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A Cognitive Approach to Law and Economics: Hayek's Legacy

Angela Ambrosino*

Hayek's contribution to the analysis of law has been widely criticized and disputed (Ebenstein 2001, 2003; Posner 2003; 2005). This paper shares with Beaulier et al. (2005) the opinion that the significance of Hayek's legal writings and their relevance to law and economics can only be completely understood by jointly analyzing his economic theory and his legal theory. Moreover it will be argued that both theories must be reconsidered in light of Hayek's theory of mind. This theory, in fact, represents the key element in understanding Hayek's thought (Rizzello, 1998) in that it gives insight into the complexity of the cognitive and psychological determinants involved in coordination processes. The latter are the main phenomena that Hayek studied, and they are also essential for understanding the emergence of customs and social institutions as described in his legal theory. From this perspective, Hayek's legal theory is of close relevance to current research in law. His contribution suggests a different methodological approach to developing legal theory in which the analysis of the micro-foundations of human behavior is of central importance. The paper argues that inquiry of this kind can contribute to legal theory by explaining perception in decision-making processes, and it may be the first essential step toward a normative legal theory that reduces errors in legal contexts like the one currently being sought by behavioral law and economics scholars (Cass R. Sunstein, Christine Jolls, Richard Thaler 1998 and Ulen 2001).

KEYWORDS: law and economics, cognitive economics, neuroeconomics, Hayek, Posner

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Introduction

In the past few decades the behavioral approach to law and economics has shown the importance of cognitive biases in legal behavior. Authors like Cass R. Sunstein, Christine Jolls, and Richard Thaler (1998) have emphasised the advantages that may derive from introducing important insights derived from behavioral economics into the economic analysis of law. Moreover, Jolls and Sunstein (2006) argue that both procedural and substantive law should be revised in light of the empirical evidence on the role of cognitive biases in behavior.

As elsewhere argued (Ambrosino, 2010), the debate on the behavioral approach to law and economics (Mitchell, 2002a, 2002b, 2003a, 2003b, Jolls and Sunstein, 2006; Jolls, 2007) creates room for cognitive economics to contribute to explaining the complex determinants of legal behavior. Cognitive economics, in fact, by focusing its inquiry on the micro-foundations of decision making, may yield better understanding of reciprocal causation connections between legal rules and individual behavior.

Friedrich August von Hayek is recognized as one of the founders of the cognitive approach to economics (Rizzello, 1998; Egidi and Rizzello, 2004). The close connection between his theory of mind and his economic theory helped open the way to modern cognitive economics from both the theoretical and methodological points of view.

Nevertheless, Hayek's legal theory has been widely neglected both by the traditional law and economics literature and by that of behavioral law and economics. Posner (2003) criticized Hayek's legal theory and his analysis of the role of the judge as lawmaker. The paper will mainly focus on three main grounds: first Posner considered the role of the judge described in Hayek's theory to be a passive one (Zywicki and Sanders, 2008). The judge must only enforce the social order instead of consciously pursuing wealth maximization. Secondly, Posner argued that there is no room for the evolution of law in Hayek's legal theory. Finally, in Posner's opinion, Hayek makes confusing use of the expression "Rule of Law".

This paper will argue that a better answer can be given to Posner's criticisms if Hayek's legal writings and his economic writings are jointly reconsidered in light of his theory of mind. This analysis of Hayek's contributions will be preliminary to discussion of the relevance of his theory of mind to modern legal theory as the main inspiration for development of a proper cognitive approach to the economic analysis of law

The paper is organized into five sections. Sections I and II will respectively reconstruct Hayek's theory of mind and his legal theory, referring especially to the concept of Rule of Law and to the

role that Hayek attributes to the judge in civilized systems. Section III will discuss the links and the mutual connections between the two levels of analysis: the mind level of the sensory order, and the social level, considering how the determinants of human behavior contribute to shaping legal rules. Section IV will re-evaluate Hayek's legal theory with respect to Posner's criticisms. It will focus on the meaning that Hayek's work acquires if it is analyzed as part of a complete research program and in light of his theory of mind. Section V will discuss the perspective opened by Hayek's approach for current research on law and economics.

Section I

Hayek's theory of mind, individual behavior and the role of institutions

During his career, Hayek moved slowly toward an idea of economics as the study of complex systems in which biology, systems theory, and many other disciplines are involved. In the 1930s his economic ideas started to change: "Economics and Knowledge" (1937) is regarded as the watershed in Hayek's transformation (Foss, 1995). More precisely, from that moment onwards it became clear that he conceived economic issues as complex phenomena and that he would deal with them by investigating different research fields. Nevertheless, his "The Trend of Economic Thinking" (1933) already furnished important insights into the role of spontaneous institutions and knowledge in solving problems in society (Ambrosino, 2006).

These two papers represent the beginning of Hayek's shift from his first works on issues in technical economics to ones in social theory, biology, psychology, and systems theory. Hayek's contribution was to put economics among those sciences that study complex adaptive systems. These economic systems are built by human behavior, and they require institutions.

Hayek's interest in human cognition and the functioning of the human mind goes back to the early 1920s when he was still a student. In those years he worked on a paper, "Contribution to the Theory of the Development of Consciousness", which was never published but years later constituted the basis on which *The Sensory Order* (1952) was to be developed. There has been much discussion on the influence of this study on Hayek's economic theory and the existence of a systematic research program in his work (Birner, 1995; Rizzello, 1998, Rizzello and Egidi, 2004). This paper will argue that Hayek's theory of mind is also essential for understanding his legal theory, as part of his research program, and the opportunities offered by his theoretical approach to modern law and economics.

Hayek's theory of mind describes the human mind as an adaptive classification system in which external stimuli are ordered and classified so that individuals can act in every circumstance of their ordinary lives. This classification system consists of neural connections that are the result of both biological inheritance and the individual's past experience derived from acting in the external world. The classification process is contextual and multiple: the order attributed to each particular input depends on the other inputs that arrive with it, so that there is no one-to-one relation between each given stimulus and the sensory order. Moreover, the sensory order that arises is idiosyncratic for each individual. It depends on both the external stimuli and the specific neural system involved in the process. Although that neural system has important features in common with those of other individuals, it is unique to each individual. Also unique to each individual is his/her particular past experience, which plays an important role in the perception process.

The classification process is adaptive because it is modified by both a process of natural selection in forming the organism's set of neural connections and by life experiences. The *map*, as Hayek terms the neural connections system that the mind has created over the individual's life-span, is subject to continuous though very gradual change (1952, p.110) caused by the interplay between the physical structure of the brain and the particular stimuli experienced by the individual in his/her life experience. By means of its classification processes, the mind is able to maintain and continuously update a model of the environment as it has been experienced by the individual.

