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POST-KEYNESIAN CONTROVERSY ABOUT UNCERTAINTY: METHODOLOGICAL PERSPECTIVE, PART I

Abstract:

In this paper, the author summarizes key arguments in a discussion of two post-Keynesian economists, Paul Davidson and Rod O'Donnell, about the nature of uncertainty in economics. The author focuses on a controversy about necessity/unnecessity to supply a proof of ergodicity/non-ergodicity of economic processes. The author draws a conclusion that O'Donnell perceives the difference between probabilistic and non-probabilistic uncertainty as quantitative rather than qualitative in opposition to Davidson who perceives this difference as qualitative. In a controversy about necessity/unnecessity, the author sides with O'Donnell and supports O'Donnell's argumentation by pointing to baselessness of the burden-of-proof argument, as long as both parties of the controversy have an interest in finding the truth.

Keywords:

ergodicity, uncertainty, probability

JEL Classification: B41, D80

Introduction[1]

A rough controversy between Paul Davidson on one side and Rod O'Donnell and other economists on the other side has been underway on the pages of Journal of Post Keynesian Economics since 2015. This controversy is about conceptualization of the fundamental uncertainty phenomenon. Fundamental uncertainty is one of the cornerstones of post-Keynesian economics and it is exactly the reflection of fundamental uncertainty what explains some of the specific features of post-Keynesian economics. First of all, it is the post-Keynesian focus on the short-run analysis and its self-stated lack of interest in the long-run analysis. The very opposite is specific for the neoclassical economics: a neoclassic starts his analysis in the long run which represents a gravitation center and a stable element. The reason is a technological determination of real variables, money neutrality connected to the learning process, fading away of the money illusion etc. It is only afterwards that the neoclassic focuses on short-run fluctuations caused by illusions, nominal rigidities etc. Post-Keynesian economics looks at economic processes through the very opposite prism: what is closest to us is the short run, according to a post-Keynesian economist. The shorter is the run, the less amount of restrictive assumptions is necessary. And vice versa, the longer time horizon we choose, the more we need to extend our analysis with additional restrictive assumptions. The longer the time horizon the economic theory examines, the less "hard" and the "softer" discipline economics becomes.

The uncertainty controversy is just a symptom of a deeper controversy, though, the object of which is the very concept of probability and, above all, a clash for the title of the authentic interpreter of John Maynard Keynes and the authentic heir of his legacy. Rod O'Donnell is the main advocate of the approach to uncertainty based on the so-called logical theory of uncertainty which can be found in Keynes's Treatise on Probability. O'Donnell's concept of an approach to uncertainty based on human abilities and characteristics (HAC), unlike the logical theory of probability, is, it must be said, an interpretation of Keynes's economics. According to this interpretation, in a crushing majority of economic processes, a man is exposed to uncertainty the source of which is that:

we do not know the future; we have incomplete knowledge of the past and present; and we have no means of knowing, with certainty, anything about future events or everything about past and present events. (O'Donnell, 2014-2015, s. 206).

This is an epistemological uncertainty, according to O'Donnell. The thing is that the source of this uncertainty is not the nature of the world and its processes but the nature of a man and his cognitive abilities. From this position, O'Donnell presents his criticism of Davidson's approach to uncertainty based on the ergodicity/non-ergodicity dichotomy (ENE). Davidson's ENE approach is likewise an interpretation of Keynes. According to this interpretation, a man is exposed to two types of uncertainty. Davidson calls the first one probabilistic, the second one real (or fundamental) uncertainty or simply uncertainty. Probability, subjective or objective, presupposes the ergodic nature of examined processes (it will be stationarity, in the first place,

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see below), according to Davidson, while uncertainty characterizes processes which are non-ergodic.

