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Behavioural Economics as a New Trend in Modern Economics

Introduction

Behavioural economics is one of the fastest developing fields of modern economics and is often associated with empirical studies and experiments. Economics since Adam Smith has been based on the concept of rational choices made by economic individuals who seek to maximise their economic benefits. The assumption of consumer rationality implies a way of behaving whereby choices are made in accordance with a structured pool of preferences that are assumed to be entirely transitive and which occur under conditions of perfect information and zero costs of information. *Homo economicus* is a typical element of not only classical economic theories, but also those derived from the neoclassical trend. The evolution and progress in economic studies that have occurred in the past three decades provide a theoretical basis for changing this paradigm. This is because the classical axiom of rational man is being abandoned as the concept of an emotional man is gaining importance. According to K. Dopfer (2004: 177–178), the dynamic development of neurological, cognitive and behavioural sciences contributed to the emergence of *homo sapiens economicus* as an alternative to the classical *homo economicus*. It may, therefore, be said that today's economic man, on the one hand, can benefit from the latest scientific achievements, including the precision of sciences, artificial intelligence and mathematical optimisation of data, when making decisions and, on the other hand, he or she – as a human being – cannot make economic decision without an influence of his or her emotional nature and the so-called human factor, which is not so easily quantifiable. As rightly

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argued by R. Nelson and S. Winter (2002: 41), behavioural economics is an attempt at going beyond the narrow limits imposed by the *homo economicus* concept in order to bridge the gap separating economics and related social sciences. C. F. Camerer, G. Loewenstein and M. Rabin (2001) hold a similar view, thinking that it is behavioural economics that deals with the reduction of economic rationalities inherent in human evolutionary nature.

This article aims to present the achievements of behavioural economics. The issues presented in this study do not describe the whole range of behavioural economics, but only refer to selected elements. The first part focuses on the relationship between economics and psychology, as well as the origins, concept and characteristics of behavioural economics. Further, the most important objections to the behavioural approach to economics are discussed, together with behaviourism in other trends in economics.

Links between economics and psychology: a historical outline

The links between economics and psychology date back to the classical era and are visible in the works by Xenophon and Aristotle. In his book *The Theory of Moral Sentiments*, A. Smith described the psychological principles of individual behaviours. He claimed that emotions, approval, disapproval, honesty and loss aversion had an impact on an individual's decision-making. It may thus be argued that A. Smith made economists, who had previously focused primarily on the ownership and exchange of goods, pay attention to how self-interest affects human behaviour. Similarly, J. Bentham, in his book *An Introduction to the Principles of Morals and Legislation*, suggested measuring not only consumption utility, but also feelings of happiness experienced by a human being. W. S. Jevons and F. Y. Edgeworth, in turn, integrated the discoveries by German psychologists into economic reflections. J. M. Clark (1918: 4) repeatedly pointed out that economists should take into account human nature and build on the work of psychologists. He claimed that calculations only made it possible for a human being to assess possible losses resulting from a certain behaviour, but could not provide him or her with any information on whether his or her desire was strong enough to accept those losses.

Economics departed from psychology with the acceptance of an argument developed by V. Pareto, an Italian economist. Pareto maintained that natural sciences owed their success to the abandonment of attempts to explain the "essence of things" and to the sole focus on explaining the "secondary principles" instead. For these reasons, according to V. Pareto, economics should be separated from psychology because economic theories should be proved exclusively on the basis of well-established empirical facts about human choices, without any recourse to such concepts as utility, perceptions or pleasure. For instance, V. Pareto applied this standard by abandoning efforts to find an objective measure of utility. Instead, he associated subjective preferences with an observed act of choice. Then, in the 1930s and 1940s, psychology

was being further eliminated from economics by, inter alia, J. R. Hicks, R. Allen and P. A. Samuelson. These economists developed consumption theories exclusively on the basis of axioms concerning observable individual choices.

In recent years, after many decades of separation, economics and psychology have become closer again, showing clearly that delving into psychological knowledge allows for a much more accurate understanding and explanation of economic decisions. While economics proposes formal, normative models of behaviour that determine the rules for rational choices, psychology examines how people make actual financial decisions and compares its observations with economic theories. In some cases, such a comparison reveals that human behaviour on the market is not consistent with the assumptions of the normative model. Certainly, this results from different designs of theoretical models. Psychology is dominated by a research approach based on inductive reasoning, while the methodology of economics is based on deductive reasoning. This shows clearly the difference between economics and psychology. While normative theories determining the rules of rational behaviour prevail in economics, psychology uses descriptive theories that are developed on the basis of empirical tests and describe the reality as it stands.

