Journal of Teleological Science, v. 5, 2025, eISSN 2763-7123
Telos Publicações, Rio de Janeiro, Brazil

THE TELEOLOGICAL PROBLEM OF ECONOMIC RATIONALITY: MAXIMIZATION, BOUNDEDNESS, AND LIFE CYCLES

O PROBLEMA TELEOLÓGICO DA RACIONALIDADE ECONÔMICA: MAXIMIZAÇÃO, LIMITES E CICLOS DE VIDA

Rodrigo Laera
CONICET (National Scientific and Technical Research Council) and SADAF (Argentine Society for Philosophical Analysis), Argentine
rodrigolaera@gmail.com

Corresponding author:
rodrigolaera@gmail.com

Abstract

The objective of this work is to investigate the teleological problem represented by economic rationality, addressing three fundamental issues: (i) utility maximization that equates economic rationality with profit-seeking; (ii) the realization of ends through incremental rationality mechanisms; and (iii) the dependence of bounded rationality on life cycles. While these three issues are not the only ones that could be addressed, they should be considered relevant for a better understanding of the relationship between teleological rationality and economics.

Keywords: Economic rationality; utility maximization; teleology; incrementalism; life cycles.

Resumo

O objetivo deste trabalho é investigar o problema teleológico representado pela racionalidade econômica, abordando três questões fundamentais: (i) a maximização da utilidade, que equipara racionalidade econômica à busca pelo lucro; (ii) a realização de fins por meio de mecanismos de racionalidade incremental; e (iii) a dependência da racionalidade limitada em relação aos ciclos de vida. Embora essas três questões não sejam as únicas que poderiam ser exploradas, elas devem ser consideradas relevantes para uma melhor compreensão da relação entre racionalidade teleológica e economia.

Palavras-chave: racionalidade econômica; maximização da utilidade; teleologia; incrementalismo; ciclos de vida

Introduction

Economic rationality is understood as thinking focused on maximizing individual utility through the optimization of available resources over time (cf., Colander, 2005; 2015). It is particularly grounded in the notion that rational agents pursue their welfare and make decisions that enable them to achieve their objectives efficiently, considering their life cycle (e.g., Modigliani, 1970; 1986; Ghez & Baker, 1975; Deaton, 2005; Lee, Lee & Mason, 2008). Thus, economic rationality is focused on directing teleological strategies that are finite in decision-making, so cost-benefit analysis is employed within a timeframe and according to a criterion of contingent efficiency. This mode of thinking has evolved from the individualistic tradition (Arnsperger & Varoufakis, 2006; Herfeld, 2021) and has significantly influenced neoclassical economics, for instance, when analyzing microeconomic aspects of savings, investment, and consumption decisions, or when seeking micro-foundations for the formulation of macroeconomic models that integrate rational agent behavior in explaining aggregate phenomena such as growth, inflation, and unemployment (Kirman, 1992; Backhouse & Salanti, 1999; Vercelli, 2016).

However, this conception of rationality is not exempt from objections. For instance, its assumption that human beings are rational agents seeking to maximize their utility has been questioned, as this excludes the possibility of other factors influencing decision-making, such as chance, emotions, or uncertainty (e.g., Kahneman & Tversky, 1979; Rick & Loewenstein, 2008; Kahneman, 2011). Critics have also shown that while there are ways in which costs and benefits are managed rationally, these can lead to peculiar or even irrational decisions (Schelling, 1960; Akerlof & Shiller, 2015). It has been argued that economic rationalization cannot account for agents' psychological limitations and constraints in terms of time, resources, or information, making them vulnerable to calculation errors, comprehension mistakes, or susceptible to cognitive biases (e.g., Sen, 1977; Simon, 1957; 1978; Conlisk, 1996).

Precisely, this work aims to investigate the teleological problem inherent in economic rationality by examining three fundamental issues: (i) utility maximization and its equation with the profit motive; (ii) the achievement of ends through incremental rationality mechanisms, which represent an alternative form of practical reason aligned with agents' teleological dispositions within the framework of bounded rationality; and (iii) the dependence of bounded rationality on life cycles. While these three questions do not encompass all aspects of economic rationality, they provide important insights for understanding the relationship between teleological rationality and economic behavior.

Journal of Teleological Science, v. 5, 2025, eISSN 2763-7123
Telos Publicações, Rio de Janeiro, Brazil

Economic Rationality and Profit-Motive

Rationality is a key concept in neoclassical economics and refers to an individual's ability to decide efficiently while maximizing utility[1]. However, it is used not only to measure the consequences of contingent means but also to evaluate past means or events. As Lipton (1992) noted, economics is primarily concerned with outcomes rather than processes. The success or failure of a theory is measured by the evidence of achievements; coherence, elegance, or simplicity becomes secondary to the ends achieved. Naturally, economists employ models—such as those of perfect competition, bargaining to achieve Nash equilibrium, or optimization under imperfect information—that seek to capture how economic agents make intertemporal decisions, focusing on quantifiable results. In model validation, this feature emphasizes the epistemological superiority of observable results over in-depth procedural descriptions. A theoretical model's practical validity is successfully established when it produces accurate predictions that exhibit strong concordance with empirical evidence. Therefore, the specifics of a modeled process's underlying processes and strategic approaches become secondary if it successfully produces empirically confirmed results. This idea is consistent with the instrumentalist viewpoint in scientific research, which places more emphasis on empirical consistency and predicted accuracy than on fully describing internal processes[2].

