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# RATIONAL HUMAN MODEL IN ECONOMICS AND PSYCHOLOGY

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## ABSTRACT

*Methodology of the economics had been under the effects of other disciplines but later it has become reserved, and its contact to various disciplines has stayed more limited. One of the key factors for a discipline's progress is that the gains acquired from other disciplines. Economics should cooperate with not only with all kinds of social sciences, but also with other disciplines such as physics, medicine and psychology. For that reason, scientists should apply the developments in different disciplines to their research areas. In this context, it can be said that the relationship that exists between the mainstream economics and other disciplines are not sufficient enough. In order to understand the new economic activities and to develop economic policies related to them, a critical evaluation of what we have is essential. This issue has become important enough to reconsider the basic assumptions of the neoclassical economics. Rational Human (homo economicus) Model becomes one of the most prominent assumptions of the neoclassical economics. The consideration of the economics as in a structure, which is determined by assumptions of the rational behavior, causes to the fact that the effects of irrational factors to human behaviors are ignored. According to Freud, our reasonable and conscious behaviors constitute a small part of all our general behavior. If we do not evaluate human as a whole it is not possible to comprehend them. For this, our unconscious behaviors (not necessarily irrational) should be examined. The methodology of this study is to highlight weaknesses of the methodology of the mainstream economics and mainly of the rational human assumption. For this purpose we benefit from Institutional Economics, Behavioral Economics, physics and psychology, while we question the rational human assumption.*

***Keywords:*** *Homo Economicus, Economic Methodology, Neuroeconomics, Psychology, Behavioral Finance*
***Jel Kodu:*** *O15,D91,J24*

# EKONOMİ VE PSİKOLOJİDE MİLLİ İNSAN MODELİ

## ÖZ

*İktisat biliminin metodolojisi başlangıçta başka bilim dallarından oldukça etkilenmiş, ancak daha sonra kendi içine kapanmış ve farklı bilim dallarıyla teması sınırlı olmuştur. Bir bilim dalında ilerlemeyi sağlayan önemli unsurlardan biri de diğer bilim dallarından elde ettikleri kazanımlar olmaktadır. İktisat bilimi sosyal bilimlerin tüm alanlarının yanı sıra fizik, tıp ve psikoloji ile de işbirliği yapmak zorundadır. Bu nedenle bilim adamlarının farklı disiplinlerdeki gelişmeleri ve bilgi birikimlerini kendi alanlarında daha çok kullanmaları gerekmektedir. Bu çerçevede alanımızla ilgili olarak, yerleşik iktisadın diğer bilim dalları ile ilişkilerinin yeterli olmadığını söyleyebiliriz. Yeni ekonomik faaliyetleri anlayabilmek ve buna ilişkin iktisat politikaları geliştirebilmek için öncelikle, elimizdekileri eleştirel bakış açısıyla değerlendirmek gerekmektedir. Sorun yerleşik iktisat anlayışı olan neo klasik iktisadın temel varsayımlarını dahi tekrar gözden geçirmeyi gündeme getirecek kadar önemli hale gelmiştir. Bu varsayımların en başında da rasyonel insan (homoeconomicus) modeli gelmektedir. İktisadı, rasyonel davranış varsayımlarının belirlediği bir yapı içinde düşünmek, insan davranışları üzerindeki rasyonel olmayan öğelerin göz ardı edilmesine neden olmaktadır. Freud'a göre, akla uygun ve bilinçli davranışlarımız tüm genel davranışlarımızın küçük bir bölümünü oluşturuyor. İnsanı bir bütün halinde değerlendiremezsek onu kavramımız da mümkün değil. Bunun için bilinç dışı (illa akıl dışı olması gerekmez) davranışlarımızın da irdelenmesi gerekir. Çalışmadaki metodumuz, yerleşik iktisadın metodunun ve temelde rasyonel insan varsayımının eksik yanlarını anlamaya çalışarak, iktisat politikalarına etkilerini vurgulamaktır. Bu amaçla yerleşik iktisadın rasyonel insan varsayımını sorgularken Kurumcu İktisattan, Davranış Ekonomisi bilim dalından, fizik, tıp ve psikolojinin kavramlarından oldukça faydalanıyoruz.*

***Keywords***: Homo economicus, Rasyonalite, iktisat Metodolojisi, Nöroekonomi, Psikoloji, Davranışsal İktisat.
***Jel Codes:*** *O15,D91,J24*