In the 1930s, J. M. Keynes and L. Garai developed a theory of decision-making under the influence of random events and consumer habits. In 1957, H. A. Simon, in his concept of bounded rationality, explained the differences in decision-making in similar situations, using psychological tests. He was first to propose the "bounded rationality" term, which was aimed at making the concept of solving economic problems by a human being more realistic (Simon, 1955: 99). In this concept, H. A. Simon highlighted subjective and inter-subjective approaches to rationality, adding that its procedural nature resulted from how decision-making processes unfolded and that it became limited due to specific conditions for knowledge possession and to uncertainty involved (Simon, 1976: 147). It should be noted that the theory of bounded rationality indicates two important aspects. First, not all consumers are interested in achieving optimum results because they have limited cognitive abilities to consider all rational possibilities. Second, as consumers make their consumption -related decisions, they are driven by the necessity to satisfy their needs, and they also consider social circumstances. This means that, according to the concept of procedural rationality, the very way of behaving in line with some specific rules that are fundamental for evaluating how rationally one manages his or her income is really more important than the result of management (Zalega, 2012: 81).

H. A. Simon's concept of bounded rationality was then extended in the works by D. Kahneman and A. Tversky (1979), the proponents of the prospect theory who are recognised as the most prominent representatives of experimental economics and behavioural economics, by G. A. Akerlof (1984), the precursor of studies on information asymmetry, and by representatives of neoinstitutionalism D. C. North and O. E. Williamson (1985), the latter being the creator of the behavioural uncertainty hypothesis.

In the 1970s, D. Kahneman and A. Tversky, in their work entitled *Prospect theory: An analysis of decisions under risk*, introduced research on behavioural decision -making in economics. They did not explicitly reject the behavioural assumptions of rationality; however, as written by C. F. Camerer (2006: 189), they treated them as a starting point and studied the deviations from these assumptions, which they perceived as departures from rationality understood as a standard behaviour.

The use of psychology in economics was also advocated by J. Lesourne, G. Katona and H. Leibenstein. J. Lesourne, a French economist and psychologist, included in an analysis of human behaviour various behavioural aspects, such as the needs and desires of an individual, the actual and perceived social status and different roles assumed by an individual, as well as non-economic constraints on behaviours, such as health, ability to search for and process information or the type of social roles assumed (Lesourne, 1977: 138–139). G. Katona, an American psychologist and Hungarian-born economist, stressed the need for empirical observations in order to understand human expectations, habits and stereotypes. He argued that there were laws the knowledge of which might be useful to economists as such laws could extend their way of thinking. For G. Katona, conscious choice is not the most typical behaviour of individuals because what prevails is impulsive behaviour, occurring at the spur of the moment, which certainly cannot be considered entirely rational. Only in very few cases did G. Katona consider consumer behaviour to be rational, e.g. in the case of purchase of real estate, some expensive durable goods, items purchased for the first time, small and cheap items being, however, of particular importance to the buyer (such as gifts), restorable goods the use of which was associated with a negative experience in the past (Katona, 1975: 201–218). Thus, G. Katona believed that rational behaviour was mainly followed by young and better educated consumers with at least average income and by those who found shopping a pleasant activity, rather than a chore (Katona, Mueller, 1954: 80). In turn, H. Leibenstein, in his concept of rationality, also known as the x-efficiency theory, argued that consumers were equipped with specific sets of personality traits determining the degree to which they were aware of the constraints on their calculation involved in the pursuit and achievement of particular goals. On the other hand, however, there are various levels of internal or external pressure that imposes either a higher or lower level of "calculatedness" behind the actions taken. Under the selective rationality concept, two degrees of calculation may be distinguished: tenacious (tight) calculation denoting a very prudent, tested and adjusted calculation and approximate (loose) calculation that may be treated as varying in a certain range and to a certain degree, which makes the calculation imprecise (Leibenstein, 1979: 479). H. Leibenstein believes that people are rational only in certain areas of their lives. In fact, it is impossible to generate 100% efficiency because a human being is not completely rational. Consequently, there is a certain degree of inefficiency which undermines the very concept of *homo economicus*.

The notion of the duality of the structure of rational behaviours, as observed by H. Leibenstein, was subsequently developed by representatives of radical/critical current in economics including, in particular, A. Etzioni and R. Lutz. The authors derive the way a consumer's preferences are shaped from the so-called dual self concept, which assumes that first- and second-rank preferences are shaped in effect. A. Etzioni and R. Lutz argue that classical economic concepts only focus on the structure of first-rank preferences, while totally ignoring second-rank ones which include self-consciousness of individuals and their ability to reflect – in many cases morally – over the structure of the choices made. This, in effect, leads to the concept of the so-called restrained rationality based on a dual system of judgement, meta-rankings and meta-functions of utility (Etzioni, 1988: 47). This type of behaviour is often referred to as reasonable behaviour in the literature on this topic.

Behaviourism: the foundations of behavioural economics

The roots of behavioural economics go back to the psychological current known as behaviourism, which focuses on human behaviour and environmental drivers determining it. This trend emerged and developed in the 1930s, with J. B. Watson and B. F. Skinner considered to be its fathers.

