

# CRITICISM OF BEHAVIOURAL ECONOMICS: ATTACKS TOWARDS IDEOLOGY, EVIDENCE AND PRACTICAL APPLICATION

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## Abstract

*During the last few decades the field of behavioural economics has been forming incorporating insights from psychology in economics. Behavioural economics has been growing and gaining increasing importance both as an academic discipline and a practically applicable approach suggesting the use of nudging technique. However, rise of the field is accompanied with criticism towards the field. This study explores the existing criticism of behavioural economics: summarizes, structures, offers brief analysis of the criticism and some possible responses. Ideological criticism, evidence suspicious criticism and criticism concerning practical application of behavioural economics in public policy by nudging has been covered. An overview of the criticism has been presented.*

*According to the analysis substantial part of the criticism towards behavioural economics does not endanger general validity and significance of the field. This refers to criticism addressed towards field-specific characteristics, which are logical at the stage of the development, criticism towards “bad behavioural economics” or simply weak criticism. Though, several issues raised against behavioural economics require careful further investigation and improvements. Most notably, further studies regarding different aspects of perception of what is rational behaviour, evidence suspicious approach regarding possibly overstated research results, and development of a clear framework for usage of nudges in public policy would be of value.*


*The present study is contextual, based on literature review, and attempts to add value by offering an analytical overview about the criticism of behavioural economics and enlightening possible areas for further improvement.*

**Keywords:** Behavioural economics, experiments, nudging, libertarian paternalism, criticism.

## Introduction

Since the end of the 20th century there has been a comeback of interconnectedness of economics with other social sciences. More specifically, there has been an attempt to merge economics with psychology back again. An interdisciplinary field, behavioural economics, has been developing as a reaction of incompleteness of traditional economic models (Rehman, 2016; Sent, 2004). In contrast with traditional economics, behavioural economics does not make any strong assumptions about human rationality. Just the opposite, behavioural economics is descriptive and experimental by approach and enlightens systematic deviations from rationality in decision-making and systematic deviations from efficiency in markets. Behavioural economics covers topics like heuristics and biases as well as other cognitive, emotional and social factors in decision-making. It analyses values, preferences, choices, beliefs, expectations and proposes alternative decision-making theories, like the prospect theory (Wilkinson & Klaes, 2018). Regarding the public policy formation, behavioural economics offers the so-called libertarian paternalism or nudging, “choice architecture that alters people's behaviour in a predictable way without forbidding any options or significantly changing their economic incentives” (Thaler & Sunstein, 2008). Fundamental differences of the approach of the traditional mainstream economics and behavioural economics are presented in Figure 1. In general, the field of behavioural economics has tried to bring more realism to the economic theory.

This effort has been acknowledged. The field blending psychology with economics has been rising academically. Starting from the 1990s, the number of scientific papers containing or referring to behavioural economics has increased (Geiger, 2017) and now there are high quality academic journals containing articles in the field of behavioural economics (Azar, 2007; Samson, 2018a). Universities, including the world's best ones according to rankings, are providing education and/or carrying out research in behavioural economics (Samson, 2018b), and behavioural scientists have lately been awarded Nobel prizes in economics, most notable of which were to Daniel Kahneman in 2002 and Richard Thaler in 2017 (Nobelprize.org). Behavioural economics has also become influential among practitioners. It has been applied by introducing nudging technique in public policy. Indirect suggestions as a tool to influence behaviour and decision making have gained popularity: all over the world policy makers have been forming “nudge units” applying behavioural insights to the public policy, UK and US being pioneers, (OECD.org; OECD, 2017) and nudging techniques have been used by variety of organisations (more detailed evidence about the rise, acknowledgements and application of behavioural economics available at: Pūce, 2018b).

<b>Traditional economics</b> <i>(based on classical and neoclassical thought)</i>		<b>Behavioural economics</b> <i>(interdisciplinary, based on psychology)</i>
People – rational  -Rational agent theory, <i>homo economicus</i> - Expected utility theory		People - not always rational, there are systematic deviations from rationality -Bounded rationality, heuristics and biases -Prospect theory
Markets – efficient  -Efficient market hypothesis -Capital asset pricing model -No free lunch		Markets - not always efficient, there are systematic deviations from efficiency -Empirical evidence on overreaction, underreaction, market bubbles, market crashes -Crowd psychology, collective behaviour
World - calculable		World - complex
Approach - mostly normative, methodology-wise - often mathematical		Approach - mostly descriptive, methodology-wise - mostly experimental
Policy tool – nonspecific, typically legislative enforcement		Policy tool – nudging, libertarian paternalism, choice architecture

**Figure 1. Traditional economics versus behavioural economics**  
(self-made summary, revised version; first presented in Püce, 2018a)

Currently the insights of behavioural economics have been applied in the fields such as savings and retirement, consumer protection, health behaviour, environmental protection, development and education (Sunstein & Reisch, 2017). Classical examples of application of behavioural economics in the public policy includes nudges like automatic enrolment into a retirement savings plan (unless employees choose to opt out); inclusion of neighbours-comparing information in tax authorities official communications (like “the great majority of people in [the taxpayer’s local area] pay their tax on time”); initiative that people obtaining drivers licenses by default enrol in organ donation system thus agreeing to become organ donors under hopeless medical conditions (unless they choose to opt out); food labelling including colour codes or exercise equivalents in terms of calories burned, and many other interventions. According to behavioural economics, some kind of nudge policy may be appropriate in order to encourage people to act in their own best interests (Thaler & Sunstein, 2008).

Although being acknowledged and applied widely, the field of behavioural economics meets some important criticism. And the body of criticism is rather substantial and might raise some doubts regarding credibility of the field as such. Therefore, this study is intended to summarise, structure and briefly analyse the existing criticism towards the growing field of behavioural economics aiming to answer the research question: what is the existing criticism of behavioural economics and what are the possible responses (if there are some)?

