Institutions and economic science: links between cognitive processes and the emergence of social rules

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Abstract

Standard economic theory has long underestimated the role of institutions in economic systems and in the processes of change, focusing on equilibrium and the mechanisms that determine it spontaneously. Equilibrium, once achieved, is only interfered by external shocks (exogenous shocks) and it is not disturbed by dynamics developing within the system. Institutions, in this theoretical framework, are functional to achieve efficient outcomes but play no role in the process of economic change (North, 1990).

On the other hand, the heterodox approach to the economics, targeting the research into the processes by which institutions emerge and change, highlights their importance in social dynamics. Economics of institutions changes the focus of the analysis: it does not start from the study of the effects that given institutions can have on the economic systems, but it focuses on individual behavior and on the cognitive processes that determine it. This research field investigates the dynamics through which the interaction between agents determines the emergence of social institutions and how the latter are able to evolve and to graft changing processes in individuals.

This article aims to introduce the reader to this research area in which the links between mind and institutions become an essential element in the analysis of economic role institutions.

Key words: institutions, cognitive economics, economic change, mental models

1.Introduction

Standard economic theory (1) has long underestimated the role of institutions in economic systems and in the processes of economic change, focusing the analysis on the mechanisms that lead to states equilibrium that can be altered only through external shocks (exogenous shocks) (2).

According to standard economic theory, as noted, exchanges take place without costs and the institutional dimension has a negligible value (3). Starting from the assumption of substantive rationality, neoclassical economics holds that even if agents may initially form erroneous models for achieving their objectives, processes of information feedback will correct the initial error and punish deviant behavior, prompting the agents to schemes of appropriate conduct. The return to equilibrium will occur spontaneously.

In this theoretical context, institutions have the only task of providing essential information to follow correct behaviors. They are functional to achieve efficient outcomes but do not play an independent role in the evolution of the economic system (North, 1990).

On the other hand, the heterodox approach to the economics, targeting his research into the processes by which institutions emerge and change highlights their importance in social dynamics.
Heterodox economics (4) follows a different approach. Vernon Smith (1989), Nobel laureate in economics in 2002, said that one of the first and most important lessons learned in the sixties through the application of the experiments to the analysis of markets has been the discovery of the relevance of institutions in economic interactions.
This is not a new idea. As we shall see, it was already present in the history of economic thought but has only recently been re-evaluated, and thus developed by economists.
Already the Old Institutional Economics -important school of economic thought born in the United States in the late nineteenth and early twentieth century- had stressed the need to introduce institutions into economic science and the analysis of the contributions derived from other research fields like psychology, as able to help economists understand individual behavior. In this context, the sociologist and economist Thorstein Veblen -author considered one of the founding fathers of this school of thought- had identified a close interrelationship between the instincts, habits and institutions, which showed the presence of reciprocal causation processes between the evolution of individual behavior and the evolution of social institutions (Hodgson 1998).
The presence of these two-way causation processes between individual behavior and institutions makes necessary to study individuals and institutions in a unitary framework, which, starting from the individual and his individual cognitive mechanisms, makes possible a better understanding of human action, the role the institutions and the interaction between individual action and the environment.
This type of investigation places in the foreground the psychological mechanisms involved in the relationship between agents and institutions. This kind of research will necessarily place side by side the typical theoretical tools of economics and the results obtained in other research fields such as psychology, sociology, and neurobiology.
This article aims to introduce the reader to this research field. To this end, we first try to define what economics –with a preeminent attention to cognitive economics- means when it uses the term institution highlighting the complex nature of the concept to which it refers. Second, the article will highlight the role of institutions in the process of economic change, focusing on the link between individual cognitive mechanisms and institutional evolution.

2. Economics of institutions: why a cognitive approach?

The basic assumptions of standard economic models (perfect information, no transaction costs, presence of perfectly rational economic agents) allow the construction of equilibrium models in which change can only be induced by factors exogenous to the system, and it is excluded the need to investigate topics such as:
a. the definition of economic institutions

b. the role and complexity of institutions
c. the institutional change process.

The need to define the institutions emerges significantly in research areas -such as the economy of the institutions, the economy transaction costs, the cognitive economics, law and economics, behavioral economics, the economy of developing countries, and others- that deviate from the neoclassical economic theory and that in recent decades have contributed to developing heterodox approaches. This article will focus on the reconstruction, through the contribution of the history of economic thought, of the path that led to the birth and the consolidation of that part of the economics of the institutions which incorporates the fundamentals of the Old institutionalist school and of cognitive theory of institutions. These areas of study, in fact, have common roots and both develop the research into institutions from the analysis of individual behavior.

The concept of institution in economics includes both informal and formal institutions. Informal institutions refer to the set of social norms, conventions, moral values, religious beliefs, traditions or more in general to any rule of behavior shared by a social group, this kind of institutions emerges from repeated interactions and they are able to guide agents' behavior.

On the other hand, formal institutions belong to the sphere of codified law: constitutions, laws, regulations. Also economic organizations belong to the set of formal institutions, because, on one hand, they can exist under an explicit set of rules, on the other hand, they survive and evolve thanks to informal norms that develop within them determining the efficiency of an organization.