Although the idea of maximizing profits by assuming that agents pursue their self-interest is useful, it overlooks constraints that have significant implications for understanding how economies function, complicating the comprehension of how outcomes are produced and subsequently improved. Constraints can take various forms, including legal norms, cultural standards, innovation and technology, resource endowments, organizational routines, prior experience, and the acquisition of new skills. All these factors influence agents' ability to perform certain actions while rendering others more difficult or outright impossible.

A simple example would be an economy entirely composed of small family farms selling agricultural products in local markets. Most farmers would likely agree that it makes sense to produce whichever crop is most profitable given market conditions, rationally maximizing profits. However, some crops are more labor-

[1]By the way, a concept inherited from Robbins (1932), for whom economics is "the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses". It is also pertinent to note that the development of this definition and the teleological notion of maximizing rationality are subjects that fall beyond the scope of the present study.

[2]Incidentally, this emphasis on the validity of outcome effectiveness appears similar to the project of methodological instrumentalism; see Friedman (1953).

intensive than others, requiring greater investment in land preparation, harvesting equipment, or storage facilities. Other crops demand specialized skills that must be gained through training and learning, while still others involve higher risks because they are more susceptible to adverse weather, pests, diseases, etc. As a result, farmers face different limitations when deciding which crops to plant. For some farmers, tobacco farming may be more profitable despite the higher risks because tobacco requires less land per unit produced compared to maize, and therefore the total cost of production per unit sold is lower. Other farmers may find growing maize more attractive, even if the yields are lower, because tobacco requires specialized skills they lack. The outcome of the entire rational decision-making process thus depends on the relative factor endowments, the relative risks associated with alternative activities, the technological possibilities, and the methods available to get new information about changing market conditions, etc.

Of course, this example oversimplifies reality by assuming many important details –such as competition among buyers, availability of secure credit, access to infrastructure, or institutional functioning– but it reflects the underlying structural conditions that shape the teleological performance of agents. Therefore, structural conditions cause going beyond traditional microeconomic models. Models narrowly focused on isolated decision-makers pursuing their self-interest, subject only to exogenous market forces, fall short of providing a complete picture of economic behavior (Akerlof, 2002). Instead, they require a broader examination of the social relationships within which economic rationality operates[3]. This perspective highlights the importance of integrating structural factors into economic analysis, moving away from purely individualistic assumptions toward a more comprehensive understanding of how agents interact within complex systems shaped by both internal and external constraints.

A convenient way to advance toward an examination of maximizing rationality, at least as a first step, is to distinguish between economic rationality and profit-motive, as these two notions are sometimes conflated despite having distinct sets of meanings. At first glance, profit-motive would seem to signify the will to preserve, maintain, and improve one's position; that is, the enhancement of quality of life, although this is not always the case, since an agent may live an excessively austere life by prioritizing saving. Economic rationality, on the other hand, refers to the pursuit of maximum efficiency, interpreted as the quest for greater profitability. While profit-motive may be considered the end goal of economic rationality, it can also be understood as something distinct, as it aligns more closely with personal

[3] A perspective further emphasized by Bowles & Gintis (2000) in their work on social preferences.

motivation, whereas economic rationality claims universal validity. Profit-motive can be impulsive and irrational, for instance, in cases where a gambler wagers an amount of money exceeding what they can afford. In other words, profit-motive may be understood as an incentive arising from the development of social production and production relations. Through this process, the accumulation of wealth can transform into a form of capitalization in which profitability leads to increased production, which in turn raises profitability once again. Consequently, profit-motive gives rise to a particular form of economic rationality: the maximization of utility, which can be expressed in the pursuit of achieving the lowest possible costs and the highest possible benefits.

Aristotle's insights reveal that profit-motive –though tied to economic rationality through the act of exchange– is only one aspect of a broader spectrum of teleological human incentives, which do not always align with the mere maximization of efficiency or utility. He distinguished between logos (rational discourse) and chrematistics (the art of wealth acquisition), as well as between chrematistics and a different form of acquisitive practice aimed at securing the material conditions necessary for ethical virtue[4]. According to Aristotle, while humans are naturally inclined to pursue benefits, this drive ultimately contradicts the goal of living a truly good life[5]. Rather than endorsing the pursuit of unlimited wealth, he argued for acquiring only the wealth that is essential for the existence of the polis and also necessary for living well within it. In doing so, he anticipated a distinction that remains evident in economic theory today: the teleological differentiation between wealth accumulation as an end in itself and the strategic use of resources to en-

[4]In *Politics* (1998, 1257b), Aristotle asserts that "a different kind of wealth and wealth acquisition, and rightly so; for natural wealth and wealth acquisition are different. Natural wealth acquisition is a part of household management, whereas commerce has to do with the production of goods, not in the full sense, but through their exchange. It is held to be concerned with money, on the grounds that money is the unit and limit of exchange". In this passage, Aristotle delineates a fundamental distinction between two modes of acquiring wealth. Natural wealth acquisition is intrinsically linked to the management of the household and is pursued to meet essential, practical needs, serving as an end in itself. Conversely, commerce is characterized not by the production of goods per se, but by the exchange of these goods, with money acting as the measure and boundary of such exchanges. This distinction lays the groundwork for the concept of chrematistics, which, according to Aristotle, diverges sharply from the objectives of the political sphere. While political life is inherently directed toward the common good and the welfare of the community, chrematistics is preoccupied with profit-making as a secondary outcome of exchange activities, rather than as a primary aim. Thus, the nature of chrematistics implies an autonomous market economy, one that exists apart from and sometimes in opposition to the ethical and communal imperatives of political life.

