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**REAL UNCERTAINTY: THE CHALLENGE
OF ECONOMIC CHOICE IN CONTEMPORARY ECONOMY**

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***Abstract:** The problem of uncertainty preoccupies growing attention of the various branches of economic analysis. Increasing intensification of processes in the sphere of finance and the real economy, generates significant argumentation that seriously questions the presumption of rationality of economic choice. The dominant stream of economic thought bypasses the phenomenon of uncertainty through the traditional reliance on the concept of risk, understood as methodologically feasible calculation of probabilities of future events. The presence of real uncertainty in a wide range of relevant transactions imposes the necessity to classify this phenomenon among the components of economic process that must be taken into account in the economic analysis. This paper seeks to identify the ontological, epistemological, and other dimensions of uncertainty that appear to be both essential for making decisions about the allocation of resources and decisive for their economic effects. In this sense, the article makes reference to the conceptions of Keynes, Mises and Knight, oriented toward the evaluation of uncertainty in the consideration of economic system, through integration of economic knowledge with the achievements of other social sciences.*

***Keywords:** uncertainty, probability, risk, economic choice.*

1. Introduction

Empirical trends in contemporary economy have launched not only practical, but also fundamental questions about the nature of economic behavior of people, and even the nature of economic science itself. The dominant stream of economic thought traditionally starts from the axiom of rational behavior, which leads to the maximization of target variables and, accordingly, the complete satisfaction of economic actors. Economic practice, followed by the emergence of increasingly frequent periods of crisis tells us, however, that the concept of maximizing rationality does not give a realistic view of the

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actual functioning of the economic process. The question is how the real actors make their economic decisions in order to adapt to the circumstances of the environment.

Bearing in mind that economic actors make decisions the effects of which will be materialized in the future, the question of rational design of the process of economic decision-making arises. The key dilemma is whether the future can be reliably predicted based on past experiences, or it is necessary to review "realism" of presumption of conformity of actual economic developments with the ideal models of their functioning. If this coincidence is not present, we may need to recognize the fact that the real uncertainty is one of the dominant features of market conditions. The dominant stream of economic thought in principle does not negate the existence of uncertainty. However, the uncertainty is identified with risk. In accordance with the subjective probability theory, it is believed that economic actors are able to reduce risk by determining the degree of probability of occurrence of certain events.

This understanding of uncertainty is exposed to criticism. It is emphasized that this view is too simplistic and abstract comprehension of the process of adoption and implementation of economic decisions. In that sense, all the more affirmed is the idea that it is necessary to "dislocate" uncertainty from the abstract framework and to classify it among other real circumstances that surround economic agents.

The goal of the paper is, in the context of ontological, epistemological and other dimensions of uncertainty, which appear to be essential for making decisions about the allocation of resources and prevailing in their economic effects, to offer a more realistic interpretation of economic behavior. In line with this, hypothesis will be tested on uncertainty as a phenomenon inherent in the market process.

Special attention will be considered to contributions of Keynes, Knight and Mises in clarifying the nature of uncertainty and the need to move analytical focus of economic science to the behavior of actors in non-ergodic environment.

2. Mainstream Economics and the Problem of Uncertainty

The standard approach, adopted in mainstream economics, assumes full rationality of economic actors. Rational choice indisputably represents the hard core of scientific research program of neoclassical microeconomics (Lakatos 1970, 191). When economists speak of full rationality, they have in mind a few things. First, it implies that the individuals are able to hierarchically arrange their preferences and needs (Robins 1935, 78-9). Consequently, they take action towards their complete satisfaction. Then, it is assumed that they have the perfect ability of accurate calculation of costs and benefits associated with each of the chosen alternatives. This actually means that, when faced with several options, individuals usually opt for the one that will give the best results (Elster 1989, 22). Finally an individual in conditions of uncertainty rely on a calculus of probability of occurrence of events and possible outcomes, using for this purpose all available information. As a result original estimates and calculations can be successfully corrected when needed (Camerer et al. 2003, 1214, 1215).