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## INTRODUCTION

The path that is followed by natural and social sciences to reach the scientific knowledge can differentiate. It's possible for natural sciences to establish clearer and easier theories because of the lesser quantity of variables to be related to each other. Conducting a controlled test in this field is much easier. However, recreating a social formation in laboratory for social sciences is not possible. Besides, regular and continuous variables in human behaviors are infinite. Thus, bounding functional relationships between variables is merely possible. The only way is to assert tendencies by looking at the data and statistics of past events. Cartesian skeptical and critical approach in natural sciences can be applied barely in social sciences. At least it gives us the need for finding average behaviors and formations which eliminate different behaviors and disorder of individuals during social events (Küçükömer, 1965: 18-19). This need constitutes a basis for economics, which is a part of the social sciences, to define a human model at its core. Trying to find such a homogenous human model with a positive understanding by looking from the Cartesian paradigm is a relieving fact for the economics, but then also a nuisance.

In the light of these explanations, let us ask now: Which methods does the economics follow in order to reach scientific information and what kind of problems does it face with? Are these methods enough in order to explain the knowledge-based society of the future and its economy?

## 1. METHODOLOGY OF ECONOMICS

Adam Smith, David Ricardo, John Stuart Mill and Alfred Marshall are the leading representatives of the mainstream economics that is formed in England. Marshall led the mainstream economics (can be named as political economy as well) turn into the settled economics. The settled economics is nothing more than the neo-classical economics as its names Thorstein B. Veblen states. What Veblen actually wants to underline with this name is that the neo-classical economics is not different from political economics in terms of its methods and assumptions. Neo-classical economics is indeed indifferent to the classical political economics with its basic assumptions like *rational human* and *balance*[5].

Among the most basic assumptions, which have remained the same back from the mainstream economics to the settled economics, the most popular one is probably the rational human assumption (economic individual) that is expressed as homo economicus.

Within the frame of Adam Smith's brainstorming, the rational human means the human type who looks after his/her own interests. Thus, he disregards the fact that humans act also with non-economic motives (Akerlof and Shiller, 2010: 23).

In fact, the principle of *rationality*, which left its mark on the mainstream economics, is parallel with today's philosophical principles. 17$^{th}$ and 18$^{th}$ centuries are indeed the ages of *rationality*. The philosophy of these centuries adopts a *natural order* concept, and the foundation and the mechanism of the universal natural order in these centuries are rational. Economic formation and general rules for its relationships are consistent with the natural order. The natural and rationality-friendly economic system, the system with free competition and the human behavior model in this system with free competition form the rational behavior model. As a matter of fact, human adopts a benefit maximizing manner by acting with a pleasure maximizing psychology (Küçükömer, 1965: 20-21). What are the reasons of the efforts of this character to keep trying in order to increase benefit by making pleasure and passion calculations? Or in other words, *why does a human work hard* while s/he is thought that s/he moves completely according to the rational behavior model?

[5] If we need to state a definition; neo classical theory can be thought as a sum of schools of economics, which reevaluate the value theory under the effect of Marxism (see Immanuel Wallerstein, **Historical Capitalism**, translated by Necmiye Alpay, second edition, Metis, Istanbul 1996, p. 93) and coalesce at the point of view of distribution and marginal value by putting the benefit and subjective effort in their center along with the psychological factors (Shabnam Mousavi and Jim Garrison, ''Toward a Transactional Theory of Decision Making: Creative Rationality as Functional Coordination in Context" **Journal of Economic Methodology**, vol.10, 2003, s. 131).

## 2. POINT OF THE STUDY

Economic efforts of humans can be explained in two types: effort of earning and effort of living. Effort of earning means the monetary income which is spent to purchase supply of provisions to meet needs. Effort of earning is based on producing and selling productions in order to generate an income as money and selling them over and over again (Lange, 1967: 14-15).

During the traditional society period consumption's goal is survival. Consumption stays behind of the production activities. Besides, humans' consumption options are not many. The mass production, which has started with industrial revolution, caused the problem of surplus production and its consumption. The consumption, which was limited with the needs during the traditional period, exceeds the needs of the consumption society. While consumption was a tool to survive in the traditional society, it has turned into a goal.

Andre Gorz states that the modern idea of labor is a production of manufacturing capitalism. According to him, until the 18th century labor was the definition for the works done by slaves, who had been producing services that had to be repeated the next day for daily consumer goods, and daily jobs of the day laborers. Craftsmen, who had produced durable and collectable goods for the next generations, were not laboring but *working hard* (Gorz, 2007: 30-31).