This slow adaptive process characterizing the mind's functioning is what allows behavioral routines to change. The perception and classification of external stimuli are strongly related to rules of action. In each particular problematic situation, the outcome of the perception and classification process incorporates information about the rules of action needed to face that situation. Routines are rules of behavior emerging from the classification of external stimuli in order to react to particular circumstances in ways that have proved effective in managing such circumstances. The feedback on their action that agents receive from the external world makes it possible to turn effective behavior into a routine to be applied whenever a similar situation arises. Moreover, a negative feedback is required to start a slow process of change in behavioral rules.

Hayek's theory of mind shows the importance of cognitive processes and past experience in shaping individual behavior and the idiosyncrasy of classification processes. These elements acquire even more importance if they are related to the problem of knowledge, which Hayek believes to be the central issue in economics (1937). People in society act to satisfy their own interests, but in shaping their expectations they must consider that information is not complete; rather, it is dispersed. Moreover, each agent processes the information that s/he possesses through

his/her peculiar classification system and develops idiosyncratic knowledge. Economic growth depends on whether dispersed knowledge can be fully exploited so as to convey “to the individuals such additional knowledge as they need in order to enable them to dovetail their plans with those of others” (1945, p. 521).

How can a social order emerge from such dispersed and idiosyncratic knowledge? If the reason why people follow some rules instead of others can be understood only by investigating the activity of human brain, this suggests that society is a system in which the combination of elements is important. It is not the simple addition of elements because “the existence of those relations which are essential for the existence of the whole cannot be accounted for wholly by the interaction of the parts” (1967, 71).

There are two conditions for a social order to exist: first, individuals must be able to perceive and classify other people’s behavior to understand how to behave; secondly, the actions of multiple individuals with idiosyncratic and partial knowledge must coordinate.

Agents must give meaning to others’ behavior in order to interact with them, to focus their own aims, and to plan their action. They do this through mental processes. It is through perception that the microcosm of the mind builds a model of the external macrocosm (1952, p.198). An agent classifies others’ behavior by referring it to a principle of conformity with the rules of behavior that he himself applies: “the perceiving individual’s own action patterns provide the master moulds by which the action patterns of other individuals are recognized” ([1962], 1967, p.57). This implies that agents at least partially share the set of actions that they apply, but it does not mean that agents must be all identical; rather, they “must be made up of the same ingredients, however different the mixture may be in particular instances” (p.59).

The second requirement for a social order is coordination among actors. Hayek (1960) argues that it is the process of civilization that enables the emergence of common rules of behavior. Civilization is what allows agents to manage dispersed knowledge. It “begins when the individual in the pursuit of his ends can make use of more knowledge than he has himself acquired and when he can transcend the boundaries of his ignorance by profiting from knowledge he does not himself possess” (1960, p.24). Civilization is made by man: it is the product of the actions of hundreds of generations of agents, but it is not the product of human design. Man cannot impose a particular order created by his mind upon the world. This is because the human mind is itself an adaptive system which changes so that man can adapt to his surroundings.

As a consequence of agents' actions, a spontaneous order "of human activities of much greater complexity will form itself than could ever be produced by deliberate arrangement" (1967, p.162). This does not mean that a society without rules will develop; rather, that society will be based on general, end-independent rules that apply to all individuals. These rules guiding man's behavior in forming correct expectations about others are selected in social interaction by means of the imitation and evaluation of rules of conduct, habits and traditions. This process whereby rules are culturally selected takes place at the social group level. Those social groups that apply better rules can achieve better results than other social groups (Ambrosino, 2006, Butos et al. 2002).

Formal rules and established institutions are therefore necessary in a civilized society. In fact, for Hayek institutions as well as legal norms constitute the boundaries of individual actions. They enable agents to act and coordinate their behavior to achieve their purposes. Rules of law and property rights protecting agents' autonomy against arbitrary interference are needed to promote the emergence of spontaneous orders and progress in civilization. Nevertheless, this does not imply that a central planner is necessary. Hayek's rejection of rational constructivism is simply stated in the introduction to the first part of his *Law Legislation and Liberty* (1982), where he argues: "This intellectual tradition can be shown to be false both in its factual and in its normative conclusions, because the existing institutions are not all the product of design, neither would it be possible to make the social order wholly dependent on design without at the same time greatly restricting the utilization of available knowledge. That erroneous view is strictly connected with the equally false conception of the human mind as an entity standing outside the cosmos of nature and society, rather than being itself the product of the same process of evolution to which the institutions of society are due" (p.5). Hayek's model of the human mind is therefore strictly related to his idea of the spontaneous evolution of social norms and institutions. Better rules of conduct give an advantage to those social groups that use them, and they are learned and imitated by other social groups and future generations. This process of cultural evolution makes it clear that "our habits and skills, our emotional attitudes, our tools, and our institutions all are in a sense adaptations to past experience which have grown up by selective elimination of less suitable conduct" (1960, p.26). This process is also what allows the slow change of social norms and institutions when the environment changes.

According to Hayek's theory, therefore, institutions arise by a process of spontaneous cultural evolution. It is institutions, like abstract codes of conduct, that allow individuals to satisfy their changing expectations and to reduce uncertainty. Legislators and the state perform an essential role in discovering such spontaneously evolved rules and institutions, and in codifying them or giving them the status of established social institutions.

This section has presented Hayek's theory of mind and its relevance for his social theory. Nevertheless social order in civilized society needs codified general rules of law and established institutions. Hayek discussed the way in which spontaneously emerged rules of behavior should be codified in his legal theory (1969, 1973, 1976, 1979).

The next section will discuss Hayek's legal theory with particular regard to the role of the judge as lawmaker.

Section II

Hayek's legal theory and the role of the judge

Hayek's legal theory is closely linked with his social and economic theory. The problem of coordination among agents in social contexts characterized by dispersed knowledge, and that of the spontaneous order emerging from their interactions through a process of selection and imitation, raise important questions about what kinds of legal rules can enforce such an order and who must establish them.

Civilized society needs legal norms and institutions in order to achieve social order and peace. In fact, agents act in pursuit of their own personal interests. They do so by interacting with other people whom they did not previously know. Hayek describes this kind of interaction as a game in which the players must abide by a set of rules. Hence, in order to improve the efficacy of the game, rules (like contract law and property rights) are slowly developed (Hayek, 1978, p.73).

It is these rules that let agents be free in their choices. Agents should be free under the law: that is to say, when they obey laws, in the sense of general abstract rules, they are not subject to another man's will (Hayek, 1960, p.153). In Hayek's theory, law is a sort of invisible boundary line within which the activity of each individual has a secure sphere in which to unfold (p.148).