Although this research is focusing on deficiencies of behavioural economics, it is not intended to devalue behavioural economics. Just the opposite, it is carried out with the belief that scientific criticism, if it is justified, might enlighten some reasonable deficiencies and guide towards further improvements of the field. In addition to the prior motivation of this study to contribute to the existing literature by creating an overview of the criticism of behavioural economics, there has been an extra motive – willingness to acquire understanding and raise awareness about the possible weaknesses of the field, to approach them carefully in any possible further research.

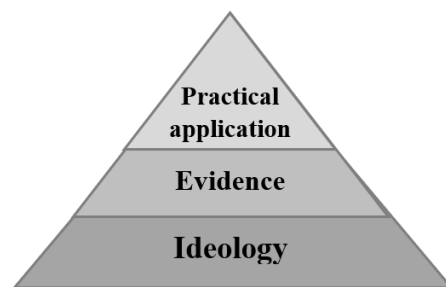
After this “Introduction”, presenting context and motivation of the study, further article is structured as follows. Next section of the article, titled “Research methodology”, provides information about methodological approach and research limitations of this study. Afterwards, the main body of the article lies in section “Criticism of behavioural economics and the possible responses”, which is divided in several sub-sections describing issues the criticism is targeting; at the end of each criticism comments about the possible responses are provided. It is followed by section “Results: an overview” where the essence of the criticism is summarised and presented in an overview figure that serves as an outline of the whole article. In this section summarising comments regarding the nature of criticism, enlightened deficiencies and the possible further improvements of the field are also included. Lastly, the article is finalised with a few general considerations represented in the section “Concluding remarks”.

### Research Methodology

The present study by its nature and the addressed matter is contextual and theoretical. The quality method was used as the research methodology investigating the existing literature about the criticism of behavioural economics. Information was gathered from secondary data, including books, scientific articles and credible online

sources. The existing body of knowledge about criticism of behavioural economics has been summarized, structured and examined by using descriptive and analytical approach. Thus, this study introduces an overview about the topic.

Criticism towards behavioural economics has been systemised by approaching it on three levels according to a mind-set called “the pyramid of criticism” (see Figure 2.; a self-made approach offering how criticism of any sub-field of economics or possibly other fields of science could be structured and analysed). The base level is ideology, representing fundamental theoretical issues. The next level is evidence, representing issues of credibility of the research results gathered in the field, including methodological considerations. The upper level is practical application, representing issues regarding use of knowledge gained from the field of science in real life. The lower the level of pyramid, the more valid scientific criticism of corresponding issues might endanger trustworthiness of the whole field of science.



**Figure-2. The pyramid of criticism: possible areas of attack (self-made approach)**

Although substantial criticism of behavioural economics was gathered and systematised regarding attacks against its ideology, evidence and practical application, it is important to note that research is limited in amount, variety and depth of criticism covered. This article surely does not cover all existing criticism of the field. Methodology-wise the focus has been mostly on criticism towards experimental approach (other methods evolve but have been less extensively used yet and face way less criticism so far). Regarding practical application, the focus has been on criticism concerning practical application of behavioural economics in public policy by nudging (criticism towards nudging in the private sector is not covered due to its less controllable nature and commercial motives; it is questionable if it is even nudging by definition). Some attempts to criticise behavioural economics was subjectively skipped, if considered as irrelevant, not worth discussing, too narrow or too technical and lacking fundamental concerns. Criticism was gathered with respect to the whole field of behavioural economics, not regarding specific theories within the field (for example, criticism regarding prospect theory, though being significant, was skipped). Also, this study offers indication of the areas attacked and only very limited analysis of each criticism included. Each section and even sub-section of this article might be a topic for deeper and more detailed scientific discussion. Thus, this overview should not be interpreted as all-inclusive. Furthermore, it is important to note that the analysis of the possible responses and reasonability of the criticism overviewed is an object of subjectivity. One more research limitation is that information was accessed mostly in English, thus it cannot be excluded that some ideas of outside the English-speaking scientific communities might not be covered.

### **Critics of Behavioural Economics and the Possible Responses**

Criticism of behavioural economics has been addressed towards (1) ideological concerns, (2) evidence suspicious concerns, and (3) concerns regarding practical application in the public policy. The following sub-sections aim to provide brief and structured description of these issues.

#### **1. Ideological criticism**

Ideological criticism is addressed towards conceptual, theoretical and fundamental concerns of behavioural economics. It includes criticism that is questioning scientific significance and verity of the field.

##### **1.1.Lack of unified theory**

Behavioural economics has been criticised for having too many behavioural models and lack of unified explanations for a wider range of phenomena (Fudenberg, 2006). This criticism addresses the issue that behavioural economics contains wide collection of observations; there are contradictory theories and models relating to the same phenomenon and lack of guidelines for when each model should be applied. Some of biases recognized in behavioural economics are opposites and it is difficult to distinguish, which of the contradicting biases is dominating in decision-making. For example, are people more influenced by what they saw first (“priming” or “anchoring” effect) or what they saw last (“recency” effect) (Smets, 2018). Lack of elegance and generality that characterize traditional economic theory has been stated as an important drawback (Rubinstein, 2006). From the scientific point of view the field lacks consistent foundational theory.

**Response.** This criticism is reasoned but can be well responded. Behavioural economics, indeed, lacks unified theory and it is rather “a collection of tools or ideas” (Camerer & Loewenstein, 2004). But it is understandable and acceptable as in economics different models are appropriate for different people in different decision situations (Wilkinson & Klaes, 2018). What is more, contradictory theories relating to the same phenomena are a feature of many fields in science and often ideological conflicts continue for decades. Given the fact that behavioural economics is a relatively new field and thus still is in the process of formation, it is likely that in further development of the field some theories will fade out due to lack of support, whereas other theories will be conformed and strengthened (Wilkinson & Klaes, 2018). To advance further, testing large number of replications in larger number of properties for each person might be valuable (Birnbaum, 2008).