Earning has one and only purpose; producing monetary income. This purpose is forcefully imposed by exchange partners through production for the market, trade and money. Generating a monetary income is an economic obligation in trade and pecuniary economy, regardless of the social traditions. Effort for earning is a result of the fact that the production for the market and monetary exchange through trade break the connection between the economic effort and meeting the needs (Lange, 1967: 15).

In time effort of earning becomes a ratiocinative effort, in other words a rational effort. The difference between the traditional effort of earning and rational action is that in traditional effort goals and tools are defined according to the existing tradition and in rational effort goals and tools are obtained from reasoning, which is applied to the corresponding action (Lange, 1967: 17). By mounting the labor to the economic reasoning, an individual becomes stranger to his/her labor, thus to his/her consumptions and needs. As a result of this, working time and living time get separated from each other. Productive activities stop being a part of life and become a tool for making a living. Andre Gorz explains this as an individual, who does not produce what s/he consumes and does not consumes what s/he produces, which he also describes as abstract labor (Gorz, 2007: 30-31).

The development of the capitalist manufacturing type turns everything, including labor, into goods by universalizing the relationship between trade and money, and then the effort of earning becomes an obligation (Lange, 1967: 19). Economic rationalism changed the purpose of labor not to an individual's own consumption, but to his/her commercial change (Gorz, 2007:139). At this level the society that consists of individuals, who are systematically in the struggle for earning, and undertaking step in. Capitalist undertaker has no alternative other than seeking profit. Everything is calculated quantitatively with a monetary unit, currency. Everything is bought and sold against money. In capitalist undertaking maximization of the profit is an economic must. The economic rationalism principle makes this an obligation by creating the bankruptcy threat for the undertakers who do not apply to this. The fact that the undertakers, who don't have the competence to apply to the aforesaid principle, are subject to natural selection that makes the situation more vital. Effort for earning has no place for feelings or looseness (Lange, 1967: 19-28).

Max Weber argues that the spirit of capitalism rests upon Calvinism, which focuses on the point of view that the labor is worship. From this religious point of view he states that the capital accumulation is based from the "work hard and do not waste" life style. Protestant ethic requires work to earn God's tolerance. Rational individual makes his or her economic effort within this impulse. In this context, individual should use the tools that are appropriate for economic rationality and avoid wasting. However, it has to be stated that Weber's approach is very debatable[6]. In addition to this, leaving conservative religious beliefs with the effect of critical rationalism in 18th century, and

[6] On the contrary, what predominate in today's consumption society are extremeness, extravagance and trifling away.

developing a success-focused individual model by adopting social Darwinism resulted with a new behavior for economic rational individual. The success for economic individual is now a sign of divergence. This divergence means either being selected by the God or being more invulnerable for the struggle to survive (Weisskopf, 1996: 44).

The spirit of capitalism, which broke the bound between labor and need, turned from *'enough is good'* into *'the one successes earning more is better than the one earns less'* and *'no success is bigFger than a bigger success than can be imagined'* (Gorz, 2007: 143-144). The existing system does not accept the classification of 'enough'. Continuity of capitalist system requires the belief that available consumption level, success and statute is not enough. Working hard is holy, but free time is dangerous (Gorz, 2007: 143-148).

Here a non-social part of rationality of capitalist enterprise's effort of earning comes to existence. The effort of maximizing the private profit may not coincide with the goals that do not cover the entire society. Its reason is because the society means more than the sum of individuals. Economic rationalism principle obliges to do savings in productions costs of the enterprise, in other words in material tools. However, this saving does not exist for instance when it comes to spending labor force, but it shows itself in their wages.

The effort for earning, which stands in capitalism and we are trying to explain above, requires making production for an uncertain market and consumer group. The aim is not meeting people's needs, but creating needs by maximizing profits. That's why millions of objects of desire, which are not supplies of provisions, are being created.

The sense of capitalism which lies in capitalism is based on the principles of individual's autonomy and operation of the economy according to market conditions. Letting liberalism make individuals reveal their own potentials requires having a political power as well. For this reason, liberals adopt political liberalism as well as the free market. In other words, the ability of individuals to be active in society and economy depends on certain basic acquisitions. Among these basic civil rights we can count the right to vote and stand for election, right to education and health in the first place (Keyder, 1993: 11-12).

## 3. RATIONAL INDIVIDUAL MODEL (HOMO ECONOMICUS) AND FREEDOM OF CHOICE

Settled life bases its assumptions upon the perfect rationality. A decision maker individual model, which is rational, well informed and holds the freedom of choice, lies at the bottom of capitalism's concept of the free market. In this respect, 'rational pragmatic human', 'the invisible hand' and 'democratic vote' can be considered as three parts of the economic and political belief (Shubik, 1967: 771).