[5]This does not mean that the acquisition of material conditions should be neglected. Moreover, according to Aristotle, eudaimonia is sustained by a life in which material conditions are satisfied, and this has allowed for a kind of natural chrematistics, which satisfies demand with a rich supply of external products - goods that adorn our lives by making them more complete (*Nicomachean Ethics*: 1984, 1100b).

hance social well-being and individual prosperity. In production theory, rationality is often expressed in its narrow sense as the pursuit of maximum monetary profit. However, in consumption theory, rationality ultimately manifests as a generalized quest for maximum well-being, so that "monetary profit" and "well-being" are not fully synonymous (cf., Berns, 1994).

Marx (1867/1971, pp.129-130) recognized Aristotle's fundamental distinction between Economics and Chrematistics, though his own theoretical development drew primarily from the latter concept. While Aristotle defined Economics as the "art of gaining a livelihood" limited to procuring necessities for household and state existence, Marx's interest centered on chrematistics—specifically its characterization of capital multiplication divorced from use value and driven by what he termed "the incessant movement of gain" and "an absolute drive toward enrichment." This selective adoption demonstrates how Marx identified in Aristotle's concept of chrematistics the historical antecedent of modern capital accumulation, even as he acknowledged Aristotle's broader economic framework (Crespo, 2011; 2013). Goods, like money, become mere forms in which capital is presented to the economic agent: capital is money; capital is a commodity when the pursuit motive is constant. Marx finds in Aristotle an exacerbation of the profit motive in the conception of interest or usury as a "price of money," that is, as the capacity to obtain profit merely by virtue of possessing money, even if that money has not been employed in the productive process. In this way, the idea that capital is money—and that money is a commodity like any other—partly enables Marx to construct his own theory of value.[6]

The significant question in all of this lies in whether rationality, which maximizes utilities according to the life cycle, also allows for the maximization of profit and its endless accumulation. This leads us to consider two possibilities: on the one hand, economic agents seek to maximize their benefits within a structured system, using rationality to make the most of its mechanisms; on the other hand, individual rationality, when manifested similarly in the aggregate economic behavior of agents, naturally leads to socially optimal outcomes, thereby increasing the overall efficiency of the system. For instance, Smith (1776/1977, pp.30-31) stated that exchange occurs through the pursuit of self-interest, noting that: "It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity but to their self-love, and never talk to them of our own necessities but of their advantages." In this way, the pursuit of personal gain facilitates an optimal social arrangement that extends beyond mere subsistence. Through competitive markets, where agents are

[6]For an in-depth analysis of the relationship between Marx and Aristotle, see Gallagher (2018).

well-informed and operate under equal conditions, the maximization of individual benefits would result in the maximization of social welfare.

Nonetheless, there is another way of approaching this dilemma by considering the well-known Keynesian paradox of thrift, wherein the maximization of individual benefits undermines the state of the economy at an aggregate level and, consequently, works against the rationally maximizing agent. Keynes (1936/2018, pp.186-187) maintained that the act of saving presupposes a desire for wealth and implies the potential to consume an unspecified good at an indeterminate time. However, "an individual saver may attain his desired goal of the ownership of wealth, it is not necessary that a new capital-asset should be produced wherewith to satisfy him. The mere act of saving by one individual, being two-sided as we have shown above, forces some other individual to transfer to him some article of wealth old or new. Every act of saving involves a 'forced' inevitable transfer of wealth to him who saves, though he in his turn may suffer from the saving of others." (ibid.). This means, from the perspective of utility maximization, that one person's saving may affect another's well-being, since saving involves a transfer of wealth acquired in the profit-motive. In this sense, for example, an individual may decide to save a portion of their salary by purchasing a government bond. In doing so, they reduce their consumption and increase their savings, which is the result of an individual decision. However, the reduction in consumption affects the economy more broadly, as it diminishes aggregate demand and, consequently, GDP, thereby causing the economy to contract. Therefore, what initially appeared as a pursuit of profit ultimately proves to be unprofitable. The consequences and constraints of individual economic decisions are not always equivalent to the social outcomes of those decisions. Individual saving may maximize an agent's utility, but when the economy contracts, the very rationally maximizing agent is adversely affected.

One might think that the market itself is a source of equilibrium among rationally maximizing agents, albeit with competing ends that give rise to merit and the compensation of those who lose out. Indeed, if agent A maximizes his well-being at the expense of agent B, then the shift toward a worse state for B may be offset by the market itself, such that A does not maintain his maximizing status unless he concedes to allow B to be in a better situation[7]. However, the market—with its coor-

[7]This is the underlying principle of the Kaldor-Hicks compensation test used to determine whether a proposed change in a project or policy is worth its potential cost. To determine if a change is beneficial, one first calculates the compensation value necessary to equalize the losers. Then, one determines whether the value of the benefits exceeds the compensation value. If so, the change is considered beneficial. For example, suppose a proposed change will cost $100, but will benefit 10 people, each by $10. For the change not to be beneficial, the compensation to the losers would need to be $100, thus maintaining equilibrium.

dination and dominance of information, particularly through prices—is insufficient to resolve issues of merit and compensation. In particular, following Elsner (2004), one must consider that markets are increasingly deregulated under neoliberal postulates and, consequently, detached from their historically developed institutional structures. These structures have often reduced uncertainty, stabilized expectations, and facilitated collective learning and cooperation, promoting compensation among those left behind in favor of greater coordination among agents and improved social cohesion. With reduced institutional effectiveness, the market loses its capacity to innovate in a broad and sustainable manner, while mechanisms of accumulation and the exercise of power, alongside a regressive distribution of wealth (rather than an enhancement of general well-being), come to the fore. Moreover, uncertainty and risk increase, generating greater inequality and a heightened need for compensation in the face of an economic rationality driven by an unbridled profit motive.

