

Time and Causality in the Economic Process – a Critical Approach Based on Consistency Criteria*

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Abstract. *Our paper proposes a critical analysis based on criteria of consistency of the fundamental concepts underlying the comprehensive description of economic process, namely: time, context and causality. Issues of such action taken by us arise from the existence of the fact that the emergence of new paradigms, amid an economic complexity, should include elements of theoretical, instrumental and methodological nature. Moreover, dominant economic science, at this time (positivist), is subject to an epistemological imperialism exercised by Newtonian mechanics, without one's own epistemology. Regarding the underlying causality explaining the economic process, we find that, yet at this time, it is a singular and efficient one (in the Aristotelian sense), but not a teleological one, so we wonder whether the final causality (purpose form) may better explain the economic process and his completeness, and in this sense, the shaping of new paradigms based on premises other than those already existed, in understanding the economic process.*

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Introduction

Our paper proposes a critical analysis based on criteria of consistency of the fundamental concepts underlying the comprehensive description of economic process, namely: time, context and causality. Issues of such action taken by us arise from the existence of the fact that the emergence of new paradigms, amid an economic complexity, should include elements of theoretical, instrumental and methodological nature. Moreover, dominant economic science, at this time (positivist), is subject to an epistemological imperialism exercised by Newtonian mechanics, without one's own epistemology. And as a consequence of this, we note that there is a historical stereotype regarding the construction of instrumental and methodology elements used. In this respect, criticism undertaken by us wants to be one of the highlighting the weaknesses that characterize the economic science in evolution, in order to exclude a cumulative process, achieved by extending or articulating methodological assumptions and existing tools (based on optimality criteria – the current paradigm of economic science), aiming their reconsideration, based on an exegesis of the fundamental attributes that characterize the economic process, namely: time, context and causality. Regarding the concepts considered by us, that describe the economic process, we consider that they are not sufficiently substantiated and understood logically, in terms of describing the natural reality of the emerging economic process. In this context, first, we note that the time variable in the economic process is not influenced by the properties of economic process measured by it. Thus, time assigned to the economic process is considered absolute (ie has value in itself and for itself), being independent of the economic process itself. In other words, time is considered a measure of the economic process through economic phenomena (which give the measure of economic process), but not intrinsic process that is measured. We note in this connection that it is not a measure of the economic process, but rather to quantify it. Regarding the underlying causality explaining the economic process, we find that, yet at this time, it is a singular and efficient one (in the Aristotelian sense), but not a teleological one, so we wonder whether the final causality (purpose form) may better explain the economic process and his completeness, and in this sense, the shaping of new paradigms based on premises other than those already existed, in understanding the economic process. Regarding the context of economic process, we believe that the economic process structure may describe broadly what exists at some time in defining and understanding the economic process through economic phenomena. Our approach to the criticism of contexts - that give rise to economic processes - relies on the fact that, in large part, their

understanding follows a cumulative process by extending the methodological assumptions based on historical stereotypes, but not on ahistorical in substantiation of paradigms. In summary, the purpose of our paper is primarily an attempt denial of conjectures underlying, fundamentally speaking, the economic process and the reconsideration of their description.

The issue of the economic process

Whenever we wish to ponder over the concepts of time and causality within the economic process as a first step we need to establish, at a conceptual level, the way we can define the economic process or mostly it is from a Kant like outlook that getting away from the extensive logic⁽¹⁾ an attempt for a judgement, in other words a unitary representation of a diversity⁽²⁾.

We find through the philosophy of science that the process represents the form through which a phenomenon appears, more exactly the evolution that is noticed for a phenomenon, the latter being the knowable version of a noumenon.

There is a paper in this field that draws our attention, signed by professor E. Dinga (2009, p. 389), where it is stated that the first step in tackling the economic process is the identification of its attribute or characteristic of something belonging to the economic. Therefore, as the author states, defining the economic comes with some difficulties of epistemological nature and of methodological nature as outlined through: *the issue of the proximal genre and the issue of the specific difference* and from a methodological point of view through the issue of the contingent and of the instrument. It is said, in other words, that from an epistemological point of view, the economic has to be framed within a genre which should comprise it from a denotative point of view and the concept should not create confusion with other species, namely from a methodological perspective. A definition as such must not ignore the rational human being, therefore it will be a contingent definition, not a necessary one and the instrumental way to recommend is the logic.

