

Working Paper Series
Department of Business & Management

Macroeconomic Methodology, Theory and Economic Policy
(*MaMTEP*)

No. 6, 2016

Was Paul Davidson right in using the ENE-approach?

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Abstract: Throughout most of his writings Paul Davidson has argued that Keynes broke away from the classical mainstream understanding of his time by rejecting three crucial classical axioms one of which was to reject ergodicity and acknowledge non-ergodicity. As such, to Davidson, as to a Post Keynesian, one must accept non-determinism if you correctly want to understand the fundamental impact that ontological uncertainty has on households and firms when they plan, decide and act today with respect to the future to come. However, recently a substantial critique has been given by Rod O'Donnell and others. In the present paper, some important elements of this critique are discussed.

JEL classification: B22, B31 & E12

Key words: Ergodicity, non-ergodicity, ontological uncertainty, Post Keynesianism & repetitiveness

I have benefitted from useful comments from Robert Ayreton Bailey Smith.

Introduction

In most of his writings Paul Davidson has advocated that Keynes broke away from the mainstream of his day by rejecting three classical axioms. As such, to Davidson, Keynes argued in his *General Theory*, that: i) money is never neutral as money actually affects real economic variables in the short as well as in the longer run, ii) the principle of gross substitution alone is not able to do the job of getting the macroeconomic outcome automatically to be one of full employment¹, and iii) the economic system is characterised by non-ergodic features.

To Davidson, and other Post Keynesians, this means that the economic system is an open, social and path dependent changeable system. Such a system does not function in a simple deterministic way. On the contrary, in such a system the actions of individuals, be it households or firms, are in general conducted in an environment of uncertainty of both an epistemological and an ontological (or fundamental) kind. In such a monetary economy 'the future has yet to be created by the actions of today', to quote an often used paraphrase of Davidson in describing the workings of such a system. Therefore, the macroeconomic system often undergoes a significant change when the economy moves from: "an irrevocable past to an unpredictable future"; as for instance discussed in Davidson (2003-4 & 2005)².

That is, today, there are huge differences in the workings of the model of modern macroeconomic mainstream – the New Neoclassical Synthesis (NNS) with its DSGE baseline models³ – and that of Post Keynesians who take inspiration in the work of Keynes (especially the *Treatise on Probability* and the *General Theory*) when modelling the economy. Theoretically as well as methodologically these two understandings stand universes apart.

Recently, however, some have questioned the relevance of using the concepts ergodicity and non-ergodicity (the ENE-approach) in Post Keynesianism, as Davidson does, and the correctness of how he uses the two concepts in his writings; this is most substantively done by O'Donnell (2014-15 & 2016a-b), but also by Rosser (2015) and Álvarez & Ehnts (2016).

¹ Or as Davidson (1984:567&568-69) states it: "a basic axiom of Keynes's logical framework is that nonproducible assets that can be used to store savings are not gross substitutes for producible assets in savers' portfolios ... Consequently, relative price changes via a flexible pricing mechanism will not be the cure-all 'snake-oil' medicine usually recommended by many neoclassical doctors for the unfortunate economic maladies that are occurring in the real world".

² "Keynes's nonergodic uncertainty and animal spirits concepts ... means that although we can have perfect hindsight, there is no lens that can provide corrected visions regarding the future. Entrepreneurial vision of the future is not faulty, but is, instead, based on dreams or nightmares"; Davidson (2003-4:253).

³ Mainstreamers might argue that they actually take account of the problems of uncertainty. However, they only deal with the epistemological kind of uncertainty, which can be represented by a given probability distribution. With Sbordone et al. (2010:27): "At any point in time, the household is obviously uncertain about the way in which this future will unfold. However, we assume that the household is aware of the kind of random external events, or shocks, that might affect its decisions and, crucially, that it knows the probability with which these shocks might occur. Therefore, the household can form expectations about future outcomes, which are one of the inputs in its current choices. We assume that these expectations are rational, meaning that they are based on the same knowledge of the economy and of the shocks that buffet it as that of the economist constructing the model". The many problems of trying to handle or overcome the existence of ontological uncertainty are not included in the NNS understanding.

In the next section, some aspects of this criticism are presented; having done that, section 3 aims to provide an evaluation of the criticism. Finally, the paper is closed with some concluding remarks.

