

Neuroeconomic Perspectives for Economics

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INTRODUCTION

The rationality of economic agents is a classical cornerstone in economics. Neoclassical theory has modified the classic concept to “Bounded Rationality” (BR) recognizing that economic agents behave as satisficers rather than optimizers (Simon, 1957). Further, modern psychology questions BR due to emotional biases in decision-making. Kahneman and Tversky (1979) claim loss aversion as typical to economic decision-making under uncertainty e.g. periods of economic recession. Positive emotional bias as complacency may be as relevant as loss aversion (Galbraith, 1958 and 1967). Neuroeconomics is presented as a new positivist model of the integration of emotions and cognition to replace the outdated classical normative economics. Behavioral and macroeconomic implications are discussed.

BACKGROUND

Medline, PsychInfo and EconLit are searched for neuroeconomic studies of “Emotional Bias in Economic Decision-making. At this early stage Medline has registered a broad selection of existing literature on neuroeconomics. Table 1 presents 10 projects representing a diversity of economic domains. Emotional biases define as deviations from perfect integration of emotional preferences and rational reasoning assumed in Paretian optimization (1906). Emotional biases are classified according to type (Fear-based or Passionate biases in accordance with Luo and Yu, 2015).

The recognition of emotional biases in DM in the format of prejudices e.g. Enquiry concerning Human Understanding (Hume, 1748) is a cornerstone in “British Empiricism” giving rise to economic growth theory (Smith, 1776).

In modern time, Galbraith is pathbreaking (1958 and 1967) in behavioral economics. In the Affluent Society he finds that the level of consumption raises beyond individual preferences due to advertising. The neural rooting of this effect is now explained by neuroeconomics (Erk et al., 2002) demonstrating that advertising symbols of power and wealth increases motivation and consumption from the pre-conscious Reptile level. Further, Galbraith finds that crucial DM-errors in top-level industrial management often rely on managerial complacency which now is explained as a special risk associated with dominance of the left hemisphere (Goel et al., 2006). Kahneman and Tversky (1979) focuses the loss aversion effect related to economic crisis which is the single psychological study that has got the most attention among economists.

Due to the criticism of the simple paradigm of economic rationality the concept of behavioral economics was presented as a pluralistic research programs starting in the 60's organized around four groups of economists situated at Carnegie, Michigan, Oxford and Stirling universities and united by

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Table 1. Evidence on Emotional Biases in Economic Decision-Making

Author	Domain	Type of Bias	
		Fear-based	Passionate
Galbraith 1958 Erk et al. 2002	Advertising fMRI of responses to Cultural Symbols		Over-consumption
Galbraith 1967 Goel et al. 2006	US Postwar Top-management		Complacency
Kahneman & Tversky 1979	Economic Crisis	Loss Aversion	
Gountas & Corciari 2010	Consumer behavior	Pragmatism	Imagination
Dohmen et al. 2012 Frey et al. 2017	Social Distribution of General Risk Attitude Reliability and Validity of Risk-preference	Score 0-4: 47%	Score 6-10: 31%
Luo and Yu 2015	Review of Economic Psychology	Reduced Cognition	Exaggerated emotion
Larsen 2017	Review of fMRI of Economic Choice	Risk-averters	Risk-lovers

their shared willingness to redirect economics towards new research directions. In the first phase of behavioral economics, disciplinary economics has become heterodox in the sense that mainstream economics, economics as taught of most universities, recognizes limitations and fallacies in the paradigm of economic rationality wherefore non-orthodox contributions to economics e.g. socialism or Prospect Theory are welcomed, too. Other attempts to renew behavioral economics are reviewed (Sent, 2005). A special review of the criticism of paradigmatic economic rationality proposes “Nudging as new social relationship (Thaler and Sunstein, 2008). Nudging is based on the *libertarian paternalism* that elbowing a kind way as alternative to simple emotional kindness helps to improve rational decision-making at the level of ordinary people. In all, this represents an admirable professional tolerance among economists but is also a crucial weakening of the prognostic value of economics for a massive majority of the population needing to preview the economic consequences of their choices to make them in a responsible way.

A study of consumer behavior shows a tri-partition of economic agents (Gountas and Corciari, 2010). In this study, consumer profiles relate to brain function as indicated by the Electroencephalogram (EEG). Three different and independent studies establish “Risk-preference” as basal determinant of behavior. A panel study with 22,000 respondents to a simple scale (0 through 10) on General Willingness to take Risks finds significant correlations with important aspects of behavior as career, sports, car driving and health (Dohmen et al., 2012). A sociometric study finds significant correlation between risk-preference and personality characteristics (Frey et al., 2017). A neuroeconomic review of game trials on economic choice identifies three different levels of risk-preference (Larsen. 2017).

FOCUS OF THE ARTICLE

This article focuses a neuroeconomic model (NeM) (Larsen, 2017). NeM identifies seven different nodes across Reptile, Mammal and Human brain levels in the processing of economic choices:

1. Ventral Tegmentum (**VT**) in the pro-Reptile brain centers the power instinct
2. Anterior Cingulate Cortex (**ACC**) in the pro-Mammal brain originates affective emotions
3. Amygdala (**Am**), also in the pro-Mammal brain, centers the fear network
4. Orbitofrontal Cortex (**OFC**) in the Neocortex controls emotions as center of preferences

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