### 1.2. Lack of normative status

Behavioural economics is also criticised for absence of normative theories (McChesney, 2014). Instead, behavioural models attempting to reflect reality better are almost purely descriptive and are mostly used to demonstrate “how people do act”. But normative theories are surely needed in science, as they are prescriptive, able to suggest “how people should act” helping to identify the best decisions to make.

**Response.** This criticism about the lack of normative status is reasoned, but also can be well responded. Firstly, being normative a theory does not imply being better. “[T]here should be no prior supposition that the best models will be ones based on the principles of rational choice, no matter how appealing those may seem from a normative point of view” (Starmer, 2000). Normative models are often created at the cost of their ability to explain reality. Secondly, although behavioural models, indeed, are mostly descriptive and clearly fail to be normative, exactly the approach to observe the world as it is has led to accumulation of knowledge necessary for making behavioural interventions like “nudging”: indirectly suggesting people to make preferable choices (Thaler & Sunstein, 2008). Thus, the applied version of behavioural economics - nudging - has brought out the field from pure descriptiveness and contributed also to “how to act” vision by offering nudging techniques and helping to form behavioural interventions in public policy.

### 1.3. Lack of predicting power

The third criticism of behavioural economics results from the previous two: since there are too many behavioural models and they are descriptive, the field meets criticism also about the lack of predicting power (McChesney, 2014; Gigerenzer, 1996). “[W]hether the theory yields sufficiently accurate predictions” (Friedman, 1953) has been stated as value in economics long ago.

**Response.** Indeed, different models and different biases from traditionally assumed rationality makes it difficult to directly take one of the many behavioural models and without analysing context use it to make predictions in economics. Thus, from this point of view criticism of the lack of predicting power holds true. However, some biases observed in decision making are systematic and thus in some cases predictable, which is why lessons from behavioural economics in applied form of nudges have been increasingly used in policy formation (Püce, 2018b). Behavioural concepts are seen as valuable for prescriptive policy purposes having an ability to make an impact in predictable way (Thaler & Sunstein 2008; Amir, O., Ariely, D., Cooke, A. et al., 2005).

### 1.4. Not being true

Another bunch of criticism against behavioural economics is addressed towards suspicions that behavioural theories are fundamentally not being true. Issues have been raised about the ability to hold true both on the market level and regarding individual decision-making.

#### 1.4.1. Market is efficient

On the asset market level, behavioural theories describe market inefficiencies (for example, under-reaction, over-reaction, market bubbles) and claim that these inefficiencies are caused by normative irrationality (for example, overconfidence, over-optimism, herding, loss aversion and other behavioural biases) (Ricciardi & Simon, 2000; Andrikopoulos, 2007; Muradoglu & Harvey, 2012). Instead, critics of behavioural economics and more specifically, behavioural finance, argue that behavioural theories cannot be considered valid because market is efficient: in the long run Efficient Market Hypothesis (developed by Eugene Fama; Fama, 1970) is believed to hold up rather well. Irrationality of individuals is believed to be nullified by group response. Overreaction or under-reaction appears from time to time, but anomalies on both sides appear in random split, none of them being the dominant phenomenon (Fama, 1998). Though some behavioural biases and related inefficiencies do appear from time to time, it is believed that market forces will always bring prices back to rational levels, implying that irrational behaviour in asset markets is irrelevant (Lo, 2005). Hence, this criticism lies on position that cognitive theories are more suitable for modelling decision making not generalized economic behaviour.

**Response.** This criticism is not unequivocal as the existence of anomalies on both sides and tendency for market to correct them does not cancel out the fact that systematic deviations from market efficiency occur. “[T]oday’s standard finance is no longer unified because wide cracks have opened between its theory and the evidence” (Statman, 2018) and that’s where behavioural finance takes place.

#### 1.4.2. People are rational

Another criticism towards ideology of behavioural economics is addressed to the rationality/irrationality issue. Studies show that people have their own individual limits of brainpower, cognition, and self-control, hence, decisions in normative sense are boundedly rational due to those limitations (Mullainathan & Sharif, 2013). However, acting normatively irrationally, what is often documented by behavioural economists, can actually be rational. People use heuristics in decision making, but it doesn't imply they are irrational; rather they are making their best choice based on accuracy-effort trade-off and heuristics are short-cuts that trade less effort for less accuracy (Gigerenzer, 2008). The brain's fast, automatic, intuitive approach often works instead of the minds slower analytical mode (according to Kahneman's terminology: system 1 thinking replaces system 2 thinking; Kahneman, 2011) and that might be rational as it helps to save mental resources. In some cases, heuristics make more accurate decisions with less effort presenting "less-is-more effect", contradicting the traditional view that more information is always better (Schooler & Hertwig, 2005; Gigerenzer, 2008).

An individual's perception and definition of basic decision-making concepts (risk, gains, losses, utility etc.) can differ by person and situation. It can include non-monetary components like economy of time and effort, consequences in collaboration opportunities with business partners, changes in society's attitude, changes in regulations and many other factors. (For example, for different possible perceptions and definitions of utility concept like expected utility, discounted utility, remembered utility, social utility, etc., see Samson, 2018c). Thus, it is possible that decisions, which are normatively irrational, are actually based on differently defined decision-making concepts, in the result of what decisions might be rational.