In summary, when the economic rationality of utility maximization is equated with the goal of profit-seeking, contradictions may arise due to a form of rational action that extends to aggregate levels. Drawing an analogy with Kantian ethics, in which rationality lies in the exercise of "doing what is right," there are situations in which this ideal is unattainable, and the effort to achieve it undermines economic rationality itself. For instance, a subcontracted company might be entirely justified in pursuing maximum efficiency and rationality in its operations; however, if that objective is attained at the expense of workers' conditions, then the organization's rationality may eventually lead to widespread discouragement, resulting in suboptimal performance by both the employees and the firm. Similarly, the same issue arises with economic rationality concerning the environment. If agricultural droughts in country A are exploited by another country, B, then over time, the significant loss of water from the land will produce an environmental imbalance that incurs additional costs for the society of country A while simultaneously increasing production costs in both countries. Thus, individual rationality (that is, economic rationality measured by indicators of profitability and utility) comes at the expense of the rationality applied to environmental concerns. A potential solution to these problems lies in taking into account the social welfare of most workers and the protection of the environment—in other words, considering the tenets of moral economy, which do not contradict individual rationality but complement it. It is at this juncture that one might opt for an economic rationality that regulates the actions of politico-corporate entities. Companies would, by law and in accordance with market rationality, assume the social and environmental responsibility for their actions and consequences; the maximization of social welfare would serve

as the guiding criterion for decision-making.

Bounded and Incremental Rationality

In the preceding paragraph, it was noted that the economic rationality underlying profit (or utility) maximization cannot be equated solely with the profit-motive, since what may be beneficial to an individual level might not be so at an aggregate level. This notion also impacts the advantage of social relations, wherein agents maximize the estimated utility derived from their interactions with others rather than merely individual utility.

In the absence of a model of socialization in which agents' ends are coordinated, it does not seem possible to show with certainty that this makes up an adequate teleological framework, since rationality would then entail the assumption that success in social interactions is measured by the utility the agent gets in terms of the aggregate level of individual ends. Again, if the teleological coordination of ends—given the scarcity of resources—requires a social compensation, then one must consider that an agent's utility cannot be measured without accounting for the social consequences of the entirety of their actions and the resulting rate of exchange of goods. Therefore, the foundation of the rational teleological framework is the coordination of ends to address the scarcity of goods –a goal that cannot be achieved without certain political and economic mechanisms that transfer goods from more advantaged agents to those less advantaged. Without these mechanisms, it would be impossible to reconcile self-interest with the likely negative externalities, since an individual agent's ability to maximize his or her intertemporal well-being—for example, by purchasing financial assets—would conflict with the capacity to maximize the amount of assistance that can be offered to other agents; one cannot always "do what ought to be done". It might still be argued that, in general, social interactions provide utility for the agent in terms of intersubjective ends. However, if we assume an agent cannot fully measure the utility derived from social interaction, then it will also be impossible for the agent to determine the optimal strategy for maximizing the utility of such interactions[8].

[8]One possible solution to the measurement problem is to assume that the agent is maximizing a social utility function rather than the estimated utility of social interactions. This would imply that the agent is maximizing the sum total of the utility derived from all the social interactions in which they participate. However, if the agent cannot fully measure the utility of a social interaction, it becomes impossible to determine what their optimal social utility function should be. A more radical solution—though closely related to the previous one—entails abandoning the assumption that success in social interactions is measured by the utility an agent obtains in terms of individual ends. This would mean that the agent is maximizing social utility per se, rather than

Considering these difficulties, March & Simon (1958/2005) have argued that an agent requires a complex understanding of the available actions, the possible outcomes, and the values of those outcomes in order to calculate expected utilities, and that it is mathematically unfeasible to find a mechanism capable of deriving a decision from the overwhelming amount of data inherent in the multitude of variables to be considered (McGee, 1991)[9]. Thus, the bounded rationality approach seeks to replace expected utility theory with a set of norms that are considerably more manageable and based on partial knowledge of the situation[10]. In this framework, the agent must select a course of action based on a series of realistic criteria regarding implementation costs. In this sense, the agent will pursue the best method or strategy, but within a cognitive framework in which the optimal solution is identified and applied—not universally, but within that specific context (Gigerenzer, 2000).

Bounded rationality can be divided into two fundamental elements: (i) computational capacity and (ii) available knowledge[11]. (i) Computational capacity is closely related to the ability to optimize and refers to limitations in information processing, memory power, clarity of reasoning, and the extent of logical calculations. In turn, limitations in computational capacity fall into two types. The first relates to limitations in information processing: when the agent encounters difficulties understanding the situation or the opportunities available, even when they are not presented in a clear and concise manner. Such limitations may arise from comprehension or attention problems. The second limitation pertains to calculations and reasoning capabilities: it occurs when ideas and the relationships between them are presented in such a way that they cannot be logically followed, or when the agent is unable to reason in a clear and logical manner. These limitations may stem from cognitive function capacities. (ii) Regarding available knowledge, the agent will act rationally or irrationally depending on computational processing and the amount of usable information, as difficulties may arise in optimizing decisions due

the estimated utility of social interactions. Yet, if it is not possible to measure the social utility of a social interaction objectively, then it can only be maximized subjectively, which brings us back to the original problem.