Mainstream economics in general does not deny the existence of uncertainty. A significant part of modern theoretical research actually starts from the very existence of information problems. However, the trouble is that these problems are analyzed in the

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framework of the "truncated", incomplete conceptual framework. Uncertainty is identified as risk, while the problem of obtaining and using available information is associated with empirical conception of knowledge and its fundamental statement about the immediate knowledge of the socio-economic realities (Ходжсон 2000, 49, 50). It is some kind of direct, immediate empiricism, which presupposes that the pace of cognitive processes is characterized by uninterrupted use of empirical facts. It is believed that subjects derive information directly from the environment without prior structuralization of terms, rules and theories. This means that the information that is at your fingertips is just "waiting" to be taken and immediately adopted, to be easily transformed into useful knowledge, taking the form of undeniable facts. In other words, the information itself is unambiguous and sufficiently transparent, so that the rational economic agents can expect that with their support will always respond properly and deliver optimal economic decisions. If they had some incorrect perceptions and beliefs, these will be adjusted in accordance with the newly admitted information and fresh experience. It is therefore believed that misconceptions can not last long or be a permanent feature of cognitive processes (Frey 1992, 244).

This view of the epistemological and teleological determinants of economic activities, however, does not provide adequate answers to the question of how actors can rationally decide if they do not have a complete description of the world which they believe is true. It is much more realistic to assume that they only have a set of potential conditions, not knowing which of these conditions is true. Also, the question of the adequacy of the epistemological concepts of direct knowledge of the socio-economic realities in understanding the process of economic decision-making arises.

The complex problems related to insufficient access to information and the problem of the optimal use of the available information, in the beginning actualized psychological research (Heiner 1983) in shedding light on the rational behavior model. On the basis of these research efforts arised toward integrating knowledge of psychology in understanding economic behavior, during the second half of the twentieth century, partly inspired, among others, by the influential works of Keynes (1973[1921]) and Knight (1964[1921]).

Economic choice is, in the context of this research orientation, is seen as a decision-making process that takes place under conditions of certain perceptions and beliefs based on the available information. This problem is in the early twentieth century observed by Knight, who recognized the importance of routines, beliefs, convictions etc. when calculations of costs and benefits drop into difficulty (Knight 1964[1921], 268). Over time, highlighting behavioral evidence-based psychological dimension of economic decision-making is becoming more common, and receives its academic recognition through the constitution of behavioral economics as an independent subdiscipline within the framework of economic science. It is based on the symbiosis of economic science and psychology. During the 50s and 60s of the twentieth century appeared "old behavioral economics" associated with H. Simon (1978) and DZ. Katona (1951). Later, publishing two articles by renowned psychologists D. Kahneman and A. Tversky (1974, 1979) was followed by the affirmation of the "new behavioral economics." Of no less importance from the point of view of popularizing the ideas of a behavioral economics was the contribution of Thaler (1980), who, in his famous article, presented a multitude of empirical evidence on suboptimality of economic decisions, compared to what the model of rational choice predicts.

Share in the search for a consistent alternative to hypothesis of rational behavior also belongs to institutional economics. Its representatives start from different conceptions

of uncertainty, depending on what are the key factors of distinction in categorizing uncertainties. Thus, Dosi and Egidi (1991, 145) distinguish between substantive and procedural uncertainties. Substantive uncertainty is the result of a lack of information necessary to make decisions with a certain outcome. In contrast to this, procedural rationality occurs due to the limited computational and cognitive capabilities of agents to achieve their objectives with respect to the available information (Dequech 1997, 26). An important distinction relates to the definition of "weak" and "strong" uncertainty, whereby a "strong uncertainty", is characterized by the absence of unique and completely reliable probability distribution (Dequesch 2000, 41)

Starting from the nature of human perception and ergodic environment, Nort identifies three different states of uncertainty: static uncertainty, uncertainty in ergodic environment (world) and uncertainty in non-ergodic environment (world) (North 2005, 15). Static uncertainty is a function of the level of knowledge, and in the case that individuals have perfect perception, they will not have the need for the institutions, even if they are faced with uncertainty. The assumed ergodicity means that the environment changes, but in a predictable manner. Non-ergodic world represents the environment in which the change over time proceeds in a manner that is impossible to predict. Due to this, new, fundamentally different forms of manifestation of uncertainty arise, generated primarily from the reason of depressing the value of knowledge over time.

