
Rethinking Economics: From Classical Assumptions to Cognitive Reality

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Abstract

Since the eighteenth century, economics has drawn its view of human behaviour from moral philosophy rather than empirical observation. Ideas that began as heuristics in the writings of ADAM SMITH—about self-interest, exchange, and the harmony of markets—gradually hardened into the axioms of classical theory. Although anthropology, psychology, and behavioural research have since challenged these assumptions, the discipline continues to build upon them as if they were empirical truths. Here we re-examine seven canonical claims that still frame economic thought: the myth of barter, the doctrine of self-interest, the rational actor, the utility function, the aggregation of individuals, the equilibrium ideal, and the invisible hand. For each, we trace its intellectual origin and contrast it with contemporary evidence on how people actually coordinate and exchange. Together, these cases reveal a discipline built on historical invention rather than observation, and show how economics can be re-anchored in real human behaviour.

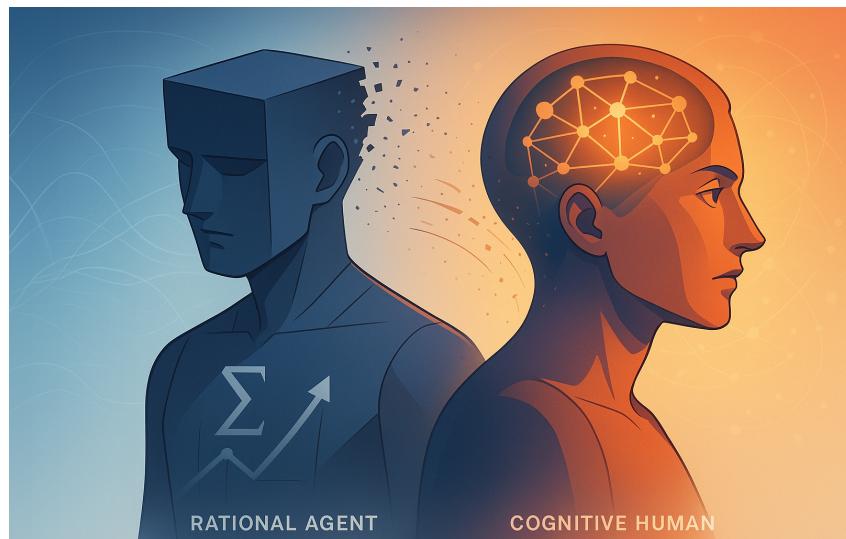


Figure 1: **From Rational Agent to Cognitive Human:** Conceptual illustration of the reconstruction of economic theory—from a rational, calculating agent to a cognitively grounded human mind.

1 Introduction

Since the eighteenth century, economics has drawn its view of human behaviour from moral philosophy rather than empirical observation. Ideas that began as metaphors in the writings of ADAM SMITH—about self-interest, exchange, and the harmony of markets—gradually solidified into the axioms of classical theory. Over time these assumptions were refined mathematically, not re-examined empirically, producing a system that is internally consistent but increasingly detached from how people actually act and cooperate.

The modern crisis of economics began with the rise of behavioural economics. A wave of experimental findings—framing effects Tversky and Kahneman [1981], anchoring Kahneman and Tversky [2013], loss aversion Tversky and Kahneman [1974], and preference reversals Lichtenstein and Slovic [1971]—revealed systematic departures from the predictions of rational-choice theory. These results exposed deep flaws in the assumption of the rational actor that had long served as the discipline’s behavioural foundation. Yet the response of economics was largely corrective rather than structural: the anomalies were patched as “biases” and “bounded rationality,” leaving the underlying conception of decision-making intact Simon [1955], Kahneman [2003], Gigerenzer [1996].

An even deeper problem lies in the discipline’s origin story. The familiar tale of barter—individuals trading goods until money was invented to ease exchange—has no historical basis Malinowski [2013], Sahlins [2013], Mauss [2024], Polanyi [2002]. Anthropological and comparative evidence shows that early communities, human and non-human alike, relied on reciprocity rather than direct barter. Exchange emerged as a mechanism of social coordination, not as value-for-value trade. Yet modern economics evolved from this fiction into a mathematics of value-for-value trade, losing touch with the behavioural processes it was meant to explain.

Here we revisit seven canonical claims that still structure economic thinking, from the barter myth and the doctrine of self-interest to rationality, utility, aggregation, equilibrium, and the invisible hand. By tracing how these ideas entered the discipline and contrasting them with empirical evidence, we outline how economics can be re-anchored in observed behaviour and cognitive reality.