[9]Although non-formal optimization approaches, such as sensitivity analysis, may enable the identification of an optimal solution in complex environments, these methods can lead to suboptimal solutions if misapplied. For example, (i) in stochastic optimization environments, sensitivity analysis may underestimate the risk associated with a solution, leading to a suboptimal outcome; (ii) in dynamic optimization environments, sensitivity analysis may fail to account for the value of waiting, resulting in a suboptimal decision; (iii) in capacity-constrained optimization environments, sensitivity analysis might not adequately consider the interactions among different decisions, leading to a suboptimal solution.

[10]It could also be argued that the normative requirements encompassed by expected utility maximization theory are more manageable than they initially appear (Burch-Brown, 2014).

[11]No distinction will be made here between the descriptive and normative properties of bounded rationality; for further details, see Grüne-Yanoff (2007).

to the quantity of information at hand, which may sometimes be too little and at other times excessive (Selten, 1999).

Despite these restrictions, the concept of rationality can even serve as a reference point for analyzing the variation induced by our computational limitations (Simon, 1976)[12]. Following this line, behavioral economics offers an alternative interpretation of economic rationality based on hypotheses regarding unobservable—and therefore non-intentional—preferences. Thus, observable behavior may or may not reflect the influence of a basic conditional behavioral pattern alongside cognitively controlled intentional efforts. For example, when an airplane's security agents are conducting a review, they may not explicitly recall the procedure, yet they are still able to follow it. The basic conditional behavioral pattern can be seen as the result of an individual's history, which is influenced and modified by an active cognitive process. This process systematically alters the behavior of individual agents through habits and positive or negative environmental feedback. In this manner, economic rationality processes would yield behavioral patterns that cannot be empirically verified, with the resulting behavior not necessarily being the product of optimization, yet remaining practically satisfactory.

Heuristic processes underlie the phenomena of behavioral economics and bounded rationality. These processes simplify decision-making by employing basic rules and consequently reducing the complexity of possibilities to evaluate. Heuristics such as "do what others do" or "believe what a respected agent believes" can reduce time spent gathering information, allowing for more actions to be taken or enabling a focus on matters that require greater epistemic effort from the agent, given their interest in them. However, these mental shortcuts can simultaneously prove disadvantageous by leading to conformity, even when the subject matter lacks significance, as when individuals agree with others' actions despite potentially disagreeing upon more robust scrutiny. Conformity can restrict creativity and critical thinking, ultimately leading to diminished welfare. Indeed, this type of heuristic underestimates the probabilities of rare events and overestimates those of familiar ones, omitting relevant information.

Economic rationality of maximization approaches incremental decision-making, where we make small decisions that, when combined, teleologically lead to the final decision, reducing the cumulative error compensation from information omissions. For instance, when shopping at a supermarket, we make decisions sequentially rather than waiting until we have traversed all aisles to decide what to purchase, so that if

[12]It is for this reason that Simon (ibid.) is able to differentiate between substantive and procedural rationality

we choose the wrong aisle, the error compensation will be less than if we completed the entire circuit and could not associate each product with an aisle. The decision model for this phenomenon could be represented as follows: (Step 1) select an aisle in the supermarket; (Step 2) select a product in the aisle; (Step 3) purchase the product; (Step 4) repeat steps 1-3 until all desired products have been purchased. At each step, the decision is made considering simple rules while keeping the final aim in mind. Certainly, a more complex approach appears to be: (Step 1) traverse the entire supermarket; (Step 2) verify all products are available; (Step 3) associate each product with each aisle; (Step 4) purchase each product. However, the reasoning model shifts toward the more complex, optimal approach if *all* products are needed; if one product is missing, causing a visit to another supermarket. Thus, incremental behavior does not appear to be economically rational.

Consider another example, with a similarly incremental but somewhat different logic: imagine we are contemplating a career change. Rather than awaiting the perfect position to be offered, we can actively seek positions that align with our aim. Indeed, the fundamental concept of incremental rationality suggests that, due to our limited cognitive capabilities, we must make decisions step by step to optimize our choices and minimize the consequences of poor decisions. Therefore, we must ground our approach in an analysis of our preferences, particularly the strongest ones, to inform each step. However, this comes with the caveat that the previously established goals must remain constant throughout each small step taken, as incremental economic rationality can function teleologically when short-term objectives are established according to each life cycle. Thus, incremental rationality represents an economically suboptimal strategy that can lead to optimal results within our cognitive limitations if applied according to the principles of bounded rationality.

That said, it is worth clarifying that, depending on contextual demands, one can choose between two types of teleological rationality: incremental and extreme. Incremental rationality proceeds slowly toward temporally distant goals but offers greater certainty in outcomes. Conversely, extreme rationality moves rapidly toward distant objectives but entails assuming various risks. In other words, incremental rationality can also be valuable for addressing immediate problems, but it advocates for a conservative and pragmatic decision-maker perspective to face new challenges slowly and cautiously. Additionally, this means decisions are based on analyzing currently available information rather than awaiting complete information. This enables quick choice-making, which, beyond any ontogenic aspect, also suits a particular way of life. For instance, when forced to make a rapid decision, we are more inclined to purchase a known brand rather than an unknown one. Often, these initial

decisions become more firmly established over time due to confirmation bias, but this also lengthens the path toward deeper or more distant goals from the initial situation. While this decision-making approach can be beneficial in certain situations, it may also lead to poor decisions if available information is inaccurate or incomplete. In such cases, awaiting additional information before deciding is preferable. This is where extreme rationality can prove useful, as it enables quick goal-oriented decisions, even without complete information. However, this comes at the cost of increased risk-taking. Therefore, evaluating the advantages and disadvantages of each approach before deciding is crucial.