Important insights into Hayek's legal theory can be drawn from most of his works. Here particular attention is paid to *The Road of Serfdom* (1944), *The Constitution of Liberty* (1960) and *Law Legislation and Liberty* (1982) to show the evolution of Hayek's conception of the Rule of Law and his analysis of the role of the judge in society.

In fact, *The Road of Serfdom* (1944) is not greatly concerned with legal theory. Nevertheless, Hayek provides in it a definition of the Rule of Law and discusses its role in free countries. The Rule of Law implies that the power of the government is limited by previously fixed rules. These fixed rules

allow individuals to construct correct expectations on how and in what circumstances the State will use its coercive power, and then to make their own choices.

Under the Rule of Law the government should only set general rules to be applied to general situations. Individuals should be completely free to evaluate time and space circumstances. Only agents involved in real decision processes can know the exact circumstances in which they must act and hence adapt their behavior to those circumstances. These general rules are stated in formal rules which are not created to favor the aims of particular subjects or group of subjects. General rules are means with which to achieve personal aims available to all the social community. They should be conceived as remaining in force for a long time as tools enabling agents to build correct expectations about others' behavior.

Hayek is aware that the complete realization of a society based on the Rule of Law is not possible because governments consist of men liable to make mistakes. He argues that governments should have as few opportunities as possible to apply their coercive power freely. Law can limit the range of tools available to individuals to achieve their purposes, but governments can never frustrate individual efforts with particular purpose-made laws.

Another point emphasised by Hayek in *The Road of Serfdom* is that, in a system based on the Rule of Law, the direct impact of the State's action in each particular case will be less clear. The result will be a social system in which it is not possible to foresee exactly what the outcome of settled rules will be. This is the consequence of a system of general laws (different from specific orders) that must be applied in different circumstances which cannot be predicted in all their characteristics. The effect that these general laws will have in each circumstance and with respect to individual purposes cannot be known in advanced.

In *The Constitution of Liberty* (1960), the ideas enunciated in *The Road of Serfdom* are better developed. Hayek returns to the relationship between freedom and the law, reiterating his central idea that "the conception of freedom under the law that is the chief concern of this book rests on the contention that when we obey laws, in the sense of general abstract rules laid down irrespective to their application to us, we are not subject to another man" (1960, p.153). Life in society is possible because individuals act in accordance with certain rules. Such rules "tend to develop from unconscious habits into explicit and articulated statements and at the same time to become more abstract and general" (p.148). The nature of these general rules differs from that of specific commands, which determine solely the action to be performed. Indeed, general rules (law) should be settled "once and for all" (p.149): they should be directed at unknown people and be extraneous

to all particular circumstances of place and time. The rationale for these general rules securing for each individual a known range within which he can decide is to allow him to make the fullest use of his knowledge, and especially his concrete and idiosyncratic knowledge related to the particular circumstance in which he finds himself. Rules are the result of a process of adaptation by the entire society to its environment and to the general characteristics of its members. Law states the boundaries that agents must take into account when deciding their actions. These boundaries enable them also to predict the consequences of their behavior (p.156) and to form plans of action that will have good chances of being successful (p.157).

In defining the general rules needed to guarantee the freedom of individuals, Hayek enlarges the definition of The Rule of Law that he provided in 1944. As suggested by Cliteur (2000), it is possible to distinguish the following five characteristics of law under the Rule of Law:

1 Rule of Law means that the government can use its power to coerce the freedom of an individual only in enforcing a known rule. It thus constitutes a limitation on the power of all governments, including the legislature. The Rule of Law requires that all laws must conform with certain principles (p.205). Therefore it is a rule concerning what the law ought to be (p.206). Hayek stresses that this implies that the Rule of Law can prevail only if it is part of the moral tradition of the community as a common ideal shared by the majority. Only in this case does the legislator feel bound by it (p.206).

2. The Law should consist of general and abstract rules referring to unknown cases. These rules must represent the framework within which agents can take their own decisions in pursuit of their own ends. Hayek argues that generality is the most important aspect of the Law. The fact that the lawgiver does not know the particular cases in which rules will apply, and the fact that the judge who applies them can only draw the conclusions that follow from the existing body of rules and the particular facts of the case, are the guarantees that laws and not men rule (p.153).

3. The Law must be prospective in its effect. It determines only some of the conditions that individuals' actions must satisfy; it applies to unknown people only when certain conditions are present. Therefore the lawgiver cannot predict what the effect of a particular law will be on particular people and for what purposes people will use it (p.152). The lawgiver confines himself to general rules because of his necessary ignorance about the special circumstances under which they will be applied. He fixes some firm data constituting some of the conditions for those who must plan their action. In so doing he provides opportunities but never certainty about the results of their efforts (p.158).

4. The Law must be known and certain. Certainty is a central feature of the Law. It is the factor which has contributed most to the prosperity of the West because it allows the efficient running of a free society. Hayek underlines that complete certainty is something that can only be approached. “The degree of the certainty of the law must be judged by the dispute which do not lead to litigation because the outcome is practically certain as soon as the legal position is examined”(p.208).

5. The last requirement of the Law is equality. That means that the Law should apply equally to all. To do so, the Law must refer only to formal characteristics of the persons toward which it is directed. Nevertheless, Hayek argues, classifications always leave room for the possibility of forming classes consisting only of particular known persons. Moreover, equality before the law is the chief safeguard against the possibility that the Law may set severe restrictions on liberty. If the only special power given to the authority is that of enforcing the law, there will probably be little prohibition of what anybody might reasonably wish to do (p.155).

Moreover, in *The Constitution of Liberty*, when dealing with the problem of safeguarding individual liberty, Hayek outlined his theory on the judge’s role in a system based on the Rule of Law. The issue would subsequently be addressed more thoroughly in *Law, Legislation and Liberty*.

The point now discussed concerns limitation on the judge’s discretion in deciding disputes. Hayek argues that “the task of the judge is discover the implications contained in the spirit of the whole system of valid rules of law or to express as a general rule, when necessary, what was not explicitly stated previously in a court or by the legislator”(p.212). This means that the judge must interpret some formal or informal pre-existing rule. He cannot follow his own will in pursuit of particular concrete aims, and his interpretation of the law can be subject to review by a higher court. Moreover, “rules must not be made with particular cases in mind nor must particular cases be decided in the light of anything but general rule- though this rule may not yet have been explicitly formulated and therefore have to be discovered” (p.210).

This short preliminary discussion of the judge’s role implicitly contains two important topics addressed? in *Law, Legislation and Liberty*. First the judge plays the role of discoverer of law; second, the legal framework in which he performs his task is constituted by the outcomes of historical accidents or the application of inherited principles to new situations.