A critique of Davidson

A critical discussion on Davidson's use of the concepts ergodicity and non-ergodicity was first given in O'Donnell (2014-15). Where Davidson uses the ENE-approach in his understanding of uncertainty, O'Donnell grounds himself rather on his understanding of the HAC-approach (Human Abilities and Characteristics). While the ENE-approach is ontological oriented, the HAC-approach is epistemological oriented. In general, it is argued by O'Donnell that the ENE-approach is untenable due to six fundamental critical statements⁴. Furthermore, such an approach is not in accordance with the approach actually used by Keynes. To O'Donnell, what Keynes abandoned was the axiom of perfect knowledge rather than that of ergodicity⁵. O'Donnell therefore advances the position that it is more sensible to use an epistemological foundation of uncertainty.

In response, Davidson (2015a:14) however, believes that O'Donnell mistakenly founds his criticism on epistemological arguments, as he writes concerning the claims of O'Donnell (2014-15:206), that "In general terms, the critique of the ENE framework presented here is applicable to all theories":

"If he really means his critique is applicable to *all* theories, then astronomers, physicists, and other hard scientists can never know whether they are dealing with an ergodic system and hence they cannot know if they can make statistically reliable forecasts about what will happen at future dates. If O'Donnell's epistemological argument is applicable to *all* theories, astronomers should not be able to use their theory to predict when the next solar eclipse will occur – because, according to O'Donnell everything that happens in our world is clouded by an epistemological *uncertainty of human knowledge that exists since we never get to infinity!* Yet astronomers have an excellent record of being able to predict to the minute when and where the next solar eclipse will occur. Are these predictions just lucky calls?"⁶

⁴ "it makes it impossible for agents to obtain knowledge of the relevant state of reality; it employs two conflicting definitions of ergodicity; its accounts of agent learning are incoherent or internally inconsistent; it commits the excluded middle fallacy; its view of causality is oversimplified; and its treatment of Keynes's philosophical work is inaccurate and tendentious"; O'Donnell (2015:187). Later on, in O'Donnell (2016b:170), the conclusion on this approach is given as: "The appeal of ENE lies in its initial plausibility, grand narrative, use of esoteric language, and air of scientificity. But closer examination reveals it to be a frail web of conflation, substitutions, misquotations, misreadings, simplistic syllogisms, discredited forms of argument, inconsistencies, and impossibilities".

⁵ However, as Davidson (2015a:6) argues: "Keynes's 1936 rejection of the classical theory's belief that decision makers had any knowledge about the future requires Keynes not only to abandon the "perfect knowledge" axiom of the nineteenth-century classical theorists, but also the twentieth-century classical axiom that the future could be reduced to a computed actuarial certain knowledge".

⁶ In all honesty, it has to be admitted that O'Donnell seems only to be talking about mainstream as well as non-mainstream in economics in the above mentioned quotation. Later on, in O'Donnell (2016a:40-41), he not only explicitly writes that his statement is restricted to economics alone, but he also tries with some success to refute Davidson's claim, as noted in the quotation above.

Furthermore, to accept O'Donnell's argumentation is the same as to accept the arguments normally given by advocates of the free markets, as Davidson (2015a: 16-17) goes on to argue:

"The economic universe may have consistency over time (the system is ergodic) even if O'Donnell cannot know this until infinity in time is reached. If, as O'Donnell declares, no humans (whether policymakers or mere individuals) can ever possess knowledge about the *possible ergodic economic system*, then why should economic policies and government regulation of markets – including financial markets – produce a better economic future?"

To sum up, to Davidson, O'Donnell is wrong. He has misread the *General Theory* if he is not able to see that the ENE-approach must be the foundation on which Keynes understood uncertainty as there is something about the future that we simply do not know: "In essence, Keynes viewed the economic system as moving through calendar time from an irrevocable past to an uncertain, not statistically predictable future. This required Keynes to reject the ergodic axiom"; Davidson (2015b:381).

Rosser (2015) argued that credit and respect must be given to Davidson in his battle against the relevance of rational expectations – see Davidson (1982-83)⁷ – where he argued partly that the economic reality is one of non-ergodicity, and partly that this view should be seen as the foundations for Keynes's understanding of ontological uncertainty. To the contrary, however, Rosser believed that Keynes seems to have got to his understanding of uncertainty by a different route than that of the ENE-approach. Suggesting that he was probably more concerned with the problems of homogeneity of data sets, and "that greater homogeneity was associated with more stability and more stationarity"; Rosser (2015:344). That is, Rosser (2015) seems to be more aligned with the arguments of O'Donnell (2014-15) that with those of Davidson on the ENE-approach⁸.