Behaviourism is defined as a scientific trend assuming that the overall behaviour of organisms can be explained by establishing relationships between stimuli and responses or relationships between responses and rewards (Strelau, 2003: 42). But it is not a uniform trend since it comprises classical (J. B. Watson), radical (B. F. Skinner), purposive (E. Tolman) and methodological behaviourism. Behaviourism is regarded by economists as one of the sources of institutionalism, which is, in turn, seen as an attempt to adapt sociology and psychology for the purposes of economics. The origins of behaviourism date back to the 1913 meeting of the New York Branch of the American Psychological Association, where J. B. Watson gave a lecture referred to as the behavioural manifesto on psychology. It excluded completely the phenomena occurring in human consciousness, and initiated a new trend in psychology. According to J. B. Watson, the concept of consciousness should be abandoned. Instead, observable behaviours should be studied and relationships between stimuli and responses need to be identified. As first spelt out psychology as viewed by the behaviourist J. B. Watson was to be an experimental field of natural sciences with the objective to predict and control behaviour without any reference to states of consciousness, largely inspired by studies of animal behaviour (Watson, 1990: 441). From this point of view, behaviourism should explain, predict and control behaviour. This approach is known as methodological behaviourism (*Encyclopedia of Neuroscience*, 2008: 1210). J. B. Watson assumed that it was the very behaviour, rather than consciousness, that should be the object of psychological study since consciousness could not be analysed experimentally. However, behaviourism in this form was criticised strongly by

the scientific community. In 1964, B. F. Skinner expanded the field of behavioural research, introducing the concept of the so-called radical behaviourism, and assumed that behaviours were voluntary and dependent on philosophy. In addition, he was first to point out the use of behaviourism in economics, arguing that economics had enclosed itself in the wealth of its data. Similarly to psychology, behaviourism as applied to social sciences means more than just advocating objective measurement. The use of behaviourism as a philosophy of science to examine political and social behaviour, analyse human behaviour in groups and study speaking and listening people does not imply "psychologisation". It simply means that best research practice is applied in important areas of human behaviour (Skinner, 2002: 120–121). On the other hand, E. Tolman argued that mental processes taking place in human mind were conditioned, inter alia, by emotions, attention, attitudes, needs and motives. According to him, a man acquires two key components in course of the learning process, namely: cognitive maps constituting endogenous representations of a learning situation as a whole, and expectations as to the consequences of an action which are also an effect of a behaviour being acquired. This is as a result of operant conditioning, whereby behaviours are reinforced or inhibited through a system of rewards or punishments. Rewarded responses bring satisfaction and become established, while punished responses are suppressed and weakened. This mechanism was confirmed by E. Thorndike, an American psychologist.

The concept and characteristics of behavioural economics

Many economists regard A. Smith as a pioneer of behavioural economics. In his 1759 book entitled *The Theory of Moral Sentiments*, he included a number of theses going beyond the *homo economicus* concept. He claimed that a human being, despite his or her innate selfishness, was sometimes altruistic too, and such altruism, combined with honesty, allowed for entering into repetitive transactions based on mutual trust and for achieving benefits. Moreover, he pointed out that emotions played an important role in economic behaviour, the key ones being gratitude and resentment. It may also be argued that A. Smith created the foundations for the prospect theory developed much later. He claimed that "pain (...) is a more pungent sensation than pleasure" (Smith, 1989: 179). He also discussed the issues of making choices over time, claiming that the pleasure which we are to enjoy in ten years interests us so little in comparison with that which we may enjoy today, which is consistent with the conclusions of the discounted utility model.

The term "behavioural economics" was first used in 1958. The emergence of the new behavioural economics dates back to 1979 *Prospect Theory: An Analysis of Decisions Under Risk* by D. Kahneman and A. Tversky, where the authors focused on the mechanisms of decision making under risk. Based on the results of D. Kahneman and A. Tversky, less than a year later, R. H. Thaler published *Toward a Positive*

Theory of Consumer Choice, which is generally considered essential for explaining the assumptions and methods of behavioural economics. As rightly argued by M. Brzeziński, M. Gorynia and Z. Hockuba (2008: 208), behavioural economics is undoubtedly a trend that fits into the so-called reverse imperialism process, which has continued since the 1980s. In this framework, economics learns from, builds on, cooperates with and sometimes gives in to other disciplines.

Within behavioural economics, there are two main trends representing almost mutually independent disciplines. The first of them developed on the basis of the study of behaviour, combining psychological research methodologies to examine behaviour with the wealth of theoretical economic knowledge. The second approach to research in behavioural economics focuses on the achievements of researchers such as D. Kahneman, A. Tversky and R. Thaler. Within this trend, research focuses on an analysis of deviations from rational behaviour. This internal division of behavioural economics has its main source in research traditions and developments in modern psychology. Of course, the boundaries between the two approaches are blurred to some extent and it is possible, though rarely, to find cross-references that are usually not devoid of criticism. As argued by J. F. Tomer (2007: 463–464), behavioural economics is not a homogeneous school, but a collection of different theories which include: the Michigan School (George Katona), psychological economics (C. F. Camerer, R. Thaler, E. Fehr G. Loewenstein, M. Rabin, P. Slovic, D. Ariely), behavioural macroeconomics (G. A. Akerlof, R. Kranton), evolutionary economics (R. R. Nilson, S. G. Winter), behavioural finance (R. Schiller, H. Shefrin, R. Thaler, A. Shleifer, W. F. M. de Bondt), experimental economics (V. Smith) and complexity economics (W. B. Athur, E. D. Beinhocker).