The first part of *Law, Legislation and Liberty* starts with a critique against? constructivism in the process of law creation. The main contention is that most of the rules of conduct which govern human action, and most of the institutions which arise, are the result of a process of adaptation to the impossibility for anyone to take conscious account of all the particular facts which enter into the

order of society. Moreover, the idea of a developed mind able to design the institutions which should make life in society possible is contradicted by everything we know about the evolution of man (1973, p.17). The mind itself is the result of a process of adaptation to natural and social surroundings. It is the product of the social environment in which it has grown up. Man lives in a cultural context in which there exist certain practices and rules of behavior which have prevailed over time because they have made a group of men successful, but which were not deliberately created to serve particular purposes.

This discussion is crucial also for understanding Hayek's idea of the role of the judge in social systems based on the Rule of Law. His legal theory draws a distinction between Law and Legislation. Law came before Legislation: not all the rules that people follow in society are of a legal nature, but individuals use them because they enable society to make decisions in situations of limited information. The social order and the survival of the society result from a process whereby rules emerge and evolve. Legal systems and authority are needed to command obedience because they enforce a law presumed to exist independently and which rests on a widely-shared opinion on what is right (1973, p.95). The development of legal systems within which the judge plays a prominent role is therefore the outcome of a continuous process of evolution in the course of which the spontaneous growth of customs and deliberate improvements in the particulars of an existing order have constantly interacted (p.100). These are systems which select the "right rules" among those that spontaneously emerge. Legal systems need the activity of law-makers: these may be the legislators who produce laws, or the judges who play a crucial role in the creation of law. In the part of *Law, Legislation and Liberty* referring to the common law systems, particular importance is given to the role of the judge.

The role of the judge who must enforce and improve law can be better understood by considering that "he is called to correct disturbance of an order that has not been made by anyone and does not rest on the individual having been told them what they must do....The judge is in this sense an institution of a spontaneous order. He will always find such an order in existence as an attribute of an ongoing process in which the individuals are able successfully to pursue their plans because they can form expectations about the actions of their fellows which have a good chance of being met" (1973, p.95).

Hence Hayek rejects both the idea of the judge as the subject who simply applies a given law and as a producer of efficient law. Hayek's judge is an extender-discoverer of law. He produces law, in fact, but does so in continuity with the existing legal tradition. More than a law-maker, he is a discoverer of rules compatible with the spontaneous order (Hayek, 1973, Deffains, 2002).

To say that the judge discovers rules that serve to maintain an existing order implies that there is a distinction between those rules and the resulting social order. The judge should create general and abstract rules to be followed by all. A rule of this kind is something which has to be found to prevail; it is not something that the mind can deliberately create (p.97). The aim of each rule must be to allow the matching of the expectations on which the plans of the individuals depend for their success (p.98). Hayek suggests that to maintain the existing order, rules should direct individuals' behavior in such a way that: 1. individuals actions' do not unnecessarily interfere with each other, 2 in those circumstances in which the success of an individual's action depends on its matching with the action of others, there will be at least a good chance that the matching will occur (p.99).

As long as the existing rules, both formal and informal, efficaciously enable agents to achieve their purposes, there is no need for intervention by the judge. But when it is not possible to form legitimate expectations about the outcome of the situation, it will be necessary to appeal to the judge, who is supposed to have better knowledge of the established rules. He cannot pronounce any rule that he wants. He cannot do so either in situations in which he must decide on conflicting expectations based on already-established rules or in new situations where there is no known rule to guide him. Rather, he must discover a rule which fills the gap in the already-established rules or which is consistent with the existing body of rules so as to maintain and improve the existing order, and which, once stated, is recognized as appropriate by the members of the society (p.100).

Hayek argues that the judge is expected to maintain the order. This does not imply that he must maintain a particular state of affairs. Rather, Hayek refers to the regularity of the process by which agents form their expectations without interference by others. The process by which the judge contributes to the social order is endless. In deciding a specific case, both the judge and the parties involved should not be interested in the effect of the decision on the social order. In fact, if the rule established by the judge proves successful in helping individuals to form correct expectations, then it will be able to coordinate itself with the existing body of norms and hence contribute to the social order.

The judge contributes to the process by which society adapts to new circumstances; the process by which the social order grows. In fact, he is part of the process of selection of existing norms which leads to a social order in which only efficacious norms survive. Moreover, when performing his function the judge creates new norms: he does not create a new order but helps maintain and improve the functioning of the existing one (p.119).

Finally, Hayek is aware that the judge may sometimes err, or he may be misled by his preference for a particular end in the case that he must evaluate. Nevertheless, there is no room in his task for his emotional response or his preference. Most of the cases that the judge must resolve will have only one right solution. The fact that intuition may contribute to the judge's ability to formulate the right solution does not mean that emotional factors rather than rational ones are the determinants of the result. The task of the judge in Hayek's theory is "one of testing hypotheses at which he has arrived by processes only in part conscious. But although he may not know what led him in the first instance to think that a particular decision was right, he must stand by his decision only if he can rationally defend it against all objections that can be raised against it" (p.120).

Section III

Hayek's "Rules , Perception and Intelligibility": the link between his theory of mind and his legal theory

In 1962 Hayek published, in the *Proceedings of the British Academy*, a paper entitled "Rules, Perception and Intelligibility" which sought to explain the relationship between the *rules governing perception* and the *rules governing action*. The paper seems not to be explicitly related to the idea of the Rule of Law and that of the role of the judge in modern society as previously analyzed. Nevertheless, it is of great importance for understanding the relationship between the *sensory order* and the *social order* with respect to the capacity of individuals to perceive their own behavior as consistent with previous classifications, and their propensity? to follow rules of behavior that they recognize as shared by the social community to which they belong. This paper, published after *The Constitution of Liberty* and before *Rules Legislation and Liberty*, is the key to understanding Hayek's legal theory in light of his theory of mind. Here he conducted an inquiry into the links between the rules of perception governing the mind as a classification system and the development of individual behavior consistent with shared general rules. The relationship between the two levels of rules, *rules governing perception* and *rules governing action*, is a crucial point to understand in order to evaluate the relationship between Hayek's theory of mind set out in *Sensory Order* and his legal theory analyzed here.

The main idea developed in Hayek's article is that there is a certain level of general rules governing human action which are of the same kind as those governing perception. It is this connection which enables Hayek to argue for the existence of rules "implicit" in human behavior. This is what is often referred to as the latency of rules in the philosophy of law. Such rules consist in behavioral

regularities which are followed by actors but cannot be explicitly stated by them (Hayek, 1982, p.27; 1962, p. 43).