However, and this is very crucial when attempting to understand both the arguments used by Keynes and Davidson, it is the lack of a probability distribution that is important with regards the existence of ontological uncertainty⁹. Therefore, the future is at least to some degree truly uncertain: there are things that are going to happen in the future that we do not know about ex ante. We can only know about these matters ex post, when the future has become present time. As Davidson (1991:131&133) writes: "The decision maker believes that *no* information regarding future prospects exists today and therefore the future is not calculable. This is uncertainty ... in the sense of Keynes (1937) ... In conditions of true uncertainty, people often realize they just don't have a clue!"

To Rosser (2015), Davidson seems to address the problems of uncertainty, which Davidson finds crucial to the correct interpretation of Keynes's *General Theory* – based on the ENE-approach – whereas O'Donnell,

⁷ In this paper Davidson focuses a lot on both ergodicity and non-ergodicity; see Davidson (1982-83:185,187,190&196).

⁸ As stated by O'Donnell (2014-15), and as Rosser (2015:347) sees it: "that given the infinite horizon convergence aspect of ergodicity, it may take infinite time to know whether a system is ergodic or not".

⁹ Rosser (2015:337): "if there is anything we can probably sure of, it is that in Keynes's own mind it was this lack of a probability distribution that is the foundation for fundamental uncertainty above all else".

focusing on his 'Imperfect Information'-approach, finds that uncertainty to Keynes was ultimately an epistemological problem. To Rosser (2015:347) himself, "Keynesian uncertainty is based on both". And of course, somehow, the two kinds of uncertainties are often entwined with one and other in a complex manner making even epistemological uncertainty hard to get rid of by setting up a given probability distribution.

To Álvarez & Ehnts (2016), economists' use of the concept ergodicity seems mystifying. Ergodicity is a concept originally used in statistical physics. As such: "Mathematical systems can be ergodic or nonergodic, but the economic system of the real world cannot be ergodic or nonergodic because it is not a mathematical system!"; Álvarez & Ehnts (2016:9). As uncertain to them is not the same as nonergodic¹⁰, they argued that the distinction in economics should rather be one between stochastic versus nonstochastic randomness because: "Only in stochastic systems can one hope to predict the future at all, while systems described by nonstochastic randomness do not allow forecasts to be made"; op. cit. pp. 11-12, and the lack of the ability to forecast has to do with the lack of homogeneity in the underlying data material through time; an argument about data, which is in good accordance with Keynes's view on early econometrics as he expressed himself when he was studying the works of Tinbergen in the late 1930s¹¹.

As reaction to the rejoinder by Davidson, O'Donnell (2016a-b) presented a thorough discussion of the ENE-approach with the aim of 'killing' this approach due to its weaknesses and inconsistencies¹². O'Donnell (2016a) is particularly interesting from an economic point of view, whereas O'Donnell (2016b) is more focused on philosophical and logical statements. As such, more attention will be given to the content of O'Donnell (2016a) in the discussion that follows.

In general, O'Donnell (2016a:41) is quite clear concerning an evaluation of Davidson's use of the ENE-approach: "Overall, I find PD's writings on Keynes and post Keynesianism a frustrating mixture of accurate and mistaken propositions". However, aside from this approach, "much of what remains [in the writings of Davidson] is valuable and useful".

In general, much of the discussion in O'Donnell (2016a) seems sensible, although he probably goes too far in his claims (for instance, he claims that Davidson takes an assumption of ergodicity when presenting the hypothetical possibility that the state of reality actually became one of ergodicity – that is, stating that Davidson creates rather than reflects reality¹³, another example is his lengthy discussion concerning the

¹⁰ "The term *uncertain* as used by Davidson is problematic because in chaos theory, paths can diverge exponentially and so the predictive precision is lost, even though the system is completely deterministic ... This chaotic system is ergodic and yet uncertain"; Álvarez & Ehnts (2016:10-11).

¹¹ As Keynes expressed himself in a letter to Roy Harrod in 1938: "Economics is a science of thinking in terms of models joined to the art of choosing models which are relevant to the contemporary world. It is compelled to be this, because, unlike the typical natural sciences, the material to which it is applied is, in too many respects, not homogeneous through time"; CW (XIV:296).

