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Review paper

THE ROLE OF INSTITUTIONS IN THEORY OF CULTURAL EVOLUTION *

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Abstract. Starting from the emphasized concept of the Darwinian paradigm that using the Darwinian's principles of variation, selection and retention, all domains from biology to economic systems can be explained, the advocates of modern evolutionary epistemology have dealt with the analysis of the role of a thoughtful institutional planning in the process of the cultural evolution. In light of the issue on how human intention and evolutionary forces interact in socio-economic processes, this paper examines the views of F.A. Hayek, the most famous follower of evolutionary epistemology, on the evolution of the market economy system. In this paper, special attention will be devoted to Hayek's concept of rational liberalism and his evolutionary epistemology.

Key Words: market systems, knowledge, abstract rules, "blind" evolutionary exploration, institutional design, planning.

INTRODUCTION

Due to his theory of cultural evolution, F.A. Hayek, along with K.R. Popper and D.T. Campbell, ranks among the modern advocates of evolutionary epistemology – a research programme that is inspired by the notion that Darwin's principles of variation, selection and retention can explain all domains from biology to socio-cultural achievements including scientific knowledge (Vanberg 2011, p. 1). An essential part of the Darwinian approach, whose applicability to socio-cultural and biological processes is often discussed by the advocates of this research program, is about the demand that adaptability – in terms of the problem-solving capacity or skill – shall not be observed as a result of the rational

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anticipation and a priori designed plan, but as an outcome of a "blind" process of experimentation by trial and error (the principle of trial and error elimination or variation and selective retention). As critics suggest (Vanberg 2011, p. 2), to claim that cultural evolution is a "blind" process, as the Darwinian paradigm suggests when it comes to biological evolution, means to ignore the role of human purposefulness and intentionality in sociocultural events. Not surprisingly, much of the discussion on the development of the Darwinian theory of cultural evolution has been conducted on the issue of whether the notion of "blind" is appropriate for researches of all forms of evolution, and if so, it shall be explained in what sense it is appropriate, where it is necessary to take into account the obvious importance of purposeful projection in the rational economy.

By emphasizing the fact that cultural evolution is a "blind" process, the role of knowledge, rules and other activities with an element of individual purposefulness and clarity in the development of economic systems is ignored. Attempts to reach a consensus on the Darwinian theory of cultural evolution in contemporary economic science, to a large extent, depend on the universality of the notion of "blind" evolutionary exploration. If the notion of "blind" evolutionary explorations has a universal meaning, then the question is in which way they are "blind", considering the obvious role of human factors in processing the economic life and importance of "intelligent" design in the economic activity?

Hayek's conception mentioned in relation to the debate on the role and importance of human purposefulness and intentionality in socio-cultural occurrences and phenomena has brought about various opinions of the relevance of Hayek's evolutionary arguments and his apprehension of spontaneous market economy system development. According to Vanberg, what is arguable concerning the tension between Hayek's evolutionary arguments and his understanding of the spontaneous development of market economy systems concerns the difference between rational liberalism, which emphasizes the value of the individual freedom and advantages of the market system, on the one hand, and modern evolutionary epistemology, which describes the development of market systems as a result the action of the evolutionary forces without the participation of awareness and activities with the element of individual purposefulness and intelligibility (Vanberg 2011, p. 2).

Having in mind different opinions about evolutionary epistemology, this work is sequenced as follows. The first part will be an attempt to understand the relationship between "blind" adaptations and purposeful design in cultural evolution. The subject of the second part will be a closer view of the disharmony between Hayek's rational liberalism and his evolutionary epistemology. The third part describes some ambiguities in Hayek's critique of constructivist rationalism that can be avoided by making a careful distinction between two types of planning. The end of this paper will be devoted to explaining the role of entrepreneurs in shaping the economic system.

1. "BLIND" ADAPTATION AND EVOLUTION AS A COMPUTATION

Darwin's evolutionary theory has initiated numerous debates and various opinions of its relevance and empirical sustainability. According to Hayek (Hayek 1967, 32), the basic propositions of Darwinian evolutionary theory suggest that the mechanisms of reduplication and a competitive selection process will over time produce mutually customised structures. Similarly, Campbell refers to the following list of the chief principles of Darwinian evolution which comprises the three elements essential to the production, selection and retention of variations, as follows: 1) mechanisms for producing the variations, 2) a consistent selection process and 3) means of maintaining the selected variations (Campbell 1974, p. 421).

