

Rationality in Economics

Rationality in Economics:

*Historical Background,
Taxonomy, and Its Limitations
in Decision-Making*

By

David Vázquez-Guzmán

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and Its Limitations in Decision-Making

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For Naomi... my lovely daughter.

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My questions about decision-making started in the first year of my postgraduate degree in Economics at the University of California, Riverside. There, I simply watched everybody taking for granted what professors said about the “representative agent”, as a dogma that should not be questioned. Yet, coming from a business environment myself, where the reasons behind things were important to know, the fact that nobody questioned that ideal was of note to me, and that representation of individual decision-making seemed to me rather incomplete, and perhaps representing a “silly” person. On the other hand, I felt strange seeing others using the same quantitative tools I learned as an engineer, but applying those to human expression. However, when I looked at definitions of rationality in textbooks and academic literature, the plethora of concepts behind human choice fascinated me, but, at the same time, I was perplexed, because, when I was asking questions of my fellow classmates about the different definitions I found, I felt I was hitting a wall of incomprehension, as if I were in the Tower of Babel of the economics’ academia. Everyone considered their own concept as an established and sensible idea and, to some extent, I agreed with them, but most of my colleagues seemed to overlook the fact that there were other concepts in other areas of science, perhaps equivalent, perhaps complementary, to what they were looking for in their research in regards to human decision-making.

I envisioned a type of research about how the different ways of human decision-making were modelled in our science of economics with a small essay in the *History of Economic Theory and Methodology* course that was offered in the fall of 2004 by my respected professor, Stephen Cullenberg (now sadly deceased). What I did in that short document was a rough classification of the most-known notions of rationality, and that was the basis for this whole project. I was surprised (at that time) that conceptions of human rationality did not explicitly include the coherence of thinking with practical behavior, and I felt that everything was like an ethereal blur. The question about why that was the case took many years of study, because, on the one hand, I was a bit naive about the role of institutions and collective decision-making in the establishment of human decision models, but on the other, I simply did not want to criticize mathematical models that were so revered, besides appearing to be too

difficult to learn. Later on, the knowledge of the basis of statistical techniques that are present in decision models allowed me to know that most of the models were biased, one way or another, toward a particular ideology, so I developed this research, knowing that it has many limitations of in-depth analysis. For my starting research, I kindly appreciated the comments of Prof. Stephen Cullenberg and Prof. Prasanta K. Pattanaik, and the enlightening discussions with my classmates Alan Krause, Serhat Kologlugil, Emre Yoldas, Zeynep Senyuz, Ozan Isler, Mónica Das, Dustin Chambers, Ernesto Rattia-Lima, Charles S. Mutzalklizana, and Jaehee Son, with special regards to Heather Tierney in the preparation of my first manuscript.

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An enterprise of this magnitude would not be possible without the great support of physical library resources such as The Tomás Rivera Library at UCR, and The Stirling University Library in Scotland, and the electronic access that my university in Ciudad Juarez provided. Additionally, there are various online repositories that facilitated my work, such as the very accessible resources of *The Jewish Encyclopedia*, *The Gutenberg Project*, *The Catholic Encyclopedia*, *The Encyclopedia Britannica*, and the *E-rara* platform, among others, and various search engines were used, though no artificial intelligence tools were used in any phase of this project. I appreciate the very professional work of Audrey Anderson in the editing of the manuscript, and I am very grateful to her for that. The editorial help of Adam Rummens, and the rest of the team at Cambridge Scholars Publishing was superb, so I am very thankful to all of them. I also acknowledge the help of Josh Bolick, from the University of Kansas, in the guidance of publication of public domain material.

I want to thank all my family, which they were always there, supporting me, particularly during a period of sickness.

It is not customary to thank God in this kind of academic text, but I am doing it, because he was my anchor on the plethora of conceptions about human thinking, and to maintain my sanity in this whole project would not have been possible without him. During the course of this writing, the idea of God sending his own son in a merciful sacrifice, as occurred with Jesus the Messiah, was an everlasting and non-comparable belief that helped me to overcome the risk of being drowned on the ocean of the strands of human normative frameworks, with their inner and vast philosophical disarray. That dismal mess never touched me, and I explored every aspect on the matter that I could. Now I can say with great satisfaction that I understand what rationality is, yet, paradoxically, that concept is not satisfactory at all. Then, with that great confidence along the course of this research, I could think that behind every person writing about human rationality, either Greek or gentile, either famous or unknown, either an ancient writer or a modern contributor, either a man or a woman, and regardless of any hierarchy, there is always another human being, just like me, just like you, so anything can be reviewed and touched, even by peasant hands like mine in the important issue of decision-making, of human rationality.