Directly or indirectly a great deal of our economic and political thought organizes the pragmatism's basis of rationalism. Rational economic human in economic models is a person who knows his or her desires, options and resources. It's presumed that the rational economic human's value system is well defined, and at no cost their cool headedness and consistent intelligence quickly scan thousands of alternatives that they come across. Their perfect comprehension gives them the possibility to distinguish the differences which are qualitatively hard to understand (Shubik, 1967: 772). They can observe all the possibilities in the world and evaluate the results of all their choices instantly and at no cost (Kreps, 1990: 745). However, an economist is aware that this is not true, there are gaps in information and *homo economicus* is not always sure about his or her desires. It is newly understood that the human model, which seeks for the utility maximization, is only a good assumption. The questions 'how good' and 'whose assumption' are still being waited to be answered. As the technology develops, markets get wider and the size of the society gets larger, the share of the entire information from which the individual can take is getting smaller quickly and giving an answer for the mentioned questions is getting harder and harder (Shubik, 1967: 773).

Modern decision making theory, economics, psychology and the game theory basically accept that an individual makes his or her choices under the conditions of the entire information. However the humankind lives in an environment, where obtaining information is merely enough. Human being not only doesn't know how to evaluate many choices that it faces with, but also it is not aware of the great deal of the rate of these options. Its ability of comprehension is comparatively limited, and its power of calculation and paying attention is less than a computer in many cases; its capacity of researching, data processing and memory is irregular (Shubik, 1967: 773-774). Individuals want to reach good results. However, feedbacks in terms of information can be very bad and may not define better options. When individual limitations like the rate of change of impulses and increase volume of new impulses are compared as a sum, this situation becomes clearer. In fact, there is not any sign which shows that individual's genes or perceptions have been changing significantly better or worse in the last centuries (Shubik, 1967: 775-776).

In addition to this, the power of leading the future of the humankind, who has learnt how to control fantastic energy sources and to create devices like computers and communication tools that help his/her intellectual and organizational skills, has remarkably increased. Information has grown and our analytic skills have been increased. So, has there been a suchlike increase on individual or social mind? An increase on the power of the humankind more than mind's itself may cause the collapse of the civilization. Even now the question whether this society will destroy itself or not cannot be answered (Shubik, 1967: 775-776).

The increase on human population, amount of the information and change in the technology is against the rational, fairly well informed and freely acting individual, who is making decisions for the most of his or her destiny (Shubik, 1967: 778). Increased information and the pollution caused from it put consumers, who cannot make any decision on what to buy, in a more unclear environment[7].

If we want to protect and enhance our freedom, increase world's life standards, the changes which will be made in the future should be in ourselves (Shubik, 1967: 778). Apart from that, scientists need to use the developments in other fields and their knowledge more in their fields. The economics should also be more open to this interdisciplinary interaction, and it should be able to consider its basic assumptions and models and even its methodology if needed.

In this context, the next heading aims to underline how different sciences affect each other and how much share rational human model in economics takes from the mentioned interaction.

## 4. APPROACHES OF DIFFERENT SCIENCES AND COMPARISONS

It's possible to say that the settled economics' rational economic human assumption is based on Thomas Hobbes' *selfish* individual model, which is leaning against the personal interests, and Jeremy Bentham's *hedonistic* individual model (Twomey, 1998: 435-436). According to Bentham, utility can be measured, pleasure and struggle can be calculated, and society is the sum of individuals. Thus, the total utility can be measured.

However, considering economics in a structure, which is specified by rational behavior assumptions, cause the non-rational elements on human behaviors to be ignored (Sarfati, 2001: 10). According to Freud, our rational and conscious behaviors constitute a small part of all our general behaviors. If we cannot consider human as a whole then it's not possible to comprehend it To do so, our unconscious behaviors (it does not always need to be non-rational) are also needed to be studied (Güleç, 2004: 3-10). Humans are affected by their desires as well as their thoughts and common senses (Schultz and Schultz , 2007: 39).

According to Albert Ellis, who is the founder of *Rational Emotional Behavior Therapy*, every human has the potential of being reasonable and unreasonable. Individuals may have both constructive qualities like creativeness, learning lessons from mistakes, realizing their potential for development,

[7] For the approaches which looks at the consumptions as the rise of uncertainty and risk factors, see Ulrich Beck, **Risk Society: Towards a New Modernity**, Sage Publications, London and New Delhi 1992 and **Journal of Consumer Research**, "Interview with Ulrich Beck", Vol. 1, No: 2, 2001, p. 261-277.

loving to take care of others, and inhibiting qualities such as acting without thinking, having superstitions, harming themselves, repeating the same mistakes, intolerantness, being perfectionist, laziness and avoiding to realize their potential (Corsini and Wedding, 2012: 273-301).