What is more, there is a lack of comprehensive evidence that deviation from normative rationality leads to economically significant losses. "Despite producing prolific documentation of deviations from neoclassical norms, behavioural economics has produced almost no evidence that deviations are correlated with lower earnings, lower happiness, impaired health, inaccurate beliefs, or shorter lives" (Berg, Gigerenzer, 2010). Even if some irrationalities appear from time to time, it is believed that generally learning opportunities provide at least a decent approximation of normative rationality (Sunder, 1995; Myagkov & Plott, 1997). Also, rationality concept, including definition and measurability, is a debatable issue by itself (Hammond, 1997).

**Response.** The criticism concerning possible "hidden-rationality" is fundamental. The question - do systematic deviations from normative rationality imply irrationality of economics agents and are not they swiped out by learning opportunities and competition, - remains open. There is a need for further investigation of these inquiries as well as of the issue how to define and measure rationality.

### 1.5. Lack of novelty

Behavioural economics has been criticized for the lack of novelty in its ideology. Variety of psychological aspects in decision making and economics in general has been discussed before the rise of behavioural economics. Criticism is based on the opinion that behavioural economics is only offering "new names for concepts already well understood" (McChesney, 2014). An example offered by critics is "bounded rationality", a fundamental concept in behavioural economics used to describe limits to our thinking capacity, available information, and time (proposed by Simon, 1982). It has been recognized in the mainstream economics long ago that information is costly, individuals might not have all of it, and at some point, further information will not be demanded as the value of it is worth less than the costs of acquiring (Stigler, 1961). This consideration is recognized in the mainstream economics with no special intention to change the existing models. Also issues like "irrational consumer preferences" (Galbraith, 1938), "animal spirits" (Keynes, 1936), "moral sentiments" (Smith, 1759) were proposed in economic literature long before the rise of behavioural economics. Similarly, other concepts including several heuristics and biases have been referred to before formation of behavioural economics.

**Response.** This criticism concerning the lack of novelty of behavioural economics can be responded. Some ideas incorporating concepts, which resemble those of behavioural economics, are not purely novel and have been on air long ago. But it surely does not correspond to the whole field of behavioural economics. Moreover, exactly in line with formation of the field of behavioural economics during the last few decades, formalization of psychological insights in economics has become significant and acknowledged both among the academics and practitioners (Püce, 2018b).

## 2. Evidence suspicious criticism

Evidence suspicious criticism is questioning the quality of evidence supporting behavioural economics research. It is addressed towards methodological deficiencies in extensive experimental research and possibly overstated evidence.

### 2.1. Methodological deficiencies in extensive experimental research

Methodology used in behavioural economics is empirical, experimental and consists mostly of laboratory experiments (including hypothetical choice studies and experiments with actual outcomes), field studies (including field experiments and randomized controlled trials) and methods of neuroeconomics (including process measures like brain scans with magnetic resonance imaging) (Wilkinson & Klaes, 2018; Angner, 2016; Angner &

Loewenstein, 2012). There is criticism towards the research methodology used in the field. Behavioural economics has been criticized for being based extensively on experimental research that often faces important shortcomings and does not represent real economics. Wide criticism has been addressed towards deficiencies of experimental research and especially towards laboratory experiments. Criticism includes methodological problems with data, experimental design and delivery, interpretation and presentation of results. The following issues have been raised.

### **2.1.1. Lack of sufficient incentives**

Hypothetical choice studies often used in behavioural economics research (and included in some important early studies, e.g. Kahneman & Tversky, 1979) lack incentives for participants in their experiments to provide truthful, carefully considered responses and thus it is possible that the observed anomalies could be artefacts (Angner & Loewenstein, 2012). Criticism is addressed towards the possible differences between hypothetical choices and actual outcome choices as well as the effect from changes in financial incentives in experiments (Parco, Rapoport & Stein, 2002; Holt & Laury, 2002). The observed behaviour and outcome in the laboratory might not be realistic even in the experiments with some incentives introduced. Typically, there are small stakes involved in the decision dilemmas, thus experiments do not cause lasting financial consequences for participants. Therefore, according to this criticism, it is unreasonable to generalize results from laboratory experiments to the real world economics.

**Response.** This criticism concerning the lack of sufficient incentives in behavioural economics experiments is understandable as the incentives, indeed, might have an impact on choices. Actual outcome experiments with sufficient stakes might have greater conformity to reality than hypothetical choice studies. However, researchers are not unanimous about the issue and some indicate that the steak-size effect is surprisingly weak (Camerer, 2003). What is more, even with insufficient incentives it might be considered as valuable and in the same time recourse-saving approach to run experiments for initial theory testing purposes in “*ceteris paribus*” environment.

### **2.1.2. Participants know they are being watched**

As participants in laboratory experiments know they are being watched, there is a problem that preferences observed in an experiment do not necessarily match the revealed actual preferences. Methodology used in experimental research imply the risk that participants might have a feeling of being judged by an experimenter and thus might be influenced by the fact that they know they are making decisions in an artificial environment. Participants might be tended to behave in line with researchers’ expectations (Zizzo, 2010). Some researchers have pointed out that lack of anonymity between the experimenter and participants, and among participants themselves have an impact on the concern, what others might think and might contribute to pre-social behaviour (Levitt & List, 2007). Due to these issues, the results from laboratory experiments are criticized for being just “classroom findings” not applicable to real economics.

**Response.** This criticism is reasoned. However, the possible effect from participants being watched can be captured as laboratory experiments allow variation of the degree of anonymity, for example, explicit observation of participants in video experiments, single anonymous experiments with participant-participant anonymity and double anonymous experiments with full anonymity between participants and experimenter (Falk & Heckman, 2009).