Although incremental rationality can be useful in some situations, it can also lead to poor outcomes when incorrectly applied. For example, if someone is trying to advance their professional career, taking a radical decision to change jobs might be more beneficial than taking small incremental steps. Similarly, if a country is at war, drastic measures may be necessary, or if a country is experiencing severe economic turmoil, implementing a shock stabilization plan might be preferable to seeking incremental alternatives.

A practical application of incremental rationality, corresponding to benefit maximization, can be found in organizational management decisions. Managers typically begin with existing policies, the latest project funding level, each participant's knowledge of others' opinions, and mobilizable resources to influence the process outcome. Based on these elements, the cost of each possible alternative decision is evaluated, and the option expected to maximize benefit is selected, preferring only minimal deviations from the status quo. This occurs for two reasons: (1) transaction costs of a radical choice may significantly exceed those of an incremental choice; (2) people generally excel at evaluating the cost and benefit of small deviations compared to large ones. Thus, organizational decision-making is often a compromise-seeking process where participants aim to minimize internal conflicts and make small deviations that maximize positive impact on their objectives, as managers, as problem solvers, risk lacking the intellectual capacity or time to extensively search for alternative solutions due to bounded rationality (Forester, 1984). Incremental decisions are almost always politically more favorable than heterodox alternatives, as they attempt to expand the horizon of possibilities while minimizing costs or avoiding additional costs of wrong actions due to our bounded rationality—for example, when dealing with agency costs (Jensen & Meckling, 1976)[13]. Nevertheless, despite this,

[13]Agency costs refer to the expenses and inefficiencies that arise when managers' teleological objectives do not align with those of the organization's owners or shareholders. This misalignment creates a principal-agent problem, where those responsible for operational control may prioritize goals that deviate from maximizing shareholder value, leading to suboptimal organizational per-

incremental rationality as a teleological strategy lacks a conclusive foundation. A similar phenomenon occurs with economic policymakers. Incremental rationality is characterized by a preference for existing institutional dynamics, as political and governmental actors believe major reforms are politically unpopular and difficult to implement. Consequently, economic policymakers tend to make small changes to the status quo rather than more radical transformations, reserving pendular shock policies for extraordinary crisis situations.

The Influence of Life Cycle on Economic Rationality

Within the teleological notion implied in the search for optimal strategies and means, the influence of the life cycle remains to be addressed. Indeed, if the economic rationality behavior of agents and their decision-making methods change depending on their current life stage, then utility maximization, profit-seeking, or the limitations of our rationality—incremental or not—depend on what goals we are willing to generate in the corresponding life cycle. Not only does the teleological content covary with agents' life phases, but it would also do so with our rationality structure, insofar as the behavior we manage to optimize depends on our capacity to rationalize our actions. These considerations necessitate examining the problem from an interdisciplinary perspective, considering aspects of psychology, practical philosophy, and economics. Thus, the life cycle of our decisions, both in their teleological content and rational structure, must be considered for developing agent competencies, depending on their current life situation.

Economic rationality strategies may differ depending on agents' current moment or life phase. To properly explore this, we must understand that optimization strategies can be, in principle, of two types. The first consists of optimizing the rationality of economic action; the second involves optimizing the rationality of economic structure. The first refers to how agents make decisions and improve their utility in view of a specific life project. It represents a form of optimization that occurs especially during agents' formative periods. Strategies for optimizing economic structure rationality refer to how agents can organize their rationality for subsequent action. That is, they focus on mechanisms through which agents can rationally coordinate their actions. These strategies can apply to various situations, from coordinating agent actions in a market to coordinating agent actions in a planned economy. The

formance and potential financial losses.

optimization of action rationality consists of making rational decisions in view of a project at a moment in one's life cycle. Agents must make rational decisions considering all factors relevant to project success, although they often do not apply the most rigorous calculation to their available information. Economic rationality, therefore, must be organized so agents can act effectively in pursuit of their proposed ends. The two rationality optimization strategies complement each other and should be applied jointly. Action rationality optimization is necessary for agents to make the best decisions toward an end. Structure rationality optimization is necessary for the economy to be competently organized and for agent actions to be effective toward a community project that includes their life projects. For example, regarding the human capital formation stage, the agent's structure rationality will be oriented toward investing in their education and training for desired job positions, while action rationality will be oriented toward maximizing benefit at each stage constituting the formation spaces.

From both types of optimizations, following Ainslie (1992 pp.56-95), we can understand that there exist multiple identities that organize action rationality in a particular way for each time period, depending on the life cycle, while simultaneously forming the expectation on which our teleological decisions are based. Thus, the self at time t decides what is done at time t with the objective of maximizing its own utility, hyperbolically discounted, and considering what it expects subsequent selves to do at t+1. Here, agents form their strategies according to temporal ends, in accordance with the current life cycle, with expectations appropriate to bounded rationality regarding a subsequent life cycle.

When considering life cycles as teleological motivations, agents' economic rationality implies certain self-representation at t and $t+1$. On one hand, when agents expect too much from their future selves, there is a saving of present effort to achieve their ends; the rational agent expects themselves in the future and establishes present behaviors. Expecting their future self will fulfill them. On the other hand, the future self can be considered someone with a different identity and different expectations. While agents use present time to prepare for the long-term future, the future rarely matches what was planned, as personal identity has changed. Thus, faced with present security and future risk, an agent may opt for poorer short-term ends rather than more ambitious long-term ones. For example, a subject might prefer 95 monetary units now to 100 tomorrow, but 100 in a year and a day to 95 in a year—which implies temporal inconsistency since after a year the second option will resemble today's first option. Agents compensate for this tendency by strategically adjusting behavior in anticipation of their own future motivational states in different

life cycles. Thus, an essential factor in economic rationality processes regarding life cycles comprises managing differences between future expectations and unexpected future realities.