O'Donnell himself (2011, p. 13) makes a note that such controversies about the nature of uncertainty are irrelevant for a couple of reasons. The reader may ask a legitimate question, then, why such an - by all accounts - excessively theoretical controversy should receive space on the pages of the Journal of Post Keynesian Economics. O'Donnell presents four main reasons. First, it is a controversy which is relevant for the history of economic thought. In other words, the question is what Keynes was saying, actually. Second, the direction of the future development of the Post Keynesian economics is at stake. I contend that many systems of thought and theoretical concepts look like inapplicable at their origin. Most probably, John Nash did not assume that his theoretical contributions in mathematics would give birth to a whole new discipline of economics, either. Neither John Wickleff did possibly foresee that his heresy which applied Platonic ultrarealism to theology would result in the Hussite wars in the Central Europe and destabilization of the Countries of the Czech Crown for the following two hundred years. Third, the point is precision of conceptual contents and elimination of oversimplifying dichotomies. I will give a following example: an undergraduate student of economics in the first year learns that a demand is a downward-sloping function of a price of a good. In the second year, he learns that a demand is also a function of prices of substitutes and complements, income and preferences. As a graduate student, he learns how to interconnect demand with vector algebra. As a postgraduate student, he learns how to handle a demand as a part of the constraint maximization problem where the constraints have a form of inequalities. This student's concept of a demand becomes more and more precise by means of actuating new and new characters. If an undergraduate student memorizes that a demand is always and under all circumstances a downward-sloping function of a price of a good, he makes impossible any actualization of additional characters virtually present in the concept of a demand. Concepts are not words. Concepts, as much as they are objective, reflect reality which does not depend of the wishes or opinions of the cognizing agent. Fourth, some questions are so much fundamental that they immediately concern the identity of a given stream of thought and confer its own identity on it which distinguishes it from alternative streams of thought. At this point, I dare to claim that if Keynes never meditated on what money is and if Say's law of markets is an identity or only a condition of equilibrium, he would never become that Keynes as we know him, most probably. Let us put the question aside, now, whether the science of economics would be better off or worse off without Keynes.

This paper does not put forward any hypothesis. Its main objective is to present the key moments of a discussion between Davidson and O'Donnell. A secondary objective is an assessment of quality of arguments and inference of the author's own conclusions. In the first section, key concepts of probability and fundamental (irreducible) uncertainty will be expounded. In the second section, a controversy of Davidson and O'Donnell will be examined about necessity (O'Donnell) or unnecessity (Davidson) to prove ergodicity/non-ergodicity of processes. The summary sums up main points of the discussion and puts forward the author's assessment.

1. Probability and Uncertainty

Three main approaches to probability can be distinguished, basically: objectivist, subjectivist and logical. The objectivist approach[2] perceives probability as an objective concept. The source of objectivity of a concept is that the content of this concept[3] is not determined by the cognizing agent. Probability that the outcome of a toss of a fair dice is "4" is 1/6, no matter whether the tossing agent cognizes this or not. The probability 1/6 is independent of the cognizing agent, then, in a way, even if this probability is endowed only with the intra-mental existence. This objectivist approach to probability is characteristic for the theory of rational expectations but, at the same time, for advocates of non-ergodic nature of fundamental uncertainty, first of all Paul Davidson. That Davidson can be put into one group along with his principal opponent, advocates of the theory of rational expectations[4], is one of the most important points of O'Donnell's criticism (see O'Donnell, 2016a, pp. 19-20). The subjectivist approach grasps probability as a perception of a certain state of the world by the cognizing agent without an objective basis. So, this approach perceives a statement "probability of this event is 30 per cent, to my mind" as being of the same sort as the statement "I don't like this painting". The content of the concept[5] of probability or beauty is being determined by the cognizing agent in this case and is subjective, in effect. Lawson (1988, pp. 40-41) counts e. g. Savage, Ramsey or Friedman among the advocates of this approach. Logical approach to probability occupies a kind of middle position between the objectivism and subjectivism. O'Donnell regards this approach as the authentic Keynes's concept of probability and he makes it a basis of his own approach to uncertainty based on human abilities and characteristics (HAC) which stands in opposition to the approach based on the ergodicity/non-ergodicity dichotomy (ENE) of Davidson who, in this regard, lays claim to a continuity of his own approach with Keynes, as well. In O'Donnell's (2011, pp. 2-3) interpretation, Keynes in his dissertation Treatise on Probability grasps probability neither as a characteristic of extramental material reality, nor as a subjective perception of this reality by a cognizing agent, but rather as a probabilistic relation where the probability states an intensity and degree of conclusiveness which the agent ascribes to evidence *h* when he is inferring the conclusion *a*.

We may say that the logical approach conceives probability within a framework of a hypothetical judgement where the agent claims "inference"[6] of the consequent from the

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[2] Approach taken e. g. in bankruptcy risk assessment. See for example Rafal (2018).

[3] More precisely, the content of the so called first intention of this concept. The concept is always objective in its second intention, i. e. in our reflection of the concept of "probability". In fact, if our reflexive concept of probability were not objective, then this concept would say nothing in its first intention. In fact, if the content of the reflexive concept of probability, by which we are pondering what probability is, were determined by ourselves, it would not necessarily mean what it implicitly is supposed to mean, at which moment the whole discussion about probability would miss the subject matter.

