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Exploration of Economic Behavior and Rationality: integrating Behavioral Economics and Praxeology

Exploración del comportamiento económico y la racionalidad: integración de la economía del comportamiento y la praxeología.

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Abstract

The purpose of this article is to present, delimit, and integrate the proposals of economic behavior and behavioral economics, including their axioms, heuristics, and biases, to advance research in this field. The article recommends applying first economic and then psychological issues, in that strict order, for epistemological, legal and practical reasons. Based on human action or praxeology, the process of economic decision making and doing is graphed, these in turn frame systems of thought with their different heuristics, the latter of which are the cause of systematic errors called biases.

Key words: *Economic behaviour, behavioural economics, praxeology, heuristics, biases.*

Resumen

El propósito de este artículo es presentar, delimitar e integrar las propuestas del comportamiento económico y la economía conductual, incluidos sus axiomas, heurísticos y sesgos, para avanzar en la investigación en este campo. El artículo recomienda aplicar primero las cuestiones económicas y luego las psicológicas, en ese estricto orden, por razones epistemológicas, jurídicas y prácticas. A partir de la acción humana o praxeología, se grafica el proceso de toma de decisiones económicas y el hacer, que a su vez enmarcan sistemas de pensamiento con sus diferentes heurísticas, estas últimas causantes de errores sistemáticos denominados sesgos.

Palabras Clave: *Comportamiento económico, economía de la conducta, praxeología, heurísticas, sesgos.*

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I. INTRODUCTION

Understanding how people behave in the economy is one of the most interesting topics in economic science in recent decades. The purpose of this paper is to present, delimit and integrate the proposals of the main currents of thought on this subject as a contribution to research in this field of knowledge.

Epistemological delimitation of knowledge facilitates conceptual clarity and precision with consistent definitions that avoid ambiguities and ensures the coherence of methods used to obtain and manage relevant information (Popper, 1934). It is especially important in multidisciplinary research, such as this one, to prevent errors of categorization and delimitation by controlling inferences and results that could potentially lead to errors of causality or scope of generalization in research conclusions (Kuhn, 1962).

To begin, two major concepts are proposed: economic behavior and behavioral economics. The subsequent delimitation and integration of these will be carried out with care, the author does not share the position of the methodological nihilism of 'anything goes' (Feyerabend, 1975), the plurality of scientific methodologies is adequate, trying not to arrive at anarchic extremes.

Traditional economics defines economic behavior as the actions and decisions individuals take to maximize their benefits (Samuelson, 1947). On the other hand, *behavioral economics* combines insights from psychology and economics recognizing that individuals are influenced by biases, emotions and heuristics that lead them to make decisions that are not always in their best interest, as opposed to the neoclassical model of profit maximization (Kahneman & Tversky, 1979).

Followers and detractors of each current have made cross criticisms, it is appropriate to temper positions. Most *homo economicus* thinkers have not claimed that their choices are always perfectly logical and rational, in contrast various stated biases would seem to be *old wine in new barrels*.

Mises (2011) in 1949 conceived the concept of economic behavior based on the concrete manifestation of human action called praxeology. Individuals act from the awareness of an unsatisfactory current state, they aspire and project a better future state by relating means and ends, they make deliberate decisions considering the limitation of resources. This process is always carried out according to what they believe is best at a given time, in other words, it is rational in the subjective sense, otherwise it would be pathological and illegal, no manager would make decisions to deliberately cause harm to their organizations.

This approach has been used, by the undersigned, for its detail, parsimony and pragmatism, many authors have researched decisions and actions, very few describe their process with the clarity of the *Austrian school of economics*. The general theory of action, from other fields of knowledge, concludes that it would be a synthesis between the objective (for example, resources and restrictions) and the subjective (preferences or emotions), mediated by the *instrumental rationality* of *methodological individualism* as a starting point for understanding collective behavior (Martínez García, 2004).

The methodology of praxeological economic behavior is based on axioms deduced with causal reasoning, this apriorism has been questioned and rejected by the empirical and experimental method, among others, by behavioral economics, the latter is not generated spontaneously, in several investigations there could be an a priori idea or hypothesis to be contrasted, eventually being considered proto theories (Zannotti and Borella, 2023). Paradoxically, apriorism and causality were among the best tools for the evolution of our species, would be the reason why this article is written and understood, and perhaps the only advantage in the face of the enormous capacity of processing and interpretation of empirical data of artificial intelligence.

Rationality has been interpreted from various perspectives, several of which have confused it with perfect logic that maximizes profits, hence the criticism of the neoclassicals, the question is not whether human is perfectly rational or has his limitations (Simon, 1972), his life is inherently restricted by conditioning factors such as time, but rather which

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alternative he chooses for his purposes. We start from two definitions of rationality: according to Pinker (2021, p.62) is the ability to use relevant knowledge in its circumstances to achieve objectives starting from an idea (theoretical reason) or to achieve a result (practical reason); for Mises (2011) an economic act is necessarily rational given that it seeks to change a current state towards a better future situation, pursuing ends, subjectively valued, through the use of available means, in this process integrates the human being as *homo sapiens and homo agens*, therefore, the action is always rational from that intention, although these ends are not always achieved in reality.