It is about the pattern of variations and selective retention, which is a crucial Darwinian achievement. This scheme, according to the representatives of evolutionary epistemology, can be applied to all processes regarding the growth of scientific knowledge. About the Darwinian concept of the growth of scientific knowledge, Karl Popper writes, "from amoeba to Einstein, the increase of scientific knowledge always occurs runs on the same way: trying to solve their problems, and to get through the process of elimination, as appropriate temporary solution as they can" (Popper 1972, p. 261).

Unlike Popper, Hayek and Campbell (Vanberg 2011, p. 4) are well-known for his theory of cultural evolution that applies Darwin's theory to a variety of institutions, habits, routines, tools, methods of performing activities that all civilization heritage, as well as selective accumulation of skills, technology, behavior patterns, beliefs, organizational structures and economic systems. From their point of view, cultural evolution should be regarded as a trans generational growth of knowledge or as a process in which the acquired abilities to solve problems accumulate and thus provide the knowledge gained through trial and error or through experimentation with previous species of instruments, rules, belief systems and cultural achievements of all kinds.

Notwithstanding these differences, what is common to Popper, Hayek and Campbell is that they criticize the implementation of quantitative methods in which evolution is identified with the application of certain models of computation. Advocates of mathematical approach describe evolution as a kind of a search algorithm which tends to create new variations, with desirable combination of adaptive features. By means of one of the methods, for each variation, supporters of the mathematical theory of evolution estimate the ability and possibility of survival due to the existence of the so-called good and preferable attributes (Petrović 2007, p. 4).

Hayek and Campbell perceive analogy to the natural environment in a different way. Hayek and Campbell's contribution to the explanation of above mentioned theories reflects in the view that something that appears as a product of a conscious design is actually the result of a process that isn't guided by calculation. Thus, the process of adaptation to the social environment can be explained as a result of attempts and errors, that is to say, the procedure done "blindly" and without any predictions about what will happen. Taking into account that theorists had no identical views on the phenomenon known as a "blindness" claim, there is a need for a precise specification of the mentioned term. If, from the point of view of evolution, this meant that humans acted without a developed conception of what they were doing or where they were going, the undeniable intentionality of human action would make the "blindness" claim obviously nonsensical. This, however, is not a feature of Campbell's understanding of evolutionary processes. Namely, he does not deny the use "knowledge" that has been obtained in the previous evolutionary research in new trials. Instead, he speaks about experimenting by means of attempts and errors (Campbell 1991, 103), which pushes back the boundaries of the known. Whenever the scientific endeavors reach a level on which previous research achievements can not provide further progress of science, one must go beyond the realm of the familiar, with the obligation to ex post, to find out what can be functional enough, and what can not.

2. RATIONAL LIBERALISM VERSUS EVOLUTIONARY EPISTEMOLOGY

The interpretation of economic theory itself implies the presence of positive statements to explain the facts, as well as normative recommendations about the role of subjective factors in the determination of social value orientations. Therefore, great importance is attached to those believing that economic theory is not only the result of unbiased intellectual curiosity, but also the product of an intense need to improve and reconstruct a system that produces the dissatisfaction of the majority of population. It is an approach to economic theory that is not satisfied with the explanation of how existing socio-economic systems function, but it assumes the existence of a normative criterion according to which the phenomena in a system are more or less desirable, and that scientific knowledge can and should be applied in order to improve socio-economic position of a man. Hayek admits (Vanberg 2011, p. 6) that the goal of his efforts is to "revive" the principles of liberalism in order to improve economic institutions and thus increase the possibility of general progress and better social welfare. Under the term "improvement", he entails the policy that should follow some general conception of social order in which people want to live.