Williamson's qualifications of uncertainties as external disorders related to conduction of economic transactions (Williamson 1975, 24), served as the inspiration for the distinction between information and interpretative uncertainty (Weber, Mayer 2010). Information uncertainty originates from limitations in processing information, which is the result of complex transactions that require extensive processing of information. That is why instead of the concept of the immediate adoption of information and their unrestrained transformation into usable knowledge, it is more logical to question the ability of average economic actor to directly and unfailingly realizes what he must do on the economic front. Cognitive psychology findings also show that the use of all available facts is the individual case rather than the rule, and that the learning process is followed by abstracting less relevant information and at the same time focusing attention on those more important.

Interpretive uncertainty includes perceptual limitations in the concept of bounded rationality. The limited ability of information processing in this case is not the only reason for uncertainty: uncertainty arises because of the different interpretations of the same exchange by the participants of the contracting process. Different views create different expectations, which entails different behavior and heterogeneous emotional reactions of economic actors during the conduction of economic transactions (Weber, Mayer 2010).

3. Historical Review of the Concept of Real Uncertainty - Keynes, Knight, Mises

First among economists who opposed the assumption of neoclassical economics that the future based on past data can be relatively reliably predicted was Keynes. The orthodox theory assumes that we have the kind of knowledge about the future that is quite different from the kind of knowledge that we really possess. This, based on Bentham utilitarian doctrine, contributes to developing hypotheses about the assessment of future that leads to misinterpretation of principles of behavior, underestimating the impact of hidden factors such as doubt, uncertainty, hope, fear, etc. (Keynes 1937, 222). Hence it can be said

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that the preconditions for a relatively reliable quantification of the future are not realistically fulfilled. Presumed consent between the abstract, theoretical and realistic picture of the world is a consequence of the ontological content of neoclassical theory (Шапиро 2008, 122), which is based on the assumption of ergodic environment. Keynes tried to offer a different ontological picture of the world that would acknowledge all the difficulties in the study of reality and predicting the future. Starting from the fact that uncertainty is the basis of the problems that accompany the process of real cognition of the world, Keynes dared to raise issues concerning the understanding of the nature of uncertainty and the possible actions of economic actors aimed at reduction its negative impacts and consequences. Bearing in mind the ontological nature of uncertainty and non-ergodicity of economic environment, the acquisition of knowledge and information is associated with the logic of probability.

Applying the logic of probability in dealing with problems of uncertainty within the Keynesian theory primarily is related to the monetary economy and financial markets research. Keynes's viewpoints of the subject matter are however related to the influence of the philosopher G. Moore. In the "Principia Ethica" (1903) Moore wanted to formulate general principles of rational behavior that would be in accordance with the ethical maxim of maximizing the total social wealth. By linking rationality with estimates of the consequences of different ways of operation, he started from the necessity of determining the probability of the possible effects of our actions. It turns out, therefore, that it is precisely on the basis of traditional treatment of probabilities, Moore built a relationship with the manifestation of rationality (Макашева 2013, 49). Equally important is the fact that in the context of lack of knowledge of the future he expressed concern about non-existence of the model of accurate estimation and calculus of relative benefits of alternative actions and behaviors in certain situations (Baldwin 2006, 247). This raises the question whether it is justified to consider certain procedures unconditionally true, and consequently treat actions aligned in accordance with them natural and binding. This opens up a philosophical dilemma: whether to follow simple logic and readily accept the fact that due to the limited knowledge it is not possible to determine the correct mode of operation, or, in turn, better give up the logical explanations and invoke intuition as a basic principle of conduct.

Reasonable operation of the individual that interacts with the reasonable actions of other individuals may lead to results that are very often not to be evaluated as optimal. This raises the logical question: if compliance with reasonable rules does not guarantee positive results, then what an individual can rely on when planning his actions? Keynes's reply was completely unexpected from the point of "epoch" of rationalism in economic science - intuition (Макашева 2006, 143-145).

Despite efforts to recognize within economic actions the combination of logic and intuition, or to indicate that the logical considering of particular problems is preceded by reliance on intuitive knowledge of their nature, Keynes was nevertheless aware that the very intuition rather can be a product of fantasy than fact. Thus the concept of uncertainty, among other things, Keynes linked with the concept of probability, through which he entered the circle of the founders of probability logic. It is the epistemological direction of thought which considers the evaluation of the phenomena in the case where there is no scientific basis for the calculation of probabilities. In line with this is the idea that, in circumstances where there are reasonable grounds for taking a stance that, between the two procedures in the near future one could result in a more efficient outcome in relation to the other, then it is justified, with a certain probability, to assume that one should start the

realization of that process, regardless of the fact that it is not possible to delineate the effects of the two processes in the distant future (Keynes 1973 [1921], 342).