¹² O'Donnell (2016a:18): "My previous conclusions, that ENE is untenable, that it deserves to be abandoned for scientific purposes in economics, and that it needs replacement by better, logically defensible accounts, will be strengthened, widened, and deepened".

¹³ Of course, O'Donnell (2016a:32) is quite right in pointing out that: "In post Keynesian economics, assumptions are meant to *reflect* reality, not create it". But such a view is not in conflict with Davidson. As he explained himself, Davidson (1984:574): "Post Keynesians believe it is better to develop a model which emphasizes the special

differences between the concepts axiom and assumption – who knows if Davidson uses the concept axiom in the now modern understanding of this concept? On this, see O’Donnell (2016a:26) where an older and a more present day meaning of the concept axiom are presented and discussed). The excessive attention to semantics detracts somewhat from the clarity of his arguments. Likewise O’Donnell (2016b:169) discussed the relevance of using a basic mathematical approach on economics as a social science, with the purpose of assessing the appropriateness and relevance of the methodology, on that O’Donnell stated that:

“ENE then imports these ideas and techniques [from theoretical physics] directly into a social science in which humans within social systems are essential to the world being analyzed, and hence in which consciousness, motivations, rationally, reflective behavior, socialization, institutions, social structures, and history are necessarily involved, none of which have any obvious relevance to phenomena investigated by physics”.

All Post Keynesians (I hope), including Davidson, will agree with O’Donnell on this. However, using the ENE approach never precluded Davidson – or others, for that matter, who accept the distinction that the economic system could be seen as an ergodic system (as the mainstreamers do) or as a nonergodic one (as many non-mainstreamers do) – from taking these matters seriously when discussing the construction of theory or economic analysis. So in this sense at least, Davidson is not a fundamentalist, and O’Donnell should have acknowledged this fact.

As already stated above, to O’Donnell it is Keynes’s rejection of the perfect knowledge assumption that is of crucial importance to the correct interpretation of the world view that is given in the *General Theory* and not that of the use or not of the ENE-approach¹⁴. It is by this that Keynes’s thinking differs from both the mainstream of his time and the modern macroeconomic mainstream of today¹⁵:

“given that each of the three rejected classical propositions has perfect knowledge as an underlying premise, given the emphasis on uncertainty in the *GT* and subsequently, and given that uncertainty involves the absence of knowledge, a sound case can be made that his rejection of the classical assumptions and embrace of uncertainty is theoretically equivalent to a general abandonment of perfect knowledge”, O’Donnell (2016a:29).

Although denying the validity of the ENE-approach, O’Donnell (2016a:21) acknowledges the fact that much of the success (or appeal, in his words) of this approach has to do with “its provision of a grand narrative”.

characteristics of the economic world in which we live than to continually refine and polish a beautifully precise, but irrelevant, model”.

¹⁴ As he for instance points out in O’Donnell (2016b:150): “My question is thus not whether the *GT* “allows” nonergodicity, but whether, *if it did*, how humans could ever know that nonergodicity existed”.

¹⁵ To clarify his view on this matter, O’Donnell (2016a:20) states regarding the neoclassical optimizing agents: “I therefore advance the following universal theoretical truth: Any decision-making agent, in any context specified by the theorists, who is postulated as rational in the sense that s/he accurately maximizes objective functions, must have perfect knowledge of everything required to perform such maximizations. Changing contexts simply changes the form, but not the necessity, of perfect knowledge”.

As such, the writings of Davidson, including his statements about Keynes's rejection of the three classical axioms, have facilitated the making of many Post Keynesians. With Davidson, they got to understand both the crucial role of money to modern society (almost everything in modern economies are hinged on contracts of different kinds that are nominated in monetary terms) and the existence of uncertainty which causes households and firms to act, concerning future matters, on imperfect knowledge making mistakes not only of a stochastic, but more importantly, also of a systematic nature. And finally, with Davidson and his use of the ENE-approach, they got to understand that the macroeconomic system is not one of repetitiveness; the economy is an open, social, path dependent and changeable system. Therefore, O'Donnell is probably going too far when he accuses the ENE-approach of: "Its unstated purpose is to present itself as the one true path to interpreting Keynes on uncertainty and hence to conceptualizing and defending this key element of post Keynesianism"¹⁶.