Our contribution. This paper offers a conceptual reassessment of the foundations of economics. We revisit seven canonical claims that have shaped the discipline since ADAM SMITH—from the barter myth and the doctrine of self-interest to rationality, utility, aggregation, equilibrium, and the invisible hand. For each, we trace its intellectual origin, identify the assumptions embedded within it, and contrast these with empirical evidence from anthropology, psychology, and behavioral research. Our aim is to rebuild the conceptual foundations of economics around what human behaviour actually reveals, offering a more empirical and cognitively coherent understanding of economic coordination.

2 The Conceptual Architecture of Classical Economics

Classical economics emerged from the moral philosophy of the eighteenth century. ADAM SMITH framed markets as systems of mutual dependence, guided by self-interest but moderated by social sympathy Smith [2002, 2010]. Later interpretations, however, abstracted away the social dimension and retained only the logic of self-interest. Economics inherited Smith’s moral vocabulary but lost his moral philosophy.

In the nineteenth century, the marginalist revolution transformed moral reflection into mathematical form. Thinkers such as JEVONS Jevons [2013], MENGER Menger and Menger [1923], and WALRAS Walras [1900] redefined economic life as the optimisation of individual utility. This shift converted exchange from a social process into a calculus of preference and equilibrium, giving the discipline its first fully closed theoretical system.

By the twentieth century, figures like SAMUELSON Shavell [2004], ARROW Arrow [2020], and DEBREU Debreu [1959] formalised these assumptions into a rigorous but self-contained architecture. Rationality, utility, equilibrium, and the invisible hand became the discipline’s organising axioms. What began as a moral inquiry into coordination solidified into a mathematical metaphysics—an internally elegant model increasingly detached from empirical human behaviour.

3 Revisiting the Conceptual Pillars of Classical Economics

3.1 The Barter Myth: A Fictional Origin of Exchange

Economics textbooks often begin with ADAM SMITH’s parable of barter: individuals exchanging goods directly in a pre-monetary world until the invention of money solved the inefficiencies of trade Smith [2002]. Yet this origin story, repeated for centuries, has no historical basis. Anthropological research—from MAUSS (1925) Mauss [2024] and the KULA RING (Malinowski, 1922) Malinowski [2013] to SAHLINS (1972) Sahlins [2013]—has found no known society that operated on pure barter as its dominant mode of exchange. What early communities actually relied upon was *reciprocity*: a web of giving, obligation, and delayed return that bound social relations long before markets or prices existed. Notably, reciprocity is not a uniquely human invention but a widespread social behavior observed across cooperative animals—from chimpanzees grooming partners De Waal [1997] to vampire bats sharing food Wilkinson [1984]. In this light, reciprocity can be seen as the biological and cognitive form of exchange—the substrate from which economic interaction evolved.

The textbook story begins with barter because it fits a convenient logic: economic life emerging from self-interested individuals solving coordination problems through direct trade. But barter, as a real mechanism, is fragile and unsustainable. It fails for three structural reasons:

1. **Double coincidence** — both parties must want exactly what the other offers at the same moment, an improbable condition in any diverse community.
2. **Equivalence** — even when trade occurs, disagreement over “fair value” quickly destabilizes interaction and erodes trust.
3. **Cognitive load** — constant mental bookkeeping of ratios and prices is unrealistic without external records or shared norms.

By contrast, *reciprocity* circumvents these limits. It relies on *memory* rather than simultaneity, *relationships* rather than equivalence, and *flexible return* rather than fixed price—a primitive social credit system that sustains cooperation without requiring a market.

The endurance of the barter myth reveals more than a historical error. It marks a deeper conceptual inversion: the belief that social order emerges from exchange, when in fact exchange emerges from social order. Reversing that logic is the first step toward rebuilding economics on its real foundation—reciprocal interaction.

3.2 Self-Interest: The Moral Misreading of Human Motivation

The idea that human behavior is driven by self-interest traces back to the moral philosophy of the eighteenth century. For ADAM SMITH, self-interest was not greed but a neutral psychological motive—a way to explain how individuals, acting for their own ends, could still produce collective order through exchange Smith [2002, 2010]. Later economists stripped away Smith’s moral tension and turned self-interest into a mechanical axiom: every agent seeks to maximize personal utility Jevons [2013], Menger and Menger [1923], Walras [1900]. What began as a cautious attempt to reconcile ego and virtue thus hardened into a mathematical dogma. The economy became a theater of isolated optimizers, each calculating gains, rather than a system of interdependent participants maintaining a shared world.

In reality, the capacity to exchange does not arise from moral elevation but from structural necessity. At its root, economic life is a form of social coordination—a way for individuals with different needs and abilities to sustain mutual dependence without collapse. Division of labor arises naturally within such coordination: as roles differentiate and outputs are shared, everyone gains more than acting alone.