In "A Treatise of Probability" (1973 [1921]) Keynes strives to integrate probabilities in the theory of knowledge, with the intention to "breathe" a new meaning to economic science. In "classical science", the probability is treated as an objective feature of reality. Its assessment was done on the basis of mathematical formulas, which means that the calculation of probability was connected with the real scope of our findings. Unlike the classics, Keynes sees probability not as an objective feature of reality, but it is assumed to be in close conjunction with our picture of the same reality (Lawson 1988, 42). This means that the probability is the degree of belief in the given statement or the occurrence of an event by an individual at a given point of time. Therefore, the probability is not practical to study outside of the individual, that is, outside individual who had formed it; the probability is not something that can be known, is known and which exists independently of any individual (Radonjić 2007, 37).

Interpreted in this way, the probability does not apply to the genuineness of the claims themselves, but on the accuracy of the conviction that a particular statement is true. Accordingly, the assessment of probabilities may be in the range of zero - when we are completely confident that the specified event will realistically be absent, to one- when we are sure that the event will occur. It turns out, therefore, that the logic of probability implies not only bringing claims in the sense of "it is true or false", but allows some values between the two extreme positions such as "possible" or "probable".

This understanding of events and taking appropriate stances about the extent of their real achievements can be of benefit when it comes to the attempt to complete common-sense understanding of the basics of human behavior. Suppose investors are aware of the limited available information and their own ability to correctly evaluate them. In such case, they can rely on the opinion of other investors, or expert opinion, and even the public opinion in general. It turns out that the reliance on rumors and intuition can become quite a rational way of "wrestling" with the real uncertainty.

To majority within economic theory Knight is known as the author of the idea of conceptual demarcation between risk and uncertainty presented in his famous work "Risk, uncertainty and profit" (Knight 1964[1921]). This conceptual differentiation was made in discussions on entrepreneurship and profit, initiated in the context of issues related to the phenomenon of economic development. His solution was not associated with the radical transformation of pure theory, but with the necessity of specification of the meanings of the most important terms and conceptions. Among the concepts that needed to be precisely determined were profit and entrepreneurship, which themselves are significantly affected by the uncertainty. Therefore, determination of uncertainty was also necessary.

As a representative of the Chicago School, Knight represented economic principle of efficient use of available resources. Knight, however, put under suspicion the principle of given goals, bearing in mind that the people's interests can not be viewed as given in advance. People are influenced by the environment in which they work, but they are also the "producers" of the environment (Knight 1956 [1938]). In this context he undermines the thesis of the independence of the goals and means of their achievement. According to Knight, the question of whether the world is governed by some kind of general laws is of no practical sense if we take into account the capacity of our cognitive capabilities. Key life

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problems are stemming from the fact that we know so little about the future (Knight 1964 [1921]), 198). The regime of imperfect competition he explained through the existence of imperfect knowledge and uncertainty (Rankow 2010).

Knight (1964 [1921] 238, 239) writes that the analysis of social phenomena and assessment can be carried out by using three categories of probability: the a priori probability, statistical probability, and the one he calls "assessment" (estimates). The first type of probability is reduced to the identification of the natural outcome of the claim that there are no reasons why the specific outcome should be given precedence over the other. The occurrence of these events for us is equally probable, which includes the principle of indifference. The statistical probability is the most widely used type of probability, used for the analysis of processes and phenomena in the social sphere of life, and essentially refers to the situation where the classification of outcomes is to some degree possible. It is based on an empirical evaluation of relationship of forecasting with the classification of the outcomes which is based on statistical average of past realizations of the observed events.

Unlike the "a priori" and "statistical" probability coinciding with risk perception, Knight is primarily interested in situations where the probability can not be expressed numerically. The behavior of actors in these situations does not rely on a process of rational deliberation and logical calculation, but on estimates, intuition and acting in accordance with the accepted beliefs. Basically, estimates that people form are something that Keynes called the degree of rational faith, and Knight called it the degree of subjective reliability (Макашева 2013, 60).