GENERAL INTRODUCTION

“The prudent see danger and take refuge,
but the simple keep going and pay the penalty.”
(King Solomon, c. 940 BC)¹

Rationality seems to be a gigantic monolithic term, yet is there, unmovable. *Casiodoro de Reina* had the impossible mission to try to stone the Goliath of the obscure text of the official Catholic Latin Vulgate with his humble Castellano translation of the Bible. He started his work in Geneva in 1557, and he continued it in several places in Europe during a twelve-year period. The resultant text would be sadly inscribed on *The Index Librorum Prohibitorum*, and it would cause prosecution to him and to his family not only by the Spanish Inquisition, but also by his Protestant Calvinist fellows, so *de Reina* was sadly considered an “apostate” by the Catholic Church (Maas, 1912, p. in "Spanish versions"). However, what was his sinful act? Why was he persecuted? His “rebellious” act was to try to put in simple and understandable words legendary truths, because at his time, the Latin language of the Bible was the official means of communication, yet it became an obscure way to connect among theologians, and there were no approved translations of the Bible in common languages. Casiodoro de Reina did not have the approval or support of any institution, as it happened in other countries, so he was a man on his own.

Therefore, bringing “peasants” to “elucidated truths” was not something that the Catholic institution would view with approval, for the monopoly on the interpretation was held by the Roman institution at that time, and the Scripture was considered in “danger”, so no one should dare to touch the source of the theologian’s wisdom with their unskilled hands and ignorant minds. The learning of very complicated languages such as Latin was prescribed only for the elite in the past, and that was supposed to produce numerous benefits among the intellectual cast, yet now that language is in disuse, and it has proved to be a failure as a means of communication. Hence, after many years, that Goliath fell down. I wonder if now it is not Latin, but mathematical language, abstraction and statistics, that are obscuring the conceptualization of the process of rational decision-

¹ In the Book of Proverbs 27:12 (NIV, 1993).

making in social sciences. We should stone it with a rock of understanding, then disentangle its essence.

The term “rationality” is a benchmark used to evaluate individual behavior, yet that benchmark is not always defined in the same terms, and that poses a challenge for the explanatory exercise on human decision-making. Unfortunately, learning human decision-making now in economics is like trying to talk with a construction worker from the Tower of Babel. The scientist’s desire to find a model to guess what an individual is most likely to decide in real life is a difficult task, because they do not know with precision which definition of rationality the individual is using, or if the modelling is right. Then, the scientific problem becomes mostly prescriptive rather than analytical because, at the end, we do not know for sure how individuals will decide, and most importantly, how they will behave. Additionally, to scientists’ concerns, policy makers and marketing salespeople want a fully developed predictive model, so they can know for sure, with anticipation, what individuals will most likely think or do, so their policies or marketing strategies are effective. Everyone wants to know if agent *A* will decide for apples or oranges, if she will decide to spend today or to save for tomorrow, or even if she will include in today’s calculations a perceived future change on tomorrow’s prices, and so on. That is the reason it has been important to make models closer to reality, in order to predict human behavior, yet I believe the right recipe for understanding might not be unique to a particular school of thought.

Then, the area of opportunity is large, because it deals with human thinking that, by nature, is not homogenous among people (Arrow K. J., 1986, p. S390), and then trying to find the “correct” model of human decision-making is something similar to trying to find the Holy Grail, or Noah’s Ark. In academia, most of us learn a particular version of “rational” behavior, and we stick to it, so we do not bother to look around to see what others are thinking. We think that “if our model works”, then, “the others should be wrong”. Plain and simple: they should be wrong. If my version of (strictly monotonic) rationality is to decide more than less, and I see that that is present everywhere, then, I stick to that definition. If my version of rationality is coherent with a set of chosen alternatives, then my behavior should be (transitively and asymmetrically) rational, so I keep it. If my version of rationality includes some sort of regularity modeled by a probability distribution, then I think that my (bounded) rational behavior should be that agents will decide x over y “most of the time”, and I am OK with that, and so on. So, why bother myself studying other approaches rather than “mine”? I am not sure, but it might be that through this searching I will find that people think differently, even though I assume they behave “as if”

they were maximizing their (ethereal) utility subject to their (very tangible) budget constraint. Alternatively, I could also find that they are always behaving in line with some sort of (game) strategic behavior, but always preserving the egocentric nature, and because of that, always being “rational” in essence, but that could go outside of my individual conception, and I might not know what to do with that variety of concepts. Yet, I may be talking about the same thing, but simply with a different perspective.

