

# The Analysis of Choice in the Decision-Making Process of the Agents

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## Abstract

At the base of the economy as the other social sciences is always a theory of the actor. It identifies the salient characteristics of the subjects who, through their actions, give origin to the collective phenomena social and economic in nature. Among these features the most relevant are those that explain the origin of the behavior of the actor: because he acts in a certain way; what are the effects of context on his choice; what are the principles that guide or characterize its decisions.

Ultimately every action refers, explicitly or implicitly, to a theory of the mind. It represents, in a more or less detailed and direct causal variables responsible for generating the action. Generally in the economy the theory of the mind is not described explicitly and complete. It is in fact particularly psychological indications executions or implicit assumptions that are deducted from the principles of choice attributed to the plaintiff by the postulates of economic theory.

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## Introduction

Economic theory has always been interested in motivation and consumer behavior. It is believed that most of the actions in the markets it is governed by the behavior "rational" because of selfishness and of the trend of the markets to penalise the irrational behavior. According Herbert Simon, "Rational man of economic theory is a maximizer that do not will satisfy the better".

Although this model of consumer behavior domains analysis contemporary economic, is surfacing between some economists the criticism about the validity of this behavior by opening the road toward the search for new alternatives.

What is known as the behavioral theory of decisions (Behavioral decision theory) has its origin in the treaty of Von Neumann and Morgenstern (1947) on choice under conditions of uncertainty and the theory of the games. This work has produced a dual effect: making desirable the formal analysis assiomatica in economics and psychology and encourage the laboratory experimentation to check the validity of description of the axioms.

If you look at the history of the concept of rationality from the point of view of the economists who could synthesise it using a quote from the manual of Frank Taussing (1912):

"An object cannot have no value if not has utility. Nobody will give something for a product, if it does not expect any satisfaction".

From this statement we can draw the consideration that the maximization of the preferences is a synonym of choice. The second historical idea of rationality is given from the portrait of consumer encoded in the XX century by Debreu (1959):

"A commodity is a good or service completely specified physically, temporally and spatially. For an economic agent an action plan complete is a specification for each commodity in the amount that he will make available or that will be available to him".

According Debreu, the consumer chooses his comprehensive plan to maximize rational preferences primitives. Since we can never measure all aspects of complex objects among which the consumer chooses in the course of his life, we are never sure if what appears to be an irrational behavior in some limited time window is not part of a greater rationality, deriving from a great strategic design. The node is crucial in determining the possible consumer behavior when faced with a choice, is to consider not only the utilitarian aspect of the asset but also other aspects, social and ethical in addition to limited time structure of preferences. We can say that

the economic rationality obliges us to consider other fundamental aspects as regards the decision-making behavior of economic agents.

### The analysis of choice

One of these is the psychological aspect of decision-making. At the bottom, the differences between psychologists and economists on the size attitude/preference are almost theological: the decider of psychologists is pushed by many demons (cognitive impairment), the decider of economists by the sole "the devil who made me do". The tasks of choice are distinguished for their complexity and familiarity, by rapid decisions and largely automatic impulsive and to those complex and planned.<sup>1</sup>

The analysis of the decision that encodes the rational model sees the choices as an issue fundamentally technical selection of that maximizes the utility. The difficulty of the utilitarian calculation is that you must balance a little immediate cost in terms of time with an unlikely serious future damage that is difficult to predict and evaluate.<sup>2</sup> In a behavior guided by the rules there is nothing, which is in itself incompatible with the Convention of the rational consumer of Debreu-Deaton-Mueller; rules can simply facilitate strategic maximization preferences in the course of the life of the consumer.

As already observed for the experimental economy, also in the case of the behavioral attitude of economic research it is possible to trace the previous rather dating back well before the series of studies in which it is traditionally ascribes the establishment of the new course here in speech.

In fact, the term "Behavioral Economics" is in use since the Fifties of the twentieth century, when already are in activities a series of researchers admittedly skeptical with respect to the structure assiomatica in theme of rationality of human behavior that went assuming the economic studies, and concerned to introduce in the same an experimental approach. Between these researchers, in addition to the already mentioned Allais, deserves mention also George Katona, a psychologist of Hungarian origin that very will help to introduce in the academic context in the United States a greater sensitivity toward research oriented to the study of subjective states of agents, in line with the cognitive turn of psychology that would shortly gained.<sup>3</sup>

In any case, the use of the label "behavioral economics" is of ordinary reserved to a course of studies and research started only in the early seventies, easily traceable to a few, well identified researchers: these are two psychologists of Israeli origin, Amos Tversky and Daniel Kahneman, which joins very soon a US economist, Richard Thaler.