In fact, becoming distant to holistic thinking goes back to Cartesian paradigm of Descartes. Descartes' "I think, therefore I am" way of thinking left significant marks in the West and led the way for scientific developments, and mechanical thought found its place with Newton (Capra, 1992: 58-77).

Newtonian classic physic has a deterministic understanding which is constructed on an understanding of the action versus reaction and the cause versus effect. The thinking system in early 20$^{th}$ century is under the effect of Newtonian physics, Cartesian paradigm and deterministic scientific understanding. According to the classical physics, the movement of an object at a certain speed is a result of the forces that affect it. When these affecting forces in certain data sets are known, the revealed result can be definitely determined. The relationships built between circumstances and magnitudes are the connections that are constant and precisely determinable.

Mentioned relation of mechanical causality has also affected other sciences. The economics and the medicine are the most significant sciences in terms of this interaction.

Traditional economics' concepts of dynamic and static balance benefit from Newtonian mechanical balance. In dynamic analyses, for instance in growth models, the economy grows in a static speed, thus dynamic analyses are fundamentally static. Walras states that there are significant similarities between overall balance equations and the law of universal gravitation (Walras, 1965: 148). Besides, we also see the relationship between physics and economics when the subject of economics turns from the political economy to the economics. Indeed, beginning from 1870s neo classical economics imitates the Newtonian physics of 1850s (Mirowsky, 1989: 3). This effort continues even today as it is the only social science which is awarded with the Nobel Price.

The efforts for inclusion of the economics in positive sciences[8] are based on the positivist approach. According to Friedman, economics should be positive. The philosophy of positive science separates positive hypotheses and normative hypotheses from each other, and it places the first into the fact world and the second into the value world. Thus, value judgements in economics are isolated. With his definition of economics in 1930's as 'relationship between limited resources and unlimited wants that have alternative uses' Lionel Robbins degrades individual to the maximizing model, and this puts emphasis on homo economicus which is asocial and without value judgement. However, results of economics, responsibilities of the ones who make economic policies, righteous behaviors of economic units bring economics and moral principles together, and thus they bring value judgements together. At least, starting from value judgements and welfare of the economic units, which run after their individual benefits, welfare functions which reach society's overall welfare have to bring morals and economics closer.

The effect of the Cartasian paradigm still continues its dominance on medical thinking even after three hundred years. The human body is seen as a machine and the decease as a malfunction of biological mechanisms as a result of this machine's break down. Doctor's duty is understood as fixing the machine (Engel, 1977: 13). And today medicine focuses on smaller parts of the human body and almost forgets that the patients are human beings; with a health-reductionist approach recovering health is similarized to operation of a machine and kept aside from the medical science.

There are incredible similarities between the medicine science and the economics in terms of the subjects of their fields. First of all, both of them discuss about human as an individual and the society which consists of humans who live together; medicine deals with health of human and searches for necessary treatments in order to increase the wealth level. Health is the precondition of being able to work. On the other hand, it deals with social life, observes the society; it works to create health requirements in social sense from eating healthily to cancer screening, from widely vaccination in order to protect from contagious air to draining swamps and improving environmental conditions. Thus, it tries to increase social welfare with social approaches, just like its individual treatments. Even though

[8] Lipsey sees himself as a scientist in his laboratory and economics as a natural science. Richard Lipsey, **Introduction to Positive Economics**, Weidenfel and Nicolson, London 1967, from p. 13 by Kaymakçı, p. 189.

what it does in the first context is after the patient gets ill, what it does in social sense is more for avoiding illnesses of individuals as "preventive medicine". There is no tendency to push preventative medicine for society into the background in order to have more ill individuals to make doctors earn more (Kazgan, 2004).