His insight into the importance of factors of uncertainty, Knight has made through research into the nature of profits. In this sense he insisted that the existence of profits is caused by efficient use of resources, while entrepreneurs do not know what effects will be produced in the future by the current decision on the allocation of scarce resources. In his opinion, it is the uncertainty that make the result of the competition unclear, making a profit result of dynamic changes that are impossible to predict and that are associated with innovation (Knight 1964 [1921], 20). Although the conclusion from this conception could be that uncertainty may cause negative consequences for society, for Knight it does not give sufficient reasons to call for the help of state intervention. Unlike Keynes, Mises and Knight did not consider it necessary to include the state in the "fight" with uncertainty. Instead, they favored a market mechanism of coordination and private ownership (Макашева 2013, 61).

Among the authors who have contributed to the inclusion of uncertainty as a factor influencing the economic process is Mises. He, unlike Keynes and Knight, approached the analysis of the phenomenon of uncertainty and probability in a different way, advocating a universal science of human action known as praxeology (Mises 1976 [1933]). Bearing in mind that the economic processes are primarily problems of choice, it follows that the economic science is a part of praxeology as "the general theory of human action" (Mises 1996 [1949], 3).

Universal science of human action implies the existence of laws that have significance independently of place and time. Its method means a break with positivism and methods of "hard science" (Mises 1976 [1933]). Its laws are not empirical laws and can not be derived from a posteriori historical experience (Golubović 2011, 47).

Praxeology rests on the axiom that individuals consciously act with the intent to achieve their goals. People act relying on knowledge of the environment in which this

knowledge is not based so much on rigorous assessment of the events, as in an opinion on them. Mises believed that it is our limited cognitive ability that prevents the establishment of laws, thus making real situation such that the occurrence of certain events may be treated as a random phenomenon. It can therefore be concluded that Mises connects decision making in conditions of uncertainty, where the individual's knowledge of the environment is significantly limited, with freedom of choice (Макашева 2013, 55).

When it comes to the problem of probability, Mises did not express the degree of interest that was attached to the issue by Keynes. Because of that, among other things, to the present day there is no clear and unambiguous answer to how Mises understood probability. On the one hand, it makes sense to assume that Mises was supporter of epistemological interpretation of probability, which supports the concept that reinforces the relevance of subjective probability theory, which is in line with the Keynes's view of on the matter. On the other hand, one should not dismiss the explanation according to which Mises adhered to the concept of objective probability, since it was the viewpoint of his brother - the famous mathematician Richard von Mises (Hauwe 2011, 471-472).

4. The Real Uncertainty as the Dominant Feature of Economic Environment and the Possibility of its Reduction

Everyday coping with real uncertainty hampers economic decisions. In complex and unpredictable situations, there is no basis for rational calculation, thus economic actors can not properly understand the relationship between means and ends, which ultimately leads to the result that many economic decisions do not satisfy standards of rational action. Empirical events supply convincing evidence about the impossibility of understanding the complex economic reality, since the negative consequences are basically caused by irrational actions of economic actors. The frequency of financial and economic crises over the last thirty years, among other things, suggests that the lack of rationality regularly "companion" investment decisions. Starting from the fact that investment decisions are based on predictions of future yields, and that pervasive uncertainty does not allow full anticipation of the results, it should not be surprising that even quite competent and functionally literate and successful people can behave irrationally.

One of the typical area where the participants in making investment decisions face with a high level of uncertainty and the real possibilities of forming misjudgments is certainly the capital market. Since it is a highly variable and dynamic market, investors must be aware of the huge risks that pervade trading securities. For example, what to do when there is a sudden fall in market price of shares of a certain company? What to do with if the fact is that there is no reliable information on the cause of such phenomena? Is it best to sell the shares immediately or wait for a better opportunity? Will stock prices continue to fall, or the temporary crisis will be followed by their recovery and growth?

In these circumstances it is certainly not easy to define a model by which we should behave as shareowners. Individual shareholders often have the impression that all other shareholders are better informed, which is why they rely to lesser extent on their own evaluation and intuition. It is usually assumed that certain supposedly privileged group of shareholders possess more reliable information, so in this situation we should be governed by their actions. Some, however, believe that we should listen to the opinions and

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advice of proven economic experts and analysts. Finally, statements of political parties and their leaders can also be of some influence (Kitanović, Petrović 2010, 135).