[4] See for example Davidson (1982-1983).

[5] More precisely, the content of the first intention of the concept of probability or beauty, that is what exactly I mean by this or that concept, not a reflection of these concepts (second intention), that is probability and beauty as probability and beauty.

[6] Although O'Donnell talks about deductive following, there is no real following in case of hypothetical judgements - unlike categorical judgements. That is why we do not talk about premises and the conclusion but about the

antecedent. The uncertainty occurs as a result of incomplete evidence. This incompleteness of evidences represents that subjective element of the logical approach because the availability/unavailability of evidences is individual and depends on individual abilities and characteristics. By contrast, the very relation between the antecedent and consequent, i. e. the presence of causality, does not depend on the perception or cognition of the cognizing agent and that is why it represents the objective element of the logical approach to probability. Very often, we cannot be sure that A_1 will lead to B because the effect of A1 may be counterbalanced by the effect of A_2 and A_3. O'Donnell and his HAC approach does not perceive the uncertainty as primarily ontological, anchored in the nature of the processes under examination, but rather as epistemological, anchored in the incapability of a man to foresee the future at a level higher than just probabilistic, where O'Donnell does not consider it relevant whether the agent can quantify this probability or not. O'Donnell perceives the difference between probabilistic (quantifiable) and non-probabilistic (unquantifiable) uncertainty as rather quantitative, than qualitative. Now, the central difference between O'Donnell's and Davidson's interpretation of Keynes's concept of uncertainty lies in this point. In fact, for Davidson, the transition from the sphere of probabilistic (quantifiable) to non-probabilistic (unquantifiable) uncertainty is a qualitative change, not merely a change of degree. Unlike O'Donnell, who uses the term "irreducible uncertainty" at this point, Davidson calls the unquantifiable uncertainty "fundamental uncertainty". For Davidson, the reason of the qualitative change is the allegedly non-ergodic nature of the economic and social processes.

2. Necessity/Unnecessity Controversy

The controversy about necessity/unnecessity of a proof of non-ergodicity is opened by Davidson in his reaction to O'Donnell's argument of unnecessity to provide such a proof. O'Donnell (2014-2015, pp. 194-195) points out that since ergodicity means a limit equality of temporal and spatial probability distribution at infinity, there is no way "before infinity" (which practically means never) to find out whether a process is ergodic or not. Davidson (2015, p. 8, 12) fights back, though, saying that such an objection is irrelevant because whoever postulates non-ergodicity of a process, he removes a restrictive assumption (assumption of ergodicity) and, as a result, the burden of proof does not rest on him but on whomever who introduces the restrictive assumption, that is on whomever who postulates ergodicity of such a process. The burden of proof, says Davidson, rests on the shoulders of whomever who introduces special assumptions into a general theory, not on him who makes a special theory more general. Generalization means removal of restrictive assumptions and this does not require proving. O'Donnell, says Davidson, refuses to accept this fact. The necessity to wait "until infinity" before we can judge whether a process is ergodic or non-ergodic is not present here, according to Davidson (2015, p. 11). O'Donnell (2016b, pp. 153-155) reacts to this in

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antecedent and the consequent. If for example I drop a fragile glass from the height of 2 meters, the glass will break. However, it will not if someone catches it in the last moment. If we can exclude this eventuality, the conclusion (more precisely: the consequent) "follows" that the glass will break. If we cannot exclude this eventuality, the conclusion (the consequent) "follows" with a certain probability, only.

seven points. His strongest argument, to my opinion, is Davidson's mix-up of an economic theoretician with an economic agent. A theoretician can afford to remove or add restrictive assumptions and make a theory more general or more special but an economic agent needs information to take a decision.