The core of behavioural economics is questioning the rationality of individuals and challenging the assumption about the knowledge of market mechanisms and market data required for decisions. Behavioural economists concentrate on identifying the actual mechanisms underlying market decisions made by individuals. This identification is made in different ways, from simple sociological observations, statistical data analysis, through planned psychological experiments.

Behavioural economics is a branch of knowledge that links the attainments of economics and psychology. However, behavioural economics should not be confused with economic psychology. Behavioural economics essentially involves building on the achievements of psychology, sociology and neurobiology to explain behaviours and phenomena, where neoclassical economics fails. C. F. Camerer and G. Loewenstein (2004: 3) argue that behavioural economics is essentially an attempt to make economic theories more useful by enhancing their capacity to explain and predict behaviours of individuals with more reliable realistic assumptions that take into account the social factor.

Psychology and economics use different empirical research methods. The experiment is a typical psychological method, whereas economics uses econometric

modelling. Today, however, economists are increasingly using experiments in their research. Behavioural economics focuses on experimental results that indicate irregularities and deviations from the neoclassical theory, observed on the basis of individuals' behaviour. Moreover, by concentrating on biases and errors in decision-making, it shifts behaviour analyses towards psychological background all the more (Pesendorfer, 2006: 712–713). According to N. Wilkinson (2008: 29–30), this does not mean that the current achievements of economics are rejected. On the contrary, a wide range of methods and approaches is used, based on two pillars: (1) classical economics and psychology and (2) numerous borrowings from other fields. Observations and experiments, often carried out with the use of computer simulations and cognitive abilities of the mind, lead to consilience of the behavioural economics concept.

Experiments are carried out through experimental research to obtain information concerning facts, objects, phenomena or processes. Economics uses two types of experiments: laboratory and field experiments. The first ones involve economic decision making by subjects under controlled conditions. At the end of a session participants are most often paid money in the amounts that are higher if better decisions were made. In turn, field experiments bridge the gap between laboratory tests and passive observations of the socio-economic reality. Examples of such tests include examining electricity supply pricing models in the 1990s in the UK.

A methodological discussion of the experiment in economics was presented by V. I. Smith in his article *Economics in the Laboratory*. According to him, each laboratory experiment is defined by three elements (Smith, 1994: 113–131):

1. Environment, consisting of initial funds and specific costs motivating an experiment subject to make an exchange. The environment is controlled by cash prizes in order to generate a specific cost/value set-up.
2. Institutions that define the language for messages received from an artificial laboratory situation that simulates the market. This is a set of rules that define how to prepare and accept an offer, conclude contracts, etc.
3. Observed behaviour, which is a function of the variables defined by the environment and institutions.

V. I. Smith distinguished seven reasons why economists conduct or should conduct experiments. In his view, experiments are useful to (Smith, 1994: 79–100):

1) test theories and choose between competing theories,
2) define reasons for a theory's failure,
3) identify empirical patterns that may initiate a new theory,
4) test different environments while maintaining the same institutions,
5) test different institutions within the same environment,
6) develop best proposals for a new policy,
7) test the proposed institutional arrangements.

The presented detailed division of experiment functions demonstrates strong and complex relationships between experiments and the economic theory. On the one

hand, new hypotheses provide a stimulus for new experiments, while, on the other hand, the results of experiments suggest how theories should develop. It should be borne in mind that the experiment is not, however, a reasonable way to verify the accuracy of a theoretical model. The experimental method can clarify issues related to the resistance of theoretical predictions to deviations from given theoretical assumptions. For this reason, great importance is attached to the accuracy of an experiment that has been conducted. The key features of a good experiment include: control over variables, manipulation check, control over preferences based on the induced value theory, random assignment to experimental groups, repeatability, anonymity, simplicity and transparency.

Economic experiments may not be clearly regarded as identical to psychological experiments. According to M. Krawczyk, economic experiments are different from psychological experiments in terms of (Krawczyk, 2012: 28):

- focus on the content of a decision made, rather than the decision-making process itself,
- concentration on the characteristics of institutions, rather than those of individuals,
- use of financial incentives dependent on the "quality" of decisions taken by subjects,
- avoiding to confuse subjects,
- consistent lack of the so-called debriefing, or an ex-post procedure whereby subjects are explained what the experiment actually involved and when, where and why attempts were made to deceive them,
- greater disregard for the context, the desire to establish general truths.