Hayek observes that, as in the case of language, agents act and acquire skills with unexpected ease, but the characteristic of these skills is that individuals are usually unable explicitly to state the rule which governs their action (p.43). He argues that a better term for skills of this kind is “know-how”, which consists exactly in the capacity to act according to rules which agents are able to discover but which they are not able, and do not need to be able, to state in order to follow them. Hayek adds, and this is the first insight relevant to the purposes of this paper, that the sense of justice pertains to those cases of a capacity to obey rules which we do not know explicitly. This means that, by living in a certain social group, agents learn the main principles of justice which have been developed over a long time and acquire the skills to obey them. There is a second relevant aspect to be considered in regard to all those cases in which agents act in compliance with implicit rules of this kind. In these circumstances, in fact, the nervous system appears to act as a “movement pattern effector”; but for this to be possible, the organism needs to recognize actions conforming to such rules or patterns without being consciously aware of the elements of which they are composed. Hence, in order to understand how agents can follow unformulated rules, we must first understand how the human mind develops a “movement pattern detector” (p.45). This topic is closely related to the theory of mind developed in *The Sensory Order* (1952), in which Hayek argues that action is the final step in the perception process. Here, the point stressed by Hayek is that general and implicit rules of this kind do not govern people’s behavior alone; first of all they govern perceptions, and particularly perceptions of other people’s actions. The process by which agents can perceive other people’s behavior as complying with some general rule which they share is of particular importance when discussing how the lawmaker (judge or legislator) must evaluate any new rule to be enacted. Understanding which implicit rules are shared among people, and how they are recognized in social groups, could enhance recognition of which kind of formal rules may actually shape individuals’ behavior in modern society (Ambrosino, 2006).

According to Hayek, the capacity to perceive regularities (rules) in the actions of others is what enables different persons to perceive that a particular situation is one of a certain kind (p.46). He argues that one of the main instances in which agents are able to recognize others’ behavior is imitation. Nevertheless, before people can imitate, identification is necessary. Agents must establish a correspondence between movement patterns which are perceived through different sense modalities (p.48). This presupposes the existence of a mechanism transferring the capacity to discern abstract orders from one field to another. Hayek argues that this kind of transfer is of the

same kind as that by which we can easily transfer skills learned from one hand to the other (p.49). The point is that if two different sensory elements are to be recognized as converging on the same pattern, they must have some features in common. The most important of these features is the space-time framework.

As argued in *The Sensory Order* (1952), perception is the process by which the human mind classifies external stimuli, giving rise to patterns of classifications which enable agents to act. In “Rules, Perception and Intelligibility”, Hayek emphasizes that such patterns of classifications contribute to coordinating human behavior and, hence, to achieving the social order. Once acquired, these patterns of rules can also be recognized in new circumstances different from those that generated them. This is possible because, even if perception is strongly linked to space, time, and past idiosyncratic experience, each pattern of classified rules is activated in the human mind whenever a certain circumstance shares attributes with those stimuli which originally gave rise to the classification. This is because these patterns of rules governing action are, in Hayek’s view, not related to particular and specific actions. Rather, they constitute a general schemata (p.56) which is then adapted to each particular circumstance. These patterns of regularities or rules enable agents to recognize shared purposes, moods or attitudes in the behavior of others and, hence, coordinate their behavior, and by so doing generate a status of social order.

“Rules, Perception and Intelligibility” is essential for understanding the link between Hayek’s legal theory and his theory of mind in *The Sensory Order* (1952). In fact, it clarifies the role of individual perception in developing general schemata like moral rules (p.56) by which agents can evaluate other people’s behavior as corresponding or otherwise to their own schemata. The perception of others’ behavior is the first step in the diffusion of common behavior through an imitation process. The diffusion of effective shared behaviors is necessary to obtain Hayek’s social order.

Moreover, to return to Hayek’s idea of the judge’s role in creating law, comprehension of individuals’ perception processes and of how perceived behaviors can be imitated and shared among people seems necessary for understanding how and with what kind of legal norms the social order can be improved or maintained. Hayek’s idea of the importance of the individual’s cognitive processes in developing moral rules able to restrict the alternatives on which conscious choices are made by agents has major methodological implications for a modern approach to law and economics. This point is discussed in section VI.

Section IV

Hayek's legal theory and his theory of mind: a different interpretation of Posner's criticisms

This section focuses on the main criticisms brought by Posner (2003) against Hayek's conception of the judge's role in economic systems and his contribution to the evolution of the law. The discussion will not enter into the debate on the legal philosophy respectively under Hayek's and Posner's legal theory. Instead, assuming that the latter endorses a constructivist approach while the former rejects it, the concern here will mainly be with the difference between the approaches adopted by the two authors in developing their economic analyses of law.

Firstly, Posner considers the role of the judge described in Hayek's theory as a passive one (Zywicki and Sanders, 2008). The judge's work is aimed at maintaining social order instead of consciously pursuing wealth maximization. Secondly, Posner argues that there is no room for the evolution of law in a theory in which the judge is averse to being creative and merely works to enforce immemorial customs. These criticisms are closely interrelated, and they connect with another point Posner stresses: in his opinion, Hayek makes confusing use of the term "rule of law".

In regard to the first criticism, Posner argues that Hayek rejects the idea of a central planner because this requires too much information, and he prefers the alternative method of creating norms through customs. Customs give rise to a spontaneous order that is neither planned nor designed. In Posner's view, under such a process of norms creation, the role of the judge when deciding concrete cases is not to make new rules or standards of conduct but simply to enforce immemorial customs. He consequently has a passive role. This point shows that the two authors have very different views on the nature of knowledge and on what the normative purpose of law in society ought to be (Zywicki and Sanders, 2008). Posner believes that judge should consciously create law in order to achieve designed social goals, that is, wealth maximization. In doing his work, the judge must consider the future effects of the rule that he states. He must evaluate which among the possible solutions for the case that he is assessing best contributes to increasing efficiency. The judge is a lawmaker who seeks the most efficient rule, and in doing so he applies the mechanisms necessary to ascertain the existence of the facts necessary for the correct application of law (Posner, [1973], 2006). Posner's judge, therefore, has the knowledge necessary to predict which rule will make society better off. There is the possibility that good sources of information will not be available to the judge, but this happens only in situations of social change. These are the cases in which the judge should be strongly constrained by precedent (Posner, [1973], 2006).