### **2.1.3. Narrowly-representative participants**

Participants of laboratory experiments have been an object of debate (Levitt & List 2007; Camerer et al., 2015). Laboratory experiments are typically conducted using the so called “WEIRD” cohort – participants from Western, Educated, Industrialized, Rich, and Democratic societies (Henrich, Heine & Norenzayan, 2010). Thus, the critics argue that results from laboratory experiments cannot be generalized without caution. “[T]here are no obvious a priori grounds for claiming that a particular behavioural phenomenon is universal based on sampling from a single subpopulation” (Henrich, Heine & Norenzayan, 2010). What is more, rather often participants in laboratory experiments of behavioural economics are students and there might be self-selection of particular participants for the experiments (Frechette, 2011; Ball & Cech, 1996; Harrison, Lau & Rutström, 2009). The self-selecting nature of participants (undergraduate or graduate students, volunteers interested in the subject, etc.) limits the representativeness of the experiment results. Thus, generalizability of findings of a substantial part of laboratory experiments in behavioural economics is questionable due to criticism addressed towards narrowly-representative participants.

**Response.** This criticism is reasonable. Behavioural economics experiments could, indeed, benefit from widening the participant scope. But it is possible to collect detailed data about participants to control the selection, and explicitly study it in a controlled way (Falk & Heckman, 2009).

### **2.1.4. Sensitivity towards delivery of experiments**

Diverse criticism is addressed towards sensitivity towards delivery of experiments. Experimental research has been criticized for “lack of control, resulting in mis-interpretation or confounding of effects” (Wilkinson & Klaes, 2018). Problematics of delivery of the experiments and the actual complexity of experimental design has been raised (Obergruber & Hrubcova, 2016). Critics argue that results gained from experiments can be confounded with framing of the experimental task and interpretation errors of participants in understanding the task. The possibility

that slight changes of the experimental process (for example choice of words used in experiments such as "opponent" instead of "partner") can get participants to act in a certain way and thus the possibility that experimenters can unintentionally or on purpose have an impact on results (Gintis, 2001) has been criticised. "If there is value in doing experiments [...] it is only when they are done and assessed very carefully" (Rubinstein, 2006).

**Response.** This is very important criticism. Probably, not all behavioural studies are of the brightest quality and some, indeed, might include misinterpretations and fail to properly design or deliver experiments. But this is not the main problem. In every field there are studies with rather diverse quality. To my concern the main problem is that studies often lack reporting about exact details how experiments were carried out, thus it is difficult to separate credible, carefully retrieved experimental evidence from cursory experimental attempts. If experiments are done carefully, questionable nuances of the delivery of experiments can be identified and rechecked and experiments are replicable to increase credibility of the observed phenomenon.

**General response.** Regarding criticism towards methodological deficiencies in the extensive experimental research it is important to note that:

1) behavioural experiments can provide hypotheses that can be tested in real economics (it was especially important in the initial phase of behavioural economics); "For social scientists, experiments are like microscopes or strobe lights. They help us slow human behavior to a frame-by-frame narration of events, isolate individual forces, and examine those forces carefully and in more detail." (Ariely, 2010).

2) the quality of evidence in behavioural economics is increasing: recently behavioural economics has moved beyond lab experimentation and there has been an increasing use of other methods and consequently decent contributions (Camerer & Loewenstein, 2004). Field research, randomised controlled trials and methods of neuroeconomics providing more complex understanding of the brain behaviour have taken place among the methodological arsenal of behavioural economics.

## 2.2. Overstated evidence

Even assuming that some studies are carried out accurately methodology-wise (with respect to the previous section: having sufficient incentives, capturing effect of the degree of anonymity, having wide and diverse participant scope, proper experimental design and careful delivery) there is another issue concerning evidence suspicious criticism addressed towards behavioural economics, i.e. criticism towards overstated evidence.

Behavioural economics has been criticized about the tendency to be overenthusiastic in finding supporting evidence for behavioural economics. It has been stated that "intuitive and "sexy" results are gladly accepted by behavioral economists without sufficient criticism" (Rubinstein, 2006). The field has been criticized for "cherry-picking" of results, an error of inductive inference towards confirmation of the hypothesis under study. It has been claimed that there is a tendency in experiments to use theory-supporting data sets, ignoring other data, and report theory-supporting conclusions, ignoring conclusions where results are inconsistent with theories (Binmore & Shaked, 2010). There have been indications for existence of "confirmation bias", a tendency to search for or interpret information in a way that confirms one's preconceptions. "One of the reasons the science literature gets skewed is that journals are much more likely to publish positive than negative results" (Ball, 2015). That is the so called "publication bias", a situation where research with non-significant results is less likely to be published (Rothstein, Sutton & Borenstein, 2005), which goes hand in hand with "selective outcome reporting bias", a situation where only the significant outcomes out of many are being reported (Sterne, Egger & Moher, 2008). Thus, researchers more likely "cherry-pick" evidence that support their theories, and scrutinize findings that do not. Consequently, numerous results in scientific journals might be exaggerated or even false (Ioannidis et al., 2014). This applies also to behavioural economics. Classic findings having insights in psychology have been revaluated recently and found being difficult or impossible to replicate, thus indicating "replication crisis" (Resnick, 2018). It has been suggested to adopt "more skeptical attitude when far-reaching claims about human behavior are extrapolated from very slender data" (Binmore & Shaked, 2010).

**Response.** This evidence suspicious criticism towards overstated evidence caused by "cherry-picking" of results in behavioural economics is significant. It endangers credibility of studies in the field and should be taken into account when creating meta-analysis in behavioural economics. This criticism can only be replied by pointing to general tendency of science to self-correct when the weight of the evidence demands it (Ball, 2015). It is nothing extraordinary that there are deficiencies in evidence reporting in behavioural economics, but as in any other field of science it should be able to self-correct when proved begin wrong.

## 3. Criticism concerning practical application of behavioural economics in public policy

Criticism concerning practical application of behavioural economics in public policy is questioning use of nudging in public policy. Issues regarding risks, limits, effects and ethical issues of nudging by policy makers have been raised.