With these grounds the result regarding the attributes that an act must check in order to be considered as economic are the following:

- *the interventionist nature in nature;*
- *the purpose of the material exchange between the human being and nature;*
- *the existence of an artefact diaphragm this intervention is being exercised.*

When referring to the economic act we remind that this is being produced only within the temporal coordinate and we find this characteristic as being attributed to defining the economic process with the same denoted

(significance), with no qualitative difference, but one in degree, of quantitative nature given by the existence of a group of individuals after a aggregation criteria not only a single individual.

E. Dinga (2009, p. 392) states that the economic process is substitutable to the economic act, being an artefact as such, namely an entity which as emergent is generated by a deliberate decision on purpose. He also outlines that the possibility of measuring in any way of the economic process is being done through the economic phenomenon. It is *the measured expression of an economic process* (Dinga, 2009, p. 394).

The problem within this context is linked to which may be the form through which we can know an economic process taking into account the understanding and explanation (the two poles of knowledge) and the instrument at hand seems to be the system, namely the “*glasses*” through which we perceive the economic reality that surrounds us.

We now can notice that the economic process is being regarded through “*glasses*” like: efficient causality, time and space (as absolute) the economic issue exogenous with the economic process and the inexistence if non-alignment.

Therefore, many aspects that characterise the economic process are mechanistic borrowed from Newton, being far from the economic reality surrounding us, and in this respect our curiosity gets towards a better approach of the components regarding the economic process, time like, causality like.

The issue within the economic process of its specific time

We must admit the fact that the economic science has no proper epistemology and, from a methodological and instrumental point of view, it has borrowed from physics, mostly from Newton, many methods and techniques through which there has been the attempt for a statistic later ratifying for them on the basis of several observations.

Time, as being a component of the economic process, is considered in the study of economic phenomena as Newton like, being absolute (namely, having value in itself and for itself, not being influenced by the properties of the economic process it measures); it is also called time clock or physical time.

What is the connection of such an approach as opposing what we discover with natural sciences referring to such abstract concept such as time? Is this thing important? We believe it is!

With a short incursion in time we find out that since 1715 Leibnitz, while corresponding with Clark (Vailati, 2000, pp. 110-1225), objects against space and absolute time within the physical processes. The most famous objection of Leibnitz against space and absolute time entails the principle of sufficient

reason and the one of undistinguished identities. Space and time, being homogenous totalities, undifferentiated, and their parts, simple potentialities, cannot exist as far as what is real and composed can have only real divisions. His standard arguments against space and absolute time were based on his concept on the continuous.

The consequence was that, at the beginning of the century, it was believed that everything could be understood on the basis of the continuous mechanics. Everything that had to be measured was a number of indexes for elasticity, conductivity but this hope was shattered by the discovery of the atomic structure and the quantum mechanics (Hawking, 2005, p. 57) and later the theory of relativity ends the idea of absolute time.

In economy the concept of time for the economic process is but a unity for measuring it from the outside and the economic phenomena studied are but in the form of some dynamic trajectories with attributes such as: determinism, regularity, reversibility.

We draw the attention that our approach on an abstract concept such as time and its connection within understanding the economic process can appear as lacking content, but if we think within the finance world the pattern of assessment the financial assets within the continuous time with Wiener processes is one of the well known and accepted pattern for assessing the shares. Nevertheless, speculations on the stock exchange, minimal financial settlement, financial innovations entailed the creation of a speculative balloon and with the speculations on the real estate market brought about the collapse of the financial system on the Wall Street and the world recession.

We wonder how can this be possible with such efficient instruments that have in view the stochastic pattern and complicated processes? How can speculative balloons come out, bear and bull where the price of assets rises much above its value? Is the economic reality different from the one we had built along the years? We wonder if the chaotic character of an economic process we cannot understand – bank or stock exchange crash that were not prevented by any index used to measure the process – or we cannot describe, with our stochastic equations or the differentiated ones, results from the fact that we do not have it properly measured? Something may be wrong regarding our concept on the economic and social reality since we lack the ability to forecast, to predict through instruments created along the years within the economic science.

We acknowledge the fact that the development of biology and of microphysics entailed the recognition of the fact that each type of process develops within its own time, a specific one with its own rhythm and cyclic approach. In this respect the epistemological approaches between economy and biology were fruitful as accepting an economic time that characterises through a

beat specific for the economic process, being addicted by the latter and which changes after the characteristic of the respective process.