Thaler (2016) argues that there is agreement in the behavioral sciences on the questions that require theoretical explanation. The first is, how should they act?; the second type of questions are framed in the descriptive problem, how do they actually act?, the diagnostic problem, why do they act as they do?, and the prognostic problem, what outcomes would their actions lead to?; the third question is, how to get them to act in the way they should act? He asserts that a theoretical proposal would not have the capacity to answer all three types of questions. I agree with this, a *theory of the whole* of behavior still seems a long way off and this is precisely one of the reasons why I have criticized *behavioral economics* and several of its authors, above all for the lack of clarity and noise in some concepts, research methodologies and treatment of variables, specifically for not answering the question: how should economics and psychology be treated and integrated in research?

Below, we propose some reasons that could shed some light on the last question posed and some of those referred to by Thaler (2016):

Epistemological reasons: Lewin is credited with the phrase 'there is nothing more practical than a good theory'. The axiom of praxeology; *human acts*, is the cornerstone of the process of economic human action, it needs no verification, responds to Mises' approach of considering it as an *ultimate given*, therefore, it must be treated as an independent variable in which the means to achieve the ends are analyzed, regardless of what these are, therefore, two of the questions proposed by Thaler; how should one act? and, why do they act like that?, would not be relevant or coherent to address them from the perspective of human action. The first because it would seem to be in the field of deontology and the second to avoid infinite regressions, given that the answer to why a person *acts as they do have* a multiplicity of reasons developed from, among others, psychology, sociology, neuroscience and even metaphysics. There is still no answer to what the human being integrally is, it is closer to what he or she does.

Reasons for temporal perspectives and preferences: Cognitive and behavioral *psychology* often focus on experiences, emotions, memories, traumas or habits to understand how they influence current behavior and their perception of their situation, as well as their expectations based on their anxiety or hope (Kahneman, 2011). *Praxeology* conceives present action as change towards future results, the perspective of the past is not ignored, it serves as a reference to make better decisions from previous learning, avoiding mistakes, evaluating risks and opportunities emphasized towards the future, 'action influences exclusively the future, never the present which, with the passing of each infinitesimal fraction of a second, is inexorably sinking into the past' (Mises, 2011). This further substantiates the conception that human action is an *ultimate given* and should be treated as a *black box*.

Mises emphasized that the value judgement of action rests exclusively with the person acting '...no one is qualified to decide what will make another more or less happy'. The idea of time preference is key: people value present goods or pleasures differently from future ones. In this respect, Dutra Macedo (2022) in his research concludes that:

> If the hyperbolic function is valid as a model to describe the intertemporal discounting of the individual based on his subjective time preference, there is no reason to believe that he is not acting to achieve his ends or that he needs to be induced or incentivized by third parties in one direction or another, even if his preferences change over time. The hyperbolic discounting model is compatible with the law of time preference and with the axiom of human action.

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He complements it by mentioning that for efficient resource allocation and intermediation between savers and investors to occur, the interest rate must adjust appropriately through free market transactions. Therefore, the undersigned will not qualify hyperbolic discounting as rational or irrational but rather as adequate or inadequate in terms of its level of efficiency in the use of its resources, thus answering the question of the forecasting problem posed by Thaler (2016).

Reasons of legal security and professional ethics: This topic may not have been addressed with the depth it deserves, I do so because I have observed that many dear colleagues and friends' economists, from the trend of *behavioral economics*, pretend to behave as psychologists and vice versa. The practice of psychology by an economist, or any other type of professional, is considered as *professional intrusiveness* with ethical and legal consequences for the potential damage to third parties given an inadequate treatment, on the other hand, an analysis based on data and algorithms with lack of rigorousness can lead to harmful financial or managerial decisions. Several countries have codes of ethics that prohibit their members from acting outside their scope of competence (American Psychological Association, 2017; American Economic Association, 2018). Other problems derived from the above are: the methodological confusion of research and its harmful consequences for the advancement of knowledge (Kahneman, 2003); the misapplication of theories that, for example, would lead to suggesting a communication strategy that influences some behavior without understanding the *momentum* or dynamics of a specific market segment (Thaler & Sunstein, 2008) and; oversimplification or generalization in the interpretation of behaviors of individuals, teams and organizations (Camerer, et al., 2011). In conclusion, attempting to apply theories from one discipline to another without adequate interdisciplinary knowledge and coordination could lead to erroneous conclusions or failed applications (Smith, 2003).

