



BRIDGING NEUROSCIENCE AND ECONOMICS: A SYSTEMATIC REVIEW OF NEUROECONOMIC DECISION-MAKING

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Neuroeconomics is an emerging multidisciplinary field that examines the brain mechanisms underlying economic decision-making by combining tools from neuroscience, economics, and psychology. While economics traditionally studies how limited resources are allocated, neuroscience provides powerful measurement techniques to analyze brain activity. Therefore, neuroeconomics is a new research area that should be further investigated. The Author conducted the study with three main objectives. They are (1) synthesize the current knowledge in neuroeconomics, (2) identify gaps in the existing literature, and (3) suggest possible research directions to address these gaps. A SLR (systematic literature review) was used for the research and PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) rules were followed in the selection, analysis, and reporting of the articles. The databases utilized to look for the papers were Lens.org and Scopus from year 2005 to year 2025. The search phrase and criterion were "neuroeconomics" & "neuroscience". 50 articles are included in the final review. After that, the results for analysis were produced using programs of Vosviewer and Biblioshiny. Results show that neuroeconomics focuses on how different brain regions evaluate subjective value, influence social and financial decision-making, and interact with emotions and cognitive biases. Neuroimaging techniques such as fMRI (functional magnetic resonance imaging) have been used. Thematic analysis revealed seven research clusters: AI & Behavioral Sciences, Emotional & Social Cognition, Computational & Motivational Neuroscience, Neural Mechanisms of Value, Strategic & Neurofinance, Technology & Decision Utility, and Neuroethics & Psychological Approaches. Research gaps exist in diagnostic imaging, evoked potentials, subjective value, and artificial intelligence, emphasize the need for deeper investigation in these areas. This paper highlights the need for broader database coverage and proposes integrating more diverse methodologies in future research. By linking neuroscience with economic theory, neuroeconomics offers valuable contributions to consumer research, finance, and policymaking.

Keywords: Neuroeconomics, Neuroscience, decision making, economics, psychology

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INTRODUCTION

Neuroeconomics is a new multidisciplinary subject that identifies the brain substrates linked to economic decisions using neuroscientific assessment tools. The study that examines the best way to distribute limited resources is commonly referred as economics. In contrast, neuroscience has many ways to measure the brain, but it has mostly focused on studying only a few types of behaviors. Therefore, neuroeconomics is a new research area that should be further investigated. This study has three objectives: (1) review existing knowledge in neuroeconomics, (2) identify gaps in the literature, and (3) suggest directions for future research to bridge these gaps.

METHODOLOGY

This study employed a systematic literature review (SLR) using PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. Articles were searched in the Lens.org and Scopus databases from 2005 to 2025 using the keywords “neuroeconomics” and “neuroscience.” Both automatic and human screening of articles were included. It was automatically screened using databases’ basic limiting characteristics. Thus, the period of 2005–2025 was one of the limiting alternatives. During the manual screening process, author examined each abstract of the downloaded article and evaluated it in relation to the inclusion criteria. Consequently, 50 articles are included in the final review. Bibliometric analysis was the analysis method employed in this investigation. The results for analysis were produced using programs of Vosviewer and Biblioshiny. The initial objective of the study was to investigate the current knowledge for neuroeconomics; hence, the keyword co-occurrence analysis was employed to do that. Co-occurrence network visualization of keywords is a variant of keyword density visualization. It was employed to achieve the second objective of the study, which was to identify the topics that require further investigation in the field of neuroeconomics.



RESULTS AND DISCUSSION

Figure 1 illustrates the keyword occurrence map, showing how “neuroeconomics” is connected with terms such as neuroimaging, decision-making, subjective value, behavioral economics, impulsivity, and game theory. This demonstrates the interdisciplinary nature of neuroeconomics, where economic models are enriched with biological insights. Neuroeconomics reveals how emotions, biases, and neural activity influence decisions, challenging the assumption of purely rational choice in economics. fMRI techniques have identified brain regions associated with impulsivity, reward processing, and social interactions. Beyond the above main research keyword and sub main keywords, the author identified additional keywords that relate to the “neuroeconomics”. Therefore, the author categorized these keywords into thematic clusters according to their occurrence as presented in the table 1. These themes assist to accomplish the first objective of the study “review existing knowledge in neuroeconomics”