It is curious that the economic time has not been treated systematically yet and this may happen because of the pragmatic side of the economic that may have discouraged the philosophic approaches or we may have thought that the way we grasp the economic reality is an intellectual honest one. Unfortunately, we notice that the “glasses” that we have created, namely the system we try to understand the reality of the economic processes, are not appropriated, or at least today economic reality is different from what we imagined. In this respect it may be good that some hypotheses and conjectures be repressed factually or taking into account logical grounds within the pragmatic environment proposed by Popper.

Considering this, maybe the naïve empiricism (N. Taleb) based on examination brought about the failure of the economic science, namely confirmed facts meaning not necessarily proofs that the economic science is on the right way. What we want to outline is that the approach towards the truth is backed by negative examples (the economic crises), not by examinations! It is wrong to build a general rule taking into account observed facts. If time is taken for granted when studying the economic processes as physical time this does not entitle us to state that the measure unity is a good one because by forgery the opposite comes out. Referring to Karl Popper (2001, p. 68), our tendency is the one to look for steadiness in economy and to enforce laws but this brings about a psychological phenomenon of the dogmatic thinking: we anticipate regularities everywhere, even where they do not exist. We are ready to consider events that do not give up to such attempts as a “substance noise“ and we still persist in our expectations when they are inadequate and we should accept the failure.

Our scepticism regarding the wrong way to grasp the time for the economic processes refers to the fact that the measurements we make are but interval measurements not punctual ones. And so the economists come with the speculative bubble which can explain the financial and economic crises.

This represents a certain recognition of the existence of the economic time (of the time as a process) which is not seen phenomenological and which is not in relation with the economic processes that we know. There is still a problem regarding the way we perceive time, but what may be the solution?

An attempt to take into account referring to a possible solution we may find in the paper “The Inertial Phenomenon within the Economic Process” (Dinga, 2001, p. 73), where we find out that if we need regularities in order to understand, then an essential condition must be looked up for the working of the clock, namely the uniformity of the measure⁽³⁾. This quality of the clock

cannot be found within the physical time because of the no experimental character of the economic process as well as its irreversible nature⁽⁴⁾.

The solution is an economic time having uniform ticking specific for each economic system. In other words, the proposal is of creating a “device” ready to ensure the formation of the temporal scale, accumulation of *economic quantum*⁽⁵⁾ equivalent to “passing” a unity of economic time and which expresses the quantity of economic activity produced within a unity of economic time. *The economic quantum* being considered blurred entities from a quantitative and qualitative aspect, the beat of the economic time is the temporal measure of producing an economic quantum.

According to this approach there is a difference of the speed regarding the economic time as opposing the physical time, explained through the amassing of quantum or by their decrease.

The result of this approach can be summed up like that: if the speed of the economic time is higher than of the physical time, we register disasters and if it is lower then we have inactivity, inertia.

We then figure out the introduction of discontinuity regarding the economic process and it is remarkable from a scientific point of view with outcomes on modelling with uneven functions in economy.

The issue within the economic process of causality

The typology of causality was introduced by Aristotle and ever since nobody has managed to add new causes. The world of the science is polluted by this typology and the scientific research asks for determining the causes and explanations.

We try a short presentation of the causes that regard the scientific explanation and then we will try to point out in what respect they are to be found in the analyses we make on the economic phenomena and the authenticity of the conclusions.

The causality in the Aristotle meaning comes out as:

- *material cause*, namely the matter a thing is made of;
- *formal cause*, namely the form a think can take;
- *efficient cause*, propelling cause that precedes the outcomes;
- *final cause* or the purpose cause which comes after the outcomes.

We know the fact that the economic process is a completely causal process. Which is the type of the cause we have in view when our knowledge appeals to explaining an economic phenomenon?

At present we believe that the type of cause through which we try to understand the outcomes is linked to the nature of the efficient cause. How does

this form of causality explain sufficiently well the outcomes we observe when we have an economic phenomenon? The answer is as clear as possible. There are economic processes such as financial crises that we cannot anticipate. We also ask ourselves how can it be possible that when such crises took place in the past it seems impossible to be anticipated since the causes are known (being previous to the outcome and found in the history of similar processes). The causality we use in economy might not be the proper one and this happens due to the fact that we skip over an important thing, namely that the economic subject is being considered apart from the object, namely of the economic process.

We stick to the following presentation of the possible aspects of causality (Botezatu, 2002, pp. 174-175):

- *the causality as ontological relation;*
- *the causality as phenomenal relation*
- *the causality as perceptive relation.*

Regarding the causality as ontological relation this is in connection with its metaphysical and theological origin, being a relation of producing where the outcome is the world as totality. The particularity of it is from effect to cause.