Practical application reasons: More than 97% of people who interact or work with people are not psychologists or experts in human capital management (ADP Research Institute, 2023). Approaching the management of people and teams from an *economic behavioral* perspective is relevant for the reasons explained above, in addition to the fact that both works, according to the ILO (2023), and trade, according to the WTO (2023), are economic exchanges. Organizations need certain behaviors from their workers, clients and *stakeholders* in general in order to achieve their goals, it would be impractical and costly to treat each of them assuming that they have mental pathologies, based on the certainty that people act and decide, resources must be managed and strategies applied to achieve the desired behaviors embodied in, for example, the group synergy of individual efforts or the choice of our proposed solutions in the form of products, services or visions. This process goes from the present to the prospection of the future, this is the most practical and efficient way because, finally and paraphrasing Huerta de Soto (2011); *time is not a to come, it is a to do*, since *we remember the past, but not the future* (Hawking, 1988).

The following are approximate answers to the questions posed by Thaler (2016): how do they really act? and, how can they be made to act in the way they should act? Before doing so, I consider it pertinent to clarify that these approximations are abstractions or interpretations of my own and that, therefore, the errors are attributable exclusively to the undersigned, in the context of his limitations and subjective criteria.

Lascano Corrales (2015), proposed a test that identifies the economic performance profile based on Mises' explanation ([1949] 2011) on the process of human action, aligning the theoretical proposals of decision-making of Simon (1972;76) and problem solving (Newell and Simon, 1972) and interpreted by Huber (1980), for the author Mises and Simon explain the same process with different words, for describe the axes other authors were added. It is worth mentioning the approaches of Polish economists to develop a praxeological or praxeometric instrument (Gasparski & Szaniawski, 1977). Turriago Hoyos (2009), aligned the theoretical proposals of Mises, Simon and Peter Drucker for business management. Mises explained it as follows:

'Man, in acting, aspires to replace a less satisfactory state by a better one. The mind presents the actor with more pleasant situations, which he, through action, aims to achieve. It is always discomfort that induces the individual to act. But neither discomfort nor the representation of a more attractive situation is sufficient to impel man to act... A third requirement must be met:

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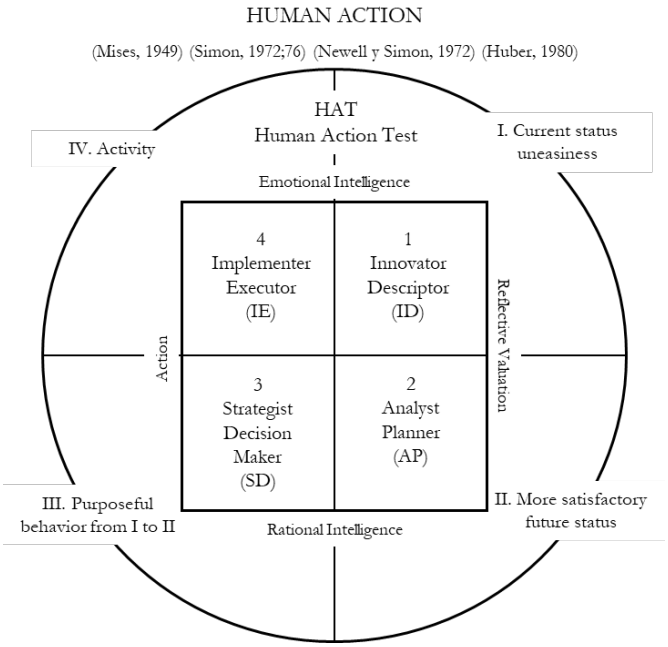
mental awareness of the existence of a certain deliberate conduct capable of suppressing or at least reducing the discomfort felt. Without this circumstance, no action is possible...' (p.18).

This served as the basis for the development of a schema and the subsequent development of the first praxeometric or economic human action test. This model is presented below.

Figure 1. Human Action Test – HAT (Lascano Corrales, 2015) ©.



The proposal by Lascano Corrales (2015) was the starting point of the so-called *HAT* © test, which has been used in research with results that have been published in several *papers* between 2017 and 2024, from this information axioms of human action or praxeology (Mises, 1949) will be identified and explained, through empirical applications, heuristics (Tversky & Kahneman, 1973; Kahneman, 2011) and biases proposed by Thaler (1980) and other researchers that will be referenced.

Axiom is a proposition that is assumed to be true without the need for it to be demonstrated with empirical evidence, it facilitates the derivation of theorems with rigorous causal reasoning (Carnap, 1958). For example, Euclid's axioms (c. 300 BC) have formed the foundation of mathematical development for millennia, they have been the fulcrum for moving the mathematical world (Archimedes, c. 287 BC). Human action or praxeology is based on several of these.

The axiom of human action solves, for example, the problem of discussing how individual feelings, which cannot be measured, are transferred to a market with goods and services that are bought and sold with money. In this respect, Bylund (2020) states the following:

Human action is to make use of objective means in an attempt to manifest an expected or imagined state wherein we satisfy perceived wants—and thereby we create purely subjective well-being… The value of what we have created lives only in our minds. And the precise value we are striving to attain is based on our own, also purely subjective, ranking of different possibilities. But the action as such, which aims to achieve subjective value for the individual, is manifested in the objective world. Things that happen only in the world of the mind are not human action—they are but dreams. Dreams are separate from reality. This does not take away from the fact that we can dream of a better future and then act in order to realize it. Nothing guarantees that actions as such result in what was intended. The opposite is often true: actions lead to unintended consequences. Missing is the rule rather than the exception, and

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it depends on a multitude of factors, from a complete misunderstanding of the situation to having chosen the wrong means—and even the wrong goal. But it is nonetheless in *action* that we discover and communicate ways in which we can reach intended goals, or beneficial unintended ones. It is also how we learn not to do things.