Economic literature has provided different definitions of institutions. They have been described as constraints that govern the political, economic and social interactions (North, 1991), as rules of behavior that emerge from the interaction of perfectly rational actors in repeated interactions (5) Schotter, 1981, 1986), or as structures governance (Williamson, 2000). In these definitions institutions and individuals are mostly "objects" to be investigated separately.

By the contrary, cognitive economics of institutions emphasizes the need to study economic agents and institutions in a unified framework (Rizzello and Turvani, 2000, 2002; Ambrosino, 2006, 2012, 2014, 2015). As mentioned, this approach bases its foundations on the contributions resulting from schools of thought of the past, that share a theory of human nature that replaces the traditional economic agent with a multidimensional man, whose behavior is determined by psychological and socio-cultural elements (Jensen, 1987).

Cognitive economics recognizes the importance of this multidimensionality and develops his research from the relationship between individual behavior and institutions, identifying in the mind and in individuals' cognitive processes the central element of his investigation.

Institutions in their constant interaction with economic agents lose their purely functional nature and become the expression of cognitive abilities that are not innate in the individuals but develop through repeated interaction between subjects (Rizzello and Turvani, 2000, 2002 Ambrosino, 2006, 2012). Institutions do not configure only

as constraints of economic agents' behavior, but they also constitute the framework within which it becomes possible to make choices that otherwise would not be accessible (North, 1990). They shape and change the aspirations of individuals (Hodgson, 2004a, 2004b).
Individuals, in turn, play an active role in the processes of institutional change by changing their behavior all the time that the context in which they act changes (Ambrosino, 2012). Individuals and institutions influence each other.
Social norms (institutions) emerge as a result of human action and the ongoing feedback between individual choices and the external environment. Institutions may change over time through a cultural selection process that allows the survival of the rule that is more effective for maintaining social order (Hayek, 1988).
As argued by Denzau and North (1994) there is a close link between mental models (6), institutions and cultural context:

"The cultural heritage Provides a means of reducing the divergence in the mental models That people in a society have And Also constitutes a means for the intergenerational transfer of unifying perceptions ..... The relationship between mental models and institutions is an intimate one. Mental models are the internal representations That individual cognitive systems create to interpret the environment; institutions are the external ... mechanisms individuals create to structure and order the environment .... "(p.363).

Understanding mental models become an indispensable step for economic theory of institutions. For this purpose, the cognitive economics is based on an interdisciplinary methodological approach which has highlighted the complexity of individual decision-making and the close relationship between perception and conscious reasoning (Innocenti 2009, Kahneman and Frederick, 2002).

3. Cognitive processes and institutions in cognitive economics

The history of economic thought provides important insights into the link between mind and institutions.
Veblen- author recognized among the founding fathers of the old institutionalist school- in 1919 defined institutions as "settled habit of thought common to the generality of men" (Veblen, 1919, p. 239), making it clear that the concept of habit plays a crucial role both in defining the institutions, and in the definition of individual action.
This author is strongly influenced by the debate around the definition of the concept of habit that characterizes the psychology of the early twentieth century (while not entering explicitly in it). Veblen is in contact with authors such as William McDougall, C. Lloyd Morgan, and William James, who are precursors of behaviorist psychology (Reisman, 1969 Tilman, 1996). From these authors' work, he borrows the concepts of instinct and habit but using them in an original and more complex way than the Behaviorists propose (Tilman, 1996). In fact, he focuses his analysis on the social consequences of human action but he gives great importance to the

decision-making processes that develop in human mind. An essential element of his analysis is the double bond between institutions, habits, and individual behavior (Veblen, 1899, Hodgson, 1998). Habits are fundamental both in shaping as in the stability of institutions (Hodgson, 1993a). They also are part of the cognitive abilities of individuals. The skills learned are gradually enclosed in habits. When these become part of the common culture of a social group they are transformed into routines and habits (Commons, 1934). At this point, institutions are formed as a complex and durable routine and encoded habits, and they can survive and be transmitted in time.

Institutions thus allow individuals to share common cognitive tools, through which they can easily conform to the behavior of other members of the group. The imitation of common behaviors at the same time allows the spread of the same habits of behavior and of thought and leads to the emergence and consolidation of institutions (Hodgson, 1998). Habits of behavior and institutional structures are therefore connected to each other and are mutually reinforcing (Hodgson, 1988, 2003a, 2004a). Institutions emerge from agents' interaction, whose preferences and objectives are determined by the economic and social conditions in which they are to act. The individual is considered something more than just an economic agent subjected to the "domain" of institutions that characterize the social context in which he lives. Agents are, of course, conditioned by institutions and the cultural context, but, in turn, create, intentionally or unintentionally, institutions themselves and influence on them.

Old institutional economics do not consider the economic system to be built up by homogeneous economic agents. The "institutionalizing" function of institutions is to allow social order and relative stability in a system made up of heterogeneous individuals (Hodgson, 1998).