The subject of economics is no different, on one hand it accepts some data and searches how individual satisfaction is maximized; it works on demand analyses, price systems, level of income and desires. On the other hand it works on the situation of individual enterprise in the business life; defines the conditions of maximizing firm's profit with the "rational" behavior assumption. Then it separates itself from its similarity with medicine at this point. To prove us that the individual's satisfaction (benefit) and maximizing individual enterprise's profit would also maximize the social welfare. The economics applies for assumptions with a "teleological" approach, and then it tells us what happens under which conditions. Today it does not accept the state intervention out of the market in order to increase social welfare. However, medicine knows where health conditions meet the individual health, and it also has another prescription for the social health. Medicine gives tasks to the state from the outside. Economics is very close to that, at least today's neo liberal globalizing economics is. However, the last twenty years of experience "falsified" the hypothesis of the "new neo-classical school", there has been no welfare increase in the world economy; on the contrary the poorest became poorer and the richest became richer. Middle income countries could not show any development because of the crises; moreover, these countries have been trapped in debt, while they could not show development. In medicine you can liken this to the healthy life recipes, which gradually damage the health conditions of the society but enhance the health conditions of some while worsening the conditions of the unhealthy ones, and to the obviously faulty theory behind these. Economics is incapable of doing something at these points and loses its legibility to be a discipline. The globalization, which works for the benefit of the ones who dominate the world trade (multinational corporations, investment funds and international banks) and the theory, which falls behind it, continue to be in power despite of the prediction errors and the negative results they have caused (Kazgan, 2004). Why economics cannot escape from this dilemma? Apparently Newtonian mechanical physics and rational human assumption, which lies under the foundation of the economics and its possession of economic policies, are the most important factors in this subject.

In the light of all the explanations we have made so far, it's possible to say that understanding and analyzing new developments by remaining within the paradigm which lies under the cause and effect relation of classic science is getting harder and harder. Physics is in the search of a new paradigm with theories such as chaos and quantum. Only in 1920s Heisenberg opposed the determinism of Newtonian physicists, and he manifested that with observation not only where a particle exists in the nature but also the location of the observation can be detected. Thus, it was accepted that the observed events are subject to different physics laws. Then there is a universe, which does not belong to absolutes but is ruled by possibilities, and in this universe every result is in existence. It was the birth of modern quantum physics.

The relativity theory and quantum physics shows that everything in this universe is a part of a whole, and even a change in the smallest unit is instantly sensed by the whole universe (Avery, 2004:6). Everything is a part of something. If human could not see the rose would not have been the same or there was no color. If you do not look at the rose it is not red anymore. Color only exists because of the eye, if there is no eye there is no color either (OSHO, 2010 :33-34).

Economics always tries to benefit from this leadership of physics and tries to be more scientific. Medicine science, on the other hand, is a little bit ahead of the economics in this regard. Eastern and Western medicine approaches' benefiting more from each other and both protective and alternative (supplementary) medicines' being taken more in consideration in terms of medicine studies and applications shows that.

Now here let's get back to economics-physics relationship and underlie that this structure of economics, which adopts its methodological basis from physics, have been criticized from the beginning.

## 5. TWO ECONOMICS SCHOOL ALTERNATIVE TO HOMO ECONOMICUS

In fact the structure, which underlies classic economics, was deeply shocked with an important movement of thought in the second half of 19th century. German historical school almost took the place of the classical capitalist school of economics for a while. Therefore it has to be reviewed briefly.

The movement, which started in 1843 with W. Roscher, defends relativism contrary to the Ricardian universalism and the claim of absolutist tradition. Hegel and Sismondi are the leading names of this school. B. Hildebrand (1848) states that there cannot be valid de facto natural economic rules for every country or time, and K. Knies (1853) states that there is no laws for economics unlike physics has, and there only can be some regular repetitions.

New historical school, which had been led by Schomeller and began to draw attention starting from 1870, did not refuse the existence of the natural economic laws unlike the former schools, but argued that these laws cannot be reached with the methods of classical economists. They defended the idea that economics is a living social science and human is not a living creature runs after profit, and law, religion, society, state, manners and customs lead it. In his work *Modern* Capitalism W. Sombart dwells on the relativeness of economics and states that there can be no universal economic law. A. Spiethoff mentions that the societies have different economic structures and each of these structures can be expressed with a separate theory.

J. S. Mill, who is a well-known classical economist, accepts economic relativism for sociology and economics and argues that economics is the science of *tendencies*. A neo classical economist A. Marshall accepts economic laws as a gesture of economic tendencies. Marshall says that the economic theory cannot be valid everywhere and every time, and argues that the universalist approach of the classical capitalism have been derived from an understanding, which dictated the British civil code to the Indians. He also mentions that this understanding arose from the narrow-mind which thinks that the whole world consists of the economists in London. Mill and later Marshall go even further and they look hesitantly to the classical point of view, which is objected by Historical School, where human is addressed as an existence which only runs after its interests and profits. The historical point of view finally adopted the inductive and observant method instead of deductive and abstractive method, which sets out from the homo economicus assumption of the classics.

Another important school, which criticizes the basic assumptions of settled economics, is the institutional economics which is based on the German Historical School that we briefly mentioned earlier.