By contrast, Hayek believes that law should be created to maintain the spontaneous order reached by the society. In his view, it is impossible for the judge to predict how and whether any decision that he takes can improve social welfare. The main reason for this impossibility is strictly connected with Hayek's theory of mind, and it explains why the idea of a mind designing the institutions which make life in society possible is contrary to everything we know about the evolution of man (Hayek, 1973, p.17). As argued in section I, in fact, mind is the result of a process of adaptation to the social and natural environment in which man lives. It develops through a continuous process of interaction with the existing social institutions (formal or otherwise). Hence the human mind is the result of man's having developed in society (1952). The cultural heritage with which man is born consists in having acquired those rules of conduct that increased the chances of persistence of the group in which he lives, but which were not adopted intentionally in the knowledge that they would lead to particular effects (Hayek, 1973, p.17). This cultural heritage is shared by each individual in each group. Each man living in society contributes to the slow process of modification of social and economic institutions, but he does so only in pursuing his own interest, without considering the social effect of his choices (Ambrosino, 2006). In the same way, the judge can only contribute to the creation of new law by deciding cases solely on the basis of the concrete circumstances that he knows and without considering the possible effect of his decision in maximizing social welfare. The complexity and the peculiarities of the cognitive processes characterizing the human mind are the key factors to be considered when analyzing Hayek's argument that it is impossible for the judge to predict how to increase social welfare because information is dispersed and judges have only subjective knowledge of cases.

Moreover, for Hayek, the law plays the same role in society as do other economic and social institutions (like prices): it provides decision-makers with the tools necessary to construct adequate expectations to plan their actions. Law, as an institution in Hayekian terms, constitutes the framework enabling social coordination. When deciding concrete cases, the judge must not evaluate how his decision might contribute to social efficiency but only analyze whether the norm that he states conforms with the Rule of Law. The Rule of Law – being that kind of general, universally applicable, known and certain rule described in Hayek's legal theory (1960; 1982) – is strictly related to that general schema which agents develop through the perception and classification of external stimuli in social interactions and which determines the range of possibilities within which agents can make their choices (Hayek, 1952, 1962). By finding the norm conforming with the Rule of Law, therefore, the judge can contribute to that social order which results from individual actions, not from human design. In Hayek's legal theory, the judge "is called in to correct disturbance of an order that has not been made by anyone and does not rest on the individuals

having been told what they must do” (Hayek, 1973, p.95). In Posner’s view, Hayek’s judge is passive because he merely enforces customs. However, his role seems to be somewhat more complex. He must intervene whenever there is a gap between actual behavior and the social order, and he has the responsibility of making any new rule coherent with the existing system of rules. This is what maintains social order. Moreover, this social order is an ongoing process in which agents can pursue their plans because they can form correct expectations about others. In this sense, the judge is himself an active institution of spontaneous order (1973, p.95).

The second argument that Posner raises against Hayek’s theory derives from his view of the role of the Hayekian judge as a lawmaker with the limited power of only enforcing existing customs. Posner states that Hayek considers customs as the only source of law and that he is insufficiently critical of the limitations of custom as a normative order (Posner, 2003 p.151). The evolution of customs, he argues, need a teleology to move toward efficient results. In particular, Posner points out that Hayek ignores two main shortcomings of customs as a source of social norms: firstly, he suggests that there are circumstances in which the freedom of action of economic agents gives rise to cooperative activities which cause damage to the society as a whole. In these circumstances, he believes, the judge should reject such customs in order to promote economic efficiency. This means that the judge somehow provides the teleology needed to redirect economic behavior. Secondly, Posner maintains that Hayek ignores the fact that customs (because there is no lawmaker giving them to society) change very slowly. Hence, because the judge’s work is restricted to enforcing customs without regard to the consequences, it does not require any economic or social scientific analysis and it does not contribute to the evolution of law.

Returning to Hayek’s legal theory, it seems possible to add something to Posner’s interpretation. The use of the term ‘customs’ to refer to Hayek’s concept of rule is misleading (Hayek, 1962, p.56), because it generally refers to the development of very specific or particular actions. Rather, what Hayek has in mind are general and abstract rules of conduct possessing two main attributes: first, men comply with them without knowing them explicitly; second, such rules are observed because they give greater strength to the social group in which they are applied, but not because this effect is known by the group. In discussing the main attributes of such spontaneous rules governing human conduct, but before analyzing the judge’s role as lawmaker in modern society, Hayek explicitly states that “in advanced society only some rules will be of this kind; what we want to emphasize is merely that even such advanced societies will in part owe their order to some such rules” (1973, p.19). This point acquires particular meaning when one considers what Hayek argues concerning the role of the lawmaker in political evolution. The social order is the unplanned outcome of an

ongoing self-generating process of cultural evolution, and it is characterized by a level of complexity that the human mind cannot master as a whole. In a social context of this kind, the main instrument advocated to change society deliberately is legislation. Nevertheless, because each single law-making act will take place within the ongoing process of spontaneous order, the legislator is never completely free to redesign the legal system. Law-making is necessarily a continuous process in which each decision produces unforeseen consequences as to those which decision can or must be taken next. The parts of the legal system are adapted to each other, not according to a overall plan but by the successive application of general principles to particular problems (1973, p.65). There is an endless process of law-changing, “every single step in this process is determined by problems that arise when the principles laid down by (or implicit in) earlier decisions are applied to circumstances which were not foreseen” (1973, p.65). The judge thus produces new norms in response to unpredictable circumstances, and in so doing remains within the boundaries established by the legal framework in which he lives, without questioning them or planning the direction that the evolution of law should take.

The foregoing discussion of the role of customs or general rules in the creation of new norms by the judge brings out an interesting difference between Posner’s and Hayek’s theories that can aid understanding of the criticisms made by the former of the latter. As said, Posner believes that customs become particularly important in the judge’s decision-making only in the case of social change (Posner, [1973], 2006). Those cases seem not to be the ordinary circumstances in which the judge must do his work; instead, they are in some way “extraordinary” cases. By contrast, because Hayek considers the social order to be an endless evolutionary process, he believes that every law-making act will take place in a situation of social change. Social change becomes the ordinary case in Hayek’s theory. Nevertheless, the two authors’ conceptions of the role of customs in social change are not completely different.

Hayek’s argument concerning the boundaries imposed on the judge’s decision-making does not necessarily imply that each law-making act will be merely conservative. It has been said that Hayek’s judge makes norms conforming with the existing legal system, but that he does so without planning any social outcome?. Of course, every lawmaker , when interpreting rules not in accordance with some basic principles of the law that have been long accepted and are at currently the basis of the entire legal system, will decide “to give the preference to what is still the predominant part of the law and to fit an alien element into it by so transforming it as to make it harmonize with the whole” (1979, p.66). But a very different situation arises when the judge, in his function as lawmaker understands that a new general philosophy of law contrary to large part of the

existing law has recently arisen. In these situations, he will use the same habits and the same techniques that he uses in preserving the law to transform it. Hence, “the same forces that in the first condition make for lack of movement, will in the second tend to accelerate change until it has transformed the whole body of law” (1973, p.66). However, the end of this transformation process is not foreseeable. It will depend on the nature of the new philosophy, and it may either lead to a new equilibrium or to disintegration of the whole body of law as we understand it (1973, p.66). This is because, in Hayek’s theory, the process of cultural evolution leading to the social order is not teleological; hence, this evolution is not directed at any known goal (1960). In this sense, the judge becomes a revolutionary force contributing to change toward a new unpredictable spontaneous order.

