

## **RATIONALITY AND IRRATIONALITY IN ECONOMICS (SELECTED PROBLEMS)**

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### **Abstract**

The text critically surveys some aspects of model human behavior in economic theories, especially the assumption of rationality in the standard models. Rationality itself is usually differently determined what is closely connected to various concepts of human. Despite numerous reservations in economic and other sciences, the standard economic human model – rationality neoclassic concept, so called homo oeconomicus – still prevails. Characteristics and limitations of the homo economicus model can be critically confronted with the decision making of real human beings, including the importance and an impact of irrationality, altruism, etc. In addition, there are other approaches to modeling of a human behavior (and not only economic rationality) and has often cross interdisciplinary boundaries of mainstream. The inspiration can be found for example in the emerging behavioral, or the experimental economics. Also the deeper analysis of specifics of life indigenous nations promises a significant contribution in this area. The current global society faces many problems that may, due to their nature, have fatal consequences for mankind. Finding and choosing the appropriate paradigm or acceptable value mode is a prerequisite for solving them. What is the role of rationality or irrationality, morality and altruism in this process?

**Key words:** economics, rationality, irrationality, altruism

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### **Introduction**

With increasing market interconnectedness and global competition, especially as relates to global finances and subsequent economic crisis, experts have been contemplating the link between economic relationships and ethics. Economists have been asking primarily: "To what extent was the cause of this crisis a lack of ethics and responsibility? Do standard economic assumptions fulfill expectations when solving current problems?"

The assumption of rationality and how it was traditionally delimited was closely related to man's understanding of himself. Here we can talk about a fundamental discord between the

principles of individualism and collectivism. In spite of numerous qualifications in economic and other social sciences, the standard economic human model – the neoclassical concept of rationality, so called homo oeconomicus – still prevails.

However, human behavior reduced to a one-dimensional economic person is today the target of intense criticism from psychologists, physicians, biologists, and also economists – especially those out of the “mainstream”. Motivations for human behavior and decision-making are the subject of research across disciplines in striving toward a new paradigmatic foundation, not only in economics, which is truly adequate for the new global conditions.

This contribution critically evaluates the standard conception of rationality in economic theory. It introduces a more realistic concept of economic behavior in behavioral economics. It points out the role of irrationality in decision-making in the context of standard economic theory. It confronts the standard model of rationality with altruism.

## **1 Rationality in Economics**

In order to research rationality, we first need to define the category of rationality. In everyday use the term rationality represents rational behaviour based on “*ratio*”. However, different scientific disciplines define rationality more thoroughly and in various forms.

In a very broad definition, without reference to a specialised scientific discipline, we can use two definitions (Koukolík & Drtilová, 2002). In a narrow definition of rationality, we can claim that a rational individual tries to achieve the highest level of happiness. In economic theory, happiness is represented by utility, whereas each person chooses the option which brings most utility. In standard economic thinking, this approach is represented by e.g. the expected utility theory. In a broader sense it means that personal opinions and ways of behaviour are based on a logical and objective analysis of all the information available.

Even economic theories offer a wide range of different concepts of rationality (Sirůček & Džbáňková, 2006). We may briefly mention two fundamental views through which economic theory approaches the definition of rationality. The first is internal consistency in decision making. In the focal point of the second approach lies the maximisation of one’s own interest. However, some non-standard interpretations consider it absurd that the main requirement of rational decision making should be “general egoism”. E.g. (Sen, 2002) considers the main shortcoming to be the fact that it only accentuates selfish meeting of one’s interest, while all other alternatives are completely ruled out, being labelled as irrational in their essence. This also implicitly excludes any ethical perspective from human decision

making, since including it would distort the “rational” effort to use any means available for the purpose of maximising one’s utility. The validity of the presumption concerning the maximisation of an individual’s interest and the appropriateness of the *homo oeconomicus* model representing this presumption, is thus widely questioned.

For the sake of initial illustration of the *homo oeconomicus* concept, we shall mention three basic presumptions on which the ever dominating neo-classical theory should be built according to (Weintraub, 1993): Subjects have rational preferences, households maximise their utility and companies their profit, subjects make decisions independently on the grounds of full and relevant information. It is the rationality of preferences that may facilitate the definition of the category of rationality in the spirit of standard economics or more precisely in the spirit of the *homo oeconomicus* model.