Compared to developed market economies, the circumstances in which the domestic economy functions is definitely characterized by a higher level of uncertainty. This is primarily due to the fact that the transition process is not yet finished and that Serbia, in order to integrate into the the European Union, is faced with the radical social and economic reforms. The process of transition has led to a state in which a population accustomed to a relatively stable regime characteristic for social enterprises, which guaranteed job security, is now forced to cope with an unprecedented escalation of problems caused by uncertainty. People are increasingly becoming aware of the small possibility of predicting the sustainability of their jobs, the results of privatization of the company, a consequence of liberalization etc. After all, the nature of any reform lies in a high level of uncertainty because the outcome depends on several exogenous factors, such as initial conditions or influences from abroad (for example, availability of foreign funds), but also on the reactions of different economic actors to reform (Kitanović et al. 2011, 139). In such circumstances, the greatest concern of citizens is caused by the fact that they can not adequately perceive individual economic situation after the implementation of reforms. The crucial question is often who will win and who will lose in the process of reform, about which, unfortunately, there is not sufficient information. It is often heard that people will not change, that they will resist any changes. However, the truth is that they do not know what will be their economic situation after the implementation of reforms, and in this context their commitment to preserve the status quo must be properly understood.

With the real problems of uncertainty not only citizens face, but in the current situation it is significantly affecting the rationality of companies and other entities as well. Business owners in Serbia do not have sufficient information about the direction in which the reforms will take place, what measures and solutions can be expected from the state, what will happen with the taxes, what is a rational response to intense competition and technological advances, etc.

Bearing in mind the numerous economic distortions and negative flows that are, among other things, caused by prevailing uncertainty, it is realistic to expect the state to incorporate appropriate actions and measures aimed at its reduction. In this sense, the state should first consider the Keynes call to the government to "fight" uncertainty. It might also be practical to consider the idea of a "new paternalism" and institutional economics. Namely, starting from the fact that people can make choices that are consistent with their best interests, "new paternalism", as part of a normative program of behavioral economics, supports the idea that paternalistically oriented state can help people make better and more informed decisions (Petrović 2014, 200). It is a broad set of instruments of state policy whose implementation may contribute to the prevention and elimination of cognitive and psychological mistakes (Rizzo, Whitman 2009, 910). In this regard, potentially relevant are the so-called measures of "soft paternalism" as well as policy of mandatory disclosure of information and manipulation of "choice architecture", but also those in the form of "hard paternalism" introducing explicit prohibitions and restrictions on individual choice.

The high degree of relevance in the above sense could also have findings of modern institutional economics. The starting point of this stream of economic thought is the fact that decision-making under uncertainty, where the individual's knowledge of the environment is significantly limited, implies its decryption.

Bridging the information gap is managed by societal institutions. They represent a kind of repositories of collective experience and knowledge generated by continuous adaptation of society to changes in the environment. Institutions also enable actors to bridge the cognitive discrepancy in relation to local circumstances, given that they make a significant part of the environment stable and predictable. In this way, institutions facilitate the overall socio-economic coordination (Stefanović 2012, 34).

Insisting on the role the institutions in the process of economic coordination does not deny the rational element. On the contrary, only from the standpoint of defined motives of rational behavior, role of institutions becomes very significant. Specifically, individuals accept certain rules of behavior not only because they have to, but also because they believe that it will minimize the problems caused by uncertainty (Dugger 1995, 454) and contribute to easier realization of their rational goals.

When actor stick to certain rules, he actually sends a message to the entire environment that the same is expected from all other entities. In this way, each individual is going to meet the expectations of his counter-agents and institutions suggest what other agents could do. The behavior of other economic entities is significant for singular market actor. Elementary economic logic suggests that power of choice and planning is directly associated with the successful prediction of actions of other individuals in the market. Realistic predictions are, however, possible only if one assumes that individuals do not make a choice to repeatedly set rational criteria that reflect the specificity of the situation, but mechanically follow previously established and known patterns of behavior. This means that in a world of uncertainty, complex and not sufficiently reliable information, institutions to some extent enable predictable behavior of economic agents.

5. Conclusion

The origins and the scope of the current crisis in a sense diminish the credibility of the current dominant stream economic thought, which has failed to anticipate them. Limited opportunities of conventional economic theory to comprehend turbulent and seemingly contradictory dynamics of contemporary economic processes, partly stems from its exaggerated reliance on the model of rational choice and its associated concept of risk, understood as methodologically feasible calculus of probabilities of future events. Its unsustainability originates from the fact that economic actors, on the one hand, are not able to attribute numerical probabilities to future events, and, on the other hand, the optimal variant of use of resources is impossible to find without an adequate calculus of probability of occurrence of those events.