Summing up the analysis so far, behavioural economics may be said to provide a response to all gaps that have emerged in mainstream economic theories. It encompasses a set of different assumptions which are linked by three common elements (Brzezicka, Wiśniewski, 2012: 27):

1) questioning the assumption about rationality of human actions (moving away from the *homo economicus* model or attributing previously unknown decision -making capabilities to the economic man);
2) recourse to psychology in order to explain the complexity of human behaviour, especially in the face of crises, uncertainty, lack of clarity and difficulty;
3) contesting mainstream economic theories by examining anomalies and shifting away from simplified economic models.

Key theories of behavioural economics

The main area of interest in behavioural economics is the analysis of motives and principles of human action in complex and uncertain situations which often prevail in today's market. One of the most important concepts that have been developed within

behavioural economics is the prospect theory, which has replaced the standard utility function of wealth by another function whereby gains and losses are attributed their perceived value. In the prospect theory, D. Kahneman and A. Tversky (1979) argue that people's decisions are influenced by emotions, attitudes, perceptual errors and a simulation context. In their view, the choices made by individuals are driven by heuristics that work well under normal conditions, but may lead to errors. According to them, people facing a specific decision search their memory for facts and situations that they might compare with the present moment. In their discussion, the researchers conclude that human attitude towards gains and losses may depend on the perspective (context) from which they are considered (prospect theory known as the reflection effect). As regards gains, the reflection effect refers to individuals preferring smaller but more certain gains to gains that are bigger and uncertain. As for losses, consumers tend to prefer bigger and uncertain losses rather than losses that are smaller but certain. According to D. Kahneman and A. Tversky, this dependence of choices on the context (manifesting itself as the reflection effect) proves the irrationality of individuals' decisions (Zaleśkiewicz, 2008: 39). Currently, one of the most active representatives of behavioural economics is D. Ariely, who believes it to be based on a rejection of classical views about the rationality of consumer choices. According to D. Ariely (2010: 30–31), despite their best efforts, people are often incapable of making rational decisions due to cognitive biases.

As already mentioned, behavioural economics reveals certain systematic investment-related errors made by individuals in economic decision making. One of such cognitive biases is the so-called framing effect, whereby the same information transmitted in different formats may change human decisions. The main reason for this is that an individual tends to:

- make inconsistent choices, depending on whether he or she wants to focus on profits or losses;
- draw different conclusions from the same data, depending on how they are presented.

Therefore, a decision-related problem can be seen from the perspective of profit or loss. Another example of a cognitive bias of investors is the so-called anchoring effect, which means that the final price may vary depending on an initial value given as a reference. In their research, E. Stephan and G. Kiell (2000: 416–420) demonstrated that investors resort to various heuristics when making decisions on the stock exchange. These authors studied, among others, how the anchoring effect influences stock exchange investors. To this end, investors were shown DAX index charts of the last 21 months and, subsequently, half of them were asked if the index would exceed 6500 points in 12 months. In turn, the other half were asked whether the index would fall below 4500 points within a year. At the end, each studied group was requested to provide as accurate values of the DAX index within a year as possible. It turned out that the average index value predicted by investors in the first and second groups

was 5930 and 5765 points, respectively. In addition, E. Stephan (1999: 101–134) also examined how the anchoring effect influences the prediction as regards exchange rates and gold prices. The experiment participants were divided into two groups: A and B. The first one was given a high value, while the value for group B was low. Then, the subjects were asked to provide a two-stage prediction. In the first part of the experiment they had to say whether the future exchange rate (or gold price) would be higher than the value fixed by the experimenter, and in the second part they were required to make the most accurate prediction. The result of the experiment demonstrated without a doubt that the expected exchange rate or gold price had been affected by the value given by the experimenter at the first stage. In conclusion, the presented experiments may be said to clearly show that inference errors made by individuals are a result of incorrect perceptions of phenomena as well as their correlations and cause-effect relationships. In making decisions, an individual very often refers a problem to the whole economy, which is not always appropriate.

Another concept developed on the basis of behavioural economics is the behavioural life-cycle hypothesis by H. Shefrin and R. Thaler, who reject the assumption about full rationality of human behaviour and focus on behavioural aspects of decision-making. This made it possible to eliminate a number of doubts, mainly through making an attempt to identify psychological mechanisms involved in decision-making. The behavioural life-cycle hypothesis is based on three fundamental pillars which are the starting point to explain human behaviour in making decisions on a different classification of income and ways to dispose of it. The pillars include self-control, mental accounting and framing.