As already mentioned, O'Donnell accuses Davidson of putting forward "mistaken propositions"; throughout, the two papers present examples of this – see for instance O'Donnell (2016a:23,26-28&32-33) & O'Donnell (2016b:150-51&159-61); however, from time to time one needs to add interpretation when investigating historical matters, but of course you always have to read the stuff in front of you very carefully and make accurate quotations – which is a mark of good science. And as O'Donnell (2016a:24) so rightfully points out himself: "interpretation is never free of interpretative frameworks". Somehow, this is also the function that the ENE-approach undertakes; as pointed out by O'Donnell himself, see above, the ENE-approach gives a "grand narrative" although this approach is not without flaws¹⁷. Furthermore, O'Donnell also accuses Davidson of substitute the concept of 'assumption' with the concept of 'axiom', although the two concepts are not perfect synonyms. In doing so, he claims, Davidson misreads and misinterprets fundamental messages of Keynes; see also the discussion about why Keynes named his theory 'a general theory', O'Donnell (2016a:34-39).

Finally, to let O'Donnell (2016b:155) himself finish the above presented discussion on his critique of the ENE-approach, he noted that what matters is that:

"Theorists may explain the world however they like, orthodox economists assuming ergodicity and PD assuming nonergodicity. But the important thing is that the explanation is applicable to the reality being explained, and such demonstrations require extra theoretical and empirical work. For post Keynesians, it means checking whether the assumptions are applicable to reality, which, in the ENE case, means finding out *with certainty* whether the world is nonergodic or not. If ENE post Keynesians want to demonstrate the superiority of their economic explanations, they need to show that reality is *actually* nonergodic and not merely *assume* this".

¹⁶ Likewise, when he states: "But it has been predetermined that Keynes is to be brought "inside" the ENE construction, so that all major themes in his thought are to be reconstituted using its concepts and language", O'Donnell (2016a:22), he presses the argument too far.

¹⁷ To O'Donnell (2016a:25) there are so many serious problems with the ENE-approach "that render the narrative internally inconsistent, impossibility-ridden, intellectually unreflective, and implausible".

Is the criticism right?

Did Keynes know about the understanding of the concepts of ergodicity and non-ergodicity of his time? We do not know with certainty. Did Keynes have a similar way of thinking about economics that reassembles that of the ergodicity and non-ergodicity understanding? Once again, we do not know as a fact. However, this is often the case when economists dig down into matters of the history of economic thought. Often in these cases we have to interpret and make our own judgement about important aspects of how a particular theory came to be formulated.

However, we know with certainty that Keynes was concerned about lack of perfect knowledge in real life economic affairs and of non-homogeneity of economic data sets. As such, as argued by both Davidson and O'Donnell, Keynes abandoned the axiom (or assumption as O'Donnell prefers) of perfect knowledge. We also know that to Keynes in some cases we are not able to come up with a precise probability statement:

“Either in some cases there is no probability at all; or probabilities do not all belong to a single set of magnitudes measurable in terms of a common unit; or these measures always exist, but in many cases are, and *must remain*, unknown; or probabilities do belong to such a set and their measures are *capable* of being determined by us, although we are not always able so to determine them in practice”; Keynes (1921:33).

Nevertheless, even if Davidson has made mistakes regarding the correct mathematical interpretation of the concepts of the ENE-approach, to many, the way Davidson interprets core elements of Keynes's *General Theory* – that Keynes should have rejected the three classical axioms of money neutrality, the principle of gross substitution and that of ergodicity (maybe the term repetitiveness could be taken instead) – seems to make rather good sense; especially from the perspective of a view on macroeconomic systems as open, social, path dependent and over time, changeable systems. Likewise, the way Davidson interprets Keynes also provides an adequate and thorough understanding of the crucial role played by uncertainty – be it of an epistemological or an ontological kind (aside perhaps from the use of the concepts of ergodicity and non-ergodicity as claimed by O'Donnell).

Somehow, although the thorough dissection of the ENE-approach made by O'Donnell's three contributions is stated only to be made as an effort to be “engaged in a conversation aimed at understanding key foundational issues, following which the best way forward will become clearer”; O'Donnell (2016a:41), the presentation resembles, then and now, more a crusade and an inquisition of Davidson rather than a conversation.

That aside, in many aspects the discussion in O'Donnell (2014-15&2016a-b) seems to make sense, as does the presentations of Rosser (2015) and Álvarez & Ehnts (2016) regarding the definition, in precision and underlying intention, of the concepts of ergodicity and non-ergodicity, as seen from a strict mathematical and philosophical point of view. However, using these concepts interpretatively might still make a lot of sense seen from an economic point of view. Perhaps the debate on the ENE-approach would not have come to the surface had Davidson instead used the concepts of repetitiveness and non-repetitiveness.