On all, in every case, s'lengthens the shadow of Herbert Simon, because it is precisely in the context of the theorisation of a limited intelligence of the subject agent that the best-known and most important behavioral studies have come defining.

Economic research has taken to analyze the psychological implications of these theoretical elements badges with the Appeal extended and systematic both questionnaires that controlled experiments, in pursuit of a sum the widest possible Survey and laboratory data. It resulted in a theory of decision differ radically from the neoclassical and succeeded in that little by little to take off in the orthodox theory of the economic agent, although without ever understand substitute to the same.

Once again, the voice of Simon proves to be the most suitable in the frame the question in speech. According to Simon, therefore the "behavioral economics cares for the empirical validity of neoclassical assumptions with respect to human behavior, and, when the same are invalid, the discovery of empirical laws that describe the behavior in a more correct and accurate as possible".

What are the objectives of the next in order of priority are then reported (i) putting into evidence of the operational implications - also in terms of public policies - differences empirically found between conducted actual and theoretical models assiomatici; (ii) the collection of empirical data relating to the form and content of the utility function "or any construct will replace it within the framework of a theory empirically behavioral valid", in view of an improvement of the predictive capacity with respect to human behavior.<sup>4</sup>

This setting of priorities and objectives clearly defines the main research lines of the behavioral economics: what seems more important, however, is the classification that reconstruction performs the same lines as

<sup>1</sup> See Ajzen 1987, Gerling 1992 and Gillholm 1998.

<sup>2</sup> See Fredrickson and Kahnemann 1993

<sup>3</sup> [Cf. Angner Loewenstein, 2007, pp. 1 and 23]

<sup>4</sup> [Simon 1987, p. 221].

compared to the neoclassical tradition, which, instead of being rejected in its entirety, is adopted as the reference scenario in view of its possible improvements, and only in the presence of proven operational inefficiencies by putting each time in the debate.

As far as both Simon to have introduced the topic is now to the work of other researchers that reference should be made to better understand the (rough though) continuity of the behavioral economics with the neoclassical, together with the reports sometimes complicated with the cognitive framework of impression simoniana, typically focused on the limits of rationality with respect to the subject and the environment.

In this respect, according to a recent comment it would be possible to distinguish between a step so to say classical economy behavioral, represented by the pioneering works of Simon, and a new program of behavioral research, "understood in the sense of moving beyond the criticisms originating from Simon to the neoclassical economics, focusing on systematic biases of Kahneman and Tversky more than on random limits of activities of rational decision of Simon".<sup>5</sup>

The emotional mind is much more rapid than rational, because it passes to the action without even stop a moment to reflect on what to do. Its fast preclude reflection deliberate analytical and that characterizes the thinking mind. In the evolutionary process this rapidity is connected, very likely, the decision most essential, i.e. what should be careful and once vigilant (for example in front of another animal) to take in a fraction of a second decisions of the type: between the two of us who is the prey, i or him?

The bodies that were to dwell too long to reflect on the answers to such questions were less likely to generate a numerous offspring to which transmit the genes that accounted for their slowness in the act.

The actions arising from the mind emotional are accompanied by a feeling of safety particularly strong, deriving from a way of seeing things simplified and immediate, that can appear absolutely shocking to the rational mind. To things done or even in the midst of the action we are surprise to think: "Because I did this?" a sign that the rational mind is waking up, but without the readiness of the emotional.

The great advantage is that the emotional mind can read an emotional reality in an instant, producing that judgment immediate intuitive that tells us who we should be wary of those who we can trust and those who find themselves in a difficult situation. The emotional mind is our radar to discover the danger; if we expected the intervention of the rational mind to formulate some of these reviews, we could not only go wrong, but even die. The disadvantage is that these impressions and these reviews are intuitive, occurring in a fraction of a second, may be erroneous or malaccorti.

Since the rational mind needs more time with respect to the emotional mind to record the impressions and to react, the "first pulse" in an emotional situation is dictated from the heart and not from the brain. There is also a second type of emotional reaction, slower response of the fastener, which hatching and ferments in our thoughts before bringing to a sentiment.