The roots and history of this concept<sup>1</sup> are not the topic of this paper (Sirůček & Džbáňková, 2006), we may only point out that most standard modern economic theories and models are built on the “*arbitrary model of man*” (J. S. Mill), e.g. by Edgeworth, Pareto, Walras and many others.

The *homo oeconomicus* concept is one of the fundamental theoretic concepts of standard economic thinking. It is a model economic subject who takes decisions about his/her conduct rationally, on the basis of internal preferences, while considering possible consequences. It makes decisions so that the actions taken lead to the achievement of the predefined objectives. In other words, this model is characterised by instrumental rationality. The *homo oeconomicus* is a highly abstract concept based on many strong presumptions (e.g. Hlaváček<sup>2</sup> et al. (1999) mentions the axiom of the maximisation of one’s own gain, axiom of completeness, axiom of greed, axiom of transitivity, axiom of convexity and axiom of continuity). Each of the axioms pertaining to the *homo oeconomicus* has been repeatedly criticised and disputed and we can find significant amounts of empiric data to disprove it.

In a simple form, the main features of the *homo oeconomicus* may be characterised in the following way: all the behaviour is selfish<sup>3</sup> and pursues personal utility (own interest),

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<sup>1</sup> The basis of modern optimisation models is considered to refer to the “spiritual father of capitalism” A. Smith and his traditionally interpreted concept of man. At the end of the 18th century, the basic ideas of A. Smith also penetrated into the Czech Lands and start to influence economic thinking here (Krameš, 2001).

<sup>2</sup> Together with the *homo oeconomicus* (pursuing utility) Hlaváček (1999, p. 48) defines other archetypes of man that penetrate the thinking of the 20th century: *homo spectatus* (being particular about honour), *homo instinctivus* (instinctive man), *homo multitudinis* (crowd man influenced by group motives).

<sup>3</sup> In the context of egoistic (or selfish) behaviour in the economic sense of the word we may often come across e.g. experiments based on the ultimatum game (see e.g. Behavioural economists such as Joseph Henrich, Robert Boyd, Samuel Bowles and others (Henrich & al., 2001) who tested the ultimatum game in various small communities all around the world).

perfect rational behaviour<sup>4</sup>, perfect knowledge. All of the features have been long a subject to criticism, when e.g. approaches of behavioural or experimental economics have been used.

In case of all of the above stated characteristics of the *homo oeconomicus* it is often pointed out that real behaviour may differ from theoretical model predictions.

### 1.1 Rationality and behavioural economics

Behavioural economists<sup>5</sup> put the *homo oeconomicus* model in contrast to a more realistic scheme of human behaviour, while they also point out that rationality and irrationality in the economic sense of the word are a part of the world around us and cannot be considered separately. Behavioural economics tries to explain mental processes that take place in the decision making in an individual and goes on to use these findings in order to get a picture of the economic system as a whole. It is aimed at depicting economic decision making more realistically. In addition to using purely economic analytic approaches, it also tries to achieve a higher level of realism and particularity by using tools and findings from other disciplines, especially cognitive sciences, primarily psychology, but also anthropology or neurosciences. Behavioural economists presume that individuals do not maximise their utility under all conditions, which may be either due to imperfect, insufficient information, complexity of an economic problem and thus the inability to analyse the problem thoroughly in a given time framework, or due to the uniqueness of the situation and current state of mind of the agent (Thaler, 2000).

Two types of rationality are distinguished – constructivist and ecologic (Smith, 2003). Constructivist rationality is manifested in rather impersonal trade where subjects or institutions behave purposefully following the rules of formal logic, while maximising their own utility. Ecologic rationality is subject to certain internal mechanisms, particularly subconscious processes of neuropsychological system and is manifested in the economic system during personal trade and exchanges. As a parallel to the ecologic rationality development Smith states examples from the natural world around such as formation of snowflakes or even the evolution of life. According to Smith, these two types do not have to be necessarily contradictory.

