# Chapter 10
# Neuroeconomic Insights Into Consumer Behavior Towards Circular Economy Practices

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## ABSTRACT

*This chapter delves into consumer neuroscience, specifically neuroeconomic insights on consumer behavior toward circular economy activities. The chapter investigates the intersection of neuroscience, economics, and sustainability to see how neuroscientific techniques. Key areas include the function of memory in establishing sustainable consumption patterns, cognitive biases that influence sustainability preferences, and ethical implications when using neuroscientific results to promote circular economy practices. Drawing upon empirical research and theoretical frameworks, this chapter provides a comprehensive overview of the neuroeconomic foundations of consumer behavior in the context of circular economy principles, providing valuable insights for policymakers, marketers, and researchers seeking to promote sustainable consumption patterns.*

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## INTRODUCTION TO NEUROECONOMICS AND CONSUMER BEHAVIOR

Our understanding of consumer behavior has been completely transformed by the interdisciplinary study of neuroeconomics, which combines economics, psychology, and neuroscience (Serra, 2021). It aims to comprehend the brain mechanisms that underpin economic behaviors such as decision-making, risk-taking, reward processing, and social interactions connected to economic choices. Neuroeconomics gives a better understanding of the cognitive and neurological processes that underpin economic behavior by combining ideas from several disciplines (Grayot, 2020). It investigates how people evaluate options, consider trade-offs, predict rewards, and estimate risks, giving light on the intricate relationship between cognitive functions, emotions, and economic decisions. This is especially true when it comes to the application of Circular Economy (CE) practices (Ali & Faroque, 2023). This new field of research explores the brain foundations of decision-making and provides insightful information on how consumers interact with CE activities. Understanding the brain mechanisms behind consumer preferences and decision-making is a fundamental component of neuroeconomics. Research employing electroencephalography (EEG) and functional magnetic resonance imaging (fMRI) has yielded ground-breaking understanding of these mechanisms. For instance, Plassmann et al. (2012) utilized these tools to reveal how consumers' process information related to product sustainability, underscoring the role of affective and cognitive responses in shaping consumer behavior.

Given the growing emphasis on sustainable practices, the application of neuroeconomic principles to consumer behavior toward CE is very relevant. Consumer involvement is crucial to the Circular Economy, which prioritizes resource efficiency and waste reduction through a "reduce, reuse, recycle" strategy. This is demonstrated by a study by Arruda et al. (2021), which emphasizes how critical it is to comprehend consumer behavior in order to encourage sustainable purchasing practices.

One of the most compelling areas of neuroeconomic research is the investigation into how consumers value sustainability. Research by Reimann et al. (2014) has shown that consumers often assign higher value to products that are perceived as sustainable or environmentally friendly. This valuation process is deeply rooted in the neural mechanisms associated with reward and decision-making (Henriques et al., 2023). The emotional and psychological factors influencing consumer decisions in the context of CE are also critical. Studies have demonstrated that emotional responses, often governed by the brain's limbic system, play a significant role in consumer choices. For example, a study by Hubert and Kenning (2008) indicated that consumers' emotional connections to products and brands significantly influence their purchasing decisions, including those related to sustainable products within the CE framework.

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