Heuristics are explained as processes that aim to achieve greater efficiency in complex decision-making tasks; we use them as mental shortcuts. However, since they are not based on a careful and deep analysis of information, repetitive errors called biases occur, therefore, the latter are produced by misapplying some heuristics (Tversky & Kahneman, 1974; Gigerenzer & Gaissmaier, 2011).

With everything mentioned below, the development of the integration of the economic behaviour process will be carried out, through the HAT algorithm, with the contributions of behavioral economics, in that strict order. In parallel, we will try to answer the last two questions posed by Thaler (2016).

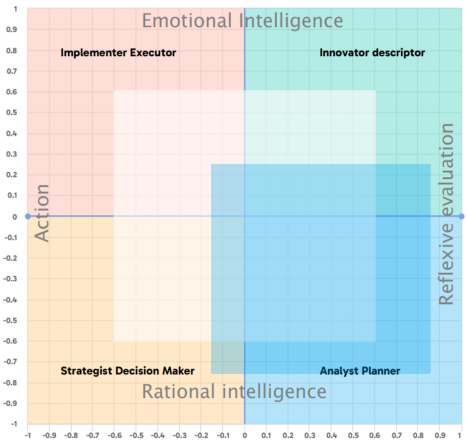
II. METHOD

This research is basic and exploratory, although the topics described have been investigated individually, the integration of these has not (Hernández Sampieri, et al., 2014), with documentary review to compile, analyse and synthesize information extracted from secondary sources (Creswell, 2014).

Based on the delimitation and explanation of the concepts of what is conceived as economic behaviour and behavioural economics, research on these two subjects was reviewed. For the first, research related to authors who applied the HAT economic human action test was compiled, based on the results obtained, of economic behaviour carried out and evidenced, and compared with axioms, heuristics and biases of the various researchers related to praxeology for the first case and behavioural economics for the following.

The algorithm of the HAT © test is calculated through the choice of binary statements related to their coordinate axes, from which the underlying behavioural profile result is generated. The profiles are: 1) Innovator Describer (ID); explores, thinks, describes the current situation, 2) Analyst Planner (AP); organizes, compares and projects a future situation, 3) Strategist Decision Maker (SD); deliberates, decides and schedules resources as a bridge between now and the future, and 4) Implementer Executor (IE); lands, implements and does (Lascano Corrales, 2017).

Figure 2. Example result of Human Action Test – HAT, 5.0 ©.



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The graph shows the result of a person acting as a highly specialized Analyst Planner (AP), since his major area is outside the white quadrant, which, according to the author, is the so-called area of adaptability or ambiguity. Although, in the individual report of the test result, in another graph the percentages of each economic behaviour profile are presented, an ordinal and not a cardinal interpretation must be made, respecting the epistemology of the general theory of economic human action on which this tool is based.

This interpretation is based on the treatment of human action as an irreducible principle (Mises, 1949), in analogy to Bertalanffy's systemic approach (1974) in which the irreducible does not lose its unity, identity and autonomy, and in harmony with cybernetics, which deals with regular, determinable and reproducible behavioural patterns through change. The latter revolutionized science by presenting an alternative proposal to the Cartesian paradigm, thus shifting the research question from; what is this? to what does it do? (Ashby, 1997), like a black box.

Based on the review of different research and results derived from economic behaviour interpreted through the HAT test, several of these were associated with axioms of human action, to identify them, as well as systems of thought, specific heuristics and biases derived from the above, to corroborate them.

III. RESULTS

Axioms

In approximately 50 thousand executives from more than 20 countries who have taken the HAT test (Lascano Corrales, 2015; 2017; 2022; Corrales, Rodríguez and Armijo, 2022), it was evidenced that each and every one of them act according to the concept of human action proposed by Mises ([1949] 2011), however, none of them acted exclusively in one of the four stages explained or that their results were perfectly balanced in each of these. Indicatively, they obtained different areas, the largest being the one that characterizes, above all, one of the four stages interpreted and, therefore, one of the four profiles, whose algorithm exponentially groups the statements that are chosen and that represent multiple situations and binary decisions between their coordinate axes.

The first axiom; *human acts* and does not fail to act in circumstances of uncertainty even with emotional pressures, was identified in the act of conducting the test itself, acting implies action, speculation or inaction.

To complete the instrument, they had to decide between statements with the background of their *subjective valuations* derived from the need to carry out an adequate management according to their commitments, learning curve, responsibilities, resources and deadlines that their workplace in the organization implies, these *temporary preferences* change, and therefore the profile, when any of the variables mentioned mutate. This has been done consistently and independently of the circumstances, situations or type of formal education of each person (Jurado Velásquez, 2023).