Finally, behind Posner’s criticisms of Hayek’s legal theory lies his conviction that the latter gives a misleading interpretation to the “Rule of Law”. Posner is not the only author to have criticized Hayek’s idea of the “Rule of Law” (Raz, 1979; Sustain, 1996, Zywicki, 1996). Nevertheless, proper interpretation of Hayek’s conception requires one to consider the evolution of his concept of “Rule of Law” in the development of his legal theory (1944, 1960, 1982). As argued in the previous sections, Hayek’s concept of the Rule of Law is not, as Posner suggests, related to an idea of a rule of good law. Posner maintains that, by referring to the concept of Rule of Law with the expression “true law”, Hayek sets this concept in opposition to that of bad law. Hayek indeed uses the expression “true law” with reference to the Rule of Law, but in his legal theory this concept is a many-sided one (Zywicki et al., 2008). The meaning that he gives to this concept evolves, and it is not in contrast with the modern characterization given to it from Dicey’s work on (Zywicki, 2003). “Rule of Law” means the existence of boundaries to government action (Hayek, 1944), the enforcing and legislating of rules that are general, universally applicable, and known and certain (Hayek 1960, p.205). Moreover, the most important feature of the Rule of Law is that it increases the predictability of each others’ behavior (Hayek, 1973). In Hayek, the best definition of Rule of Law can be understood by comparing it with its opposite: the rule of men. A state under the Rule of Law is one in which there is the minimum of arbitrary coercion by others, even by the state (Zywicki et al., 2008). Thus stated, as argued by Zywicki et al., 2008, one can understand why Hayek argues in *Law, Legislation and Liberty* that the common law system is the one that best embodies the Rule of Law, and that common law is the kind of system which best enables spontaneous order. This implies that the concept of Rule of Law is strictly linked with what Hayek argued in “Rules Perception and Intelligibility” concerning the relation between the rules of perception and those that govern human action, and the role of these two levels of rules in enabling agents to construct correct expectations about others’ behavior and coordinate themselves better. It

is under this conception of the Rule of Law that the judge contributes to the evolution of a set of rules that satisfy the requirements of generality, universality and certainty, and thus become institutions of social order.

Section V

Hayek's legacy: toward a cognitive law and economics approach

The arguments put forward in the previous sections suggest that Hayek's legal theory can furnish important insights for the current economic analysis of law from both the methodological and theoretical points of view.

The need for a different approach to law is not a new issue in legal theory. Indeed, since the beginning of the 1990s, authors like Cass R. Sunstein, Christine Jolls, Richard Thaler (1998) and others have questioned the relevance of better understanding human behavior to develop legal policies. The debate has led to the development of what is now known as the 'behavioral approach' to law and economics. This approach draws on the tools and theoretical results of behavioral and experimental economics to reinterpret the standard models of law and economics by conducting more complete analysis of the microfoundations of human behavior. Behavioral law and economics scholars believe that this approach can contribute to developing legal theory on the descriptive, normative, as well as prescriptive levels.

Although the importance of Hayek's work has been widely recognized in experimental economics (Boettke et al., 2008, Smith, 2005), which is one of the main reference points for development of behavioral law and economics, Hayek's contribution is still neglected by the debate on the need for a new approach to develop modern legal theory, and Hayek's legal theory remains one of those most criticized within the discipline.

By contrast, many contemporary economics landscapes recognize the importance of Hayek's ideas. In particular, both new institutional economics (Williamson, 2000) and cognitive economics (Egidi, Rizzello, 2004, Rizzello 1997) stress the importance of Hayek's pioneering contribution to the development of both research fields. New institutional economics, in fact, assumes that actors have imperfect information and that knowledge is dispersed; and it shares Hayek's idea that the emergence of institutions is a bottom-up process (Hodgson, 2000, 2003a, 2003b). Moreover, Hayek's idea of the role of human cognitive processes in the emergence of norms of behavior has

been the main factor in directing part of the new institutional economics approach toward a cognitive institutional one (Ambrosino, 2006).

The cognitive approach to economics focuses on the micro-foundations of human behavior (Camerer et al., 2005), and it stresses the importance of Hayek's preliminary attempt to investigate the complexity of the mind and the role of human cognition in decision-making processes (Egidi, Rizzello, 2004). The cognitive approach shares Hayek's contention that a multidisciplinary approach is needed to investigate complex phenomena (Hayek, 1952b). Moreover, unlike pure behavioral economics, part of the cognitive approach suggests that multidisciplinary research cannot be reduced to the simple introduction of psychological or neurobiological insights into standard economics; rather, it must consist in a thoroughgoing investigative approach aimed at understanding phenomena in their complex entirety, without conflating them into a standard model (Egidi and Rizzello, 2004, Spada, forthcoming).

The findings of this paper make it possible to argue that better understanding of Hayek's legal theory is possible only if it is considered jointly with his theory of mind and his economic and legal theory. The importance of considering Hayek's work in its totality, as a unified research program, has already been emphasised in various research fields: Beaulier et al. (2005) and Boettke (1999) have argued that Hayek's research program in economics overlapped with his research in politics and law. Other authors, such as like Rizzello (1997), Caldwell (2000) and Horwitz (2000), have discussed the connection between Hayek's economic theory and his contribution to cognitive psychology.

This paper has argued that considering Hayek's theory of mind, and not just his economic theory (Beaulier et al. 2005), as a preliminary step to inquiry into his legal theory highlights the importance of three main ideas, strictly interconnected, which play a fundamental role both in his economic theory and in explaining the process whereby social norms emerge and agents perceive other people's behavior as conforming with shared rules: 1. the role of idiosyncratic knowledge and the complexity of decision making; 2. the rise of social and economic institutions as the outcome of a "bottom up" process; 3. the need for implicit as well as legal institutions in modern society. The relevance of similar ideas in Hayek's economic and legal theory has also been emphasized by Beaulier et al. (2005), who focus on the role played by the individual's cognitive processes in both economic and legal issues, and who argue that Hayek's theory of mind is needed to understand these three ideas properly.