Reciprocity, therefore, is not a moral ideal but a functional design of social species. It allows specialization to endure: hunters share with gatherers, farmers with artisans, experts with laypeople. Such cooperation is sustained not by altruism, but by stabilizing strategies that maintain interdependence over time. In this sense, reciprocity is the signature trait of a social animal—a cognitive adaptation that turns mutual dependence into collective strength and cumulative productivity.

3.3 Rationality and Homo Economicus: The Wrong Primitive of Economic Behavior

The modern image of the economic agent emerged from the nineteenth and early twentieth centuries, when economists sought to formalize human behavior through the language of reason. From EDGEWORTH Edgeworth [1881] and WALRAS Walras [1900] to SAMUELSON Samuelson [1948], the assumption of rationality provided mathematical closure: if each agent is rational, then aggregate behavior can be modeled as equilibrium. This simplification allowed elegant equations but concealed a deep conceptual error. Rationality was never an observation—it was a placeholder. It filled the void left by the absence of a mechanistic account of how decisions, preferences, and cooperation actually arise.

In reality, humans are not rational actors, and even the notion of “bounded rationality” only narrows the error without fixing it Simon [1955]. Decades of behavioral and experimental research have shown that real decisions consistently violate the assumptions of *Homo Economicus* Henrich et al. [2001, 2005]—people display framing effects Tversky and Kahneman [1981], loss aversion Tversky and Kahneman [1974], anchoring Kahneman and Tversky [2013], and other predictable patterns long recognized in economics and psychology. These are not deviations from rationality but expressions of how cognition actually operates. Human judgment is inherently context-dependent—fluid, adaptive, and historically shaped. It should not be described under any single label at all.

Economic models never needed rationality to begin with. The assumption persists only because earlier theories lacked access to the real primitives of behavior—individual recognition, reciprocal credence, and cost–return sensitivity Diau [2025]. These mechanisms are sufficient to generate exchange, cooperation, and market-like dynamics without invoking rational calculation.

A Note on Social Bond in Reciprocity

Reciprocity is often accompanied by social bonding and emotional attachment, further illustrating that exchange is not purely rational. These mechanisms stabilize cooperation over time by reducing the cognitive load of continuous valuation, explicit monitoring, and help individuals identify reliable partners for future interaction.

3.4 The Utility Function: When Mathematical Convenience Replaced Behavioral Reality

The concept of the utility function entered economics not as a discovery of human motivation but as a mathematical convenience. Nineteenth-century theorists such as JEVONS Jevons [2013], WALRAS Walras [1900], and EDGEWORTH Edgeworth [1881] sought to formalize the logic of exchange in precise terms, turning subjective satisfaction into a measurable function that could be maximized. Utility was never observed—it was inferred, invented to make the equations of trade solvable. By assigning each individual a continuous utility curve, economists could balance demand and supply, derive equilibrium, and simulate rational choice as if people were miniature optimization machines.

In reality, exchange has little to do with utility. People trade not because they can compute marginal satisfaction, but because they cannot do everything alone. The basis of economic life is *division of labor*: each person specializes in a subset of tasks and relies on others for the rest. Exchange emerges from interdependence, not from hedonic calculus. It coordinates different forms of production within a social network, allowing cooperation to scale beyond the limits of individual ability. The utility function replaced this relational logic with a solitary fiction—an individual maximizing numbers in isolation from the system that makes value possible.

3.5 Aggregation: The Illusion of Summed Rationality

Classical economics has long treated the economy as the sum of its individuals. From the marginalist revolution onward, theorists routinely derived market behavior by simply aggregating individual demand and supply curves—as if collective outcomes were a linear extension of private rationality Jevons [2013], Walras [1900]. This assumption underlies the representative-agent model and much of modern macroeconomics: if each person optimizes, the aggregate must do so as well Samuelson [1948], Debreu [1959]. Graphically, textbooks illustrate the market by stacking individual curves, implying that society behaves as a scaled-up version of a single rational agent.

In reality, aggregation destroys linearity. Economic systems are shaped by structural asymmetries and collective dynamics that make macro behaviour emergent rather than additive:

- **Heterogeneity** — individuals differ in preferences, information, and scale, ensuring that their actions cannot be linearly combined.
- **Power-law concentration** — influence and resources are unevenly distributed, with a small minority of agents exerting disproportionate impact.
- **Collective feedback** — interdependent actors generate nonlinear and path-dependent dynamics that give rise to emergent collective patterns and coordination effects beyond individual control.

