

Epistemic transfers in economics from social sciences

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Abstract. *The great challenge Economics is currently faced with consist in the release from the chains of mechanistic – mathematical dogma, the linear way of thinking and the narrowness of the homo œconomicus concept. The straitjacket of rationality imposed by the need for consistency of elections created explanatory models finally refuted by empirical observations. The main principles that need to abide by is to avoid iatrogenic epistemic transfers and eclecticism. This article aims to analyze in a concise manner the errors generated by creating artificial homomorphism to adapt the models of “Strong” Science (Mathematics, Physics) to the requirements of Economics while moving the stake to epistemic transfers from the Social Sciences. The legitimacy of this approach is given by the very object of study of Economics, namely man.*

Keywords: economics, social sciences, theory of knowledge, paradigm, epistemic transfers.

JEL Classification: B41, Z13.

Introduction

Before proceeding to any epistemic transfers explanatory effort is necessary to understand as accurately as possible the epicenter around which oscillates the **current** scientific paradigm. And not coincidentally was chosen the word "current" because it is meant to highlight the main feature of science, namely that there is no absolute science but only the science of any particular period. The theories that have proven resilience in face of criticism and alternative theories, which are a more accurate approximation of reality, have acquired the right to be considered as constituting the science of that period. Differentiation and classification of science in disciplines such as Physics, Chemistry, Mathematics, Sociology etc. is a residue of the Enlightenment period, when there was the perception that a theory must begin by defining their own field. In my opinion this question has little relevance and somewhat superficial because scientists are not researchers of a certain field but are researchers of certain problems; and problems can legitimately cross the artificial boundaries of research areas.

Although problems may move from one domain to another, discussing their complaint cannot ever start from scratch. Requirement for *tabula rasa* or the release of the mind of all assumptions is not just an impossible one, but also inconsistent from a logical perspective, leading the methodological process to an infinite regress. Accepting the fact that there is no absolute truth in science, much less in Economics, research conducted in this article aims to highlight the concordance of purpose and subject. The research is based on two hypotheses:

1. The purpose of Economics - the social purpose (social development in the broadest sense of the term)
2. The subject - Man. When I'm referring to man, I mean the man in all his complexity, without claiming to always act according to the principle of rationality or just based on instincts or emotions. A question such as: *is man in a higher share rational than emotional, or vice versa?* It is a question incorrectly formulated. First there are no methods to assess and compare such things. Secondly I do not think getting a completely rational attitude should be the ultimate goal of perfecting the human race. Exaggerations about human irrationality and society arose also because of the vulgarization of psychoanalysis, but we must be aware of the power of emotion in both human life and economic behavior, as well as their value. Rational attitude also cannot miss on entirely, even in relationships dominated by great passions, such as love.

A fruitful path for further development of Economics, according to the author, can be opened by questioning the current paradigm. The heuristic of the current system of theories generally accepted in the scientific community designed for explaining phenomena observed or deduced, is a good approximation of reality, or we need a change of paradigm since both the problems and the research techniques and solutions are determined by the assumptions, theories and models. Can, or better said, should Economics continue to operate within the limits of mechanistic-mathematical paradigm? Or it should be corroborated with epistemic transfers from Social Sciences given its study subject, but without causing an idiosyncrasy to change that would affect its objective, namely the social purpose?

This paper provides an answer to these questions through a heuristic under the auspices of previously formulated hypotheses, and begins from the problem generated by the creation of artificial homomorphism explanatory models typical to “Strong” sciences and from the methodological syllogism failures resulted from elimination of causality and the imposition of restrictions.

1. Issues of mechanistic - mathematical paradigm

The urgency of forecasting in Economics is derived from the human psychological need for certainty, thereby pushing societal explanatory models for acquisitions of methodological instruments from the Natural Sciences. This practice is the legacy of neoclassical epistemology, which denoted Economics "mechanics of utility and self-interest" (Jevons, 1888, p. 22) and which has been perpetuated to the present day “Spread the truth: the laws of economics are like the laws of engineering. One set of laws works everywhere” (Keegan, 1992, p. 109). This type of thinking is rooted in the inability to distinguish between the determinism of natural phenomena (such as movement of planets) and the indeterminism of social phenomena (such as revolutions). The distinction between these two types of phenomena consists of the conditional nature of forecasts. We can calculate the exact appearance of a solar eclipse in our system, due to its repetitive and stationary character. Even in biology, if we ignore the slow and gradual changes, we can make predictions on the life cycles of organisms having such a quasi-stationary and recurring character. In contrast to this, the society is in constant transformation, very fast compared to biological changes or the solar system. Of course in Economics conditional predictions can be made, for example, a high level of taxes and corruption in conjunction with a lack of effective punitive system can generate an increase in tax evasion, but without claiming the mathematical accuracy of the size or date of occurrence of the phenomenon.