Veblen argues that business, which is a profit making organization, sabotages the physical production power of industry[9]; on the other hand the New Institutional Economists (Clarence E. Ayres) support the idea of blocking and directing the existing oligopolistic structure through economic planning to enable sourcing. New Institutionalists suggest *homo institutalis* (institutive human) instead of *homo economicus*. Institutive human makes its selections with a limited rationalism and under the influence of its habits[10]. The Institutionalists, who are also affected by the American Pragmatic Philosophy Tradition (led by people like John Dewey, Charles pierce, William James), state that human is not equipped with rational economic behavior rules by birth, and existing rules are limited with specific economic societies.

With reference to the settled economics and pragmatism principle of Bentham and Mill, Veblen says that he defines individual with hedonist rationalism and that's why it is trapped into a

[9] Besides, Veblen defines above mentioned effort of living as conducting an industrial activity and gathering necessary inputs to obtain an output; he defines the effort of earning as consuming ostentatiously (The Theory of Leisure Class). Under the influence of making a display, many necessity goods which are actually not necessary to earn a living are created.

[10] Although the individual becomes more and more free, on the other hand he or she needs to institutionally comply with education, labor market, consumption, regulations of welfare state, traffic rules, psychological consultation institutions etc. For this reason institutions have effects on the lives of individuals (Ulrich Beck, **Risk Society: Towards a New Modernity**, Sage Publications, London and New Delhi 1992).

deterministic structure[11]. *The bounded rationality* developed by Herbert Simon suggests the rule rationality with satisfaction purposes instead of maximizing individual of the settled economics (Simon, 1957). The world we live in is full of uncertainties. Without uncertainties there would be no need for rules or institutions. Individuals need the guidance of rules to minimize the cost they pay for in uncertain conditions. The rule rationality concept is more suitable for this (Voight and Engerer, 1999: 130).

Mentioned rational human model of the settled economics is also the main assumption in well-known play theory studies, however, it faces with important criticism.

## 6. HOMO ECONOMICUS, NEUROECONOMICS AND PSYCHOLOGY IN GAME THEORY

At the bottom of the path, which leads to the play theory, what lies is that the association of the pragmatic philosophy with marginal analysis functions as a bridge to the optimization, the maximization, and the inclusion of algebraic approach to the classical theory with the discovery of homo economicus. In this context, Neumann and Morgenstern proved the existence of minimax solution and equilibrium point for the two-person zero-sum game (Neuman and Morgestern, 1944). In this game with zero-sum, one player's winning is other's loss and the choices given to the players are very limited. However, in the economics science there is not only the conflict of interest but also coordination problems. Generalization of the situation, which includes indefinite number of player cooperative[12] and non-cooperative[13] games and solutions of equilibrium conditions, required us to wait for the Nash Equilibrium (John F. Nash, John C. Harsanyi and Reinhard Selten won Nobel Prize in 1994 about this subject). In general, the game theory goes around the behavior model where rational sciences maximize the benefits of players. Especially Nash's analysis tacitly includes the hypothesis of rational expectations. In the hypothesis, which is also known as the Nash Equilibrium, in economic relationships between humans that don't know each other one's reaction to the other is considered when a decision is going to be made. In the end the optimal trust level is zero.

Mentioned approach sees the situation as a simple sum of humans who have homogenous qualities. As mentioned above, we discussed that in Bentham *"utility can be measured, pleasure and effort can be calculated. Society is the sum of individuals. Then the sum of utility can be measured"*. However, society is a more whole than the sum of individuals. Syndicates, ethnical groups, political groups, religious groups and classes are the main factors which builds the society with individuals. In all these factors individual is a social being. Rational individual model disregards this pluralist structure (Khun, 1970: 78). Gökmen Acar states on this lack by criticizing the mathematics that takes place in economics unnecessarily often:

> *"...As a scientific method mathematics' necessity is unquestionable. In addition to this, usage of mathematics in social sciences cannot be as comprehensive and determinative as in natural sciences like physics. The main reason of this is the fact that individual behaviors are not settled on an absolute causality, social relationships are very complex and unpredictable to be explained in a mathematical language and the relationships which can be defined in a mathematical language are mostly more comprehensive for individual's judgement capacity. The frequent and advanced usage of mathematics, which sometimes puts mathematicians in a hard position in terms of understanding it, requires the methods for examining social dynamics of economics to be seriously questioned"* (Acar, 2008: 19).