The first idea concerns the role of idiosyncratic and dispersed knowledge in decision-making and, hence, the complexity of decision-making processes themselves. This theme, as well as that of coordination, formed the core of Hayek's works on economics in the 1930s and 1940s (Hayek 1937,1945). But the problem of knowledge is also crucial when analyzing his theory of mind (1952). Every classification is the outcome of a process in which the information that the agent gathers is processed by that agent's innate cognitive structure in interaction with the knowledge that he or she has derived from past experiences. Hence, knowledge is one of the main elements involved in the cognitive process of classification and it plays an important role therein. It is this knowledge that allows different agents to classify the same stimuli differently, but it is also what enables different agents to recognize others' behavior as corresponding to some shared implicit norms (1952a). Moreover, the problems of knowledge in coordination and the complexity of decision-making are also the key issues to address when analyzing the rise of the spontaneous social order and of norms and institutions (Hayek, 1937, 1960, 1982). As argued in Hayek's 1962 paper, dispersed knowledge is analyzed by agents by means of a meta-conscious cognitive process. This process give rise to implicit rules of behavior which, on the one hand, are the main tools with which agents interpret and classify other people's behavior as corresponding to shared rules, and which, on the other hand, can be learned from other people through a process of imitation. This imitation of implicit norms of behavior plays a fundamental role in the development of the social order and in allowing these implicit norms to become stable in a certain social group (Hayek, 1967).

The second idea is that social and economic institutions must be explained as resulting from a "bottom up" process. Hayek uses the term 'norm' to denote every type of rule of behavior that spontaneously emerges in the interaction between agents pursuing their own interests and the society in which they live. Such norms of behavior arise from an individual's cognitive process of classifying external stimuli, and they are able to became stable *routines* (rules) if they receive positive feedback from outside (Hayek, 1952). Moreover, norms of this kind can be shared by the social group in which they have emerged through a process of learning-by-imitation (Hayek, 1960). Once they have become shared rules, they constitute the boundaries of individual choices and they become the key elements in society's coordination. Furthermore, they can be translated into legal rules, and they may also be changed by the legislator whenever he consider them no longer coherent with the existing social order. With the term 'institutions', like norms, Hayek refers primarily to any spontaneously emerged and shared rule which shapes the framework in which agents can make their choices. Hence, formal institutions established by the state are obviously institutions in Hayekian terms, but they are not the only ones.

The relation between the cognitive process shaping individual behavior and the rise of norms and legal norms thus described shows that, according to Hayek, the process by which norms and institutions emerge starts from individual behavior. Informal institutions, as well as formal institutions and legal norms, are created by a “bottom up” process. This process is not simply one whereby individual interaction gradually generates the kinds of rules or institutions better able to coordinate agents’ behavior and, hence, produce a social order. Rather, this process is an endless one¹ in which agents contribute to shaping norms and institutions, while norms and institutions contribute to shaping, and perhaps changing, individual behavior (Ambrosino, 2006).

The third idea is that human interactions need institutions and norms. This applies to any kind of interaction (economic, social, or of some other type). In some cases, simple cultural structures or implicit and informal rules are sufficient, but legal norms and institutions are often needed as well (Hayek, 1982).

The need for institutions or behavioral rules is a consequence of the complexity of human interaction and of the fact that agents possess only idiosyncratic knowledge. Institutions and norms give agents a framework in which they can make their choices (Hayek, Ambrosino, 2006).

These three main ideas suggest that joint analysis is necessary of the role and nature of legal norms and of the cognitive micro-foundations of human behavior. Nevertheless, what Hayek suggests is a kind of inquiry that does not imply the need for a reductionist approach to jointly model the complexity of human cognition and its relationship with social order. Hayek aims, being the inquiry into the complex phenomena characterizing human interaction, is concerned with the analysis of human action, where a person can be said to choose between various opportunities open to him or her. In most of these cases, the objects of human action are not “objective facts” of the kind used by the natural sciences to build their models (1952b). Hence, the analysis of social phenomena can be improved only “by the systematic and patient following up of the implications of many people holding certain views” (1952b, p.34). This will yield understanding of “the unintended and often uncomprehended results of the separate and yet interrelated actions of men in society” (p.34).

Such kind of suggestion, bringing to the interaction of different research fields, has already been included in the cognitive approach to economic institutions which investigates agents and institutions as parts of the same framework (Rizzello, Turvani 2000, 2002; North, 2005). Moreover, this paper has recommended analysis of this kind also to develop the current approach to law and

¹ The reciprocal causation process linking individual behavior and institutions has been widely investigated in institutional economics. See e.g. Hodgson (2000, 2003a, 2003b).

economics. Posner (2003) suggests that Hayek's legal theory does not include any insights that may contribute to the development of current research. On the contrary, Hayek's theory of mind considered as the key to interpretation of his legal theory suggests that he still has much to teach modern law and economics scholars. Hayek's work can be considered a pioneering attempt to develop a new approach to law and economics in which the preliminary step is a neurobiological inquiry into the cognitive processes by which human behavior is generated. Only when detailed understanding of such processes has been obtained, in fact, will it be possible to develop normative and predictive models.

As suggested, interesting contributions to the development of this kind of cognitive approach to legal theory can be made by cognitive economics. Particularly important insights can be furnished by the sector of that research field now called 'neuro-economics' (Innocenti 2009). This is a new and flourishing approach that seeks to integrate economic theory on decision-making with psychological insights into people's behavior, and with the cognitive neuroscience which studies the neural functioning of the human brain. Neuro-economics, therefore, seeks to explain choice behavior in terms of the human brain by applying synergies among these different research fields (Glimcher et al. 2009). This approach has to date developed a reductionist approach by trying to model human behavior on the basis of new neurobiological insights into the functioning of the human brain and the different roles played in decision-making by different brain areas (Glimcher, 2003). Hence, in this sense, neuro-economics cannot be considered Hayekian in its spirits. Nevertheless, the relevance of some of its main research programs (for example, trust and reciprocity, reward and uncertainty, and the effects of addiction) to legal theory has been emphasized (Chorvat, et al. 2004). This suggests that the neuro-economics approach, although reductionist, could be useful in developing a research approach to law and economics in an Hayekian view in that its first research interest is a better understanding of the cognitive mechanism bringing agents to choices.

In recent years, the law and economics field has shown growing interest in cognitive neuroscience. Indeed, some interesting and important attempts to apply a neuroeconomic approach directly to the economic analysis of law have been made (Freeman, Goodenough, 2009). But these have mainly been applications of this approach to courts and judicial decisions and procedural law (Mobbs et al. 2007; Freigenson, 2008). A proper cognitive approach to law and economics is still 'work in progress' and the results of this inquiry are still to be determined.

The findings of this paper suggest that developing a proper cognitive approach to law and economics following Hayek's idea of a "bottom up" process in the rise of social norms requires the

development of a complete inquiry *corpus* in which the prime focus is better understanding of the individual mind, the purpose being to aid understanding of the nature of the law, its limits in bounding behavior, and, finally, how the alteration of behavior can be effectively achieved. On a Hayekian view, only better cognitive knowledge of behavior and of reactions to legal provisions can lead to improvements in legal drafting and law enforcement.

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