### 3.1. Risk of further undesirable tendency towards paternalism

Criticism has been raised towards the risk that if nudging is accepted as a policy tool representing modest paternalism, intrusive interventions representing more paternalistic policies in the future will follow (this is the so called “slippery slope” criticism in Thalers and Sunsteins terminology; Thaler & Sunstein, 2008). It is seen as a threat that policy makers in protecting people from their errors will eventually go from easily avoidable directed way in choice architecture to high-cost opt-out choice architecture or even prohibition to step out of the governments directed way. The worry is that “the wolf of hard paternalism may appear in the clothing of soft-paternalist sheep” (Angner, 2016). What is seen as a threat is also that acceptance of nudging in public policy will lessen opportunities to make decisions by ourselves (Jespersen, 2018). Escalation of the state intervention is seen as a risk.

**Response.** This criticism can be considered as hypothetical. Criticism has been responded by indicating that “it does not say that there is anything wrong with libertarian paternalism or nudging per se, but rather with the harder forms of paternalistic intervention that will likely follow. But why should we think that they will?” (Angner, 2016). Indeed, this criticism is expressed without evidence that nudging makes paternalistic policies more likely or even inevitable. This criticism can be responded by suggesting resisting hypothetical “slippery slope” reasoning as such (Blackburn, 2001). Furthermore, it has been responded also by noting towards freedom of choice that underlies nudging ideology. According to nudging ideology, low-cost opt-out options must be always available. Thus, it actually might be vice versa: nudging approach opposes the most objectionable forms of policy makers intervention (Thaler & Sunstein, 2008). For this reason, some economists are very much in favour of nudging, preferring gentle persuasion and suggesting substitution of softer for harder forms of paternalism (Caplan, 2013).

### **3.2. Risk of unfavourable nudges**

There is criticism towards applying behavioural insights by policy makers as there is risk of unfavourable nudging. The addressed issue includes intentionally unfavourable nudges caused by policy maker self-dealing and unintentionally unfavourable nudges resulting simply from lack of competence in nudging. Both forms of unfavourable nudges are discussed.

#### **3.2.1. Risk of intentionally unfavourable nudges**

The critical concern is whether we can know that policy makers undertaking the nudging are in fact nudging us to our best choices as “[c]hoice architects in all walks of life have incentives to nudge people in direction that benefit the architects” (Thaler & Sunstein, 2008). The risk of policy maker self-dealing and being affected by private sector interests, lobbying or even corruption has been addressed raising criticism towards the possible intentionally unfavourable nudges.

**Response.** This criticism has been responded, by pointing out that “publicity principle is good guideline for constraining and implementing nudges”, nudges should not be secretive, policy makers have to answer to voters and that the goal should be increasing transparency (Thaler & Sunstein, 2008). Generally, nudging should be approached as an instrument. And as any instrument it might be used for good or for bad. “[N]udges can presumably be inelegant, inappropriate, misguided, mean-spirited, and/or outright harmful. But just like it would be unhelpful to criticise the use of hammers based on the fact that people get hurt if they are whacked over the head, it would be odd to criticize nudges based on the fact that they have harmful uses” (Angner, 2016). Probability that unfavourable nudges for society take place cannot be excluded, but it is then an issue of general trustworthiness in policy makers, not nudging as an instrument.

#### **3.2.2. Risk of unintentionally unfavourable nudges and lack of competence in nudging**

Even if applying behavioural insights to public policy is not done with intention to manipulate towards unfavourable choices, the risk of unintentionally unfavourable nudges is still present. The criticism has been raised towards the possible lack of policy maker competence in nudging. The ability of policy makers to be competent to make choice-architecture that could help individuals make choices that the latter consider better for them is questionable: how do they know what the is best for people; are they able to make good guess; don’t they have the same cognitive biases as any other individual? Some studies, indeed, indicate cognitive biases of policy makers and suggest greater trepidation when considering their reasoning (Whitman & Rizzo, 2007). Critics argue that lack of competence in decent nudging can do more harm than good by directing peoples’ choices.

**Response.** This criticism has been responded by providing situations when nudging might be valuable. “[W]hen choices are fraught, when Nudgers have expertise, and when differences in individual preferences are either not important or can be easily estimated, then the potential for helpful nudging is high” (Thaler & Sunstein, 2008). It is understandable that policy makers “suffer the same limitations that rest of us do” (like lack of rationality and information), but “choice architects need not be superhuman” (Angner, 2016). It is important to note also that nudge units typically rely on expertise of professional behavioural economists.

### **3.3. Unaffected and well-educated choices are better than nudging**

Nudging has been criticised for being paternalistic by its nature. Critics question “to what extent libertarian paternalism lives up to its libertarian credentials, and whether this “softer” version of paternalism is [...] desirable” (Rebonato, 2014). Criticism is addressed to issue that claim that all forms of paternalism including libertarian paternalism are objectionable. There is an argument that people in free society must have the right to make



unaffected choices even if they are wrong. Nudging has been criticized for harming our autonomy and our ability to make moral choices for ourselves (Furedi, 2011; Bovens, 2008). It is claimed that making mistakes might be beneficial since that is how we learn. Thus, the critics argue that nudging might decrease the ability of people to learn from their mistakes (White, 2013). Unaffected choices have been seen better than nudging. This criticism is raised by libertarians and based on freedom of choice as the highest virtue (higher than welfare). “[T]hey would like to provide people with the information necessary to make choice, and then tell people to choose for themselves: no nudges!” (Thaler & Sunstein, 2008). Critics of nudge ideology believe that educating people to make well-reasoned choices is better alternative than nudging and that more opportunities to learn the skills of critical thinking are needed. “[T]he claim that we are hardly educable lacks evidence and forecloses the true alternative to nudging: teaching people to become risk savvy” (Gigerenzer, 2015).