Hayek's evolutionary epistemology ignores the possibility of rational design and introduces experimental researches into the economic science, by means of which a man has defined the role and importance of the institution. Hence, at the macro level, it is desirable that institutions as rules of conduct should contribute to the operation and maintenance of a particular economic system. A lot can be learnt about the role of institutions in the system of market economy from Smith's economic theory. Namely, members of the classical school emphasized that 18th-century capitalism emerged as a product of the action taken by people with strong moral beliefs, firmly rooted in religion. Smith believed that religion and morality are of utmost importance in the establishment of capitalism as an organizing principle. (Kitanović, Golubović 2003, 91). Thus, he has emphasized the necessity of other institutions to support the market in order to ensure its existence and smooth functioning. In other words, he pointed to the conditions under which institutions are constrained and complemented to the market, in order to avoid instability, inequality and poverty (Sen 2010, p. 52). At the micro level, institutions create presumptions that one can make progress by the principle of variation and selective retention. On this line, Havek's evolutionary epistemology shows the absurdity of unlimited belief in scientific expertise and in the scientists who pretend to have the foreknowledge about the plan for designing "the perfect economic system". As he proved in his analysis, the limitation of human knowledge causes: 1) evolution not to be managed by components of human purposefulness and intelligibility, 2) demands for justice to be inappropriate to a naturalistic evolutionary process and 3) not to have reasons to believe that "deliberate" selection of habitual customs and practice leads to the greatest extent of general welfare that one economic system can reach in given conditions (Hayek 1988, p.74).

Hayek's project of rational liberalism is not the result of "objective intellectual curiosity about social phenomena", but the ambition to study and affirm the liberal ideals of free economic system. The author speaks about the spontaneous market system, or catallaxy, as a form of social organization in which it is desirable to live. It is a "game", as he claims, in which individuals have reason to participate. Hayek describes the advantages of "the market game", explaining it as a "game which increases the chances for all", or as "the game of wealth creation" (Vanberg 2011, p. 7). He talks about the market system as the order "in which the possibilities of any person are likely to be higher than they would otherwise be". In his concept of rational liberalism, Hayek defines the appropriate role of economic policy as "creating abstract order of a certain character which would provide the best conditions to the actors for achieving their different and mainly unknown goals" (Vanberg 2011, pp. 8-9).

The functioning of the market economy or catallaxy shows that: 1) firstly, the outcome of catallaxy is, in a large extent, unpredictable, because of the conditions under which catallaxy occurs and 2) secondly, catallaxy is a neutral process, based on the rule of the abstract and universal rules. They have appeared spontaneously, in evolutionary way, and, as such, they have a task to protect the interests of all people. In the realm of abstract and universal rules, attempts to ensure unilateral gains on account of others could lead to a result that would be inferior for all participants compared to the outcome that could be achieved if the participants perused the abstract rules of mutual understanding, which reduce the expression of different forms of social injustice. Abstract and universal rules encourage and facilitate voluntary cooperation, at the same time discouraging exploitation.

Taking into account the role and importance of institutions, the task of economic policy is reflected in the normative regulation of the institutional environment. Economic policy should treat the market as a self-sustaining form of interpersonal coordination, which functions with the help of invisible and autonomous forces, and which should be supported gradually by defining rules of justly economic treatment and actions. Thus, the legal institutional environment favorable for the realization of all interests would be ensured. Finally, the economic system of constructivist rationalism, according to Hayek, does not provide better conditions for achieving individual and other social goals (Vanberg 2011, p. 10).

3. CONSTRUCTIVIST RATIONALISM AND APPLICATION OF KNOWLEDGE

His opposition to constructivist rationalism Hayek expresses by presenting the two versions of the critique of the economic system established by the principles of the hierarchical, that is, administrative command way of managing economic life. The first Hayek's critique is directed at the nonsensically idea that actions in the economic system that are rational and conditioned by purpose can happen outside the (abstract) rules of human interaction. Hayek explains this version of the critique of the economic system of constructivist rationalism when he speaks about the conflict between supporters of the spontaneous spreading of the economic system, on the one hand, and theorists who believe that the mind can change the course of evolution and determine its future direction, on the other. The second Hayek's critique refers to the attitude of the advocates of constructivist rationalism according to which all social institutions are the product of rational design (Vanberg 2011, p. 11). From the perspective of this intentionalistic and antropomorphistic viewpoint, human mind is capable to design institutions as a response to perceived problems.