On the one hand, our Cartesian notion of whatever we understand as rationality is a crushing ideology. Anyone daring to deviate from the prescribed path is considered either stupid (a “fool” in the words of Amartya Sen’s critique) or simply demented. The complete title of the *Discourse on the Method*, the seminal work of Rene Descartes (1637), is the “*Discourse on the Method of Rightly Conducting One’s Reason and of Seeking Truth in the Sciences*,” which induces the idea that somehow to get a precise concept of the “right” reasoning is possible. I think this is so presumptuous, arrogant, and inappropriate, because to believe that grasping a “right” and perhaps “unique” concept is possible is intolerant from the start. On the same issue, there is the same arrogance in other Westernized ideologies, such as the one by David Hume, who with his *Enquires and Treatises* tried to encompass human nature in a holistic sense, and whoever deviates from this (socially-conceptualized and verifiable) way was an “abnormal” person and a “heretic” in academic terms. Therefore, the purpose of this book is to analyze the basic framework of rationality, together with its pieces and consequences, rather than to just simply synthesize a concrete, ideological human thinking in economics, pretending that to be “the true” one, and this with the purpose to dissect various perspectives of human thinking in academic economic literature; perhaps inviting to tolerance. I believe that to take a canonical and normative point of view about human rationality is too strong. How will a model describe how humans *should* reason if the only way to construct a model is by the same human reasoning? Therefore, there is a potential tautology. Hence, I preferred to take not only a prescriptive view, but also to include in the analysis the consequences of human behavior.

I want to go beyond modern documents about the issue of rationality, which is Western-philosophically charged, ethereal, universally conceptualized, anti-institutionally conceived, agnostically developed, individually centered, mathematically modeled, axiomatically constructed, pleasure-seeking rooted, utility-value measured, strategically theorized, nowadays statistically computed, philosophically criticized, and attempted to be modelled as an institutionalized social concept. With the discussion of human decision concepts, we can enlighten the particular framework used

for what rational is believed to be, and I want to do that, so as to include other forms of analysis of individual behavior that are coherent but ignored in the foundations of present decision-making. It is clear that I do not want to praise the actual structure, so I want to emphasize that important things are missing. Thus, I will explore from the old Jewish tradition the role of foreseen consequences that are lost in today's concept, and also the pragmatic attitude that seems to be evaded by Hellenic influences and modern reductionism. I also want to explore the embedded connections on human works producing regular and predicted results, which should be considered today on other grounds rather than the Marxist creed of class struggle. I think this might deepen the understanding of economic science when a variety of rational theories are operating, so we can present to our audience in economics a wide, organized selection of concepts that can enlarge understanding of human decision-making depending on the shape under consideration in policy design.

Research on the foundations of human decision-making introduce issues of religion and philosophy, and perhaps appears to be complicated, although there are clear ideas behind the dispersion of philosophical concepts. If you think religion should not be discussed in academia, then you are just preaching a religion of secularism, which is a belief in philosophical credos developed during the period of the Enlightenment, with assumptions much harder to believe than Jesus' resurrection. Occasionally, discussions are led toward that area, and some of these explanations are needed to understand the basis of today's well-known concepts, because not only theologians, but also most of the Western philosophers freely discuss Judeo-Christian values to assert their own ideas. After those tedious discussions, we grasp essences that are driving a particular topic in the area of human decision-making. For those that are not acquainted with these types of philosophical and, sometimes, theological discussions, it is recommended to explore those a bit, so as to distinguish different points of view, because those discussions are the basis for the concepts of decisions we use today, and there is no other way to deepen our understanding in these matters.

If any of my readers think that a more complex mathematical modelling is necessary to model human decision-making, or that another statistical technique will serve better, please try to have an open mind first, because you might discover in my analysis that there are conceptual decisions taken much sooner than the abstract perspectives, and there are some kinds of biases there. Both philosophy and theology, even culture, precedes formal abstraction, and today's very complex models are made with sometimes elucubrated, yet contradicting, premises. If somehow this

methodological discussion is skipped, we will not fully understand the theoretical and statistical models that we develop today, and even though our contributions are publishable, they will not reach the desired level of prediction of human behavior. There is a plethora of models that serve different groups in academia: they either praise their own concept highly, or criticize others bluntly. Again, maybe the discussions about those perspectives flood articles profusely in prestige publications, yet not much is done to really advance the understanding of human behavior.