The Sonnenschein–Mantel–Debreu theorem formalised this insight: even when all individuals are fully rational and well-behaved, the aggregate excess demand function can take virtually any form Sonnenschein [1972], Mantel [1974], Debreu [1974]. Micro-level optimisation therefore imposes no constraint on macro-level stability—the apparent rational order of the market is, in fact, a statistical illusion.

3.6 The Illusion of Equilibrium — When Dynamics Were Frozen into Math

The concept of equilibrium entered economics not as an empirical observation but as a mathematical necessity. In the late nineteenth and early twentieth centuries, theorists such as WALRAS and PARETO sought to express the economy as a system of simultaneous equations Ingrao et al. [1990]. To make those equations solvable, they assumed that markets clear, preferences are stable, and agents act synchronously in a timeless space Debreu [1959], Kirman [1992]. Equilibrium was therefore not discovered but constructed—a static solution invented to make human interaction compatible with algebra. It offered closure and elegance, yet in doing so it replaced the economy’s dynamic interdependence with a static mathematical image.

In reality, an economy is not a mechanical system seeking rest but a living network of reciprocal interactions. Because economic behavior arises from social reciprocity—a fundamental form of animal cooperation—it is inherently unstable, context-sensitive, and easily perturbed. Real economies function as *complex adaptive systems*: their balance is temporary, formed under changing conditions and sustained through continual adjustment. The static equilibrium of classical theory thus replaced a moving reality with a frozen ideal.

3.7 The Invisible Hand: The Myth of Automatic Order

The idea of the *invisible hand* entered economics through ADAM SMITH, who used it not as a mathematical law but as a moral metaphor. In *The Theory of Moral Sentiments* Smith [2010] and *The Wealth of Nations* Smith [2002], Smith described how individuals, by pursuing their own interests, could unintentionally contribute to collective outcomes. He never claimed that markets naturally settle into equilibrium; rather, he observed that social coordination can emerge without central control. Later economists, seeking formal closure, turned this metaphor into an equation—recasting moral observation as mechanical law.

From the perspective of complex systems, what Smith observed was not equilibrium but dynamic balance. Market order emerges from uneven interactions among agents, where influence follows a power-law distribution: a few dominant players exert disproportionate effects on collective outcomes Gabaix [2009, 2016]. This asymmetry produces a moving but recurrent structure—a dynamic equilibrium that appears stable at the macro level despite continuous local change. The so-called invisible hand is therefore not a stabilizing force but the emergent pattern of a self-organizing, nonlinear system. Because such systems are highly sensitive to perturbation, external interventions—especially incremental or “patch” policies—often trigger unanticipated cascades and distortions Pigou [2017], Coase [2013]. The paradox of the invisible hand is that what looks like harmony is, in fact, perpetual motion.

4 A Behavioral Reconstruction of Economics

The shortcoming of classical economics lies not in its mathematics but in its failure to capture how economic behaviour actually arises. Exchange did not begin as value-for-value trade but as a cognitive and social process of reciprocity. Early economists mistook this behavioural substrate for rational calculation, translating social reciprocity into the language of individual optimisation and utility. What began as an account of social coordination became a model of isolated reasoning—where human behaviour was treated as a deviation to be corrected rather than as the foundation of economic life.

Behavioural economics revealed the anomalies but never replaced the frame. It preserved the rational-actor architecture, treating deviations as statistical noise or context effects instead of questioning the premises themselves. A full reconstruction must rebuild the theory from its behavioural foundations—from the cognitive and social mechanisms that give rise to economic behaviour. Such a framework can be formalised through simulation and data-driven methods, linking behavioural mechanisms to emergent economic dynamics rather than to static mathematical equilibrium.

A behavioural reconstruction grounds formal theory in evidence from anthropology, psychology, and cognitive science. This shift moves the discipline from axiomatic equilibrium to behavioural dynamics—from an abstract calculus of choice to a model of interaction that reflects how economies actually evolve.

5 Conclusion

Revisiting the foundations of economics reveals that its central assumptions were never empirical laws but historical constructions. The discipline’s enduring myths—from barter and self-interest to rational optimisation and equilibrium—reduced human behaviour to a calculable fiction. Evidence from anthropology, psychology, and behavioural science points to a different foundation: economic life as an expression of reciprocity rooted in biological social cognition.

Reconstructing economics from these behavioural primitives invites a new kind of formalism—one that connects micro-level interaction to macro-level order through simulation and data-driven inference. Such an approach replaces abstract rationality with empirically grounded dynamics, reframing the ontology of economic life as a cognitive and social process. In doing so, economics can evolve from a theory of choice to a science of human behaviour.

Declaration of LLM Usage

The authors used OpenAI’s ChatGPT to assist in refining phrasing and improving clarity. All theoretical arguments and interpretations are original and authored by the researchers.

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