As indicated above, the HAT test represents the interaction, in one of its coordinate axes, between a reflective assessment and action, the latter necessarily *always rational* since the intention of being better off tomorrow than today is an apodictic principle, in no case does a person or executive project and carry out things that deliberately lead to a worse situation. While it is true that not all projected plans are perfectly fulfilled, the intention to harm oneself with harmful effects is not the domain of praxeology, but rather of psychology or psychiatry.

Economic behavior, thinking and heuristics.

The structure of the HAT test will serve as a framework for exploring the process and dynamics of Kahneman's (2011) systems thinking.

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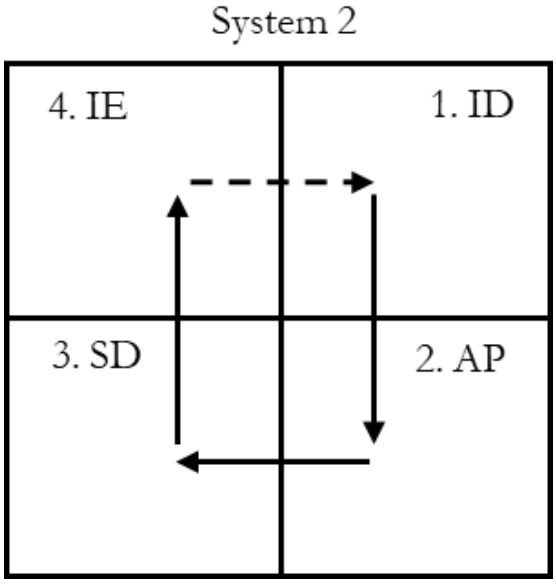
Nobel laureate Daniel Kahneman proposed two types of thinking in decision-making. The first is called system 1, which is fast and intuitive with almost no conscious effort, relying on associations and heuristics to decide and act promptly and efficiently. System 2, which is slower, more analytical, logical and deeper, is used when decisions are more complex or involve new information (Kahneman, 2011).

Figure 3. Process and dynamics of System 2 (Kahneman, 2011), according to model by Lascano Corrales (2015).



Human action, as a cycle, begins with the understanding or awareness of the current situation and its elements, this situational idea can be derived from something that the market needs, that does not yet exist or that, if it does exist, is proposed in a different way, from which innovation arises. Subsequently, the different alternatives are analyzed and compared according to their financial feasibility, time, risk and characteristics to achieve the desired future. The chosen alternatives, considering their opportunity costs, become strategic decisions that will be programmed through the allocation of resources, detailed timelines and responsible persons. Finally, the action itself is carried out, thus ending the cycle, which at the same time represents the starting point for initiating new actions (Lascano Corrales, 2015).

What is described and presented in figure 3, like system 2, is the typical cyclical action of people, but above all, teams or organizations with a certain degree of stability, resources or circumstances in which risk, investment, complexity or responsibility are important and, therefore, this process is carried out rigorously.

Below are several examples of system 1 based on the study of economic behavior profiles of executives from 16 countries (Corrales, Rodríguez and Armijo, 2022), the results showed different types and percentages of profiles by nationality and therefore of dynamics that exemplify heuristics or shortcuts.

In Spain and Nicaragua, there is a higher percentage of executives whose preference is from ideation and diagnosis to organization and planning or rather over-planning, comparatively few profiles focus on decisions and project execution, in other words: most procrastinate, as evidenced in subsystem 1.1. of figure 4.

It became evident that most Mexican executives start the process from the idea or current situation towards the decision almost directly, without going deeper in the organization of information for the comparative analysis of alternatives and the plan and less in the realization, as it is presented in what will be called subsystem 1.2. of figure 4.

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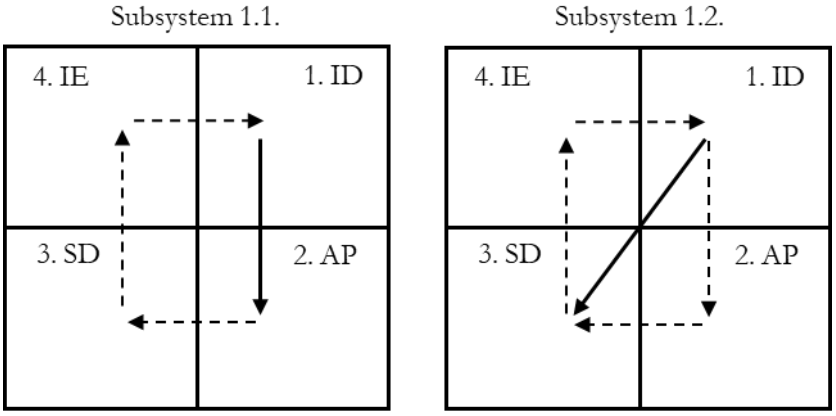
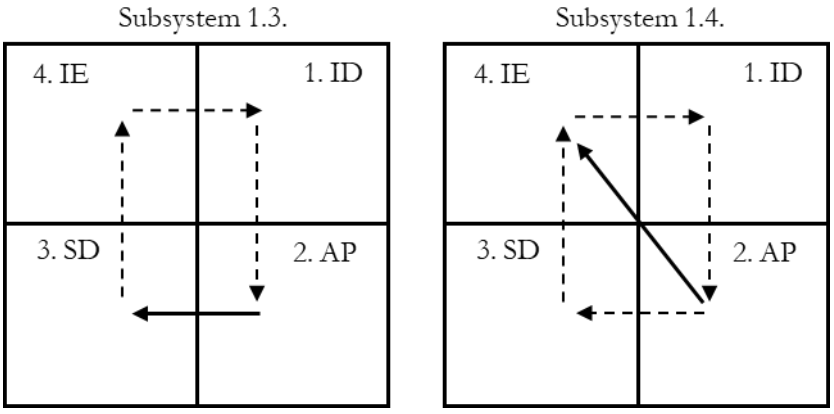
Figure 4. Processes and dynamics of subsystems 1.1. and 1.2. (Kahneman, 2011), according to model by Lascano Corrales (2015).