My take on economic rationality will be to discuss the methodological basis (Part 1) first, then to present abstract conceptions related with mathematical and statistical representations of human decision-making later (Part 2). My research on methodology led me to investigate ancient ways to make decisions, and I covered one that seems to me the starting point of today's perspectives, which seems to be the important framework present during the Middle Ages in Chapter I, where the Catholic tradition enforced a certain way of thinking based on institutional fear. I traced this kind of decision-making to a Greek elucubrated style with a Roman social convention, where an anthropocentric view is taken, but it is still very institutional. On the other hand, in Chapter II, I compared this perspective with a previous approach, which is the old Jewish tradition, where time, pragmatism, and the regularity of consequences are the most important pieces in human decisions. It seems to me, unfortunately, that the old Jewish tradition is out of fashion in economics academia, mostly because of its direct reference to God, but a lot of wisdom in regards to making decisions is lost because of the present academic view that is anxiously agnostic and, perhaps without knowing, very religious of Persian and Hellenic gods. I conclude that our way of thinking now is not very different from what the Catholic conclaves wanted us to think, and there is just a shift on things we fear: yesterday we feared hell, today we fear disapproval. The last methodological topic of Part 1, which is Chapter III, is related with decision-making during the Enlightenment, where I touch upon both Continental (e.g., Descartes) and Empirical (e.g., Smith and Hume) philosophy, which are very much in line with how we conceive the economic frameworks of decisions we make today, which are mostly embedded in logic, mathematics, agnosticism, and selfishness as a premise.

In Part 2 (Chapter IV) I offered a taxonomy on rationality concepts, which in general are mathematical and statistical. The way to classify those concepts is still subject to discussion presently, because both mathematics and statistics declare a predominance of one over the other, and each perspective has its own reasoning. In general, there are these two abstract ways, and perhaps a third one that wants to use (German) philosophy to fill

methodological (and perhaps theological) gaps, which mathematics and statistics produce constantly. I generate three main classifications on rationality using different criteria (level of abstraction, ethical basis and epistemological focus) to try to entangle most of the present concepts of rationality used in economics nowadays. In Chapter V, I disentangle the mathematical structure of rationality used today in economics, starting with the binary relationship, its strong assumptions and its generalization using the utility function, and the set of credos behind utility maximization subject to the budget constraint. I also discuss how social choice theory is based on the individualistic basis, and that the limitations have to represent aggregated decisions. Following on in Chapter VI, the complex world of statistics (which criticize the neoclassical model) is discussed, and I mention the most known schools that have developed around the data concept. Finally, in Chapter VII there is a series of discussions that try to criticize the neoclassical credo as well, but doing so from a philosophical perspective, where mostly German and French philosophy is used to patch the various sides that neoclassical theory has left out, where humans are now like cosmic creatures, and where several institutions are trying to chain them again under their doctrines. After all, I wonder if we, with our present understanding of rationality, are that much more advanced from the Catholic perspective that imprisoned Galileo for the rest of his life, as we usually pretend to be: my guess is that we are not.

**PART 1:
HISTORICAL BACKGROUND
AND PHILOSOPHICAL ROOTS
OF DECISION-MAKING IN ECONOMICS**

CHAPTER 1

RATIONALITY AND ROMAN RELIGION: GUILT, SIN, AND AN AGNOSTIC INSTITUTIONAL RESULT

“Do not be deceived:
God cannot be mocked.
A man reaps what he sows.”
(Paul, c. AD 50)²

A. Introduction

The intention of this part is to fill the gap between philosophy and science in the conceptualization of decision making in economics. There is some outstanding ancient literature that is very familiar with our present conceptions and, as you will see, by using this we will be able to understand our present concept of rationality more by discussing today’s focus on the framework of decisions. The literature led us to the discussion of the Scholastic period as the source of a pre-programmed institutional behavior, when there were many scientific changes in human history. In economics, to criticize the mainstream approach of decision-making theory is very common, in order to set up a particular agenda, and that style is very common in Hellenic traditions. For instance, the critique of Sen (among others) to traditional economic theory, and its narrow view of the economic agent, has been reviving the understanding of classical authors, in their original context, about how decisions are made (2002; 1999, p. Ch. 5 and 11).³ There is also an interest in talking about Hellenic roots in the social sciences, as I have already mentioned. My interest is in discussing the main ideas and context of the rational decision framework, by using the sources of the texts that the main philosophers cited in their own work, so that we

² In the *Epistle to the Galatians* 6:7 (NIV, 1993).

