

An Interdisciplinary Systematic Literature Review: Valuation and Prioritisation in Everyday Life across Economics, Biology, and Behavioral Science

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Abstract: *Decision-making in everyday life requires individuals to constantly assign value to options and prioritize among competing alternatives. This process of valuation and prioritisation is studied across multiple disciplines, including economics, biology, and behavioral science. This systematic literature review integrates insights from these domains to provide a holistic understanding of how individuals evaluate choices and allocate resources such as time, effort, and attention. The review synthesizes theoretical and empirical studies to explore how rational models, evolutionary mechanisms, and cognitive biases influence decision-making. Findings indicate that valuation is not purely rational but is shaped by biological constraints, environmental factors, and psychological tendencies. The paper highlights interdisciplinary convergence and identifies gaps for future research, particularly in real-world decision contexts.*

Keywords - Biology, Behavioral Economics, Cognitive Science, Decision-Making, Evolutionary Biology

1. INTRODUCTION

Everyday life involves continuous decision-making, from simple choices like selecting food to complex decisions such as financial investments or career planning. These decisions require individuals to evaluate alternatives and rank them based on perceived importance or utility.

Traditional economic theory assumes that individuals behave rationally, aiming to maximize utility. However, research in behavioral science and biology has challenged this assumption by demonstrating that decision-making often deviates from rational principles due to cognitive limitations, emotional influences, and evolutionary adaptations.

This paper aims to systematically review literature across economics, biology, and behavioral science to understand how valuation and prioritisation occur in real-life contexts. By integrating these perspectives, the study provides a comprehensive view of human decision processes.

2. METHODOLOGY OF REVIEW

This systematic review follows a structured approach to identify, evaluate, and synthesize relevant literature.

2.1 Data Sources

Relevant studies were collected from academic databases such as Google Scholar, Scopus, JSTOR, and PubMed, focusing on peer-reviewed journal articles, books, and conference papers.

2.2 Inclusion Criteria

- Studies focusing on valuation, choice behavior, or prioritisation
- Interdisciplinary research involving economics, biology, or behavioral science
- Empirical and theoretical contributions
- Publications in English

2.3 Exclusion Criteria

- Non-academic sources or opinion-based articles
- Studies unrelated to decision-making frameworks
- Duplicate or outdated studies lacking relevance

2.4 Review Approach

The selected literature was categorized into three thematic domains: economic perspectives, biological perspectives, and behavioral science perspectives. Comparative analysis was conducted to identify overlaps and distinctions across disciplines.

3. Theoretical Foundations of Valuation and Prioritisation

3.1 Foundations of Valuation

Valuation refers to determining the worth of goods, services, assets, or actions. The main theoretical bases include:

1.1 Utility Theory (Classical & Neoclassical Economics)

- Core idea: Value derives from the *utility (satisfaction)* an individual gains.
- Concepts:
 - Marginal utility: Additional satisfaction from one more unit.
 - Diminishing marginal utility: Each extra unit adds less value.
- Application:
 - Explains consumer choices and willingness to pay.
 - Forms the basis for demand curves.

Key implication:

Value is subjective, depending on individual preferences.

1.2 Labor Theory of Value (Classical Economics)

- Associated with Adam Smith, David Ricardo, Karl Marx.
- Core idea: Value stems from the amount of labor required to produce a good.
- Modern relevance:
 - Less used in mainstream economics.
 - Still influential in political economy and critiques of capitalism.

1.3 Market-Based Valuation

- Value determined through supply and demand interaction.
- Key mechanisms:
 - Competitive equilibrium
 - Price discovery in markets
- Widely used in:
 - Financial markets
 - Real estate
 - Commodity pricing

1.4 Discounted Cash Flow (DCF) Theory

- Core idea: Value equals the *present value of future cash flows*.
- Formula: $V = \sum \frac{CF_t}{(1+r)^t}$ $V = \sum (1+r)^{-t} CF_t$
- Key factors:
 - Time value of money
 - Risk (discount rate)
- Common in:
 - Corporate finance
 - Investment decision-making

1.5 Cost-Benefit Analysis (CBA)

- Used in public economics and project evaluation.
- Compares:

- Total expected benefits vs. total costs.
- Incorporates:
 - Quantitative and qualitative factors
- Helps determine:
 - Social or economic feasibility

1.6 Behavioral Economics

- Challenges purely rational valuation.
- Key insights:
 - Prospect theory (Kahneman and Tversky): losses weigh more than gains.
 - Biases (anchoring, framing effects)
- Implication:

Perceived value may differ from objective value.

2. Foundations of Prioritisation

Prioritisation deals with ranking alternatives when resources (time, money, effort) are limited.

2.1 Scarcity and Opportunity Cost

- Core principle of economics.
- Choosing one option means giving up the next best alternative.
- Foundation of all prioritisation decisions.