O'Donnell (2016b, p. 154) continues by an objection that Davidson, in his burden-of-proof argument, presents *normative rule for allocating scientific work and leisure*. I would complete O'Donnell's argument at this point by saying that a dialogue presupposes an interest in finding of the truth both on the side of him who puts forward a thesis and on the side of the opponent. This relationship is reciprocal, then, strictly speaking, which means that both sides are opponents to each other. Whoever has the authentic interest in finding of the truth, he keeps looking for opponents. Wherever there is the authentic interest in finding of the truth, there cannot be a word about any burden of proof because each of the participants of the controversy has an insatiable need to prove his thesis, regardless of the other side. If there happens that the other participant of the controversy does not raise any objection and if it comes that there is no other opponent around, the author of the thesis assumes the role of the opponent himself. O'Donnell (2016a, pp. 31-32) notices that Davidson's mix-up of the question of a methodology of the economic theoretician with the question of cognitive abilities of an economic agent leads to such a state of affairs where Davidson's assumptions become reality of its own and O'Donnell shows that Davidson's language is the best witness to this. It seems that Davidson presumes that if we have an unspecified process, our starting point is the non-ergodicity assumption because it is more general. The trouble of this approach is that if he face two options, we simply cannot prefer one option to the other only because it is linked to a lower number of assumptions. I assert that a number of assumptions is not a criterion when we are assessing the truth value. Let us say, for argument's sake, that this would be the case. Let us assume a following complete disjunction: a) it holds true that each cause has its own cause; b) it holds true at least one cause does not have its own cause. Both judgements are contradictory oppositions which means they cannot be true at the same time and they cannot be false at the same time, either. Which judgement is linked to a lesser number of assumptions and, in effect, is more general? Obviously, it is the judgement a) because the judgement b) originates in the judgement a) and postulates an exception from it which makes the judgement b) less general. According to the generality criterion, we should assume that the judgement a) is true. However, this would be a fallacy since the judgement b) is true. The judgement a) results in an infinite regression in which a contradiction materializes[7], in fact, and the falsity of the judgement a) implies the truthfulness of its contradictory opposition, i. e. the judgement b). However, Davidson, to my mind, pivots his burden-of-proof argument on exactly this assumption, i. e. that the number of assumptions is a criterion when we are assessing the truth value.

Summary

O'Donnell admonishes Davidson that he only presumes non-ergodicity of economic processes but that he does not prove it. Davidson reacts by his burden-of-proof argument. At

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[7] More on the hypothesis of the infinite regression see Fuchs (1997, pp. 82-85).

this point, I argued that as long as there is an authentic interest in discovering of the truth on both sides of the dialogue, the burden-of-proof controversy is unsubstantiated because each side of the controversy feels a need for a proof of one's own thesis, regardless of the other side. I showed that Davidson pivots his burden-of-proof argument around the postulate that the number of assumptions of a thesis is a criterion for assessment of the truth value of the thesis. Subsequently, I disproved this argument by a reference to a case which refutes this general thesis as a rule. I side with O'Donnell in the controversy between Davidson and O'Donnell in the point of necessity/unnecessity to prove ergodicity. However, I criticize O'Donnell for his reduction of the ergodicity/non-ergodicity proof to the empirical proof and for his incomplete disproving of Davidson's burden-of-proof argument.

References:

Davidson, P. 1982-1983. Rational Expectations: A Fallacious Foundation For Studying Crucial Decision-Making Processes. *Journal of Post Keynesian Economics.* Winter 1982-1983, Vol. V, No. 2, pp. 182-198.

Davidson, P. 2015. A rejoinder to O'Donnell's critique of the ergodic/nonergodic explanation of Keynes's concept of uncertainty. *Journal of Post Keynesian Economics.* Vol. 38, No. 1, pp. 1–18.

Fuchs, J. 1997. *Filosofie. 4. Bůh filosofů*. Praha: Krystal OP, 2004, 2. vydání, ISBN 80-85929-67-8.

Lawson, T. 1988. Probability and uncertainty in economic analysis. *Journal of Post Keynesian Economics.* Vol. XI, No. 1, pp. 38–65.

O'Donnell, R. 2011. Two Post-Keynesian Approaches to Uncertainty and Irreducible Uncertainty. Paper presented to 2011 Society Heterodox Economists Conference, UNSW. Dostupné z: http://www.ier.hit-u.ac.jp/extra/doc/ODonnell_p.pdf.

O'Donnell, R. 2014-2015. A critique of the ergodic/nonergodic approach to uncertainty. *Journal of Post Keynesian Economics.* Vol. 37, No. 2, pp. 187-209.

O'Donnell, R. 2016a. Second contribution to the ENE critique: Reply to Davidson, part 1. *Journal of Post Keynesian Economics.* Vol. 39, No. 1, pp. 17–43.

O'Donnell, R. 2016b. Third contribution to the ergodic/nonergodic critique: Reply to Davidson, part 2. *Journal of Post Keynesian Economics.* Vol. 39, No. 2, pp. 145–171.

Rafal, B. 2018. Forecasting Bankruptcy Risk in the Contexts of Credit Risk Management - A Case Study on Wholesale Food Industry in Poland. International Journal of Economic Sciences. Vol. VII, No. 1, pp. 1-15.