³ See also Schabas (2005, p. Ch. 1 and 5), Dow (2001) and Montes (2004) among many others.

will have a better understanding of how our conception of those frameworks influences our thought today. I am aware that there are modern scholars who think that ancient texts are somewhat sacred, holy, and should be kept untouched by *peasant* minds, yet I will be *touching* them anyway. My *peasant* (and perhaps rude and unrefined) style is to see what the authors plainly say, without giving a lot of attention to the “newer” terms and concepts academics are inventing constantly, because that is the source of the ethereal thinking we see in academia. This is where a lot of time is lost in the elucubrated, complex ideas that are not based on daily life, and which only serve to amuse a niche of selected individuals that are not worried about saying something to a broader audience, but only to those that reinforce their useless sapiential ego.

The concept of rationality before the period of the Enlightenment is broad and interesting, and there are similarities in the ancient criteria of decision-making that are similar to what we have today. I am referring here to clear, predetermined frameworks that people seem to use to facilitate their daily decisions. After serious analysis, we arrived at a concept that was developed centuries ago, that is the institutional pre-programmed behavior concept of “sin”. It is clear, for me, that that concept needs to be understood in its context, because it affected the idea of rational decision making we have today through the historic events of the Middle Ages, particularly those related to religious institutions. I will discuss this particular issue in influencing today’s very common agnostic view of the individual, which is the one prescribed by academics today, yet this might be to our surprise, because the religious institutional prescription resulted from the fierce reaction of philosophy toward theology in the period known as the Enlightenment.

I will show the development of rational decision-making as a normative concept, which is due, mostly, to the heritage of religious institutions, who enclosed all human decision criteria in a set of regulations. The purpose that the regulator had was to maintain the ability to punish any individual’s deviation from the sacred law. In addition, the historical issues of the Middle Ages influenced the current idea that individuals should be considered as generally “homogenous”, and this comes mainly from the institutional effort to universalize belief by the Catholic tradition.⁴ I start my discussion in Europe with the important role of the Roman Catholic Church

⁴ When it is said “Church” or “Catholic Church”, it usually refers to the Roman Catholic Church. I used the term “Christian” as a generalization for people that believe in Jesus as the waited Messiah. To avoid doctrinal bias as much possible, almost all references to Catholic doctrines used their own sources such as the Catholic Encyclopedia (www.newadvent.org/cathen).

because that institution had a powerful influence on enforcing norms, and it also had a deeper debate about human nature through theological discussions so, not surprisingly, this institution is still present today in establishing moral and ethical judgements.⁵ My points of view include discussions and schisms within this institution, and disagreements with its counterparts in Europe as well.⁶ Yet, through the study of those discussions, we can enlarge our understanding of the form of the individual's perception. Thus, debates about human thinking that took place during several schisms in the Middle Ages were critical to the development of philosophy as a secular science, and this led to the development of alternatives to the concepts conceived by the Church.

This chapter does not focus on institutions only, but it does show how some important (religious) institutions evolved in such a way that they ended up affecting the individual and his thoughts, so I will have an epistemological focus on the individual and its process of decision-making, but covering the institutions around it. I am aware that modern methodologists in economic theory have their own individualistic idea, and that will be covered in a separate part.⁷ Yet, in general, I am emphasizing the role of the historical context on human decision-making to understand our current process of decision-making in a better way. Once we understand how those (religious) institutions were diminished, we can understand how (academic) others emerged and affected the individual way of thinking.

Therefore, I am covering first in this chapter a quick review of the problems faced by the Church as an institution in order to understand morality according to ancient religious precepts before the Enlightenment, and I argue that this basis is still present today in the evolved doctrine of the Catholic Church in our Western society. Here, I discuss how the belief shifted from the original, dualistic Christian tradition of souls and the material world, based on the so-called Patriarchs and Augustine, to the rationalistic, Aristotelian influence of Aquinas in the thirteenth century as a preamble to the establishment of the institutional law. Secondly, we see that the consolidation of Catholic theology by Aquinas was a necessity by the institution that wanted to privilege a plain and anthropocentric being rather

⁵ The study of other religious institutions and their take on human decision making might be a natural extension of my research, though I do not think there will be major changes in how other doctrines cast human knowledge, and this is because those major religions also use Greek and Roman traditions in their doctrines.