Another error occurs in the mechanistic - mechanical paradigm from the illusion that economic process is similar to reversible mechanical cycles, which have the capacity after a complete motion to return to his start position. But the society performing a complete cycle produces changes, and the new starting point is different from the previous one. Such an approach can be seen in standard economics textbooks describing the economic process as a circular flow that is self-sustaining and self-reproducing between production and consumption. Equilibrium thus generated, a complete reversibility as in mechanics, even if supply and demand may be troubled by certain events, they return to the previous status with the extinction of events. To overcome this cognitive blockage, economic theory must first differentiate between mechanical non-complexities from organically complexity. For non-organic objects equilibrium (as defined in Physics) is a state of inertia, however such equilibrium may occur in the case of organic objects only with death. Dynamic systems and organisms can only exist in a permanent state "far from equilibrium". These were called "dissipative structures" by Ilya Prigogine, winner of the Nobel Prize in Chemistry in 1977, and were characterized as "*structurally different from a simple equilibrium: are formed and maintained by the effect of the exchange of energy and matter under conditions which are permanently imbalanced.*" (Prigogine and Nicolis, 1977, p. 55).

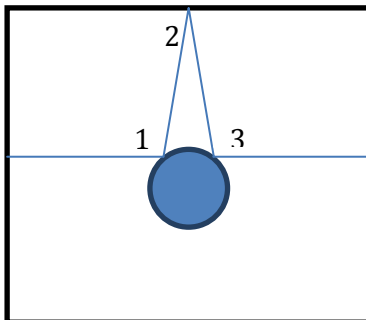
2. Dysfunctionalities of the methodological syllogism

The dysfunctionalities of the methodological syllogism in Economics are based on the teleological error. The urgency forecasts combined with today claim to know what your preferences will be tomorrow, in a year or in five years. Worse is that the pattern is extended to others, and for these preferences to be embedded in a mathematical model was invented a surrogate that flattens all differences of individual behavior. It was thus formulated the hypothesis of rational election and defined the concept of *homo oeconomicus*. Although very convenient for including human variable in mathematical equations, the hypothesis does this by dividing the subject, and the part that cannot be quantified (emotions, feelings, instincts, beliefs, etc.) is excluded from the algorithm. We shouldn't be surprised by situations where predictions of such models are becoming prophecies which never turn true. The great ill caused by these models is the induction of blind certainty and of perfection through the illusion of misunderstood concreteness. The sovereignty of reason is, in fact sovereignty of method; certain because the method generates the correct answer and perfect as the solution to be implemented are rational and efficient. Where the complexity of phenomena is beyond human comprehensibility were imposed restrictions and conditionalities, and the most famous is the *ceteris paribus* condition, but it has a big drawback. "*Apart from that it sounds like abracadabra; we must recognize that reality tends not to be Ceteris Paribus*" (Sedlacek, 2012, p. 505). In order to satisfy our claims on accuracy this challenge was overcome. Even if a model fails in adequate representation of reality, there is always the possibility of correcting it. "If a formula fails the test, it is also possible to add a variable, adjusted by another and so on. If you choose your chisel well, you can demonstrate that in any log is a splendid Madonna" (Georgescu-Roegen, 2009, p. 138). All these aspects demonstrates the current paradigm obsession for over rational and the unilateral cognitive pathway for conceiving explanatory models that are so pushed to extremities, and causality is more designed than discovered. Where are sought only evidence to confirm the hypothesis, there will always be found correlations, but the purpose of these correlations should consist of a better explanation of reality, and not to demonstrate the veracity of a self-sufficient model. From this way of treating the epiphenomena through the inductive method are developed general theories with claims of certainty concerning the phenomena. The absurdity of the reasoning is derived from reverse correlation and worthy of Voltaire's sarcasm. "*It demonstrated he said that things cannot be otherwise: for that, everything is done to an end, everything is made to achieve the best purpose. Noses were made to wear eyeglasses; therefore we have eyeglasses. The legs are made obviously to wear socks and therefore we have socks*" (Voltaire, 1993, p. 100).