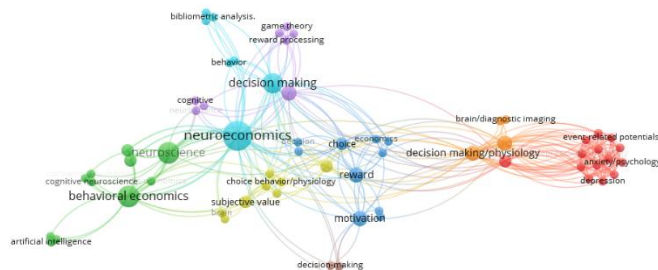


Figure 1: Keyword occurrence
Source: Compiled by author

Table 1: Keyword occurrence

Theme	Focus & Keywords	Contribution & Insights	Example References
AI & Behavioral Sciences	Artificial intelligence, behavioral economics, behavioral finance, cognitive neuroscience, consumer psychology, interdisciplinarity, social and behavioral science	Shows the role of AI and interdisciplinarity in connecting neuroscience with behavioral finance and consumer psychology.	Dennison et al. (2022); Jacob & Reddy (2024)
Emotional & Social Cognition	Anxiety, depression, emotions, event-related potentials, social anxiety, social behavior, ultimatum game	Examines how emotions and social conditions shape fairness, cooperation, and economic choices.	Nicolaisen-Sobesky et al. (2023); Srivastava et al. (2025)
Computational & Motivational	Choice, computational modelling, decision, motivation, non-invasive brain stimulation, reward, social neuroscience	Uses computational models and neurostimulation to study effort, reward and systems,	Padoa-Schioppa (2022); Jacob &



Neuroscience		motivation in decision-making.	Reddy (2024)
Neural Mechanisms of Value	Brain, choice behavior, choice biases, fMRI, neurons, subjective value	Focuses on brain mechanisms of valuation, biases, and variability in economic decision-making.	Dennison et al. (2022); Truc (2023)
Strategic & Neurofinance	Cognitive game theory, impulsivity, neuroanatomy, neurofinance, neuroimaging, psychopathological disorders	Studies impulsivity and financial decision-making using game-theory and neuroimaging frameworks.	Ross & Stirling (2020); Mallio et al. (2024)
Technology & Decision Utility	Bibliometric analysis, decision utility, investor behavior, machine learning, neuroeconomics	Explores how data-driven approaches and machine learning provide insights into investor behavior and decision-utility.	Jacob & Reddy (2024); Masciari (2025)
Neuroethics & Psychological Approaches	Decision-making, emotion, memory, neuroethics, psychoanalysis	Investigates the ethical and psychological aspects of decision-making, integrating memory and emotions.	Masciari (2025); Nicolaisen-Sobesky et al. (2023)

Source: Compiled by author

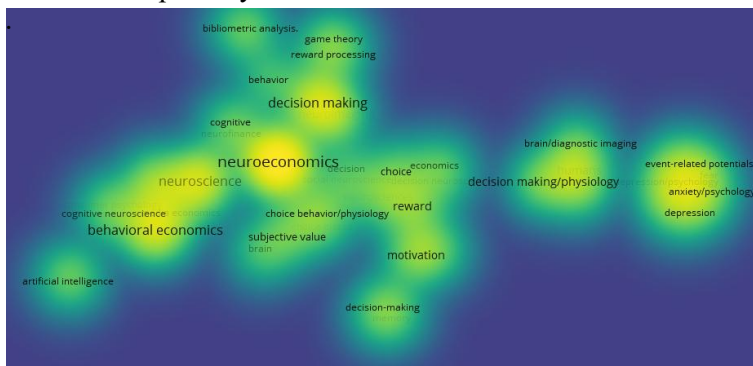


Figure 2: Density visualization

Source: Compiled by author

To identify the topics that require further investigation in the field of neuroeconomics, author has generated a density visualization map as presented by figure 2 and found that there is a lack of literature in the areas of diagnostic imaging, evoked potentials, subjective value, and artificial intelligence and so on.



CONCLUSIONS/RECOMMENDATIONS

In conclusion, neuroeconomics presents a fascinating multidisciplinary approach to understanding human decision-making by integrating principles from psychology, neuroscience, and economics. The study achieved its initial two objectives in the results and discussion sector by (1) synthesizing current knowledge, (2) identifying gaps in existing literature. Expanding database coverage for more comprehensive evidence and developing practical applications in consumer research, finance, and policy based on neuroeconomic insights are the suggestions for the research objective (3) recommending directions for future research.

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