This second track is more deliberate and generally we are aware of the thoughts that guide us toward it. In this type of emotional reaction, the guest is wider; our thoughts – the cognitive element – play a key role in determining what emotions will be aroused. Once formulated an assessment follows an appropriate response emotional. In this sequence slower, a thought more articulated precedes the feeling. Emotions more complex, as the embarrassment or apprehension for an exam imminent, follow a road slower, using seconds or minutes before develop: these are the emotions that arise from the thoughts.

On the contrary, in the sequence of rapid reaction sentiment seem to precede or be simultaneous with the thought. This emotional reaction snapshot occurs in urgent situations in which what is at stake is our survival. The power of these quick decisions is that we mobilise in an instant to face an emergency.

In general, the rational mind does not decide that emotions we have. On the contrary, the sentiments you have as a fait accompli. What usually the rational mind can check is the course of those reactions. Apart from a few exceptions, not for us to decide "when" be furious, sad and so on.

The rational mind thinks based on objective evidence. The emotional mind, instead, it considers the convictions absolutely true and therefore underestimate any evidence to the contrary. This is why it is so difficult to argue with who is emotionally troubled: whatever the firmness of your subject from a logical point of view, it is not

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<sup>5</sup> [Heukelom 2011, p. 18].

important if it conflicts with the emotional conviction of the moment. The sentiments you autogiustificano with a set of perceptions and “tests” all of them.

The operation of the emotional mind is largely linked to a specific state, dictated by particular feeling that it says in a certain moment. The way in which we think and act when we feel romantic is totally different from that which we adopt when we are angry or killed; in the mechanics of emotions, every feeling has its distinguished repertoire of thought, reactions and even of memories.

## Conclusions

These repertoires tied to a specific state become predominant in moments of intense emotion. A signal that such a repertoire is active is the selective memory. Part of the reaction of the mind to a situation emotional is a reordering of memory and options for action, so that the most relevant are in position hierarchically higher and so are more easily put into practice. And, as we have seen, each important emotion has its biological mark: a set of radical changes which take in checkmate the body while the emotion salt – a series of automatic signals characteristic exhibited when it is in the grip of emotion.

The economy is a highly complex system. The substrate of the economic system is formed by people in their capacity as consumers, workers, managers, etc. These items are then joined together and form the different hierarchical levels intermediates, up to reach the complexity and the organization of the entire world economy. The method of decision making of man is extremely more complex than any living organism on earth. We can say that the behavior of natural systems are based on fixed rules, while those of society, people, act on the basis of planning and future prospects; in this way the system state influence its same behavioral rules.

The notion of choice presupposes that there is the *possibility of alternative actions*, namely that the agent in question is not obliged to act in a predetermined manner, because thus obliged by natural forces (as in the physical world), by instincts (in the biological world), by coercive desire (in societies schiaviste), or by assumption. In this case, the choice degenererebbe in an action required: i.e., the set of actions including the agent can choose would be composed of a single element. A theory of choice would not false, but irrelevant to describe/explain the action. (However, even these predetermined actions can have important economic, for example, may generate demand for goods. Therefore, economic theory includes, in general, even these degenerate choices).

The hypothesis that the actions are chosen presupposes not only that they are possible alternative actions, but also that there is a *criterion of choice*, for example the pursuit of an objective. Without a criterion for selecting the action is undetermined, can be any, taken for example in the case between the alternatives (however, the random action in certain cases may be a deliberate choice). The selection criterion for an agent is associated, in the economic analysis, to *preferences on all actions* and are these preferences that reflect the end, or connection, the agent.

The theory of choice is in economy quite complex and varied, especially in relation to the stock options to choose from, so it is worthwhile to distinguish different types of choice to analyze them separately.

There are social decisions “easy”, in which applies the rational process of economic calculation, and there are choices “difficult”, involving life and death (use some forms of coercion within its own territory, go to war, militarily intervene in a genocide), or vital goods (check a source of water or the foreign debt of a developing country, allocate a kidney transplant or food in a famine, manage a nuclear risk or global climate change), or goods identity (to be able to pray publicly a god, wear or less the veil, allow abortion or artificial insemination). It defines “choice tragic” that as it happens for life, the vital goods and goods identity – “is born from the conflict between the values that you say in an absolute manner, in the sense that it does not admit compromises”. When the choices are tragic, efficiency is no longer the sole criterion for the allocation of resources. There is not an optimal solution, but “only an oscillation from a solution that is compatible with certain values and incompatible with others, to another solution in which the situation has changed or overturned”. This cyclicity, for which in each moment of our existence we pursue certain objectives, which then replace with other flows from intrinsically character of choice.<sup>67</sup>