Obtaining rational results in the present therefore requires addressing expectations of future rational results. This is achieved by increasing the agent's capacity to advance their life projects, generating early incentives to do things as soon as possible, and discouraging interruptions that allow changing course. This new problem is also reflected in how the State legislates, how expectations about life cycles are generated and conditioned, and what the relationship would be between these expectations and effective policies. For this, it is important to advance economic and social policies in ways that agents can gradually understand them, with a sense of belonging to them, and with greater maneuverability than merely seeking to solve inherited problems. Social policies, understood as public goods that help protect agents' social capital, are important for narrowing the opportunity gap and reducing vulnerability to difficulties that arise, especially when life cycles are changing. Agents' economic rationality also depends, both in its structure and action, on how the State can achieve adequate indicators for a sufficiently positive and sustainable evaluation as social and personal projects develop. When long-term outcome expectations are not met and the future becomes less predictable or even uncertain because of the sum of factors associated with socioeconomic, political, environmental, and geopolitical uncertainty, among others, agents lose the possibility of economic rationality, as they cannot form plausible expectations about their life projects and lack conditions to plan them. In fact, economics aims to reduce uncertainty as much as possible, which, half-ironically and half-frustratingly, it has not achieved. When a major crisis arises, such as financial turbulence, economic stability is put at risk, information spread becomes contradictory, and economic agents' rationality goes out the window, forcing governments to adopt new monetary and fiscal policies.

Moreover, economic policies and public decisions affect economic rationality, but not enough to resolve its challenges, nor to prevent new ones from emerging, in which uncertainty can be a factor to consider when making decisions. For example, one might think that the growing role of financial markets is creating more risk and that individuals, companies, and governments do not seem sufficiently prepared to face them. But one can also think that, given our bounded rationality, there are few possibilities to identify the systematic effects of maximally specified individual acts. If we momentarily assume determinism, then the systematic effects of a fully specified act would be its real consequences, but such calculations are beyond us. Instead, we can have a general awareness of how some systems function approximately

under certain circumstances, such as the market, institutions, and laws, to produce approximate results as well. For example, if we know that when prices are rising too quickly, this suggests a supply and demand problem, then we can identify certain effects probabilistically with a confidence margin. One can say, for instance, that goods and services prices must be under pressure and that, in particular, workers' wages and standard of living must be at risk. This way, economic policymakers can take measures they deem pertinent to avoid greater evils.

Something similar occurs with economic rationality and life cycles; agents have a basic idea of the structures that make up their economic life and place their expectations in that these will remain stable in their other life cycle, or at least not change drastically. This allows them to plan and act according to their life objectives. Of course, this type of rationality is not perfect, and people may underestimate the risk of change, but generally, it allows them to adapt and prosper according to emerging scenarios. Depending on the life cycle the agent is traversing, this perception will vary. Young people tend to be more optimistic, as they see the world with more possibilities and haven't experienced adverse situations, while older adults tend to be more cautious, having had to deal with more problems and difficulties throughout their lives. But in both cases, the stability of these structures is essential for sustainable growth and development. If these experience sudden changes, economic and social development can be seriously affected such that agents stop planning and managing their lives efficiently.

Finally, one might think that economic rationality is situational and adaptive, in the sense that it depends on specific circumstances and needs of the moment and can adapt and change according to them. This would mean that economic rationality is not a fixed formula for decision-making, but rather a set of tools and techniques that can be flexibly and adaptably applied according to the needs or objectives of each case. At some point in the life cycle, and under certain circumstances, it can be identified with profit-seeking, or it can assume, to achieve certain ends, an incremental form or perhaps in other cases a more radical change proposal might be the most rational way to do it.

Conclusion

It has been maintained that economic rationality possesses various forms, highlighting three of them: the identification of utility maximization with profit-motive; the cautious incremental progression toward a given end; the influence of life cycles on economic decision-making with bounded rationality. These three aspects

have their conditions: the identification of maximization with profit-seeking can be harmful at aggregate levels, as in the case of savings; incremental rationality can be counterproductive in crisis situations requiring more radical decisions; the influence of life cycles can be restrictive in situations demanding universal validity claims.

On one hand, in these three cases, one can observe the dependence of economic rationality on the teleology toward which the economic action process must tend. This highlights the importance of adjusting economic rationality to ethical-evaluative ends, rather than letting it be guided solely by calculations. That is, it highlights the importance of various rational spheres' contribution to serve a single economic purpose, or to achieve a single teleology, given that economic rationality cannot be the only one to consider in the economic activity process. Rather, there can be a kind of meta-criteria by which to designate what type of rationality is useful in each case.

On the other hand, economic rationality can be read as the analysis of a materialist teleology, which denies or discards the complexity of interdependence between agents if not through instrumental domains like the market, which are at the limit of rational capabilities, and where risks are absorbed through exchange relationships. Although this type of economic rationality analysis might seem reductionist, materialism and complexity can be complementary. For example, a materialist analysis can help understand social interdependencies, since much of social relations are constituted by exchanges of goods and services with teleological ends.

Finally, economic rationality has a regulatory and coordination function for individual decisions. In this sense, it can be said that it is a central instrument in decision-making and, therefore, must be subject to critical reflection that includes an analysis of its foundations.