The basis of the economic theory of self-control is the division of the psyche into two fundamental parts: a selfish and extremely short-sighted hedonist (doer) and an individual who calculates and plans in terms of a whole-life strategy (planner). This idea, which builds directly on the agency theory, is treated exclusively as an attempt to describe the issue of unstable preferences. It should be highlighted that H. R. Shafrin and R. H. Thaler (1988) assumed in their hypothesis that every human being acts as if two different individuals were fighting and coexisting in him or her. Thus, the hedonist has direct control over the level of consumption at a particular moment and his or her utility function is independent of the level of consumption in other periods. In turn, the utility achieved by the planner is closely correlated with the utility of each of the hedonists and remains within budget limitations. As a protection against the egocentric attitudes of hedonists, the planner must develop certain strategies to influence them. Otherwise, the short-sightedness of hedonistic activities could disrupt the well-being of other selves. Thus, the planner has two options for action: resort to willpower, that is "force" the hedonist to behave appropriately, or refer to certain principles limiting the choice to be made by the short-sighted self.

In their hypothesis, H. M. Shefrin and R. H. Thaler (1988: 611) distinguished three basic groups (accounts) known as mental accounts to which households allocate

their assets. These are current spendable income, current assets and future income. Current spendable income is understood as disposable income net of retirement savings rate. Current assets mean accumulated savings which are not part of the retirement funds. Future income includes income that will be achieved in the future and the funds accumulated for retirement. The behavioural life-cycle hypothesis assumes that the marginal propensity to consume for each of these accounts is different: current spendable income is most at risk of depletion while such risk for future income is the lowest. The system of mental accounts introduced by H. M. Shefrin and R. H. Thaler can, therefore, be said to have shown that the marginal propensity to consume for the various groups depends on the type of account and is the highest (close to one) for current spendable income, the lowest (close to zero) for future income and intermediate for current assets. Furthermore, according to the logic of mental accounts system, access to each of these accounts is different from a psychological point of view and any spending on current assets or future income leads to discomfort expressed as negative utility (i.e. consumer dissatisfaction). In other words, spending money from these accounts is more painful than in the case of current spendable income. As a consequence, the utility resulting from initial spending of funds in these accounts is lower than the utility resulting from expenditure charged against the current spendable income account.

The system of mental accounts plays an important role when the source of such funds as a bonus and unexpected cash injection are taken into account (Thaler 1992, 1999). It should be pointed out here that the essential difference between a bonus and an unexpected cash injection primarily lies with the element of predictability. The bonus system may lead to an increase in the savings rate in two ways. A bonus is not considered by the consumer as ordinary income and is allocated to the current assets account. It should, however, be borne in mind that the marginal propensity to consume is lower for this account. Nevertheless, a transfer of a part of the monthly salary to the bonus reduces current spendable income, which in turn translates to a reduction in current consumption. This is primarily determined by the way consumers themselves perceive these funds. As for unexpected cash injections, the marginal propensity to consume is higher than for ordinary income and also higher than the marginal propensity to consume for a bonus, which can be predicted. According to H. M. Shefrin and R. H. Thaler (1988: 614–615), the marginal propensity to consume falls as the value of the income decrease goes up, which is logically connected with a change in its perception since it gradually ceases to be cash and becomes assets. This means a transfer from the current spendable income account to current assets.

The case against behavioural economics

Behavioural economics essentially uses the achievements of psychology and neurobiology to explain human behaviour. In presenting a complex picture of reality,

behavioural economics is sometimes identified with many other schools, approaches and research programmes, for instance with heterodox economics as opposed to orthodox economics. In addition, as R. H. Thaler stated (1996: 227), behavioural economics assumes that people are in fact less wise, nicer and weaker than *homo economicus*. The main critics of the behavioural paradigm argue that behavioural experiments are aimed primarily at identifying patterns in individuals' or small experimental groups' responses to stimuli. Moreover, opponents to behavioural economics claim that economics is not psychology. Its interest in individual behaviour should result in an explanation of market behaviour of entire communities. And from this point of view, behaviourists cannot boast any greater success. According to W. Mayer (1982: 86–87), psychological theories of human behaviour are often criticised for ignoring the importance of costs and losses resulting from behaviour and for overly focusing on the benefits and attractiveness of goals.

Another objection to behavioural economics concerns the selective treatment of mainstream economic assumptions which are being replaced by new ones that are more realistic from a psychological point of view. The psychological realism involves experiments engaging their subjects and encouraging them to make informed decisions. The basic tool to ensure psychological realism in behavioural economics is the use of financial incentives.

The representatives of orthodox economics display a negative attitude towards experiment-based research techniques, arguing that the behaviour thus observed is based on scant empirical data and does not have any practical reference to the actual market situation. Furthermore, they note that subjects may deliberately follow the hypothesis provided by the researcher. Another argument raised by critics concerns a lack of understanding of an experiment by its participants – that is a lack of understanding of the consequences of their decisions. For these reasons, critics of behavioural economics challenge empirical data analyses *a priori*. It should be stressed, however, that the information obtained through experiment-based and survey-based research techniques may not be ignored. One can certainly disagree with the results of specific research, its methodology and interpretation, but the rejection of or disregard for the very foundations of the new field of science seems too far-fetched.