In any event, the principles that Davidson tried for so many years to illuminate and explain remain largely untouched by the conceptual and semantic clarifications of O'Donnell. The emphatic distinction made by

Davidson was much more likely intended to differentiate from the mainstream interpretation of Keynes in terms of especially liquidity preference, uncertainty and the general equilibrium framework, than as a proclamation of supreme knowledge of interpretation of Keynes.

Concluding remarks

Throughout all of his academic life as an economist, Paul Davidson has made a great effort in trying to enlighten his fellow colleges, both within and outside the camp of Post Keynesians, not only of the importance of the writings of Keynes but also of the need of having focus on the economic problems of our present day society when we as economists do economics. As such, you have to choose the right theoretical and methodological approach. And that the right one is not one of modern macroeconomic mainstream understanding.

Fundamental to Davidson is the role played by uncertainty. Due to the existence of uncertainty, we know for a fact that the macro economy is an open, path dependent and changeable system. In some cases, where repetitive patterns of behaviour exist, the future appears predictable, in other cases not; what ultimately materialises typically comes as a surprise to most people, even economists. However, whatever kind of change we are discussing we are sure of one thing. The macroeconomic system, seen from the perspective of a Post Keynesian, is in general not one of repetitiveness.

However questionable the correctness of Davidson's use of the concepts ergodicity and non-ergodicity might be, seen from a strict mathematical and/or philosophical or logical point of view, he should forever be acknowledged for his efforts of pointing out these fundamental facts of how a modern monetary economy actually works. With or without the concepts of ergodicity and non-ergodicity you can learn immensely from the writings of Davidson as well as, of course, the writings of Keynes.

Somehow, it seems more appropriate, acceptable and interesting to do so – to Davidson himself as to others, including future economists to be – than to engage in etymological and semantic inquiries concerning a particular concept or two¹⁸.

Be that as it may. Today, there is a need for an alternative to the modern macroeconomic mainstream. And most of us know from experience how difficult it is to try to get this message around. In general, there is hardly any communication with mainstreamers. They know of course that we are out there somewhere. Perhaps some of them also know a little about what is going on in non-mainstream circles, but most of them do not bother to try to find out what a non-mainstream understanding, such as that of the Post Keynesians, is all about. At least to the present author, internal differences on the correctness of a definition of or method of interpretation of a core element of Paul Davidson's understanding of Post Keynesianism –

¹⁸ Somehow this seems to be covered by another often used quotation: "For Keynes as for Post Keynesians the guiding motto is "it is better to be roughly right than precisely wrong!"; Davidson (1984:574). Maybe Davidson's definition of ergodicity and non-ergodicity is not correct, that is in principle O'Donnell might be right in his critique, however, Davidson got the fundamentals right arguing that the macroeconomic system is characterised by non-repetitiveness.

that is, of ergodicity and non-ergodicity – do not make this task any easier. To Post Keynesians, with the use of these two concepts or not, all seem to agree that the macroeconomic system is in general not one of repetitiveness due, among other factors, to the existence of uncertainty. As such, this is *the* crucial message that we will need to try to convince mainstreamers and future economists of.

If non-repetitiveness were not included in the Post Keynesian understanding, my claim would be that there would be no substantial or fundamental differences between this understanding and that of the modern macroeconomic mainstream. If one suspends the concept of non-repetitiveness, one inadvertently clips the wings of ontological uncertainty. And with less room for ontological uncertainty the role and importance of money in the modern economy is significantly undermined.

Of course the search for internal consistency – the task that O'Donnell has taken upon himself – within a given theoretical framework is a scientifically worthy and admirable effort in itself. However, one may wonder whether the abandonment of the ENE approach from Post Keynesianism will make it easier to get the Post Keynesian messages across to mainstreamers, non-mainstreamers not familiar with the Post Keynesian understanding, and the future economists to be. Not to be too much of a pessimist, I do not think that the replacement of the ENE-approach with for instance the HAC-approach would change anything – most economists are not scholars of the fundamental concepts of system dynamics or physics. O'Donnell may in principle be quite right in his critique but what are the important consequences of this for Post Keynesian theory and policy proposals in comparison with the 'old understanding' of the ENE-approach?

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