The causality as phenomenal relation, this is but creation, mostly of the positivist philosophy. It is about following the causal ratio used in science far away from the metaphysical elements. The interest is not for the way the phenomenon is produced but the finding and the proof of the existent causal ratio among those to be observed.

The causality as perceptive relation (in the way Berkeley, Hume, Mach tackled it), the necessity of the causal ratio has the origin neither within the process of producing, nor the invariability of experience but in the structure regarding the human spirit or divinity.

Economics does not use the empiric version of causality but its ontological determinist conception. Our first conclusion is that economy can be the most isolated field with few examples from science, being limited to efficient causalities, specific for Newton mechanics. If the economic phenomenon has all conditions for the physical system, its projection into the future can be done theoretically. But then our question is: if we know the type of the cause, why are there possible stock exchange crashes and economic crises? We may not have understood that a physical system is not the equivalent of a social one and when social matters are being involved we find a difficult obstacle: economic phenomena that produce economic processes entail the involvement of humans free willed and determined.

We consider then that determinism and efficient causality is not suitable to understand the economic processes, but the final causality. An argument would be that we are not able to understand the scenario that produces the event. Under the present crises the rating agencies – Moodys, Fich, Standard&Poors – should have

signalled in time on what was happening to credit security, but they could not have got a good commission from those entities which were to be assessed as well as the promise for future contracts. So, one of the causes of the crisis is a teleological one, and thus more than half of the profits for the rating firms had the granting of AAA rating for some exotic financial products.

The financial crisis is caused by non involvement of the state or is it a consequence of the interference of the state in market activity? There are some who claim that there are no balloons or illusory booms and the markets could be efficient. Then why are there causalities of purpose type to get black swans? Because man exists and the institutions he created and indeterminism as well as risk taking are part of everything. If causality is of this nature, then why positive consequences of an action are to be advantageous only for its author while the negative ones have impact on the rest of us? Is this not today's situation? We should call for the uncooperative games of J. Nash, who demonstrates that each plays in the disadvantage for the others.

Regarding risk taking we should not forget that it entailed the disappearance of many species. Taleb was right that the human mind suffers when in contact with history (Taleb, 2009, p. 34), namely:

- the illusion of understanding, the way in which each believes to understand properly what is happening in a world far more complicated than one can understand;
- the retrospective distortion, the way we assess some aspects after the facts took place and we understand so little of them;
- the exaggerate assessment of information.

The conclusion we draw is that the method we use to understand is important, not the outcome. The “glasses” through which we are looking at the world become important. What we do not know becomes more important as the projection of the future on the paradigms from the past might be of no help.

Conclusions and personal considerations

Economics we must admit has no proper epistemology of its own and from a methodological and instrumental point of view it borrowed from physics, mostly from Newton mechanics, several methods and techniques through which they have tried a further statistic ratifying of them

Time as a component of the economic process is considered as Newton time, absolute, clock time or physical time.

The concept of time does not represent but an exterior unity of measure and the economic phenomena studied are but as dynamic trajectory with attributes such as: determinism, regularity, reversibility.

Our scepticism regarding the wrong way to perceive time for the economic processes is reflected by the fact that the measurements we do on observations are but interval ones, not at all punctual and because of this the economists think of the speculative bubble that can explain the financial and economic crises.

Economics we do consider does not make use of one might believe of the empiric version of causality, but its ontological, determinist conception. With these matters we outline a first conclusion, namely that economy may be the most isolated field, and the less examples from outside science may be found here, with the limitation to efficient causality, specific for Newton mechanics.

We claim for the normative method in economy and the integration of nonlinear equations in the study of the economic phenomenon to get the few outcomes that entail serious consequences and to create rules to guide us with economic activities, not mentioning that the markets are being settled as such by themselves.

Notes

- (1) Any one logic is extensive, consisting of a series of comments from the concept. For example, a thinker who speaks of non-contradiction and syllogistic logic is extensive.
- (2) Kant does not start its logical approaches to the concept. The reality of thought, for him, constituent, the first thought which is not the concept, it really is nothing but a derivative of the act of thinking.
- (3) must understand the measure uniformity retrieval times for the same measured whenever it is conducted under identical conditions.
- (4) will never be able to reconstruct an economic process in the same position, so we'll never be able to retrieve same physical duration of the process.
- (5) It should be understood as a quantum of economic action in a manner similar to Planck's quantum-induced energy in quantum mechanics.

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