Thus, it seems more correct for economics, which has been built on rationality and consciousness, to change its main assumption of its research unit and to adopt as its foundation the

[11] Actually like neo-classics Veblen objects to the fact that economics is likened to natural sciences, but he suggests Darwinism instead of Newtonian mechanical physics.

[12] The situation which parties can make a mutual agreement and they can make decisions together and coordinately when they want.

[13] The situation which parties make their decisions independently, without an agreement and simultaneously.

irrational human, who produces different results for the same game composition (Güleç, 2004: 3-10). Because neuro-economists are looking with suspicion at the rational human assumption, which has been extensively examined, in game theory. Paul Zak from California Claremont University found in his researches between two players and in other researches repeated hundreds of times that the human brain, which had been evolved for adaptation to the communal life, is more inclined to work in cooperation. Zak, who states that humans are more inclined to the behaviors such as trust, cooperation and generosity during their economic activities, and Nobel Prize winner of 2002 Vernon Smith, who is one of the well-known names for this subject, works on biological analyses of these behaviors; especially Zak argues that confidential behaviors are affected by a hormone, oxytocin. Zak argues that humans react impulsively in a positive way when they feel the confidence against them; he also says that the human makes a social cooperation with a primitive impulse, on the contrary of Nash Equilibrium's human model, which has a prudential and impulsive characteristic and maximizes rational and personal interests (Oksay, 2003: 8-9).

The sense of trust, which has been changed in time, plays an important role during cyclical depressions, as well. Humans, who leave their suspicions because of believing impulsively in being successful by the time everything goes well, make decisions without thinking instead of acting rationally. Their actions cannot be predictable, while this sense of trust goes on. After the sense of trust is gone, the direction of their tendencies are also shifted, and it becomes obvious that the decisions have been previously made were not rational. In brief, individuals go outside and purchase when they feel confident; when the confidence is gone they fall back and sell (Akerlof ve Shiller, 2010: 3). Likewise, another person, Daniel Kahneman, who shared the Nobel Prize in 2002, proves that individual can react in a systematically unfitting way against the uncertainty and the risk (Kahneman and Tversky, 1979: 263) . According to Kahneman:

> *"In the risky or uncertain cases human behaviors may differ from rational human behaviors, and as a result there can be non-optimal results. In addition to this, assumed human behaviors are systematic and predictable. For example, when his note, which he bought from stock market, has increased from 50 dollars to 70 dollars, the Investor A may want to sell his/her note by thinking that its value has increased sufficiently. On the other hand, The Investor B, who paid 90 dollars for the same note, would be unwilling to sell the note, which gained value excessively at 70 dollars. In such a case it is hard to argue that the reactions of the two investors are rational.''* (Radikal, 2002).

We see that neuroeconomics unites neuroscience and behavioral economics at this level. It is neuroeconomics' main study that individual categorizes the risks and prizes during a decision making process and the way that these affect individual's brain chemistry and neural system.

Technological developments in the medicine science and examining neutrons in brain thoroughly made it possible to show behavior differences which can change from person to person. Besides, humans can show different reaction for the same situation and can act not only rational but also irrational or limitedly rational. In other words, as well as rationality, feelings have to be considered in terms of decisions, as well. Economics can only consider measurable feelings, and for that reason it can be insufficient. While neuroscience tries to measure directly thoughts, neuroeconomics tries to measure directly feelings in respect of choices and decisions by combining the neuroscience and the economics. It's emphasized here that feelings have to be considered as well as rationality, which comes to the fore in economics[14].

## CONCLUSION

In conclusion, we can say that the individual is not entirely rational nor hedonist. Individual acts differently according to time and space (Touraine, 2002: 387). Therefore the settled economics

[14] For other detailed studies about Neuroeconomics see: Hirshleifer, J. J. and Zak, P. J. "The Bioeconomics of Social Behavior: Introduction'', **Journal of Bioeconomics**, 6 (1), 1-2., 2004; Zak, P. J. "Neuroeconomics", **Philosophical Transactions of the Royal Society B (Biology)**, 359 (1451), 1737-1748. 2004; Park, J. W. and Zak, P. J. ''Neuroeconomics Studies'', **Analyze and Critic** 29, 47-59, 2007

should adopt holistic and organismic approaches, and it should abandon the atomism and the reductionism. There is a need for leaning to the model of the individual, who determines its behaviors generally with its regular practices but also can be creative and innovative, rather than to the rational individual. While doing so, not only individuals but also the institutions should be handled as units. Instead of the Newtonian mechanical balance in the methodology of economics, the understanding of the system, which evolves in historical time and is based on the principle of objectivity, should be accommodated (Hodgson, 1994: 68-69).

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