Related areas of behavioural economics

Behavioural economics is a theory consisting of various hypotheses, tools and techniques. It encompasses a whole range of trends that are not closely correlated. In consequence, behavioural economics covers different trends, such as evolutionary economics, experimental economics, behavioural macroeconomics, neuroeconomics and behavioural finance.

Evolutionary economics, initiated by R. R. Nelson and S. G. Winter, interprets the economic process in terms of Ch. Darwin's "natural selection". Evolutionary

economics analyses and explains inner transformations of knowledge about decision-making, production methods, organisational forms of economic life, consumer behaviour and psychology of economic men that is applied in economic systems. Evolutionary economics assumes, among others, that (Dosi, 1991: 5–6): information possessed by people and organisations is incomplete, which precludes their optimisation on a global scale; decision making by people and organisations is associated with rules, norms and institutions; people and organisations can imitate each other to some extent; the way people and organisations interact is usually developed when imbalances occur (resulting in a success or failure of a combination of factors or goods, as well as of the economic life participants themselves); and the economic evolution process is non-deterministic, non-teleological and irreversible. Evolutionary economics looks for its identity by concentrating its economic evolution research fields on the present and future organisational and functional dynamics of the economy. Economic events are explained in evolutionary economics through (Glapiński, 2013: 5): a reference to prior events and the establishment of causal relationships that cover the processes of maintenance and transformation of behaviours and institutions, the distinctiveness creation mechanism and the selection mechanism for such distinctiveness including the mechanism for segregation and exclusion.

Experimental economics, developed by V. L. Smith, uses laboratory experiments to test financial decisions taken in a social context. People taking part in a test usually receive money from the experimenter and then share it with other anonymous players or pay it into a common pool (Zaleśkiewicz, 2011: 36). It may, therefore, be said that experimental economics is based on experiments the results of which can be used for testing and better understanding of economic theories, thus making it possible to understand better the ways of making decisions, individual behaviours or conditions for cooperation between participants, and to seek explanations thereof beyond economics itself. In turn, neuroeconomics, whose father is C. F. Camerer (2007: 28–29), is a science with the objective to consolidate economic theories within thoroughly described neural mechanisms that are expressed mathematically and that allow for accurate predictions of individuals' behaviours. This science is derived from three scientific areas: neurology, psychology and economics. Its origins may be dated back to 1990, when research on brain functioning became technically feasible within cognitive neuroscience which studies the functioning of neurological systems involved in undertaking specific behaviours. Neuroeconomics uses the tools employed in neurobiology to study brain activity. These tools include: eye-tracking, i.e. tracking eye activity; fMRI (functional Magnetic Resonance Imaging) that allows for accurate measurements of oxygenated blood flow; PET (Positron Emission Tomography) that allows for scanning nerve cells; and TMS (Transcranial Magnetic Stimulation) that uses magnetic field to activate or deactivate some brain areas in order to explain the functions of the targeted areas. As aptly stated by T. Zaleśkiewicz (2011: 38), a clear advantage of the neuroeconomic approach is that it can explain many theoretical

problems that researchers using classical diagnostic methods were not able to solve for many years. It should be emphasised, however, that neuroeconomics is strongly criticised as relationships between brain activity and specific reactions of the body observed during research make it possible to draw conclusions on correlations, rather than on cause-and-effect relationships. This is because the links between different parts of the brain are too numerous.

Behavioural macroeconomics, developed by G. A. Akerlof (2002), puts the main emphasis on clarifying the differences between the real economy and the general equilibrium model, in conjunction with the issue of information asymmetry. In other words, behavioural macroeconomics focuses on the study of macroeconomic issues by employing psychological theories and methods. It allows for understanding why the society and economy as a whole behave in a certain way. The views of behavioural macroeconomics were summarised most comprehensively by G. A. Akerlof and R. J. Shiller in *Animal Spirits. How Human Psychology Drives the Economy, and Why It Matters for Global Capitalism* published in 2009. These animal instincts or instincts derived from the mind (*animus*), which may be described as elements of anxiety and inconsistencies affecting the economy, and having their source in the irrationality of many human activities, are revealed in a number of areas, such as trust, honesty, susceptibility to corruption, money illusion and succumbing to the influence of legends. Within behavioural macroeconomics, behavioural mesoeconomics can be distinguished. It involves market segmentation in order to identify groups characterised by similar behaviour. Behavioural economics uses qualitative determinants such as: innovativeness, quality of life, welfare, consumer optimism, the feeling of happiness, which make it possible to understand the causes of social behaviour better. In relation to general economic phenomena, such as unemployment, paying taxes, the level of consumption and savings in the society, behavioural economics can identify the impact of non-economic factors that determine the scale and shape thereof. Furthermore, G. A. Akerlof together with R. E. Kranton, in 2010 *Identity Economics*, try to prove that "identity economics" represents a new approach explaining consumer behaviour through the incorporation of identities, norms and social categories into economics (Akerlof, Kranton, 2010: 20). In their work, the researchers build concepts to explain a relationship between preferences and group identities and, consequently, suggest that the economic men's choices depend on the social context in which they exist, that is on standards of behaviour established there.