From the perspective of Hayek's evolutionary epistemology, in order to implement a design of any kind of the institution, a schema reader/builder, which no one invented or planned in advance, has to exist. When it comes to the natural world, as it is in the case of mammals as a biological species, the womb has a role of an interactor. In the case of birds, fish and amphibians, the egg naturally has that role (Beinhocker 2011, p.11). The

concept of a reader/builder in the process of cultural evolution has two important implications. Evolution of the desirable designs is implemented spontaneously, based on the knowledge of a builder and information in the reader/builder scheme. Implementation of the design, basically, is the unintentional conversion of this information into the cultural artifacts of a social system. However, the design is made difficult by the implementation of existing technology and the problem of limited knowledge. Therefore, the space for the spontaneous intelligent shaping of cultural artifacts and their specific characteristics is significantly limited (Beinhocker 2006, pp. 233-235).

The main causes of intellectual fallacy of constructivist rationalism are related to the deliberate design of the world some of the authors see in denying of the limitations of human knowledge. In this sense, the first critic relates to the question of the application of knowledge accumulated during the experimental process in which different rules are tried and experience has showed what works and what does not. Supporters of constructivist rationalism seem to ignore the benefits of the accepted institutions, including the wisdom incorporated in them (through previous experience), stating that in order to achieve economic and any other progress we should rely on the same forces of experimental studying that were involved in their design.

The second version of Hayek's critique of constructivist rationalism is related to the use of knowledge that is scattered in a variety of individual realizations. Apart from proving that is impossible to concentrate the knowledge in one place and use it to coordinate the social progress, Hayek has also showed that constructivist rationalism does not consider the fact that an independent selection within generally acknowledged rules allows the individual to obtain the highly sophisticated knowledge and to discover the potential for impartial investigation economic problems. Constructivist rationalism ignores fact that far more knowledge is generated and utilized in a rule-based spontaneous order, based on the rule of abstract and universal principles than in the system of centralized decision making. As Hayek notes (Vanberg 2011, p. 3) representatives of constructivist rationalism do not understand the role of rules in the adaptation of a human individual in terms of ignoring the features and specificities distinctive for the existence of certain phenomena.

Certain activities of an economic system are conducted by the model of "the automatic pilot" or without the awareness and knowledge of the members of an economic system. The rules on the subconscious level are responsible for these activities. The idea that certain activities are performed based on the model of an "automatic pilot" is definitely disputed by representatives of constructivist rationalism. However, like any view in social sciences, and this one, too, is, by all accounts, related to some problems. Certain errors in the above-presented argument in favour of rational engineering have been well described by researchers in social sciences who argue that the theoretical model of constructivist rationalism is rather "deficient" when it comes to conveying the whole complexity of reality. In that model, routines do not belong to the things that make economic activities. Accordingly, in Nelson's and Vinter's perspective (Vanberg 2006, p. 548) routines are perceived as an irreversible form of coordination of economic activities, which are based on unarticulated rules. Owing to these norms, routines of a subsystem of the economic system can be qualified as a kind of activities that are not under control of the management structure of the mentioned subsystems. Contributing to the achievement of expected results of individual actors, routines have developed themselves, they have evolved spontaneously and they have not needed external enforcement to persist (Vanberg 2006, p. 548).

Using the well-developed and highly effective tools for economic analysis, the advocates of constructivist rationalism found the certain consistent results about the productive use of the total available knowledge. Thus, it has be proven that smooth running of routine activities sometimes requires the knowledge of an individual how to approach a specific task and to carefully analyze the results of the chosen approach. This knowledge is, within modern economic analysis, put in category known as competencies or abilities to do something. From that point of view, the skills carried out according to certain rules may be similar to the actions performed consciously. It seems that in his attempt to replace the theory of rational choice with the theory of "programmed behavior", Vanberg noticed that people's behavior, although has a character of conscious action, is carried out according to certain rules (Vanberg 2006, p. 552). The original form of a program, which Vanberg initially proposed, is "if ... then ...". These rules are simple and they are conducted on subconscious level. But, what about the conscious deliberated actions? Vanberg suggests that the solution to this puzzle is that "if ... then ..." rule, which we use unconsciously in rule-following behavior, is also applied in the consciously deliberated actions. In conscious decision-making, sometimes "If X, then do Y" rule is applied intentionally. If a person remembers that in previous situation X, he/she did Y unconsciously, which gave good results, he/she might apply the rule "if the situation is of type X then do Y" deliberately and in some new situations of type X. However, conscious decisionmaking does not always include the application of this rule. Sometimes individuals are quite determined to solve a problem by concentrating only on the problem without consciously or deliberately implementing the rules for which they know that in previous, similar situations, gave very good results. People behave according to what Vanberg called "case-by-case maximitation" (Vanberg 2006, p. 553). They do not rely on the previously learned rule. Instead, they use a deliberate search for information in order to determine the outcome of every single action.