The fact that economic actors do not have sufficient knowledge about the amazing complexity of the conditions in which they operate, commits economic theory to adequately evaluate the "wealth" of the context in which economic decisions are made. The problems of collection, disposal and optimal use of the available information require from economic science to include phenomenon of uncertainty into its analytical framework. Valuation of uncertainty in economic theory is associated with the need to inventory its ontological, epistemological, and other dimensions. In the less successful transition economies, a phenomenon of uncertainty produces nearly dramatic, systemic implications. In this sense, the optimal transition policy should, among other things, be aware of the destructive

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potential of pervasive uncertainty, and able to use available measures, in order to, within the limits of manageable, mitigate its consequences.

References

1. Baldwin Th (2006) Keynes and Ethic, *The Cambridge Companion to Keynes*, R. E. Backhouse, B. W. Bateman (eds.). Cambridge: Cambridge University Press, 237-256.
2. Camerer, C., Issachoroff S., Loewenstein, G., O'Donoghue, T. and Rabin, M. (2003) Regulation for Conservatives: Behavioral Economics and the Case for Asymmetric Paternalism. *University of Pennsylvania Law Review*, 151(1): 1211-1254.
3. Dequech, D. (1997) Uncertainty in a strong sense: meaning and sources. *Economic Issues*, 2(2): 21-43.
4. Dequech, D. (2000) Fundamental uncertainty and ambiguity. *Eastern Economic Journal*, 26(1): 41-60.
5. Dosi, G., Egidi, M. (1991) Substantive and procedural uncertainty – an exploration of economic behaviour in changing environments. *Journal of Evolutionary Economics*, 1(2): 145-168.
6. Dugger, W. (1995) Douglass C. North's New Institutionalism. *Journal of Economic Issues*, 29 (2): 453-458.
7. Elster, J. (1989) *Nuts and Bolts for the Social Sciences*. Cambridge: Cambridge University Press.
8. Frey, B. (1992) *Economic as a Science of Human Behavior: Towards a New Social Science Paradigm*. Boston and Dordrecht: Kluwer Academic Publishers.
9. Golubović, N. (2011) *Društvena ekonomika – ekonomska aktivnost društvenom okruženju*. Ekonomski fakultet, Niš.
10. Hauwe van den L. (2011) John Maynard Keynes and Ludwig von Mises on Probability. *Journal of Libertarian Studies*, 22: 471 - 507.
11. Heiner, R. (1983) The Origin of Predictable Behavior. *American Economic Review*, 73(4): 560-595.
12. Kahneman, D., Tversky, A. (1979) Prospect Theory: An Analysis of Decision under Risk. *Econometrica*, 47 (2): 263-291.
13. Kahneman, D., Tversky, A. (1974) Judgment under Uncertainty: Heuristics and Biases. *Science*, 185 (4157): 1124-1131.
14. Katona, G. (1951) *Psychological Analysis of Economic Behavior*. N.Y.: McGraw-Hill.
15. Keynes, J. M. (1937) The General Theory of Employment: Summary. *Quarterly Journal of Economic*, 51(2): 209-223.
16. Keynes, J. M. (1973[1921] *A Treatise of Probability, The Collected Writings of John Maynard Keynes*. N.Y.: St. Martin Press. Vol. VIII.
17. Kitanović, D., Petrović, D. (2010) *Ogledi o metodološkim problemima savremene ekonomske nauke*. Ekonomski fakultet, Niš.
18. Kitanović, D., Golubović, N., Petrović, D., & Džunić, M. (2011) *Savremena politička ekonomija*. Ekonomski fakultet, Niš.
19. Knight, F. (1940) "What is Truth" in Economics? *Journal of Political Economy*, 48(1):1-32.
20. Knight, F. (1964[1921] *Risk, Uncertainty, and Profit*. Boston and New York: Kelley.