The point can be effectively expressed by mentioning the known dilemma of the donkey, improperly attributed to the logic of the XIV century Jean Buridan. It circulate two versions, meaning from radically different. The first widespread, tells that the ass, failing to decide whether to eat the forage or hay, dies of hunger. Here we

<sup>6</sup> [Gerelli 1993, 22]

<sup>7</sup> [Gerelli 1995, 77]

have a subject that aspires to maximize your pleasure, but that, placed in front of the options very similar, must commit to refine its assessment with a commitment that, in the meantime, succumb.

To provide some element of response, it is appropriate first to distinguish between the steps.

Pre-decision-making, where the alternatives of the "tragic choice" remain in conflict and post-decision making in which – as the donkey who thirsts while filling the belly of forage the sense of the choice made translates into regret, insecurity and uncertainty, need in respect of the option ignored.

The American psychologist Elliot Aronson stated that "the conflict between two opposite knowledge produces a psychological condition of inconsistency (cognitive dissonance). This inconsistency is a state of mind in which we find ourselves to oscillate between ideas, moods, beliefs and opinions.

This condition produces a discomfort to the psyche, a discomfort that may go from a vague annoyance to a profound anguish. This is the moment in which the brain triggers the mechanism of self-defense: it is here that intervenes what is defined as the adjustment. The attitude, we can also say, incorporates the assessments that individuals give of themselves<sup>8</sup>, of others, of events and social goods.

The theory of dissonance came into the scene suggesting that it was more effective to alter their behavior. When people were found to interact on a close base and equal status with those toward which were entitled to entertain prejudices, we would have had a good chance that the ancient attitudes would be appropriate. Several field experiments and laboratory as well as the history of segregation, confirmed this prediction".

It is as a crossroad that presents itself in every moment and in which we decide where to go. The big decisions instead, those that put us in difficulty, often come because we have not taken previously many small decisions. All this signifies that our source element are the small decisions not taken, or taken in the opposite direction from where they wanted to go.

Recent discoveries in neuroscience have demonstrated that the majority of our decisions are not taken at the Rationalized level but at an unconscious level. Therefore, it can be inferred that if our decisions are not the fruit of rationality we must assume that the main problem is caused by the mental programming that provides information distorted. Information which play a decisive role in our choices and have the power to influence so important to our life.

## References

1. Anderson, J.R., & Milson, R. (1989). Human memory: rcv adptive perspective. *Psychological Review*, 96, 703-719.
2. Berry, D. C. and Broadbent, D. E. (1988). Interactive tasks and the implicit-explicit distinction, *British Journal of Psychology*, 79, 251-272.
3. Broadbent, D. E., Fitzgerald, P. and Broadbent, M. H., (1986). Implicit and explicit knowledge in the control of complex systems, *British Journal of Psychology*, 77, 33-50.
4. Damasio, A. (1994). *Descartes the error: Emotion, Reason, and the Human Brain*. New York: Avon.
5. Desvousges, W., Johnson, F., Dunford, R., Hudson, S., Wilson, K., and Boyle, K. (1993). Measuring natural resource damages with contingent valuation: Tests of validity and reliability. In J. Hausman. (Ed.). *Contingent valuation: to critical assessment*. Amsterdam: North Holland.
6. Evans, J., and Over, D.E. (1996). *Rationality and reasoning*. Hove UK: *Psychology Press*.
7. Finucane, M., Alhakami, A., Slovic, P., and Johnson, S. (2000). The affect heuristic in judgments of risks and benefits. *Journal of Behavioral Decision Making*, 13, 1-17.
8. Gigerenzer, G., Todd, P., and ABC Group (1999). *Simple Heuristics that make us smart*. New York: *Oxford University Press*.
9. Giocoli, R. (2003). *Modeling Rational Agents*. Cheltenham: Edward Elgar.
10. Hayek, F. A. (1952). *The Sensory Order. An inquiry into the Foundations of Theoretical Psychology*. London: Routledge.
11. Kahneman, D. (2003). Maps of bound Rationality: Psychology for Behavioral Economics. *The American Economic Review*, pp. 1449-1475.
12. Kahneman, D., and Frederick, S. (2002). Representativeness Revisited: Attribute Substitution in Intuitive Judgment. In T. Gilovich, D. Griffith, and D. Kahneman. (Eds). *Heuristics and biases: the psychology of*

<sup>8</sup> The adjustment is a mechanism of self-defense that uses the autogiustificazione as an operational tool allowing the brain to recreate the conditions of cognitive assonance and then delete the member of discomfort of the psyche, from vague discomfort to the profound anguish.