Going beyond the claims to certainty, corrections and reversed correlations, the methodological syllogism of rational election hypothesis is facing another difficulty, this time insurmountable in my view, that of a finite nature of the human mind. "*The definition of rationality as consistency is impossible restrictive; it requires an adherence to the rules of logic that the finite mind is unable to apply*" (Kahneman, 2012, p. 613). In other words, we have no mental inclination or the resources to enforce the consistency of

our preferences, which are not scheduled to be magic coherent from a rational point of view, as they are shaped by the hypothesis of rational decisions. In other words logical consistency is rather an ideal (and it's debatable, depending on individual preferences) than truth, if we consider the truth in the meaning Tarski assigns as concordance with the facts. For a proper explanation of the inconsistency of requirements for absolutism reason we formulated the following example:

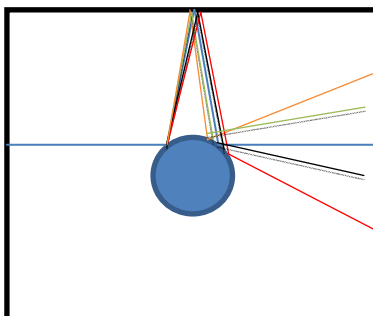
Figure 1. *Decisions based on pure rationality*



In Figure 1 we have represented an explanatory model of human behavior based on the hypothesis of rational decisions. In point 1 a decision is taken based on this hypothesis, which will result in point 2 and from there using the same algorithm in point 3. Nothing out of place so far except that the model can predict a single outcome namely imposed by the hypothesis (decisions only on the basis of reason).

Source: *Own conception.*

Figure 2. *Decisions based on individual preferences*



In Figure 2 we introduced alternatives in decision making by accepting in predictions some “human” variables - emotions, feelings, individual preferences, different tolerance at risk, instincts (memetic), etc. Small effects can, however, lead to serious distortion of consequences. The dynamics of the process shaped can be approximated better by introducing nonlinearity, given the exponential growth rate of the error with the extension of the time period regarding the forecast⁽¹⁾.

Source: *Own conception.*

Thus we see that a very small deviation from the rational alternative in point 1 may lead to enormous differences in the outcome (orange line - irrational exuberance, red line - panic). The most important aspect to research, in my opinion, is predicting human behavior in conditions of uncertainty (the most common situations in reality) and converting same individually rational decisions into an irrational group decision (on which models have claims of certainty). We explain this with the "help" of the 2008 crisis or any other banking crises. The depositors of a financial institutions in difficulty have two seemingly rational choices:

- 1) To continue to entrust their deposits to that institution in the hope that other depositors will do the same and the institution will recover or,
- 2) Burst at the bank counter and withdraw their deposits.

Judging the decision through the theories of microeconomics (game theory), the prisoner's dilemma and *Nash* equilibrium we see that it is achieved when all depositors withdraw their deposits (in first situation the depositors does not have anything to gain but

can lose their deposits, in second situation the depositors have "*just nothing to gain*"), so the rational solution would be the number two. I used to argue the decision an explanatory model based on the assumption of rational election, not to mention the fact that in such a situation herd instinct dominates reason, and the only relevant criterion is the position in the queue formed in front of the counter. Thus, although individual private economic agents are rational, in terms of rationality at the group level, the requirement is no longer met and they are jeopardizing the system stability. It creates, therefore, a paradox, or rather a contradiction - inadmissible for a science which claims to be theoretical also.

3. The need for epistemic transfers from the social sciences and corroboration of paradigms

Any evidence supplied against a theory do not constitute implicitly evidence for alternative theories. Thus, to be legitimized, a new paradigm is needed to bring solid evidence in its favor. Before moving the stake to epistemic transfers from Social Sciences I am obliged to make a very important statement, namely: I have no intention of making any demand for the abolition of mathematics in economics, I took only the humble task of highlighting the limitations of economic forecast and the harm that can occur from claims of certainty in social dynamics. And the paradigm which I support is meant to be a conjunction between the two (mathematical-mechanistic and social), combining elements and valuable instruments and removing them rest.

In counterbalance with the concept of *homo aeconomicus* is the animal spirits, the big difference is that in comparison to the relatively late acquisition of reason in the evolution of the human race, instincts, affections and feelings accompanied us from our beginning as a species and still play a very important role in shaping our decisions. These decisions are based on "*...A spontaneous impulse to act, rather than not to act and not the result of a weighted average of quantitative benefits multiplied by qualitative probabilities ... individual initiative will only be adequate when reasonable calculation is supplemented and supported by animal spirits...*" (Keynes, 2009, pp. 255-256). In order for us to be in the inner domain of life phenomena and to observe the human behavior as it is in its natural state, we must include these variables even if they cannot be expressed quantitatively. A human behavior which is influenced both by cultural and historical past, without which it would be virtually impossible to explain variations in space and time of economic behavior based solely on the assumption of rational choices. Human behavior can be predictable only in terms of meeting the needs of subsistence, threshold that most Western countries have passed and depending on the degree of exceeding the subsistence needs occurs the subjectivity of aspirations (more difficult to predict). The approach of Economics aims explicitly "*the structure of human behavior stabilized by the objectivity of need and troubled by the subjectivity of aspirations*" (Dinu, 2010, pp. 106-107). If the objectivity of needs is conveyed to us in one way, namely genetics, aspirations subjectivity occurs primarily through social mimicry and it's often decisive for the values, moral and intellectual standards that each individual adopts. Yet, even in this way surviving in the end, according to the law natural selection, are only those structures which, although never reach a state of adaptation equilibrium, have the capacity of