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<sup>4</sup> The other feature of the *homo oeconomicus* – perfectly rational behaviour, i.e. consistency and decision making is thus subject to criticism that can also be evidenced by experiments. The discrepancy between theories and experimental results have been pointed out e.g. by the prospect theory (see e.g. Kahneman, 2011) or the concept of the loss of preferences (see e.g. Tversky & Thaler, 1990).

<sup>5</sup> Behavioural approach in economics is a rather new discipline, although we may find its roots in writings by Adam Smith and Jeremy Bentham. Their works also discussed psychological aspects of the utility from the perspective of an individual.

We may remark that the multidimensional category of rationality may be classified using many other ways. E.g. H. A. Simon (1986) speaks about “substantial” and “procedural” rationality. He considers “substantial” rationality to be typical of neo-classical economics (He does not deal with the content of objectives and values. He presumes global consistency of behaviour and universal function of utility as a “one world” – where all behaviour is objectively rational in relation to the environment with all its aspects including past and future states of this environment. Rationality is perceived through the prism of the decision it produces). What he considers typical for other social sciences is “procedural” rationality<sup>6</sup>.

In connection with researches by H. A. Simon concerning the always restricted rationality, M. Skořepa (2005, p. 54) presents several significant simplifications used by individuals in the process of their decision making:

- An individual does not investigate every possible result of a chosen action. Instead, each individual defines a certain border line – an aspiration level: the results above this line are acceptable, whereas the results that remain below are unacceptable.
- An individual does not try to map results of all possible actions. An individual explores them independently until he/she comes across one that will only yield results exceeding the set aspiration level.
- An individual does not assess the aggregate utility of all the results of a certain action. Instead, an individual assesses the elements of the result vector divided by certain aspects or by the condition of the surrounding world by comparing them with the relevant aspiration level.
- An individual does not consider all possible conditions of the world.
- An individual does not reflect a relationship linking the problem being solved with other problems.

## 2 Rationality vs. irrationality

Many economists admit that a certain degree of irrationality is common in decision making and conduct of real human beings. If individual are characterised by purposeful use of their mental capacities, the sources of irrationality must be sought after in their own mind. F. Koukolík defines irrationality as: “... a mental process that results in a conclusion or decision which, in the light of evidence and with respect to the time available, is not the best what

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<sup>6</sup> He aspires for the empiric research of the principle and origin of values and their changes in time on the basis of experience. He explores ways through which irrational processes (motivation, emotions, sensory stimuli) influence the attention and definition of the situation that sets out factual determinateness for rational processes. Rationality is thus perceived through processes that take place within its framework.

could have been achieved” (Koukolík & Drtilová, 2008, p. 125). According to Koukolík, the main general causes of irrationality are: history of human evolution; construction and functioning of our brain (including development from the earliest childhood); mental laziness; the fact we don't use the most simple principles of the theory of probability and elementary statistics; and usually emotionally conditioned input and information processing bias, simply said self-deceptions.

When defining rationality and irrationality, we need to bear in mind that different subjects perceive them differently – which complicates the universal definition of rationality. In their perception of the world, subjects assign the term “rationality” a meaning, while they are not only influenced by various effects of the environment, but also by their genes. “Each decision n takes place in the environment of certain rationality, which is a set of judgements and opinions shared by a community of people participating in the decision making and then adhering to it. This is what I call referential rationality. I call external rationality every other rationality of the external observer who follows a different set of judgements and beliefs” (Morel, 2006, p. 39).

Another complication is the invalidity of the “black and white” concept claiming that critical thinking and rationality are “good” under any circumstances, while irrationality is “bad” under any circumstances. Koukolík comprehensively sums up the wide range of contradictions or opposing tendencies that arise when exploring human thinking. Rationality and irrationality, intelligence and stupidity<sup>7</sup>, careful consideration and impulsivity, calculation and emotionality, selfishness and altruism, all of these are possible examples of anti-poles on two different levels of influences forming human mental activity. It is impossible to highlight convincingly any one of them to be completely irrelevant. Instead, a suitable approach seems to be perceiving them in mutual collaboration.