There are countries where there is a minority of profiles that prefer to invest time and effort in the diagnosis of the current situation, although the importance of this lies in understanding the market, competition, externalities, among others. This is the case in Costa Rica, Ecuador, the United States, Honduras and Guatemala, where most executives prefer, above all, to first organize comparable information and define objectives, and only then decide. In Chile and Bolivia, of the latter the sample was exclusively from Santa Cruz de la Sierra, this heuristic occurs with a marked difference, although the emphasis is on strategic decisions of positioning or programming of resources, in all cases those who execute obtained marginal percentages, subsystem 1.3. of figure 5.

In Argentina, Colombia and El Salvador, planning and acting almost directly, the profiles that decide and program resources strategically obtain marginal percentages in their sample, as is the case in subsystem 1.4. in figure 5.

Figure 5. Processes and dynamics of subsystems 1.3. and 1.4. (Kahneman, 2011), according to model by Lascano Corrales (2015).



Peruvian and Venezuelan executives, whose sample of the latter was entirely expatriates, they prefer to make decisions directly and quickly to achieve execution towards concrete results. Most Panamanians prefer to take immediate action based on the decision and allocation of resources, subsystem 1.5. in Figure 6.

The dynamics of subsystem 1.6. are not evident in this study, however, it has been observed in several studies that, in individual results of the HAT test, there are profiles whose first preference is towards innovation and description and

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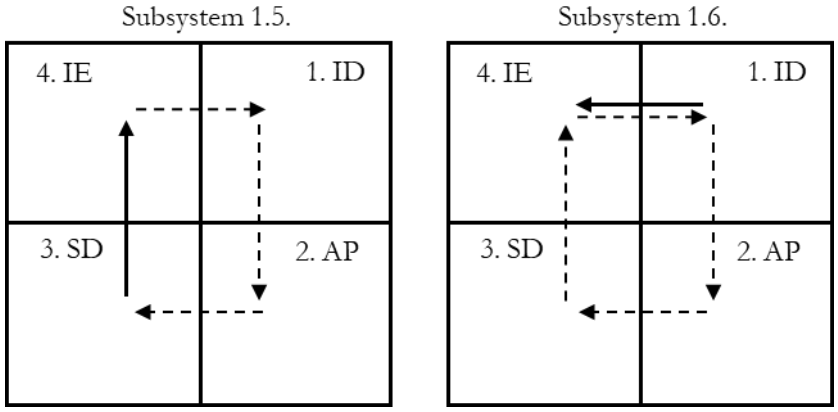
then focus directly on execution. The most recently conducted and reported are the academic works of Carmona Reyes (2023) and Alban Montalvo (2024).

Figure 6. Processes and dynamics of subsystems 1.5. and 1.6. (Kahneman, 2011), according to model by Lascano Corrales (2015).



It is important to clarify that the scheme proposed responds to Mises' causal cycle of human action, therefore, it would not be possible for the dynamics based on it to move in a counterclockwise direction.

Heuristics and biases.

In the following, several research situations in which the HAT tool was applied to identify profiles of economic behavior will be described to exemplify how heuristics frame systematic errors caused by biases in evaluating, deciding and acting appropriately in reality.

Lascano Corrales (2017) conducted a research study with a large sample of private executives and public functionaries, many of the results were of the Analyst Planner (AP) profile, whose main characteristic is to organize and analyze information to project it towards specific ends.

One of the samples was collected in a strategic alignment and change management consultancy process in a public organization that was identified by citizens as inefficient and corrupt. The first thing that was brought to the attention of the consulting team was that there had been five previous failed attempts to carry out 'this type of change programmed' by consultants from more globally recognized companies. This first meeting was evidence of the idea, held by officials of that entity, of a very low probability that this time the purpose of transforming that entity would be achieved. What is known as *availability bias* (Tversky & Kahneman, 1973) was evident, together with the fact that the memory of the past made the final negative result more predictable; *hindsight bias* (Fischhoff, 1975). These biases are a consequence of the ease with which recurrent or shocking events are presented, recalled and exemplified, in other words, the so-called *availability heuristic* (Tversky & Kahneman, 1973).