Behavioural finance is a part of behavioural economics which tries to explain economic decisions and their impact on market prices, income and allocation of resources through the study of individual and social cognitive and emotional tendencies. Its purpose is to identify psychological mechanisms that describe the behaviour of financial market participants. M. Weber (1998: 167–168) defines behavioural finance as a strict combination of individual behaviour and market phenomena which uses knowledge accumulated in both psychology and the theory of finance. According

to H. Shefrin (2000), research in behavioural economics is aimed at testing the assumptions about market efficiency and the rationality of investor decisions. Behavioural finance created an investor who suggests that human "imperfections" and the so-called anomalies, rather than behavioural rationality as the key assumption of the efficient market theory and traditional finance, be taken into account in investor behaviour. The characteristics of a model investor described by behaviourists include, among others (Matuszczak, 2005: 16): susceptibility to the influence of the wider community a different perception of equivalent profits and losses, an emotional attitude to their investments, excessive self-confidence, excessive optimism or excessive pessimism depending on the prevailing market sentiment, aversion to losses that are treated as a personal failure and the belief that the majority is right.

Conclusion

Behavioural economics is a relatively new field that developed nearly four decades ago. It combines the attainments of economics and psychology and has its roots in behavioural psychology which focuses on behaviour and its controlling environmental stimuli. It may be said that behavioural economics is an economic trend studying the economic reality and explaining economic events and processes in the light of confirmed assumptions about human nature. Because of its multidisciplinary nature, it is difficult to provide a common definition acceptable to everyone involved in behavioural economic studies. A further complication is that there are two main behavioural economic trends representing almost mutually independent disciplines. The first of them developed on the basis of management sciences, and the second approach to research in behavioural economics focuses on the achievements of researchers such as D. Kahneman, A. Tversky and R. H. Thaler. With recognition of psychology in economic sciences, the classical axiom of a rational man is being abandoned as the concept of an emotional man is gaining importance.

The key objective of behavioural economics is to identify the causes of economic choices made. In addition, it studies decision-making as regards financial management or investment and explains the reasons for consumer preferences in a more detailed manner than mainstream economics. The diversity of research methods applied in managerial economics makes it possible to benefit from theories and methodologies developed in other areas. As argued by E. Anger and G. Loewenstein (2006: 47–48), effective integration of methods allows for data to be obtained from different sources, simultaneously achieving a multidisciplinary, holistic point of view, providing comprehensive knowledge that cannot be obtained through too narrow, limited problem analysis, and applying an individual approach to adapt the methods and concepts to specific realities.

The criticism of behavioural economics addresses the issues related not only to the fundamentals of this trend, but also to the analysis of empirical data. Opponents

to the behavioural paradigm draw attention to the weak realism of research conducted or a lack of understanding of the experiment on the part of its subjects.

Behavioural economics is a collection of different theories, such as: evolutionary economics, experimental economics, behavioural macroeconomics, neuroeconomics and behavioural finance. Multidisciplinary nature of behavioural economics allows for many theoretical problems to be explained, which classical economists could not solve by employing classical diagnostic methods.

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Streszczenie

Ekonomia behawioralna jako nowy nurt współczesnej ekonomii

Ekonomia behawioralna jest szybko rozwijającym się nurtem współczesnej ekonomii, powiązanym z badaniami empirycznymi i eksperymentalnymi. Wyróżniającą się cechą ekonomii behawioralnej jest jej interdyscyplinarność. Obserwacja podmiotów wymaga badań psychologicznych

i socjologicznych, a budowanie teorii behawioralnych integracji wiedzy płynącej z nauk społecznych. Wymaga to od ekonomistów nie tylko poszerzenia obszaru zainteresowań, ale także zerwania z założeniem racjonalności podmiotów. Ekonomia behawioralna oznacza więc wyjście poza wąskie granice narzucone przez koncepcję homo oeconomicus. Celem artykułu jest przybliżenie dokonań ekonomii behawioralnej. Przedstawione w opracowaniu zagadnienia nie opisują całego jej spektrum, a jedynie wybrane elementy. W pierwszej części tekstu skupiono się na związkach ekonomii z psychologią oraz genezie, pojęciu i cechach ekonomii behawioralnej. W dalszej części artykułu omówiono najważniejsze zarzuty wobec podejścia behawioralnego w ekonomii, a także przedstawiono behawioryzm w innych nurtach ekonomii. Ważniejsze wnioski kończą niniejsze opracowanie.

Słowa kluczowe: ekonomia behawioralna, ekonomia eksperymentalna, psychologia decyzji, wybór, homo oeconomicus, psychologia ekonomiczna, neuroekonomia, makroekonomia behawioralna, finanse behawioralne

Keywords: behavioural economics, psychology of decisions, choice, homo economicus, evolutionary economics, experimental economics, neuroeconomics, behavioural macroeconomics, behavioural finance