self-learning and are able to change with the production of new information, with the emergence of new structure involving a change of environment.

But we must warn about outdoing cultural differences and aspirations subjectivity. "*Under the existing surface of the variability of human nature, we all share the same set of devices for generating preferences and decision making*" (Cosmides and Tooby, 1994, pp. 327-334) namely, the human brain functions that evolved into the longest period of our existence as a species to solve adaptation problems that our hunter-gatherer ancestors met them routinely. We all share a set of preferences, conceptual frameworks, methods of reasoning, etc. operating beyond cultural differences and that is a precise definition of our human nature.

Another reason that would legitimize epistemic transfers from Social Sciences is competition, which is assimilated with the instinct spectrum than that of reason. "*Except preservation instinct, the tendency to compete with others is the most powerful, vigilant and most tenacious of actual economic motivations.*" (Veblen, 2009, pp. 102) Although, as previously mentioned Western nations have moved beyond competition for natural resources necessary for subsistence, competition can be observed with great clarity by pecuniary rivalry and social antagonism. My goal in this article is not to demonstrate whether such competition brings more benefits than costs to the society, but rather to emphasize that although Economics focuses on the competition, explanatory models drawn from these studies should be much better if combined with the reality and methods characteristic to social analysis paradigm (anthropology, sociology, psychology). There could be found more evidence to support the need for corroboration of the two paradigms, but ultimately the most conclusive proof remains the subject of Economics, man, represented in its full complexity and even with the "risk" of being unable to be included in the mathematical models.

4. Normative criteria of epistemic transfers

Due to the size requirements of the paper I proposed only two principles that must be respected, regardless of the nature of the epistemic transfers.

1. Avoiding iatrogenic: iatrogenic concept has its origins in the Hippocratic Oath, and in short, it would mean: You must not do more harm than good. And here I refer to those theories with major social impact which require individual sacrifice by virtue of an uncertain future result. This principle can be implemented through a better understanding of the difference between theory and phenomenology. Phenomenology is empirical regularities while theory is just how we explain these regularities (often not correct). Theories are born from cure and not vice versa (*ex cura theoria nascitur*).
2. Avoiding eclecticism. This principle refers to the fact that there isn't enough for a theoretical statement to not contain a contradiction, but also that an epistemic transfer can not conflict with the main body of theories of the science into which it is transferred. Better said an epistemic transfer can not coexist in contradiction with another theory reaching different explanations of reality. While such contradictions can occur even in physics (eg. Classical Mechanics with the theory of mechanical work completely reversible vs First law of thermodynamics and the impossibility of a

perpetuum mobile) the only way a contradiction can be accepted provisionally is to generate a new theory. Conversely accepting contradictions would provide immunity from any criticism but also the death of science.

Closure

I would like to conclude this paper by asking questions rather than by highlighting some conclusions. Is the current scientific paradigm much different from the "romantic" era of the Enlightenment? Did the observer managed to discard the "anticipations of spirit". Isn't he still inclined to collect only evidence that confirms the hypothesis? (Especially in the sciences which have as object of study the human being and include to a large extent the observer himself).

Whatever the situation, for the progress of Science, theories should give the primacy to the issues "... *Issues are more important than theories ... science begins and ends with issues.*" (Popper, 1998, p. 207). And at the same time we must understand that science can observe as much as the most advanced equipment and instruments allows and that the dangerousness of models lies in the expansion of artificial over the natural and thereby induce vulnerability of the system or the imposition of conditionalities on human character such as "*Procrustean Bed*".

We can be only optimistic about the future evolution of scientific paradigm despite the fact that people (including scientists) have shown a remarkable capacity to ignore their own ignorance; the evolution of human thinking has not reached its peak.

Note

⁽¹⁾ For a more detailed explanation of the reasoning behind example see the study "The problem of three bodies" by Henri Poincare introduced in 1877 for the 60th anniversary of the King of Sweden, Oscar II and subsequent development that led to the development of "Chaos Theory".

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