Unlike Vanberg, Hayek indicates that an individual has limited knowledge and reduced cognitive abilities for rational and objective evaluation, which emphasizes the role of factors of uncertainty and uneven distribution of information in the process of economic choice. Hayek claims that all people act rationally or irrationally, depending on whether universal rules bring benefit or harm to individuals. In similar way, Heiner explains why "imperfect" actors with limited knowledge and cognitive abilities can benefit by applying this or that rule instead of trying to achieve the maximum efficiency level from any action (Vanberg 2006, p. 12).

In Hayek and Hayner's model of behaviour, in accordance with the rules, the application of universal rules allows that, in situation A, people think about it in certain way B, which produces certain behaviours and emotions C. If the adaptation of rules in situation A is rational, it may result in healthy emotional and functional behaviour. If, according to the way of thinking that we have designated as B, the implementation of universal rules contributes to irrational beliefs about situation A, then C results in unhealthy emotions. In this case, the process of education and upbringing is of great significance. By transferring rules that benefit individuals, education and upbringing certainly contribute to the spontaneous development of the economic system.

When he criticizes the claim of constructivist rationalism that the development of the economic system is directed by the orders and constrains of a central authority, Hayek clearly rejects the need for an overarching planning, and at the same time promotes spontaneous regulating system of economic reality by making certain rules.

Hayek makes a distinction between planning in the sense of organizing social activities with the help of a system of specific orders prohibitions, on the one hand, and restrains and planning in order to spontaneously establishing a rational economic system in which people are free to follow their interests, on the other hand. His disagreement with modern planning does not refer to the question whether foresight and systematic thinking should be applied in planning of common actions but to the position of constructivist rationalism that modern planning is the best way to coordinate human activity. As he stated, the question is whether one's ambitions should be limited by creating conditions under which the knowledge and individual initiative are manifested in the highest degree possible, so that individuals can plan successfully, or whether the rational use of resources implies central planning and organizing of all human activities according to some consciously constructed plan. While central planning requires a centralized coordination of economic activities according to a unique plan, liberal planning requires designing the legal framework in which various activities would be conducted by a rational person according to their individual plans. The framework for fair behavior, as Hayek emphasized (Vanberg 2011, p. 15), is not the result of the passive acceptance of institutions, but efforts to create the conditions in which competition will operate in the best possible way.

The idea that people can adapt to the conditions of market competition, reacting to the results of evolutionary research and thus stabilize the economy has its place in liberal institutionalism. Therefore, Commons emphasizes the necessity of formulating an explicit theory of the rational selection of institutional elements in general population. Unlike natural selection, in which there are no forces which "approve" or "disapprove" of what one has really done, rational selection suggests that short-term market volatilities are critically dependent upon cultural values as normative behaviour criteria. Artificial or purposeful selection prescribes ethical ideals of behaviour appropriateness of actors in the market, which is, according to Commons, the main source of instability. Economists must bear in mind that what they call "free competition" is not a natural struggle for survival, but the ideal of public appropriateness attainable only by abstinence from the harsh (natural) struggle for existence (Commons 1934, p. 713).

4. INSTITUTIONAL DESIGN AND META COMPETITION

Hayek gives an entrepreneur an important role in shaping the economic system in which individuals freely follow their interests. From the perspective of Hayek's evolutionary epistemology, the function of the entrepreneur (innovator) is analyzed in the context of meta competition. The term meta competition refers to relationships between unbounded entrepreneurs that are achieved through rules or institutions. "A competitive victory" of an institution means that this rule of behaving is designed or accepted by an entrepreneur because it contributes the most to minimizing transaction costs. A competitive victory of a rule indicates that it is systematically used in similar economic situations in which the majority of subjects are engaged. The loss in this competitive struggle means that a given rule expires or that it is valid only occasionally. Further analysis of meta-competition indicates that an entrepreneur follows a rule of behavior not only to make current profits, but this, among other things, may be a consequence of numerous factors such are tradition, religion, ideology etc. Thus, the relative gains of institutional entrepreneur

neurship have not only economic but also social and psychological character (Tambovcev 1998, pp. 32-33).