In preparatory meetings with the counterpart teams to address the first activities, reminiscences about previous initiatives were concomitant with experiences in which, for example, the importance of elaborating and communication diagnoses or baselines was verbalized, as well as in the coordination of work through processes, manuals and management by objectives. No mention was made of topics related to decision-making or implementations with concrete results and early successes, and even less of re-engineering, whose analogy was equivalent to dismissals. This evidenced what is known as *confirmation bias* (Wason, 1960; Nickerson, 1998), in which previous failed consultancies are emphasized and compared with the new initiative presented, trying to find similar experiences to reduce uncertainty, but without going

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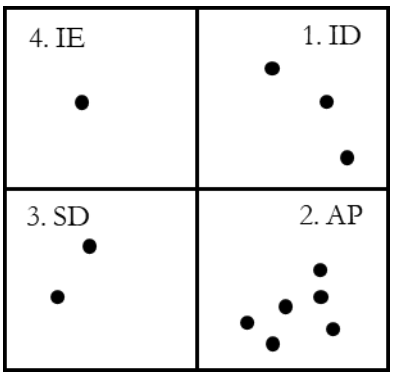
into depth or analyzing in detail the objective probabilities of success given the circumstances. All this within the framework of what is known as the *representativeness heuristic* (Tversky & Kahneman, 1974).

The decision to support or resist, even boycott, this change initiative was strongly influenced by their desire for stability to continue and end their working life in that institution. This *affective heuristic* (Slovic, et al., 2007) is represented in the fear and high level of *loss aversion* (Kahneman & Tversky, 1979) that occurs when the concern about losing a job, their livelihood, is above the benefit of managing the institution efficiently to provide a better service to citizens. For this reason, civil servants prefer to maintain this *inertia and status quo* (Samuelson & Zeckhauser, 1988) of keeping things as they are, which manifests itself with greater emphasis as they get older (Lascano Corrales, 2022), and increasingly value a known situation rather than adopting another that forces them to get involved in new situations that represent a higher degree of uncertainty, this could analogously exemplify the overvaluation of what we have in relation to what is not known, the so-called *endowment effect* (Thaler, 1980).

By understanding the strength of these biases and their heuristic contexts, transformation was accomplished through counter-intuitive and impactful solutions, but that is another story.

In research on the relationship between HAT test profile balance and team return of investment in three countries and over twenty teams (Corrales, 2022), the results were high and positive when increasing the number of Strategist Decision Maker (SD) and Implementer Executor (IE) profiles compared to Analyst Planners (PA) and Innovator Descriptors (ID), this relationship represents the so-called management potential capability index (MPCI). This ratio increased, as did their return on investment, in teams that were first presented with the results of their profile balance distribution and further increased by being trained in the interpretation of individual profiles, as well as with techniques to facilitate the migration of these to other quadrants necessary for better balance as a team, effectively producing an *anchoring effect*, a fundamental concept of Tversky and Kahneman's (1974) *perspective theory*.

Figure 7. Example of HAT profile distribution (Lascano Corrales, 2022).



This assertive communication and training facilitated the perception that the team is doing well, compared to others, and that it can improve a lot; *halo effect* (Thorndike, 1920), given the attractiveness of achieving concrete financial results due to the mutation in the profile of some of the team members, *framing effect* (Tversky & Kahneman, 1981). The above mentioned neutralized the *aversion to ambiguity* (Ellsberg, 1961) evidenced before applying the HAT test, in several cases a known and previously used psychometric test was preferred even though it does not explain the direct relationship between behavioral profiles and their financial results.

Generating and developing an idea that becomes a venture is plausible, however, it could also become something negative for the entrepreneur or the proposer of an initiative, due to the tendency to overestimate its creation and imagine great success even without rigorously testing it in the market, the latter is the so-called *simulation heuristic* (Kahneman and Tversky, 1982). In research with entrepreneurs, their level of training and their behavioral change by gender, researchers

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witnessed this exaggerated daydreaming about the future of entrepreneurial projects (Lascano Corrales, et al., 2023). Such a damaging situation was aggravated by repeated efforts or investments that did not produce the expected returns or, even worse, the recovery of previous losses, this deadly spiral could produce premature entrepreneurial death and is exacerbated by the well-known *sunk cost fallacy* (Arkes & Blumer, 1985) produced by an *overconfidence* that distorts and overestimates people's abilities and problem-solving capabilities (Kahneman & Tversky, 1979) or that this time luck will be with them, just like a ludo path in his *gambler's fallacy* (Tversky & Kahneman, 1971).

In financial education, for example, broadens an investor's knowledge and perspective, however, its most dangerous stage is when the level of self-perceived competence is beyond his or her reality, which could lead to mistakes and losses, leading to a chasm of despair that must be overcome with proper life experience and knowledge and then lead back to a path of wisdom towards the top, which is described as the *Dunning-Kruger effect* (Kruger & Dunning, 1999).