The above stated list of general causes of irrationality includes functioning of the human brain. The human brain is imperfect and during the thinking process it makes a variety of errors. These may include e.g. ignorance of the evidence against the decision maker's belief, incorrect assessment of causes of certain phenomena, incoherence resulting from framing the problem, finding invented connections without having any support in reality and many others. People usually lack practice and knowledge necessary for finding the right

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<sup>7</sup> According to F. Koukolík, irrationality walks hand in hand with stupidity which, however, does not denote any kind of mental insufficiency, errors in perceiving the surrounding world or errors when processing information. “*Stupidity is a completely normal way the human mind uses to achieve a compromise between emotionally substantiated inability of direct interaction with information coming from the physical environment and rewards arising from the social environment*” (Koukolík & Drtilová, 2008, p. 125).

procedure for problem solving in a wide range of disciplines. It is not usual that an individual is equipped with mental instruments of an economist, statistician, physicist, politician and other specialised experts. That is the reason why an individual must have a rather intuitive, i.e. heuristic, approach to questions – which an individual equipped with sufficient knowledge could solve selecting a procedure on the basis of a suitably chosen, specialised method.

Human imperfection may be projected even in economic research. However, standard economic thinking resists accepting it is a constitutive feature of economic activities of all subjects involved in economy. Nevertheless, e.g. J. M. Keynes (1936) considers “animal spirits” to be the crucial element determining human behaviour which, at the same time, significantly contributes to economic crises. However, “animal spirits” are far from the framework of the modern, “strictly scientific”, e.g. mathematised, economy. This trend was consistent in the 20th century and non-economic influence on human behaviour remains to be ignored – to a great extent - also in current standard economic science.

Those who agree with Keynes are - among others - (Akerlof & Shiller, 2010) who explore macroeconomic manifestations of animal instincts, applying this hypothesis in their analysis of great capitalistic crises from the 19th century to the crises triggered by the US mortgage bubble that burst in 2007. They agree with Keynes’s opinion that animal instincts are the source of irrationality in human actions. This irrationality is projected in economics in an aggregate form, which leads to the creation of a significant negative characteristic feature of capitalism: its instability. General excess, prevailing significance of faith in certain phenomena over rational calculation when comparing alternatives, projecting justice evaluation into economic decisions, influence of monetary illusions and others are manifestations of motivations beyond any categories of a standard economic theory.

Keynes, Akerlof and Shiller and others realise that economic behaviour of people is never completely rational. It is strongly influenced by psychological reactions, often of a rather instinctive nature – and politicians, investors, businessmen and even economists must take this into account. What happens in economy is thus not only determined by rational human motives, measurable variables or relations that can be expressed mathematically. What plays an important part are also strong mental powers that J. M. Keynes calls “animal spirits”. These include trust, justice, dishonesty and bad will, succumbing to monetary illusion or e.g. strong perception and experiencing of archetypal stories. These animal instincts may significantly contribute to explaining various phenomena such as sharp fluctuations of share prices or prices of real estate, the development of savings or unemployment rates, poverty of minorities or different economic crises. Even in the case of current crises, animal instincts

(disguised in bankers' greed or collapse of trust in the banking system, etc.) may be perceived as one of the major causes.

### **3 Altruism and *homo oeconomicus***

The current western world, controlled by liberal ideology, emphasises the individual, individuals' maximum satisfaction without having regard to other members of the community and the surroundings. The world of today does not leave much space for altruistic behaviour, although altruism – in the sense of helping and cooperating - is a natural principle of human behaviour. The term altruism comes from the Italian word "altrui" (meaning "other people's") that originated in Latin "alteri huic" (meaning "to this other"). Altruistic behaviour is aimed at somebody else's gain, while bringing one's sacrifice. However, not every kind of help is always an act of altruism, as it may be the most suitable solution for the helping individual, who benefits from helping.

Altruism is a phenomenon researched by many different scientific disciplines, especially economics, sociology, psychology, religious studies, philosophy or socio-biology, while each of the disciplines offers differing definitions depending on its subject and methodology. Altruism may be defined e.g. as a moral principle expressing – in contrast to egoism – an ability to sacrifice one's own interest for the benefit of another person without expecting any reward (Doležalová, 2008).