**Response.** This criticism has been responded. “[N]udge policies do leave people free to make their own mistakes, but they are less likely to make mistakes – if the government gets it right” (Wilkinson & Klaes, 2018). Surely, an educated choice is the best alternative, but the problem is that it is not something we can simply choose. People encounter time, knowledge, effort and other constraints and thus in many decision-making situations consciously or even unconsciously they choose not to choose. In that situation it is extremely important, what is the default option. Same as in traditional architecture, also in choice architecture “there is no such thing as a “neutral” design” (Thaler & Sunstein, 2008).

### 3.4. Limitations in application and effect

Another deficiency of nudging seen by its critics is its limited applicability and effect. Critics point out that there are very sharp limitations in use of nudging, it cannot be considered as substitute for traditional forms of policy and variety of problems should not be addressed using nudging but rather traditional forms of policy (Loewenstein and Ubel, 2010). It has been indicated that “behavioural economics is being asked to solve problems it wasn’t meant to address” and that “the field has its limits” (Loewenstein and Ubel, 2010). Critics also argue that “nudge intervention can only induce short-term cosmetic behavioral changes” (Salazar, 2012) thus raising the issue about lack of significant effect on behaviour in the long-term.

**Response.** This criticism is partly true. Application of behavioural economics and nudging in public policy, indeed, has limitations. But this criticism is not devaluing possible benefits of using insights from behavioural economics and nudging as an instrument in policy formation as there are areas, where behavioural nudges can contribute significantly and with the long-term effect. Though limited in application, nudging still can be considered as extremely beneficial libertarian policy tool complementing more traditional policy tools. It is low cost, cheap to administer and with immediate and possibly substantial effect. Moreover, it is likely that experience of the use of nudges will amass further and more areas of application will develop.

### 3.5. Unethicality

Nudging has been criticised for violation of ethicality issues. The key point of this criticism is addressed towards the fact that nudging is applied without the awareness of people, who are being nudged. Critics recommend that “[h]owever sympathetic we are to the goals nudge is trying to achieve – such as reducing car accidents or increasing tax collection – we should be deeply sceptical of its tactics, which involve influencing the public without them knowing it is happening” (Dunt, 2014). Thus, nudging is criticised for holding only liberal impression, while actually intending to impact without a notion. This has been seen as an unethical and manipulative approach. Critics claim that nudging works by “manipulating people’s choices” (Bovens, 2008). In this perspective nudging is seen as a policy tool, which is violating people’s autonomy and thus is claimed to be another form of coercion (Farrell & Shalizi, 2011) or even worse than coercion (Wilkinson, 2013). “Libertarian paternalism” is claimed to be oxymoron (Mitchell, 2004) and ethics of nudging have been strongly questioned as individual choice and autonomy are believed to be crucial (White, 2013; Rebonato, 2012). “At least when something is banned, you know you are being prevented from doing it. With nudge, you will never know” nudging critics conclude (Dunt, 2014). Consequently, people are not unanimous concerning their willingness to be nudged at all.

**Response.** The criticism concerning ethical issues of nudging is understandable. Lack of awareness of people for being nudged, indeed, violates ethicality. However, these concerns have been responded by pointing towards the nonexistence of neutral choice architecture and providing transparency of nudges (Thaler & Sunstein, 2008). A transparent nudge has been defined as “any nudge part of an intervention provided in such a way so that those affected can infer three things about the intervention as a result of the intervention: 1.who’s the choice architect (agent) 2.what is the intention behind the intervention (ends) 3.how is the intervention supposed to nudge my behaviour (that is the transparency of the individual nudge function as a means)” (Hansen, 2017). Thus, transparency is the key issue when distinguishing manipulative use of nudges from other kinds of uses (responsible use of the nudge approach see: Hansen & Jespersen, 2013; for detailed overview about ethicality issues see: Bovens, 2009 and Sunstein, 2016). “When the ends are legitimate, and when nudges are fully transparent and subject to public scrutiny, a convincing ethical objection is less likely to be available” (Sunstein, 2015). Furthermore, the research suggests that people are rather supportive to the nudge approach (Branson et al., 2012).

**Results: an Overview**

The amount and variety of criticism of behavioural economics is large (is there an issue not attacked?). An overview of the criticism covered in this study is presented in Figure 3. This figure serves as a summary of the article.