Lascano Corrales et al., (2023), conducted research correlating the HAT test profiles with the ZTPI that identifies time perspective (Zimbardo & Boyd, 1999). They identified, among others, that the Analyst Planner (AP) profile has a high ratio of perspective to the future, while the Implementer Executor (IE) has a high ratio of perspective to the hedonistic present. It could serve as an analogous interpretation of the famous experiment with children who were made to choose between eating a treat at that moment or waiting 15 minutes to receive an additional treat as a reward for resisting the immediate temptation to eat it (Mischel & Baker, 1975). Less risk-averse profiles value their desires for short-term rather than long-term gratification more highly, this conception of cost-benefit-time comparison is termed *hyperbolic discounting* (Ainslie, 1975) and the converse, gaining self-control with expectations of higher payoffs in the longer term, as *exponential discounting* (Laibson, 1997).

Heuristics and biases are generally deepened or tempered in the results of economic behavior profiles for various reasons that relate to the very nature of the division of labor and the specialization that is acquired according to the change in the level of training, experience and behavior (Inkpen & Crossan, 1995), 1995), it also depends on *social influence* such as the *herd effect* (Banerjee, 1992) in purchasing decisions, or information in different social networks of influencers (Cialdini, 2001), these phenomena were originally studied by Asch (1956) and Milgram (1963) respectively, the latter corroborated by Corrales, et al. (2023) in finding no significant statistical differences between the economic behavior profiles of professors and students of a university management course.

IV. DISCUSSION

In recent years it has been found that a wide range of alternatives or options does not necessarily lead to an adequate choice and might overwhelm the decision-maker, additionally, this depends on the perspective with which a good or service is conceived with its different brands and positioning (Iyengar & Lepper, 2000) as well as the responsibility and freedom of the decision-maker's own choice (Iyengar & Lepper, 1999). The former could serve to balance the well-known and repetitive conjunction fallacy (Tversky & Kahneman, 1983).

Another topic that would be very useful to remember, is related to what class probability or case probability means (Mises, 2011), this would avoid investing resources and intellectual effort, which could be useless, when trying to interpret certain heuristics and biases that having any of these categories should be extrapolated or simplified by the intrinsic characteristics of each type of probabilities. The first applies to regular, similar and repetitive events that could be generalized by applying, for example, the law of large numbers (Grimmett & Stirzaker, 2001) or Bendford's law (Berger & Hill, 2011). The latter deals with facts with unique peculiarities that are not repeated, therefore, statistical probability is not applicable (Hülsmann, 2007).

This paper could facilitate certain learning methodologies based on the profiles of the instrument used, the balance or imbalance of profiles in a team evidences a potential management capacity that could lead to the operational leverage

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necessary for the repayment of investments to achieve a healthy credit portfolio for financial institutions. The game in the market and in life must be more consciously played through *tacit knowledge* (Nonaka & Takeuchi, 2007) that can only be learned through *trial and error*.

Finally, the engineering of sales, communication and financial strategies or persuasion (Cialdini, 1984; 2016) could gain innovative insights, thanks to economic behavior and behavioral economics, at a time when the biggest challenge is to get people's attention.

V. CONCLUSIONS

The undersigned has criticized a few behavioral economics researchers for the lack of epistemological delimitation, indicative of the little attention given to the answer to the question: where do behavioral economics and psychology begin and end? This article has sought to provide certain criteria that will eventually contribute towards advancing the construction of the answer, so that criticism can be truly constructive.

The key to proper economic behavior is not through what I personally believe to be an *oxymoron*, so-called *libertarian paternalism* (Thaler & Sunstein, 2008), in the region of the world where I live there is an old saying: *nobody learns in other people's shoes*.

I sincerely hope that what I consider to be a *false dilemma* between so-called rational and non-rational economic behavior will be overcome, for two reasons: 1. In the case where a human being deliberately intends to cause harm to himself, he should be treated in the field of psychology or psychiatry, not economics; 2. The subjective value theory of the *Austrian school of economics* demonstrated that the only person who could qualify an action or decision as rational or not is the person who performed it, another person could not do so in any way.

It should be noted that the new generations of the *Austrian school* do use empirical evidence, but based on the fundamental bases of their thinking, their axioms. For example, would it be useful or necessary to redundantly demonstrate that humans act or have temporal preferences?

It is important to focus on improving the capacity of humans to continue to achieve their purpose, indeed, they have achieved it so far, otherwise you would not be reading this *paper,* and I would not have been able to write it. It would seem, then, that the last two answers to Thaler's (2016) questions should be answered by each person in their individual behavior and with the collective.

Perhaps one of the contributions of this paper is the graphical explanation of the different heuristics presented.

I understand that models of government with populist leaders are still being chosen and Ponzi schemes are still taking place, my hope, agreeing with Pinker (2021), is that the ability to imagine, innovate, causally relate and infer without the need for time series, because in that we have already been overtaken by AI, will develop dramatically in the immediate future. In fact, it could be the last chance for our survival as a specie.

Any errors contained in this paper should be attributed exclusively to its author.

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