We can distinguish between different types of altruistic behaviour. We may speak about pure and reciprocal altruism. Pure altruism is unselfish help – "generosity without hoping for getting anything in return". An act of unselfish help may be helping an unknown person we will most likely never see again. However, even this behaviour may be explained as an act in the framework of indirectly-reciprocal behaviour, or as increasing the capability of a group. Reciprocal altruism is then helping while expecting this help will be paid back in the future.

Literature speaks of genetic roots of altruism in e.g. animals (bats, monkeys and others) in which mutual help – reciprocal altruism – has evolved. Helping others (giving up temporarily on a certain advantage) will in the future, in the case of need, ensure a welcome payback of this help. However, in order to make the reciprocal altruism work, certain conditions must be met (Waal, F. B. M., 2005). It is often said that reciprocal altruism can work if there is a high chance that individuals meet again in the future, so that help can be returned. Computer simulation methods lead to a conclusion that altruism may spread even in



the population of individuals who will most likely never meet again, if they can observe manifestations of altruism in other individuals. The simulation included donors who were willing to help receivers when these receivers had been previously seen to offer help. Therefore, help will probably indirectly return to such a person in the future. Each individual has a certain reputation concerning his or her will to help and each altruistic act improves this reputation and thus increases the probability that the individual will be helped in the future (Nowak & Sigmund, 1998).

Let us ask the question whether altruism falls into standard schemes of typical economics. As we have mentioned above, current mainstream economics builds upon the axiomatics of rational behaviour of economic actors. Rationality is perceived as a subject's ability to achieve efficiently its objectives, i.e. with minimum costs and maximum benefits. Standard economists operate with the *homo oeconomicus* model. E.g. according to Thaler and Mullainathan (2000), *homo oeconomicus* is characterised at least by the following attributes: a) perfect knowledge (an individual has all information about the means that lead to meeting the objectives and has the capacity to sort out this information and compare it, b) unlimited rationality (an individual chooses from the means available the most efficient one that maximises its utility), c) methodological individualism (an individual has no regard to other individuals when trying to achieve the set objectives. If we omit the question whether information is perfect or imperfect, a subject behaving altruistically probably fails to meet two other characteristic features – such a person gives up own utility for the benefit of others and decreases own utility and consumption. Neo-classical economics explains the manifestations of altruism using the term “postponed effect” that we will benefit from thanks to our altruistic behaviour.

Behavioural economics does not have a uniform view of altruism. It actually observes it rather as a multi-dimensional phenomenon and points out that altruistic behaviour is manifested in an economic context (i.e. in situations when it is possible to gain some utility) in many different ways and forms. Generally speaking, altruism may be perceived as manifestations of belonging to the community in which an individual lives and builds respective social bounds and social capital (Hlaváček, 1999).

It is also often pointed out that altruistic behaviour is conditioned by certain motives that may actually vary rather significantly. An individual may be motivated to altruistic behaviour by many motives and impulses, whether altruistic or purely selfish ones. These motives may permeate and influence an individual simultaneously (Kolm, Mercier, 2006).

## Conclusion

From the foregoing, there are certain undeniably evident moral implications of economic behavior, which one cannot overlook. The one-dimensional view of homo oeconomicus as a human abstraction cannot satisfactorily explain the motives of economic decision making in the real world. The current global economic systems (namely markets) are characterized by considerable complexity, variability, increasing competitive pressure and especially interdependence. There is a dangerously widening gap between the dynamic scientific-technical-economic development on the one hand, accompanied by high risks and damage, and on the other hand slowly ongoing changes in human attitudes and behavior. Problems of economic growth, sustainability and global efficiency for decisions require taking responsibility for human society and a paradigm shift - namely the morality of self-interest being replaced by the morality of the common good, that is, altruism.

Altruism and sense of belonging to a community are a natural part of human ethics. Adam Smith (1759) was also aware of ethical aspects of human behaviour: *“How selfish soever man may be supposed, there are evidently some principles in his nature, which interest him in the fortune of others, and render their happiness necessary to him, though he derive nothing from it, except the pleasure of seeing it matter how much man may be considered selfish, there are clearly principles in his nature that make him interested in the happiness of others in a way when he gains nothing but joy to see them happy”*.

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