

A GENERAL VIEW OVER THE NEUROSCIENCE IN BUSINESS AND ECONOMIC DECISION MAKING

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EDITORIAL

In this special issue, several works have been presented in the area of neuroscience in business and economic decision making. Neuroeconomics is studied according to several different approaches, all of them permitting to understand it as an interdisciplinary field that seeks to explain human decision making. Neuroeconomics combines research methods from different fields as neuroscience, experimental and behavioral economics, cognitive and social psychology, among many others. Nowadays, neuroscience and neuroeconomics are seen as an open door to a new stage of knowledge and to a more profound cognition about human being and human behavior. In this issue, the works of several scientists are presented, showing the progresses are several areas of application.

Behavioral sciences, especially cognitive and social psychology, neurosciences and behavioral economics, and philosophy have recognized the difficulty of choice as a pervasive feature of human decision making (Costa, "Images of Difficulty", on this issue). In this paper, "Images of Difficulty", Ana Costa shows not only that individuals spontaneously operate a distinction between non-moral and moral dilemmas, but also that the neural patterns observed during actual decision-making processes are different and dependent on the non-moral or moral coloring of the choice situation. Moreover, this research shows that neural patterns vary across different sorts of moral dilemmas. Her paper further argues that those advances are putting under pressure the neoclassical economics' rational choice model.

In the paper "A Self-Organizing Map of the Elections in Portugal", Caleiro shows that as most of neural networks, self-organizing maps are trained through a learning process. By the use of a neighborhood function in this learning process, self-organizing maps (SOMs) thus allow to visualize which (and how) democratic elections were more similar/distinct. For Portugal the SOM identifies two clusters of elections: one made of those corresponding to a re-election of the incumbent, i.e. in 1987, 1995, 1999 and 2009; and another made of elections that led to a change in the party in power, i.e. 1991, 2002, 2005 and 2011.

By its turn, in the paper "Neuroprobability – the Janus Probability Third Face in Court", Andrade et al, show that usually the probability theory is approached from a purely mathematical viewpoint or, not entirely in alternative, from a philosophical perspective. In their paper it is intended to

present an approach based on the concepts that are typical of Neuroeconomics, that go beyond the rationality either quantitative or qualitative. This may be described simply by the word "Neuroprobability". The epistemological approach is supported following the subjective notion of probability, but not entirely denying that in certain phenomena another ones may be adopted. And often some decisions about random events are taken in the form of pure reactions, not supported for any kind of reason, as it happens for example in Neuroeconomics, giving rise to what we may call a different concept of probability, the Neuroprobability.

In the paper "Measuring Store Emotional Experience through Facial Electromyography and Skin Conductance", Ângelo et al show how, applied in a hypermarket of a retail company, it is possible to develop a Neuromarketing study, where the main goal is to analyze the emotional impact that basic experiential simulation, associated to variables identified on the in-store environment, has on potential customers.

In the paper "The Homo Neuroeconomicus – A Window for the Future", by their side, Silva et al, analyze the validity of the rationality postulate on the moments of decision-making by the economic agent, like it is promoted by the economic and financial fields on investigation, especially on microeconomic and portfolio models. The main features surrounding this postulate are addressed and criticized through the developments achieved on the neuroscience investigation on human being decision-making, mainly the somatic marker hypothesis, the effects of dopamine and oxytocin on judgment and choice, and the formation and usage of memory.

Finally, the paper of Chavaglia et al shows that economic agents have serious limitations on the process of "rational" decision making in their economic lives and that a major bias is found in the way decisions are presented to agents, concerning to the "context effect" on decisions. Given the inability that "school of rational economy" has to explain the economic problems, neuroeconomics aims to explain these problems by studying the brain of economic agents. As a result, neuroeconomics may become a way to find solutions to problems that for several decades economists could not find an explanation to the consumption and investment decisions of individuals in the economy.

As can be seen in all these papers, the economic decision making is a very wide subject and consequently many branches of science develop studies in this area to better understand the human decision making processes.

ABOUT THE EDITOR



Prof. José António Candeias Bonito Filipe is Graduated in Economics by ISEG/UTL - Instituto Superior de Economia e Gestão, Universidade Técnica de Lisboa, a Master in Management Sciences by ISCTE-IUL (Instituto Universitário de Lisboa) and a PhD in Quantitative Methods (Operations Research) by ISCTE-IUL. He is Assistant Professor in ISCTE-IUL and Member of BRU-IUL research group. His research interests are, among others, Mathematics; Statistics; Stochastic Processes - Queues and Applied Probabilities; Game Theory; Applications to Economics, Management, Finance and Social Problems; Environmental and Natural Resource Economics. He is Subdirector of the Department of Mathematics, School of Technology and Architecture, at ISCTE-IUL. He has published more than 200 papers in reputed international Journals and published several books and book chapters. He has participated in many conferences around the world (Portugal, USA, India, Czech Republic, North Ireland, Slovakia etc.). He cooperates with numerous International Journals, Publishing Houses and Conferences, being Editorial Board Member, Reviewer, Final Evaluator, Judge for selecting the Best Paper for an International Organization, Track Chair in Conferences, Chair of Sessions, Discussant of papers, Invited Speaker, etc. Prof. Filipe is a examiner of several PhD Theses in Portugal and abroad, participant in several Intercalary Evaluation Panels of PhD Theses and examiner of numerous Master Theses, being President of Board in some of them. He uses to be supervisor of PhD Theses and Master Theses of students from Portugal and abroad. He has cooperated in International Projects and has some scientific partnerships with other scientists around the world. He was Invited Professor in Universities abroad (Spain and Slovakia). He had 18 scientific papers awarded. He got an award for Leadership in an International Organization and several other awarded and distinguished academic achievements.