- intuitive thought. *New York: Cambridge University Press.*
13. Kahneman, D., Slovic, P., and Tversky, A. (Eds., 1982). Judgment under uncertainty: heuristics and biases. Cambridge - *Cambridge University Press.*
  14. Kahneman, D., and Tversky, A. (1979). Prospect Theory: an analysis of decision under risk. *Econometric*, 47, 263-91.
  15. Langer, E. (1978). Rethinking the role of thought in social interaction, in Harvey J., Ickes W., and Kidd, R. (Curated by), *Proceedings of the 13th annual conference of the Cognitive Science Society*, Erlbaum, Hillsdale.
  16. Langer E., Blank A. and Chanowitz B. (1978). The mindlessness of ostensibly thoughtful action: The role of "placebic" information in interpersonal interaction, *Journal of Personality and Social Psychology*, 36, 635-642.
  17. Lowenstein, G., Weber, E., Hsee, C., and Welch, N. (2001). Risk as feelings. *Psychological Bulletin*, 127, 267-86.
  18. Marshall, A. (1867-68). *Ye Machine*. In T. Raffaelli. (2002). *Marshall's evolutionary economics*. London: Routledge.
  19. McKenzie, C.R.M. (1994). The accuracy of intuitive judgment strategies: covariation assessment and Bayesian inference. *Cognitive psychology*, 26, 209-239.
  20. Menger, C. (1963). *Investigations into the method of the social sciences with Special Reference to Economics*. *New York: New York University Press.*
  21. Mill, J.S. (1866). *A system of Logic*. London: Macmillan.
  22. Nisbett, R.E. and Wilson, T.D. (1977). Telling more than we know: Verbal reports on mental processes, *Psychological Review*, 84, 231-259.
  23. Parisi, D. (2003). Economy or economy? *Intelligent Systems*, XV(2): 185-220.
  24. Reber, A. S. (1993). *Implicit Learning and tacit knowledge. An Essay on the Cognitive Unconscious*, *Oxford University Press*, Oxford.
  25. Sargent, T.J. (1993). *Bound rationality in macroeconomics*. Oxford - *Oxford University Press.*
  26. Shafir, E. and LeBoeuf, R. (2002). Rationality. *Annu.Rev. Psychol.*, 53, 491-517.
  27. Simon, H. (1990). Invariants of human behavior. *Annual review of Psychology*, 41, 1-19.
  28. Simon, H.A. (2000). Bound rationality in Social Sciences: Today and Tomorrow. *Mind & Society*, 1, vol. 1, 25-41.
  29. Sloman, S. (1996). The empirical case for two systems of reasoning. *Psychological Bulletin*, 119, 3-22.
  30. Slovic, P., Finucane, M, Peters, E., and Mac Gregor, D.G. (2001). The Affect Heuristic in T.Gilovich, D.Griffin, and D.Kahneman (eds.). *Heuristics and biases: the psychology of intuitive thought*. New York: *Cambridge University Press.*
  31. Stanovich, K. (1999). *Who is rational studies of individual differences in reasoning?* Mahwah, NJ: Erlbaum.
  32. Stich, S. (1983). *From Folk psychology to Cognitive Science*. Cambridge, Mass: *The MIT Press.*
  33. Stigler, S. (1961). The economics of information. *Journal of Political Economy*, 69, 213-225.
  34. Tversky, A., and Kahneman, D. (1974). Judgment under uncertainty: heuristics and biases. *Science*, 195, 1124-1131.
  35. Veblen, T.B. (1994). *The Collected Works of Thorstein Veblen*. London: Routledge. *Economics, bound rationality and the Cognitive Revolution*. Cheltenham: Edward Elgar.
  36. Wilson, T.D., & Schooler, J.W. (1991). Thinking too much: Introspection can reduce the quality of preferences and decisions. *Journal of Personality and Social Psychology*, 60, 181-192.
  37. Zeman, A. (2001). Consciousness. *Brain*, 124, 1263-1289.