metaphor (see, e.g., Grady et al., 1999).

[7] The word moderation takes its roots from Old French moderation that was built upon Latin moderationem. That Latin word links guidance and regulation with temperateness and self-control. Therefore, even at the etymological level the presence of moderation implies the existence of the moderator.

References:


