Individuals with Constrained Rationality in Social Context and Their Ideal Behavioral Objectives: Beyond the Homo Economicus Paradigm

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Abstract

The foundational assumptions of Western economics, centered on the "rational economic man" and the "maximization of behavioral goals," did not emerge in isolation but evolved from interpretations of Adam Smith's "invisible hand" metaphor, later formalized through the rigorous hypothesis-deduction framework of neoclassical economics. This paper undertakes a critical reevaluation of these premises by tracing their intellectual lineage from the classical economics of the 18th and 19th centuries through the transformative Marginal Revolution of the late 19th century. We argue that behavioral economics' concept of "bounded rationality" represents a fundamental challenge to neoclassical orthodoxy, as it acknowledges the dual rational-irrational nature of real-world "social actors"-individuals whose decisions are shaped by cognitive limits, emotional responses, and social contexts. Through a detailed analysis of the Allais Paradox, which exposes inconsistencies in expected utility theory, and empirical studies of altruistic behavior, we demonstrate that human objectives extend far beyond mere economic maximization, integrating non-economic utilities such as fairness, social recognition, and moral satisfaction. However, both neoclassical economics and behavioral economics remain constrained by their adherence to methodological individualism, a perspective that limits their ability to explain large-scale socio-structural phenomena such as inequality, institutional change, and class dynamics. To address this limitation, we propose a synthetic framework that integrates Marxian analyses of social relations and power structures with evolutionary institutionalism, offering a more holistic approach to economic anthropology-one that situates individual behavior within broader historical, social, and institutional contexts.

Keywords: bounded rationality, neoclassical economics, behavioral economics, Allais Paradox, social man, behavioral goal optimization

1. Historical Foundations: From Classical Economics to the Marginal Revolution

1.1 Emergence of Classical Political Economy

The mid-17th century marked a pivotal shift in economic thought, as the rise of capitalism gradually supplanted feudalism, prompting scholars to redefine the nature and purpose of economic inquiry. This era gave birth to bourgeois political economy, a field pioneered by figures such as William Petty, whose work laid the groundwork for quantitative economic analysis, and culminated in two monumental texts: Adam Smith's *The Wealth of Nations* (1776) and Karl Marx's *Capital* (1867). Smith's work, though later criticized by Marx as part of what he termed "vulgar economics"—a phase where economic theory divorced itself from the study of class conflict—established three enduring analytical pillars that continue to shape economic discourse.

a) Division of Labor: Smith identified the division of labor as the cornerstone of productivity growth and market expansion. In *The Wealth of Nations*, he famously described a pin factory where workers specialized in distinct tasks, arguing that such specialization increased efficiency by reducing the time wasted in switching between activities and allowing workers to hone specific skills. This insight led him to link the extent of the division of labor to the size of the market, positing that larger markets enable greater specialization, creating a self-reinforcing cycle of growth.

b) Value Theory: Classical economists grappled with the distinction between use value and exchange value, a tension that remains central to economic theory. Smith, for instance, noted that while water has immense use value (essential for survival), its exchange value is low, whereas diamonds, with little practical use, command high prices. This puzzle, later known as the "diamond-water paradox,"

exposed a limitation in classical value theory, which initially tied value to the labor required for production. Smith's attempt to resolve this tension by conflating value with factor incomes—wages, profit, and rent—was later critiqued by Marx as "Smith's Dogma," as it obscured the role of surplus value in capitalist accumulation.

c) Invisible Hand: Smith's "invisible hand" is often misinterpreted as an endorsement of unregulated markets, but a closer reading reveals a more nuanced perspective. Spanning merely three paragraphs in *The Wealth of Nations*, the metaphor described the unintended social benefits that arise from individuals pursuing their self-interest within institutional constraints. Smith emphasized that such benefits depend on a framework of laws, norms, and moral sentiments that guide behavior toward socially productive ends. For example, he argued that merchants, in seeking to maximize their profits, inadvertently distribute resources in ways that benefit society as a whole, but this outcome is not guaranteed in the absence of trust, legal enforcement, or ethical conduct.

Classical economists, including David Ricardo, struggled to resolve the diamond-water paradox, as their labor theory of value could not explain why non-essential goods like diamonds were valued more highly than essential ones like water. This theoretical impasse set the stage for the Marginal Revolution, a intellectual breakthrough that would redefine value theory and lay the foundations of modern neoclassical economics.

1.2 The Marginal Revolution: Resolving the Value Paradox

In the 1870s, three economists—William Stanley Jevons in England, Carl Menger in Austria, and Léon Walras in Switzerland—independently revolutionized economic thought through the development of marginal utility analysis. This shift redirected the focus of value theory from the objective costs of production (as emphasized by classical economists) to the subjective valuations of consumers, fundamentally altering how economists understood prices and decision-making. The Marginal Revolution gave rise to two distinct but complementary schools of thought:

a) Psychological School (Austrian): Led by Carl Menger, this school emphasized "subjective utility determinism," arguing that the value of a good is determined by the individual's subjective perception of its ability to satisfy a want. Menger prioritized individual preferences and methodological individualism, the idea that all economic phenomena can be explained by analyzing the choices of individual actors. For Menger, economic theory should begin with the study of individual decision-making, as aggregate economic outcomes are merely the sum of these individual choices. This perspective rejected the holistic analyses of classical economists like Marx, who focused on class relations and systemic dynamics.

b) Mathematical School: Jevons and Walras, in contrast, sought to formalize economic analysis using calculus, developing models of market equilibrium that remain central to neoclassical economics. Jevons, in *The Theory of Political Economy* (1871), introduced the concept of marginal utility as the additional satisfaction derived from consuming one more unit of a good, arguing that the value of a good is determined by its marginal utility rather than its total utility. Walras extended this work by developing general equilibrium theory, which models the interactions of multiple markets, showing how prices adjust to balance supply and demand across the entire economy.

These developments resolved the diamond-water paradox: while water has high total utility, its marginal utility is low because it is abundant; diamonds, being scarce, have high marginal utility, even though their total utility is low. However, the Marginal Revolution also inherited a critical limitation from classical economics: a neglect of the social embeddedness of economic behavior. By focusing on individual preferences and market interactions in isolation, neoclassical economists sidelined questions of power, institutions, and social structure. Marx's labor theory of value, which systematically analyzed how value is created, appropriated, and distributed within capitalist systems, was largely marginalized in mainstream discourse, as it challenged the individualistic and equilibrium-focused framework of neoclassical economics.

2. Neoclassical Synthesis vs. Behavioral Revolt: Divergent Epistemologies

2.1 Neoclassical Economics: The Mechanistic Orthodoxy

Alfred *Marshall's Principles of Economics* (1890) marked a pivotal moment in the history of economic thought, synthesizing classical theories of production costs with marginalist theories of utility to establish neoclassical economics as the dominant paradigm. This synthesis provided a unified framework for

analyzing both supply (based on costs) and demand (based on utility), and its core tenets remain influential in mainstream economics today.

2.1.1 The "Homo Economicus" Construct

Neoclassical economics operationalizes rationality through the construct of "Homo economicus"—a hypothetical individual whose behavior is governed by three key traits:

a) Self-Interest: As defined by Francis Ysidro Edgeworth in *Mathematical Psychics* (1881), Homo economicus is exclusively motivated by material gain. This assumption simplifies analysis by reducing human motivation to a single, measurable objective: maximizing utility (for consumers) or profit (for firms).

b) Consistency: Following Paul Samuelson's formalization in 1938, neoclassical theory assumes that individual preferences are transitive—if a person prefers A to B and B to C, they must prefer A to C—and stable across contexts. This consistency allows economists to model preferences as a utility function, enabling mathematical predictions of behavior.

c) Computational Omniscience: Homo economicus is assumed to possess perfect information and unlimited computational ability, allowing them to solve complex optimization problems instantaneously. For example, a consumer is presumed to calculate the optimal bundle of goods to maximize utility, considering all possible prices and income levels, while a firm can perfectly forecast market demand to maximize profits.

This reductionist model of human behavior enabled elegant mathematical modeling, but it came at the cost of psychological and sociological realism. By abstracting away emotions, cognitive limits, and social influences, neoclassical economics created a theory that was internally consistent but often disconnected from real-world behavior.

2.1.2 Methodological Individualism & Microfoundations

Neoclassical economics is grounded in methodological individualism, the principle that all macroeconomic phenomena—from inflation to economic growth—must be derived from the behavior of individual agents. This perspective, championed by economists like Robert Lucas in the 1970s, holds that aggregate outcomes are nothing more than the sum of individual choices, and thus cannot be explained by reference to "collective" entities like classes or institutions.

a) Elevation of Markets: Methodological individualism leads neoclassical economics to prioritize markets as the primary mechanism for coordinating economic activity. It assumes that decentralized choices by self-interested individuals will spontaneously lead to Pareto efficiency—a state where no one can be made better off without making someone else worse off—via the "invisible hand."

b) Neglect of Macroscopic Emergence: This approach rejects the idea that macroeconomic phenomena can have "emergent" properties irreducible to individual behavior. For example, it struggles to explain systemic crises like the Great Depression, which arise from interactions between individuals rather than the choices of any single actor. It also marginalizes analyses of institutional or class dynamics, which are seen as irrelevant to understanding economic outcomes.

c) Enshrinement of Equilibrium: Neoclassical models depict economies as self-correcting systems that tend toward a state of equilibrium, where supply equals demand and no individual has an incentive to change their behavior. This focus on stasis ignores the dynamism of real economies, which are characterized by technological innovation, institutional change, and power asymmetries. As economist Alan Kirman argued in 1992, the assumption of equilibrium oversimplifies the complexity of economic interactions, leading to models that are theoretically elegant but empirically fragile.

2.2 Behavioral Economics: Challenging the "Hard Core"

Emerging in the mid-20th century, behavioral economics sought to bridge the gap between economic theory and psychological reality, drawing on experimental evidence to challenge the neoclassical axioms of rationality and maximization. Key figures such as Herbert Simon, Daniel Kahneman, and Amos Tversky demonstrated that human behavior often deviates from the predictions of Homo economicus, offering a more nuanced understanding of decision-making.

2.2.1 Bounded Rationality: The Core Premise

Herbert Simon's concept of "bounded rationality," introduced in 1955, was a foundational challenge to neoclassical assumptions. Simon argued that human rationality is limited by three key constraints:

a) Information Constraints: Individuals have access to only a subset of all available information, and processing even that information is costly in terms of time and cognitive effort. For example, a consumer shopping for a car cannot realistically research every model, dealer, and financing option, nor can they accurately predict future maintenance costs or resale value.

b) Heuristics: To cope with information overload, individuals rely on mental shortcuts, or heuristics, which often lead to systematic biases. Examples include the availability heuristic (judging the likelihood of an event based on how easily examples come to mind) and the representativeness heuristic (judging probability based on similarity to a prototype). While these heuristics are adaptive in many contexts, they can lead to errors in judgment—such as overestimating the risk of rare events like plane crashes because they are vividly reported in the news.

c) Satisficing: Rather than seeking the optimal solution, individuals often settle for a "good enough" outcome—a behavior Simon termed "satisficing." For instance, a job seeker might accept the first offer that meets their minimum salary and location requirements, rather than continuing to search for the perfect role.

Contrary to common misconceptions, bounded rationality does not equate to irrationality. As Gerd Gigerenzer and Reinhard Selten argued in 2001, it describes *procedurally rational* decisions—choices that are adaptive given the constraints of time, information, and cognitive capacity. Bounded rationality thus shifts the focus from whether behavior conforms to abstract axioms of rationality to whether it is effective in achieving real-world goals.

2.2.2 "Invisible Handwave": Thaler's Reconceptualization

Richard Thaler, a leading figure in behavioral economics, parodied Smith's "invisible hand" as the "invisible handwave" in his 2015 book *Misbehaving*—a term he used to critique neoclassical economists' tendency to dismiss market inefficiencies by invoking the idea of an optimal equilibrium, rather than addressing the psychological biases that cause these inefficiencies. Three key biases illustrate this point:

a) Endowment Effect: As demonstrated by Daniel Kahneman, Jack Knetsch, and Richard Thaler in 1990, individuals often demand much more to give up an object than they would be willing to pay to acquire it. For example, people who are given a coffee mug typically refuse to sell it for less than twice the price they would pay to buy it—a behavior inconsistent with neoclassical models of rational valuation.

b) Present Bias: Individuals tend to discount future rewards more heavily than rational models predict, a phenomenon known as hyperbolic discounting. As David Laibson showed in 1997, people often choose a smaller immediate reward (e.g., $100 today) over a larger delayed reward (e.g., $150 in a month), even though they would prefer the larger reward if both are delayed (e.g., $100 in a year vs. $150 in 13 months). This bias helps explain behaviors like overspending, undersaving, and procrastination.

c) Social Preferences: Contrary to the neoclassical assumption of pure self-interest, individuals often care about fairness, reciprocity, and the well-being of others. Ernst Fehr and Klaus Schmidt demonstrated in 1999 that people will reject unfair offers in ultimatum games—where one player proposes a split of money and the other can accept or reject it—even when rejecting means receiving nothing. This willingness to sacrifice material gain to punish unfairness challenges the idea that self-interest is the sole driver of behavior.

By highlighting these biases, behavioral economics refocuses economic inquiry on *why* markets fail, examining phenomena such as poverty traps (where present bias leads to underinvestment in education), rising inequality (amplified by endowment effects in asset ownership), and maladaptive incentives (shaped by social preferences for fairness).

2.2.3 Reductionism and Ontological Commitments

Behavioral economics employs what Nicholas Wilkinson termed "explanatory reductionism" in 2008—a approach that seeks to explain complex economic phenomena by reducing them to individual cognitive processes. This method follows a three-step logic:

a) Identify the Phenomenon: A market anomaly or social trend (e.g., stock market bubbles, charitable giving).

b) Reduce to Individual Mechanisms: Trace the phenomenon to specific cognitive biases or heuristics (e.g., overconfidence in the case of bubbles, warm-glow feelings in the case of giving).

c) Ground in Neurocognitive or Evolutionary Foundations: Explain these biases using insights from neuroscience or evolutionary psychology (e.g., the brain's reward system, the adaptive value of reciprocity in early human societies).

While this approach has enriched microeconomic foundations by making them more psychologically realistic, it retains the methodological individualism of neoclassical economics. By focusing on individual cognition, behavioral economics often neglects the role of social structures—such as institutions, power relations, and cultural norms—in shaping behavior. For example, it can explain why individuals contribute to public goods but struggles to account for why contribution rates vary dramatically across societies with different institutional histories.

3. Reconceptualizing Rationality and Objectives: From Maximization to Optimization

3.1 Bounded Rationality and the Rationality-Altruism Nexus

The nature of rationality—whether it is a premise, a tool, or a goal—remains a contested terrain in economic theory, with different schools offering distinct perspectives:

a) Neoclassical Economics: Treats rationality as an axiomatic precondition for modeling. It assumes that individuals *must* be rational (in the sense of maximizing utility) for economic models to be mathematically tractable, even if this assumption deviates from reality.

b) Austrian School: Defines rationality as purposive action, as Ludwig von Mises argued in 1949. For Austrians, all human behavior is rational by definition because it is directed toward achieving some end, regardless of whether the means chosen are effective. This perspective avoids empirical testing of rationality, focusing instead on the logic of choice.

c) Behavioral Synthesis: Views bounded rationality as a descriptive reality, capturing how individuals actually make decisions under constraints. It rejects the neoclassical focus on axiomatic consistency in favor of explaining real-world behavior, even when it deviates from idealized rationality.

Daniel Kahneman's concept of "Regression to the Mean," outlined in his 2011 book *Thinking, Fast and Slow*, helps resolve the false dichotomy between rationality and irrationality. Kahneman argues that while short-term behavior may be influenced by cognitive biases (e.g., panic selling during a stock market crash), long-term behavior tends to converge toward contextually "rational" goals, as individuals learn from mistakes and adapt to changing circumstances. Even seemingly irrational acts, such as financial fraud, often serve self-interested ends when viewed in context, as George Akerlof and Robert Shiller suggested in 2011—fraudsters may exploit others' biases to maximize their own gains, a strategy that is "rational" from a narrow self-interested perspective.

Evolutionary economics offers a complementary explanation for altruism, framing it as an adaptive trait that enhances group survival. Samuel Bowles and Herbert Gintis argued in 2011 that altruistic behaviors, such as cooperation and reciprocity, evolved because they allowed early human groups to outcompete more selfish groups. Over time, institutions such as norms of fairness and punishment for free-riders coevolved with these behaviors, reinforcing altruism as a social norm. This perspective positions evolutionary economics as a "third paradigm," alongside neoclassical economics and Marxism, as Jia Guoliang suggested in 2011, offering a dynamic, interdisciplinary approach to understanding human behavior.