		<b>Behavioural economics</b>		
<b>Areas of attack</b>		<b>Ideology</b>	<b>Evidence</b>	<b>Practical application</b>
<b>Criticism</b>		<b>Ideological criticism</b>	<b>Evidence suspicious criticism</b>	<b>Criticism towards nudging in public policy</b>
		<ul style="list-style-type: none"> <li>▶ <b>Lack of unified theory</b> <ul style="list-style-type: none"> <li>• many models, some contradictory</li> </ul> </li> <li>▶ <b>Lack of normative status</b> <ul style="list-style-type: none"> <li>• almost purely descriptive, lack prescriptiveness in improving decisions</li> </ul> </li> <li>▶ <b>Lack of predicting power</b> <i>consequently</i> ←</li> <li>▶ <b>Lack of novelty</b> <ul style="list-style-type: none"> <li>• ideas are not new, have been understood without intention to change existing models</li> </ul> </li> <li>▶ <b>Not being true</b> <ul style="list-style-type: none"> <li>• <b>market is efficient</b> irrationality of individuals nullifies by group response; in long run EMH holds</li> <li>• <b>people are rational</b> normatively irrational decisions might be rational when non-monetary components are counted in; heuristics are short-cuts that trade less effort for less accuracy</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▶ <b>Methodological deficiencies in extensive experimental research</b> <ul style="list-style-type: none"> <li>• <b>lack of sufficient incentives</b> no lasting financial consequences, behaviour might not be realistic)</li> <li>• <b>participants know they are being watched</b> artificial environment; stated preferences might not be real</li> <li>• <b>narrowly-representative participants</b> from “WEIRD” societies, self-selection</li> <li>• <b>sensitivity towards delivery</b> lack of control, mis-interpretation</li> </ul> </li> <li>▶ <b>Overstated evidence</b> <ul style="list-style-type: none"> <li>• overenthusiasm in finding supporting evidence, confirmation bias, selective outcome reporting bias, “cherry-picking” of results, publication bias</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▶ <b>Risk of further undesirable tendency towards paternalism</b> <ul style="list-style-type: none"> <li>• “the slippery slope” argument, possible escalation of state intervention</li> </ul> </li> <li>▶ <b>Risk of unfavourable nudges</b> <ul style="list-style-type: none"> <li>• <b>intentionally</b> policy maker self-dealing</li> <li>• <b>unintentionally</b> lack of competence in nudging</li> </ul> </li> <li>▶ <b>Unaffected and well-educated choices is better alternative</b> <ul style="list-style-type: none"> <li>• nudging harms ability to learn from mistakes</li> </ul> </li> <li>▶ <b>Limitations in application and effect</b> <ul style="list-style-type: none"> <li>• limited areas, short-term effect</li> </ul> </li> <li>▶ <b>Unethicality</b> <ul style="list-style-type: none"> <li>• manipulation without people being aware, violates autonomy</li> </ul> </li> </ul>

**Figure-3. Criticism of behavioural economics (self-made summary)**

The attacks towards behavioural economics have been substantial and are harshly addressed towards ideology, evidence and practical application of behavioural economics (attacking all three levels of the pyramid of criticism presented previously in Figure 2). However, majority of criticism addressed against behavioural economics does not endanger general validity and significance of the field. Substantial part of the criticism is addressed towards field-specific characteristics, which are logical at the stage of development of the field (like lack of unified theory, normative status and predicting power), and some criticism is addressed towards “bad behavioural economics” (like methodologically deficient, poorly carried experiments, and unfavourable nudges introduced by self-dealing and incompetent policy makers). Another part of the criticism simply seems weak (lack of novelty, hypothetical risk of escalation of paternalism, if nudging is introduced in public policy, and limitations in application and effect of nudging). Even though this criticism does not endanger general validity of the field, it surely should be at the back of mind when further research and application of behavioural economics is done.

However, several issues raised against behavioural economics can be considered as significant attacks, which require careful further investigation and improvements. Firstly, the questions regarding definition of “rational behaviour” are substantial and would benefit from more analytical studies. Behavioural economists should be very careful to label behaviour as irrational knowing the variety of possible perceptions of rationality, risk, utility and other decision-making concepts. Diverse non-monetary issues might take place. Something what seems irrational might in fact be “hiddenly rational”.

Secondly, the body of literature presenting evidence of behavioural economics should be approached with some suspicion. There surely are studies, which represent “good behavioural economics” methodology-wise (for example, experimental research is done in decent manner: it tests for effects of incentives, anonymity, covers wide scope of diverse participants and is carefully delivered; methods like field research, randomised controlled trials or

neuroeconomical techniques are decently used; and outcomes are reported without any selectivity). In order to qualify as “good behavioural economics” collection and presentation of evidence should be approached extremely carefully with sufficient amount of self-criticism. However, the concern is that even if all behavioural economics researches would methodologically represent “good behavioural economics”, the body of literature presenting evidence on behavioural economics could still be overstated due to the publication bias. This should be taken into account when becoming acquainted with the next approving behavioural economics research. As well, it should be considered when using meta-analysis to combine results of multiple behavioural studies.

Thirdly, a clear framework for usage of nudges in public policy is desirable to determine constraints, under which nudging is welcome. There is a need for clarity, under which conditions nudging is favourable and ethical, in which areas it is applicable, where it has the best effects, and when to better choose other policy tools – more paternalistic (like legislative enforcement) or more liberal (like unaffected choices with some extra educational activities). Thus, what is “a good nudge” should be defined. Surely, it will include conditions like being in the best interests of the society, easy and cheap to avoid, and transparent (providing information about the nudge: choice architect, intended effect and intervention). However, more detailed framework identifying different nudge interventions, the best practice, mandatory conditions and limits would be of value.

Consequently, the overview of the criticism of behavioural economics has enlightened some deficiencies and raised notions about further improvements of the field.

### Concluding Remarks

Scientific criticism can be as a springboard for development of any field of science including behavioural economics. But not to be misleading it is important to address criticism towards a good version of science rather than bad, as there is diversity in quality of research and practical application of it in any field.

The field of behavioural economics can be considered as a “teenager” in science. It emerged only recently discovering anomalies of the existing theories, offering new paradigms in economics as a science and directing new research, thus very much resembling the cycle of scientific progress involving paradigm change called the Kuhn Cycle (originally presented in: Kuhn, 1962). Although behavioural economics has been revolutionary in economics, taking all the criticism addressed towards the field, it is complimentary to traditional economic theories and must be self-critical enough not to overstate itself.

Hopefully, systematisation of ideas of behavioural economics, in-depth analysis of the rationality issues, improvements of methodological performance, increase of use of the outside-lab methodology, caution in representation of the evidence, and development of clear framework for use of nudges in public policy will evolve. Taking lessons from the criticism received, some deficiencies of behavioural economics should diminish with time and further research. As Karl Raimund Popper wrote about growth of scientific knowledge: “science is one of the very few human activities—perhaps the only one—in which errors are systematically criticized and fairly often, in time, corrected” (Popper, 1963).

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**Biography**

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