Although institutionalists recognize the active role that individuals play in economic processes and highlight the need to take into account the complexity of psychological elements, and sociological and cultural factors that determine agents' behavior, they still remain focused more on the social level of the analysis than on the individual one.

On the contrary, Friedrich August von Hayek -Nobel Prize for Economics in 1974- focuses on the individual and argues that there is a close interrelationship between agents' cognitive processes and the cultural dynamics of selection of institutions that generate social order. The starting point of this reasoning is Hayek's model of mind described in the *The Sensory Order* (1952). This text contributes to the development of theoretical psychology of the time, was published only many years after its completion. Mainstream economics always denies the relevance of these studies on how mind works for the development of Hayek's economic theory. However cognitive economics highlights the close interconnection between Hayek's theory of mind and his research in the economics. According to Hayek, human mind is a framework that orders perceptions through interpretative acts; it operates through classification processes, allows identifying a particular sensory data as different from another, by association processes of classes of stimuli to classes of responses. Human mind is an active tool that continuously interacts with the environment creating new

images of itself and the world. These images represent the framework within which individuals can give meaning to information that comes from outside, and consequently choose their action.
Human mind evolves through a slow learning process by which innate genetic structures and personal experience interact giving rise to new representations of themselves and of the world around them. What emerges from Hayek's theory of mind, and his political and social studies confirms the importance of reciprocal causation relationship between individual behavior and social institutions, and makes an important contribution to the understanding of the mental processes involved in this interaction.
Hayek, in fact, stresses the central role of the interpretative processes of external data in determining the individuals' behavior. Action emerging as the result of interpretive processes gets feedback from the environment[i]. When this feedback is positive this action is strengthened, becoming the rule of conduct to be implemented whenever agent has to take a decision in situations similar to the previous one. Sharing rules of conduct within the social group leads to the emergence of social norms (formal or informal) that govern the interaction between economic agents. However, these rules are not immutable, in fact, every time the environment gives negative feedback or every time it changes (changing the data available for individuals), agents will start new interpretive processes to elaborate new strategies of behavior. Such strategies, on the one hand, will again be the starting point for the emergence of new shared norms of behavior; on the other, they represent the beginning of the process that pushes the change of formal institutions of a given economic system (Ambrosino, 2014).

4. A program for the future
The cognitive approach to economic institutions bases his investigation on a representation of human nature that is derived from Hayek's theory mind, improved by Veblen's instinct-habit theory (Ambrosino, 2012b, Rizzello, 2003).
Like Original Institutional Economics, cognitive economics develops the idea that human behavior is driven by habits, routines, and conventions, and influenced by culture. These are the elements from which institutions emerge.
In this perspective, understanding institutions means to understand how they develop by habits, what role the shared culture has in their emergence and evolution, how they evolve over time.
Cognitive economics describes institutions as tools that helps individuals (who are multidimensional and basically immersed a socio-cultural context that shapes the behavior) to function effectively in society (Ambrosino, 2006, 2012, 2015). Institutions bring social order, standardize behaviors, and model agents' aspirations.
Because of the close relationship between mind and institutions, the study of the latter can not shrink the analysis of laws and formal rules. There are many types of institutions that emerge and evolve along channels different from simple legislative process. Some institutions appear and develop without, or with little, planning on the part of state and legislature. The role of the state is important because no institution

reaches its full development without getting recognition and legitimacy to other institutions. But the awareness of the necessary role of the state does not imply that this (or its legal instruments) may provide a more efficient solution than the spontaneous process of evolution of rules and customs that takes place "from below", in interpersonal exchange.

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Notes

(1) The term standard economics (or neoclassical economics) refers to the approach dominant in economic science that origins in the Cambridge school of Alfred Marshall and in the school in Lausanne through the contributions of authors such as Pareto and Walras. This approach is based on particular key assumptions: perfect rationality of economic agents (which translates into perfect ability to predict the outcome of their choices), perfect information and economic agents' perfect ability to maximize their choices.
(2) According to neoclassical economics, the equilibrium state reached by the economic system through the free interaction of economic agents (individuals and companies) can only be broken by the intervention of sudden changes (shocks) that come from the outside. In the absence of such shocks the system remains in its position of stable equilibrium.
(3) Only starting from the work of Ronald Coase and subsequent insights by Oliver Williamson, economic theory recognized the presence of what are known as transaction costs (ie costs related to the realization of the economic transaction) of which it does not take into account in determining the exchange price.
(4) We define heterodox economic research strands all those research approaches that call into question the assumptions of standard economics, emphasizing the complexity of the individual decision-making processes. Economic actors are heterogeneous and they elaborate their decisions performing complex cognitive processes in context characterized structural uncertainty and imperfect information.
(5) Schotter's definition refers to that part of economic theory that uses game theory to study the institutions (rules of behavior) that emerge through repeated interaction between economic agents whose choices are interdependent.
(6) Feedback refers to the answer that the individual gets from the environment once he puts into practice certain behavior. Positive feedback reinforces the norm of behavior because it confirms the individual the goodness of his choice. On the contrary negative feedback causes the individual to reprocess data from outside and to draft a new behavioral response.

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