3.2 The Allais Paradox: Maximization ≠ Optimization

Maurice Allais's 1953 experiment, known as the Allais Paradox, exposed a critical flaw in neoclassical economics' Expected Utility Theory (EUT), which posits that individuals make rational choices under risk by maximizing the expected value of their utility. Allais demonstrated that people's preferences often reverse when presented with logically equivalent choices, violating EUT's core axioms.

The paradox reveals three key insights:

a) Context-Dependent Preferences: Choices depend on how options are framed, violating EUT's independence axiom, which requires that preferences between two options not be affected by irrelevant alternatives. In the gains scenario, people overweight the certainty of winning £100, even though the expected value of B is higher (£100*0.89* + *£500*0.10 = £139 vs. £100 for A). In the losses scenario, they become risk-seeking to avoid a certain loss, even though the expected value of D is worse than C.

b) Psychological Utility ≠ Economic Value: Losses are psychologically more impactful than equivalent gains, a phenomenon known as loss aversion. As Kahneman and Tversky showed, losing £100 generates roughly twice as much disutility as gaining £100 generates utility. This asymmetry explains why people are willing to take greater risks to avoid losses than to pursue gains.

c) Satisficing Dominates Maximizing: Individuals often prioritize avoiding regret over achieving theoretically optimal outcomes. In the gains scenario, choosing B carries the risk of getting nothing, which could lead to regret; choosing A eliminates this risk, even if it means forgoing a higher expected payoff. This focus on emotional outcomes over mathematical optimization further undermines the neoclassical assumption of maximization.

Choice Scenario	EUT Prediction	Observed Behavior	Cognitive Bias
Gains:			
A: £100 (100%)	U(A) < U(B)	A chosen	Certainty Effect
B: £500 (10%), £100 (89%), £0 (1%)	Choose B		(Overweighting certainty)
Losses:			
C: £100 (11%), £0 (89%)	U(C) < U(D)	D chosen	Loss Aversion
D: £500 (10%), £0 (90%)	Choose C		(Risk-seeking to avoid loss)

4. Conclusion: Toward an Institutional-Behavioral Synthesis

The hegemony of the "rational economic man" has constrained economics' ability to explain real-world behavior, reducing complex social phenomena to simplistic models of utility maximization. While behavioral economics has successfully challenged neoclassical assumptions about rationality and objectives, its continued adherence to methodological individualism limits its explanatory power, particularly when analyzing large-scale social and institutional dynamics. To overcome these limitations, we propose two paths toward a more holistic framework:

a) Embrace Evolutionary Institutionalism

Institutions—norms, rules, and organizations—scaffold bounded rationality, enabling collective optimization that is unattainable through individual action alone. Elinor Ostrom demonstrated in 2005 that communities often develop informal institutions to manage common resources (e.g., fisheries, forests) sustainably, overcoming the "tragedy of the commons" through norms of reciprocity and collective punishment. These institutions reduce cognitive burdens by providing shared frameworks for decision-making, allowing individuals to coordinate their actions without perfect information or computational ability. Evolutionary institutionalism, which studies how institutions coevolve with behaviors over time, transcends the individualism-reductionism impasse by situating individual choices within evolving social structures.

b) Develop Neuro-Socio-Economic Models

A truly interdisciplinary approach must integrate insights from cognitive neuroscience, social network analysis, and institutional evolution:

i. Cognitive Neuroscience: Research by Colin Camerer, George Loewenstein, and Drazen Prelec in 2005 has identified neural substrates of decision-making, such as the role of the prefrontal

cortex in self-control and the amygdala in processing losses. This helps explain why bounded rationality manifests consistently across contexts.

ii. Social Network Analysis: Damon Centola showed in 2021 that peer effects amplify cognitive biases, as individuals learn heuristics from others in their social networks. For example, financial panics spread through networks, with fear-driven selling by a few actors triggering broader irrational behavior.

iii. Institutional Evolution: Geoffrey Hodgson argued in 2015 that institutions and behaviors coevolve, with rules shaping choices and choices, in turn, reshaping rules. For instance, norms of fairness in ultimatum games may have emerged alongside institutions like contract law, reinforcing each other over time.

Economics must transcend the false dichotomy between Homo economicus and bounded rationality. The "social man" acts within institutional ecosystems, pursuing contextually rational goals that blend material and symbolic utilities. Only by synthesizing behavioral realism with institutional-structural analysis can economics fulfill its promise as a science of human flourishing—one that explains not just how individuals make choices, but how societies can design institutions that enable those choices to serve collective well-being.

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