21. Lakatos, I. (1970) Falsification and the Methodology of Scientific Research Programmes, u: Lakatos, I. and Musgrave, A. (eds), *Criticism and the Growth of Knowledge*. Cambridge: Cambridge University Press: 91-196.
22. Lawson, T. (1988) Probability and Uncertainty in Economic Analysis. *Journal of Post-Keynesian Economics*, 11(1): 38-65.
23. Mises von, L. (1976 [1933]) *Epistemological problems of Economics*. New York: New York University Press.
24. Mises von, L. (1996 [1949]) *Human Action: A Treatise in Economics*, (4th revised edition). San Francisko: Fox&Wilkes.
25. Moore, G. M. (1903[1959]) *Principia Ethica*. Cambridge at the University Press.
26. North, D. C. (2005) *Understanding the Process of Economic Change*. Princeton University Press.
27. Petrović, D. (2014) Behavioral Analysis of Economic Choice: Contribution to Improving Economic Rationality. *Facta Universitatis, Series: Economic and Organization*, 11(3): 191-205.
28. Radonjić, O. (2007) Fundamentalna neizvesnost i Keynesova teorija verovatnoće. *Theoria* 50(4): 35-55.
29. Rankow, T. (2010) Risk, uncertainty and prophet: The psychological insight of Frank H. Knight. *Judgement and Decision Making*, 5(6): 458-466.
30. Rizzo, M. J., Whitman, D. G. (2009) The Knowledge Problem of New Paternalism. *BYU Law Review*, 2009 (4): 904-968.
31. Robbins, L. (1945[1932]) *An Essay on the Nature and Significance of Economic Science*. London: Macmillan.
32. Simon, H. A. (1978) Rationality as Process and as Product of Thought. *American Economic Review*, 68 (2), 1-16.
33. Stefanović, Z. (2012) *Politička ekonomija globalizacije: modeli kapitalizma i institucionalna evolucija*. Ekonomski fakultet, Niš.
34. Thaler, R. (1980) Toward a Positive theory of Consumer Choice. *Journal Economic Behavior and Organization*, 1 (1): 39-60.
35. Weber, L., Mayer, K. J. (2010) Expanding the Concept of Bounded Rationality in TCE: *Implications of Perceptual Uncertainty for Hybrid Governance*, University of California, Irvine, University of Southern California, cor.web.uci.edu/.../Weber-Mayer – 2010_br.docx
36. Williamson, O. E. (1975) *Markets and Hierarchies, Analysis and Anti-Trust Implications: A study in the Economics of Internal Organization*. New York: Free Press.
37. Макашева, Н. (2013) Неопределенность, вероятность, этика: Дж. М. Кейнс, Л. Мизес, Ф. Найт. *Вопросы Экономики*, Но. 10: 47-65.
38. Макашева, Н. А. (2006) Еще раз о революции Дж. М. Кейнса (Опыт неопределенностью). *Общественные науки и современность*, Но. 2: 143-145.
39. Ходжсон, Дж. (2000) Правычки, правила и экономическое поведение. *Вопросы экономики*, Но. 1: 38-55.
40. Шапиро, Н. (2008) Дж. М. Кейнс как завершающий экономист "мейнстрима" и предвестник теоретико – методологического плюрализма. *Вопросы Экономики*, Но. 1:120-131.

REALNA NEIZVESNOST: IZAZOV EKONOMSKOG IZBORA U SAVREMENOJ PRIVREDI

Rezime: Problem neizvesnosti postaje važan predmet pažnje različitih grana ekonomske analize. Sve intenzivniji procesi u sferi finansija i realnoj privredi, nose značajnu argumentaciju kojom se pretpostavka o racionalnosti ekonomskog izbora ozbiljno dovodi u pitanje. Dominantni tok ekonomske misli uglavnom zaobilazi fenomen neizvesnosti kroz tradicionalni oslonac na koncept rizika, shvaćen kao metodološki izvodljiv proračun verovatnoće budućih događaja. Realna neizvesnost, prisutna u širokom spektru relevantnih transakcija, nameće potrebu njenog svrstavanja u one komponentne privrednog procesa koje moraju biti uzete u obzir unutar ekonomske analize. Ovaj rad nastoji da identifikuje ontološke, epistemološke i druge dimenzije neizvesnosti koje se pokazuju kao bitne za donošenje odluka o alokaciji resursa i opredeljujuće za njihove ekonomske efekte. U tom smislu, u radu se čini osvrt na shvatanja Kejza, Mizesa i Najta, usmerena na valorizaciju neizvesnosti u promišljanju funkcionisanja ekonomskog sistema, kroz integraciju ekonomskih saznanja sa dostignućima drugih društvenih nauka.

Ključne reči: neizvesnost, verovatnoća, rizik, ekonomski izbor.