⁶ I am considering the different nature of the schism by the Catholic Church and the Eastern Orthodoxy during the eleventh century. This "Great Schism" did not generate a philosophical reform as the Protestant schism did in the sixteenth century.

⁷ See **Chapter 7**.

than to continue discussing the several metaphysical Platonic perspectives on Augustinian theology, because Catholics needed to bond a fully responsible individual under the Church's law. And finally, the Church needed to generalize belief because of its empowerment as an institution during the invasion and expulsion of the Muslims in Europe, around the end of the first millennium, and for that, they needed to homogenize human theology to standardize human judgment. Altogether, these struggles synthesize the rationalistic, agnostic, and socially conveyed human mind that is always reflexively thinking on "how to think", and fearful of the things he should not think or do.

1. Methodology: "Universal" Rules in the Middle Ages and its Influence in Today's Context

Scientific and philosophic developments have a context, so it is necessary to dig into them to understand their contribution properly. The Enlightenment was a movement against established institutionalized religion and, for that, we need a little bit of theological discussion in the academic writing to understand its background properly. In the present, we are used to thinking that in Western civilization there is a separation between the church and the state, at least normatively, so these institutions usually have a mutually exclusive, more defined area of influence. Similarly, in order to understand the Enlightenment philosophers and scientists, it is important to understand their religion because, even if they considered themselves atheists, they had a religious context shaping their expression in their time. This exercise is the equivalent to understanding the point of view of today's modern scientists within their ideology, so a complete context might enlarge our understanding of how they developed their contributions.

We might think that religious doctrines have been having less and less impact on scientists as such, because we may think that "philosophy" is replacing the previous religious beliefs, but that might be misleading, because the only thing that might be changing is our definition of "religion", which is an evolution of metaphysical, axiomatic concepts which are changing historically. For instance, let us take as an example the important concept of "self" as the foundation of the epistemological, individual rationality notion. The focus in philosophy is limited to a narrow interest: the individual and its perception, but our concept of selfish individuality, which is so prevalent in economic theory, has its roots in ancient systems of thought. In the opposite way, Middle Eastern cosmogonies put a metaphysical dimension on the self, while Greek tradition, particularly the

Aristotelian, put an emphasis on “selfishness” or “self-love” in regards to this concept, as we see it defined today in a modern dictionary, so the change is noticeable and interesting. That means that we can see that individuality as a concept has been evolving, because the way we understand this concept today might not have been the understanding yesterday. It might be that those definitions were shaped with a particular ideology that we might not be aware of. Through an exploration of the background to these simple ideas, we can enlarge our present notion of how we make decisions.

To understand the impact of the Catholic religion on medieval societies is very important, and is to be distinguished from the concept of religion that we have in the present. Today, we usually think of religion as a matter of our own choice, but from the historical perspective that is completely different, because it used to be that this concept was associated with a communal, obligatory ideology. This description is a “paradox”, as said by history expert and Professor of Crusading History, Bernard Hamilton. He said “In medieval western society Catholic Christianity was the dominant civilization, *not just the dominant religion*”, and also, “Anyone who wishes to understand the Middle Ages must come to terms with the paradox of a society in *which belief was almost universal*, but religious observance much of the time was fairly minimal...” (1986, pp. vii-viii, emphasis added). Therefore, we argue that people lived in a “minimal state of religiosity”, let us call it like that, and that due to the prevalent ignorance and poor education, but they based their behavior on very strict social norms, which were usually enacted and enforced by what we know today as the Church, the Catholic Church. Therefore, in order to be complete, a study of the religion of the past is necessary for a concept entangling choice, to see its evolution, in a similar way as we do today when we consider culture and social norms when social changes and policy design are proposed.

I recommend that my readers be open to a variety of perspectives when considering alternative decision-making frameworks. This might be difficult if we already have our own preferred notion of rationality, which could be biasing our judgment about how we think individuals have been making decisions throughout time. Additionally, I will ask those who are interested in knowing alternative views to try to “forget” to some degree what contemporary theory has to say about how people decide in the present, with the purpose of understanding the prevalent scenario and the institutions that affected people in the past. To see the evolution of the concept will be fruitful in the understanding of today’s mathematical models and the statistical shape that human decision-making has in academia. After