References

Akerlof, G. A. (2002). Behavioral macroeconomics and macroeconomic behavior. *American Economic Review, 92*(3), 411-433. doi:10.1257/00028280260136192

Akerlof, G. A., & Shiller, R. J. (2015). *Phishing for phools: The economics of manipulation and deception.* Princeton: Princeton University Press.

Aristotle. (1984). *The Complete Works of Aristotle Vol 1-2.* New Jersey: Princeton University Press.

Aristotle. (1998). *Politics.* Cambridge: Hackett Publishing Company.

Arnsperger, C., & Varoufakis, Y. (2006). What Is Neoclassical Economics? The three axioms responsible for its theoretical oeuvre, practical irrelevance and, thus, discursive power. *Panoeconomicus, 53*(1), 5–18. doi:10.2298/PAN0601005A

Backhouse, R., & Salanti, A. (1999). The methodology of macroeconomics. *Journal of Economic Methodology, 6*(2), 159–169. doi:10.1080/13501789900000012

Berns, L. (1994). Aristotle and Adam Smith on Justice: Cooperation between Ancients and Moderns? *The Review of Metaphysics, 48*(1), 71-90.

Bowles, S., & Gintis, H. (2002). Social Capital and Community Governance. *The Economic Journal, 112*(483), F419–F436. doi:10.1111/1468-0297.00077

Burch-Brown, J. (2014). Clues for consequentialists. *Utilitas, 26*(1), 105-119.

Colander, D. (2005). What economists teach and what economists do. *The Journal of Economic Education, 36*(3), 249-260.

Colander, D. (2015). Why economics textbooks should, but don't, and won't, change. *European Journal of Economics and Economic Policies: Intervention, 12*(2), 229-235.

Conlisk, J. (1996). Why bounded rationality? *Journal of economic literature, 34*(2), 669-700.

Crespo, R. (2011). Two Conceptions of Economics. *Journal of Applied Economics, 14*(2), 181-197.

Crespo, R. (2013). *Philosophy of the economy: An Aristotelian approach.* New York: Springer.

Deaton, A. (2005). Franco Modigliani and the life cycle theory of consumption. *Banca* (58), 91-107.

Elsner, W. (2004). The "new" economy: complexity, coordination and a hybrid governance approach. *International Journal of Social Economics, 11*(12), 1029-1049. doi:10.1108/03068290410561159

Friedman, M. (1953). *Essays in positive economics.* Chicago: Chicago press.

Gallagher, R. L. (2018). *Aristotle's Critique of Political Economy: With a Contem-*

porary Application. London: Routledge.

Ghez, G. R., & Becker, G. (1975). *The Allocation of Time and Goods Over the Life Cycle.* New York: Columbia University Press.

Herfeld, C. (2021). Understanding the rationality principle in economics as a functional a priori principle. *Synthese, 198* (Suppl 14), 3329–3358. doi: 10.1007/s11229-020-02730-z

Kahneman, D. (2011). *Thinking, fast and slow.* New York: Farrar, Straus and Giroux.

Kahneman, D., & Tversky, A. (1979). Prospect Theory: An Analysis of Decision Under Risk. *Econometrica, 47*(2), 363-391.

Keynes, J. M. (2018). *The General Theory of Employment, Interest, and Money.* Cambridge: Palgrave Macmillan.

Kirman, A. (1992). Whom or What Does the Representative Individual Represent? *Journal of Economic Perspectives—, 6*(2), 117–136.

Lee, R., Lee, S. H., & Mason, A. (2008). Charting the economic life cycle. En P. A, B. D.E, & W. Lutz (Edits.), *Population aging, human capital accumulation, and productivity growth, a supplement to population and development review* (pp. 208–237). New York: Population Council.

Lipton, M. (1992). Economics and anthropology: Grounding models in relationships. *World Development, 20*(10), 1541-1546.

Modigliani, F. (1970). The life-cycle hypothesis of saving and intercountry differences in the saving ratio. In W. Eltis, M. Scott, & J. Wolfe (Edits.), *Induction, Growth, and Trade: Essays in Honour of Sir Roy Harrod* (pp. 197-225). Oxford: Clarendon Press.

Modigliani, F. (1986). Life-cycle, individual thrift, and the wealth of nations. *American Economic Review, 76*(3), 297-313.

Rick, S., & Loewenstein, G. (2008). The role of emotion in economic behavior. En M. Lewis, J. Haviland-Jones, & L. Feldman Barret (Edits.), *Handbook of emotions* (págs. 138-158). New York: The Guilford Press.

Robbins, L. C. (1932). *An Essay on the Nature and Significance of Economic Science.* London: Macmillan.

Schelling, T. (1960). *The Strategy of Conflict.* Cambridge: Harvard University Press.

Selten, R. (1999). What is bounded rationality? *Paper Prepared for the Dahlem Conference.* Obtenido de `https://ssrn.com/abstract=182776`

Sen, A. (1977). Rational fools: A critique of the behavioral foundations of economic theory. *Philosophy & public affairs, 6*(4), 317-344.

Simon, H. (1957). *Models of Man: Social and Rational.* New York: Chapman and Hall.

Smith, A. (1977). *An Inquiry Into the Nature and Causes of the Wealth of Nations.* Chicago: Chicago University of Chicago Press.

Vercelli, A. (2016). Microfoundations, methodological individualism and alternative economic visions. *Review of Political Economy, 28*(1), 153-167. doi: 10.1080/09538259.2016.1108133