2.2 Rational Choice Theory

- Assumes individuals:
 - Have preferences
 - Aim to maximise utility
- Decision rule:
 - Choose the option with highest expected benefit

2.3 Multi-Criteria Decision-Making (MCDM)

- Used when decisions involve multiple conflicting criteria.
- Tools include:
 - Analytic Hierarchy Process (AHP)
 - Weighted scoring models
- Widely used in:
 - Project management
 - Policy decisions

2.4 Pareto Efficiency

- Allocation is efficient if:
 - No one can be made better off without making someone else worse off.
- Guides:
 - Resource allocation
 - Policy prioritisation

2.5 Risk and Uncertainty (Expected Utility Theory)

- Decisions made under uncertainty consider:
 - Probability of outcomes
 - Payoffs
- Expected value formula: $EV = \sum P_i \times Outcome_i$
- Used in:
 - Finance
 - Insurance
 - Strategic planning

2.6 Time Preference and Discounting

- Individuals prefer:
 - Immediate benefits over future ones.
- Leads to:

- Prioritising short-term vs. long-term outcomes
- Links with:
 - Interest rates
 - Investment decisions

2.7 Game Theory

- Studies strategic interaction between agents.
- Helps prioritise choices based on:
 - Expected actions of others
- Applications:
 - Negotiation
 - Competition
 - Public policy

3. Integrated Perspective: Valuation + Prioritisation

In practice, valuation and prioritisation are deeply interconnected:

Aspect	Role of Valuation	Role of Prioritisation
Resource Allocation	Determines worth	Chooses best use
Investment Decisions	Estimates returns	Selects projects
Policy Making	Measures impact	Ranks interventions
Business Strategy	Values opportunities	Allocates effort

4. Modern Applications

4.1 Business & Management

- Portfolio management (BCG matrix, ROI analysis)
- Strategic prioritisation frameworks (OKRs, KPI weighting)

4.2 Public Policy

- Health economics (QALY, DALY)

- Infrastructure prioritisation
- Environmental valuation

4.3 Technology & Innovation

- Product prioritisation (Agile frameworks)
- Value vs. effort matrices

5. Key Takeaways

- Valuation answers: *“What is something worth?”*
- Prioritisation answers: *“What should be done first?”*
- Both rely on:
 - Utility, scarcity, and trade-offs
 - Uncertainty and human behaviour
- Real-world decisions combine:
 - Quantitative models (DCF, EV)
 - Qualitative judgement (ethics, fairness, context)

3.1 Economic Perspective

In economics, valuation is typically associated with utility maximization. Classical models, such as Expected Utility Theory, suggest that individuals assign numerical values to outcomes and choose the option with the highest expected benefit.

However, real-world behavior often contradicts this assumption. Prospect Theory introduced by Kahneman and Tversky explains that individuals evaluate gains and losses asymmetrically, giving more weight to potential losses. Additionally, constraints such as limited information and transaction costs influence prioritisation decisions.

Resource allocation, opportunity cost, and marginal utility remain central concepts explaining how individuals prioritize competing alternatives.

3.2 Biological Perspective

From a biological standpoint, valuation processes are rooted in evolutionary survival mechanisms. Organisms prioritize actions that maximize survival and reproductive success.

Neuroscientific studies reveal that specific brain regions, such as the prefrontal cortex and the dopaminergic system, are actively involved in reward evaluation and decision-making. These systems help individuals assess risks, predict outcomes, and assign value to choices.

In animals, prioritisation behavior is evident in foraging decisions, where organisms must choose between energy gain and risk exposure. These patterns suggest that valuation mechanisms are adaptive and shaped by natural selection.

3.3 Behavioral Science Perspective

Behavioral science integrates psychological insights into decision-making, emphasizing that human choices are often influenced by biases, heuristics, and emotions.

Common cognitive biases affecting valuation include:

- Anchoring effect
- Loss aversion
- Availability heuristic
- Framing effects

Herbert Simon's concept of bounded rationality proposes that individuals do not optimize decisions but instead settle for satisfactory outcomes due to cognitive limitations. Emotional states, social influences, and past experiences also play a significant role in prioritisation.

4. Interdisciplinary Insights

4.1 Convergence across Disciplines

Despite different approaches, economics, biology, and behavioral science share several common elements:

- Recognition that decision-making involves trade-offs
- Importance of constraints (time, resources, information)
- Role of uncertainty in shaping choices

4.2 Divergence in Approaches

- Economics emphasizes rational and formal models
- Biology focuses on survival-driven behavior and neural mechanisms
- Behavioral science highlights irrational tendencies and psychological influences

4.3 Integrated Framework

An integrated approach suggests that valuation is a multi-layered process influenced by rational calculations, biological instincts, and psychological factors. This framework provides a more realistic understanding of how decisions are made in everyday life.

5. Applications in Everyday Life

5.1 Financial Decision-Making

Individuals evaluate savings, investments, and expenditures based on both rational calculations and emotional factors like risk perception.

5.2 Health and Lifestyle Choices

Prioritisation of health behaviors such as exercise and diet is influenced by immediate gratification versus long-term benefits.

5.3 Time Management

Allocation of time among work, leisure, and personal commitments reflects value judgments shaped by individual preferences and external pressures.

5.4 Consumer Behavior

Purchasing decisions are often guided by marketing cues, social influence, and perceived value rather than objective utility.

6. Challenges and Limitations in Existing Literature

- Lack of integration across disciplines
- Over-reliance on controlled experiments rather than real-life settings
- Cultural and contextual variations often ignored
- Limited longitudinal studies on decision patterns

7. Future Research Directions

- Development of unified interdisciplinary models
- Increased use of real-world data and behavioral tracking
- Exploration of cultural and societal influences on valuation
- Application of artificial intelligence in analyzing decision patterns

8. Conclusion

Valuation and prioritisation are fundamental aspects of human behavior that influence everyday decision-making. While economics provides structured models of rational choice, biology explains underlying neural and evolutionary mechanisms, and behavioral science reveals the role of cognitive biases and emotions.

An interdisciplinary approach offers a more comprehensive and realistic understanding of how individuals assign value and prioritize actions. Future research should aim to bridge these fields further to enhance both theoretical insights and practical applications.

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