Binding the traditional, religious and ideological factors for the outcome of purposeful activities has led the institution in Hayek's evolutionary epistemology to become the factor of the significant economic relevance. Hayek's attitude is that the individual, in achieving self-interest, respects certain rules of conduct. His categorization of the rules is very similar North's classification of institutions. In the rules, he includes: 1) the rules the implementation of which can be monitored, and which are not given in a formal or informal form, 2) the rules in a formal form, but without the official support or control, 3) passive rules, which are consciously created and embedded in the economic system (Kitanović and Petrović 2007, p. 5).

Hayek also divided the rules into positive and negative ones (Dekić 2011, p. 6-8). The former emerge spontaneously and their abstract and negative character protects an individual's autonomy; plus, they prohibit unfair behavior. Unlike them, the latter emerge as a result of impartial and rational thinking that individuals do in order to find an appropriate solution to given problems. Here is an example to better understand the role of rules in the positive regulation of collective cooperation. The well-known argument against the appropriateness of collective behavior is that the individuals involved in this practice would provide a collective good for the group and that they would, in the absence of compensatory effects, be at a disadvantage compared to the "friends" in the group who are free riders at their own risk and who do not have to pay the costs of producing the collective good. In order for this cooperation to be individually advantageous, there must be some mechanism that sufficiently compensates for the individual sacrifice and the task of scientists is to determine which mechanism is in question. In other words, it is necessary to answer the question: how benefits of group convert into incentive of individuals to make decisions that correspond to what society considers fair? The positive norms that convert benefits of a group into incentive of individuals to behave prudently and responsibly, in Hayek's opinion, form an organization whose job is to modify the existing rule or develop a new one. If the organization finds that the rule on which the "free rider" relies in forming his/her expectations is wrong, it will happen because the idea of justice or injustice of a specific rule depends on the need of the existing order. Order, in the circumstances of acting in the interest of all members of a group can be preserved only if the old rule is modified or a new rule added (Hajek 2002, pp. 108-9).

CONCLUSION

The history of economic thought is nothing else but a history of attempts to understand the effect of market structure and the organization of production by the mechanism of price. The structure of the market system is considerably changing over time, and each generation of economists, in explaining these changes, has applied different concepts and methods of analysis. Hence the transformation of theories preserves transformation of economic systems. The subject of economic theory is historically determined economic system which is connected by three components: general human, ethnic, and global-phase.

General human component is the reflection of the genetic basis of behavior, which the instincts emerged over evolution have an effect on. Instincts of self-preservation and ex-

tension of the species, of aggression and freedom, of understanding and creativity, mutually acting in different areas, basically, result with the same models: appropriation, oppression, social control, rationalization and renewal. The second component consists of tradition and culture specific to that ethnic group that was formed with the development of language and theoretical knowledge. Passed on by education and learning, tradition and culture of a particular ethos govern the action of natural instinct and become a source of economic progress. The last component of the economic system reflects the unequal progress and spreading of achievements of the global material culture.

Since the structure of the economic system determines the content of economic theory, economic theory actually has three components: general human, ethnic and historical-progressive. None of the components can separately explain either the functioning or evolution of a real economic system. On the other hand, a lack of an integrated theory must not discourage us. Separate development of certain components of the theory implies not only the fact that they are developed independently, but that they also have universal meaning and significance.

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ULOGA INSTITUCIJA U TEORIJI KULTURNE EVOLUCIJE Dragan Petrović, Miloš Krstić

Polazeći od naglašene ideje darvinističke paradigme da je uz pomoću Darvinovih principa varijacije, selekcije i retencije moguće objasniti sve oblasti od biologije do privrednih sistema, predstavnici savremene evolucione epistemologije bave se analizom uloge promišljenog institucionalnog planiranja u procesu kulturne evolucije. U svetlu pitanja kako ljudska intencija i evolucione sile interaguju u društveno-ekonomskim procesima, ovaj rad ispituje stavove Fidriha Hajeka, najpoznatijeg sledbenika evolucione epistemologije, o evoluciji tržišnog privrednog sistema. Posebna pažnja u ovom radu biće posvećena tenziji između Hajekovog koncepta racionalnog liberalizma i njegove evolucione epistemologije.

Ključne reči: tržižni sistemi, znanje, apstraktna pravila, "slepa" evoluciona istaživanja, instittucionalni dizajn, planiranje