

## REASON AND EMOTION IN HUMAN DECISION-MAKING: A PARETIAN APPROACH

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Can a person make a decision solely based on reason? Common sense answers this question affirmatively; often a person is asked to forget emotions, and decide only with reason. Classic scientific and economic approaches, which deal with the *homo economicus* model, also try to separate reason and emotion in the decision-making process. These affirmative statements are in review – other theories are trying to create models for a better understanding of the decision-making process. Based on that, this paper mainly works with the following question: what is the relation between reason and emotion in human decision-making? The sociological work of Vilfredo Pareto offer ideas for a new insight about this relation. To Pareto, people make decisions based on feelings or residues. Residues are not equivalent to feelings - they are manifestations of feelings or correspondent to them. His theory also deals with derivations - logical justifications in order to rationalize actions brought up by residues. Residues and derivations are mechanisms that provide balance to society. Thus, Pareto seeks to understand the human decision-making process based on the combination between them. From this standpoint, the argument for total separation between reason and emotion in the human decision-making process may not be accurate - the subject may not be as rational as it is thought.

**Keywords:** Reason, Emotion, Decision-making, Society, Pareto.

## INTRODUCTION

The classical scientific approach, as seen in the *homo economicus* figure, separates reason and emotion in decision-making. Rational decisions are made with reason, leaving emotion behind. Contemporary approaches are trying to review that notion – centered on the question: what is the relation between reason and emotion in human decision-making? Vilfredo Pareto offers a view on that relation. The main objective of this paper is to investigate the human decision-making process from a paretian standpoint, trying to ascertain the role of sentiments in the process.

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In order to do so, some remarks on Vilfredo Pareto will be made on the first chapter, in order to introduce his sociological work, often overshadowed by his economic theories. Pareto wanted to understand the complex relations that enable the equilibrium of societies, the economic, political and social forces, and the sentiments and reasons underneath them.

Having introduced Pareto's work, in the second chapter his sociological sentiments and reasons theory will be investigated, mainly from three elements: non-logic actions, residues and derivations. By that investigation, it is expected that some elements may clarify the complex relation of reason and emotion in human decision-making.

### SOME REMARKS ON PARETO'S WORK

Vilfredo Federico Damaso Pareto's sociological work usually do not figure among the founders of sociological thought, like Marx, Weber, Comte or Durkheim. However, his reputation as an economist endures. The Paretian curve and the 80/20 law, for example, are used in many fields of knowledge, from economy to administration. The relegation of his sociological work is usually attributed to part of his *weltanschauung* being directly indebted to Machiavelli, one of the guiding sociological thinkers in Italy since the 16<sup>th</sup> century and author of a controversial pragmatic political theory, as seen in *the prince*, in which "the primary subject-matter for political science is the struggle for social power in its diverse open and concealed forms. (contrary views hold that it deals with the general welfare, the common good, and other such entities that are from time to time invented by the theorists)" (BURNHAM p. 165, 1943).

The core of Pareto's sociological work and most important contribution, according to Marshall (2007, p. 01), is his "assertion that certain psychological factors recurrently play a pivotal role within social, political and economic life", something close to a political psychology study. The main goal in his sociological work was to understand how economics, politics and society function in interdependency – how a society maintain certain equilibrium. This problem was investigated in Pareto's magnum opus 'Treatise on General Sociology', written before the first great war and released in 1916. The book was released in English only after Pareto's death, in 1935, and received the title *Mind and Society*. Powers (1987, p. 11) states that that this book is of great importance, because it "provides lessons about the social structural dynamics which have operated throughout human history", based on Pareto's fresh understanding on the relation of reason and emotion in human actions, to be analyzed in the next chapter.

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Pareto has a cyclical approach to sociology, unlike authors that defend a progressive history, like eschatological philosophers of the “end of times”, such as Hegel, Marx and Fukuyama. By that vichian *corso and ricorso* standpoint, history is not a continuous evolutionary progress line towards a better end, but made of contingent cycles.

His historical cycle became more complex (...) because it (...) comprised economic, political and social subcycles which were hypothesised to run both in accordance with their separate internal dynamics, and in synchronicity with one another owing to forces at work within each cycle which regulate the pace of change within the other two. (MARSHALL, 2007, p. 20)

His ambition was to understand how those cycles function. He thought that some sociological schools, like marxism or positivism, did not pay attention to the irrational, or non-logical, component of society. This failure to recognize certain elements diminished the utility of these theories to model an image of the world. To Pareto, “psychic states, sentiments, and subconscious feelings and the like” play a major role in society (PARETO, p. 25, 1935).

#### PARETO 'S CONJECTURE ABOUT THE REASON-EMOTION PROBLEM

In his sociological opus, called *Mind and Society (1935)*, Vilfredo Pareto (p. 01, 1935) tries to deeply understand how actions mainly based on emotions, feelings or sentiments move society, being deeply connected with the way people make decisions. It is important to note that the author, in alignment with current thoughts on philosophy of science, is not trying to reach the absolute, the certain, the truth, but - in his own words: “Our research is essentially relative, essentially contingent, and all the propositions we enunciate are to be taken as valid only ‘within the limits of time, space and experience known to us.” In Wittgensteinian terms, it is an attempt to model an image of the world. To do that, Pareto 's research is confined to the experimental field, in a process of continuous development; it proceeds by successive approximations and in no wise aims at attaining the certain, the necessary, the absolute.” For Pareto (p.12-13, 1935), in opposition to a *reinen Vernunft* Kantian perspective, “we can know nothing a priori. Experience alone can enlighten us”. The author asserts that propositions and theories may be considered according to three aspects: objective, subjective and individual or social utility. Under the first aspect Pareto considers propositions and theories that are in accordance with experience and observation; under the second one, the sentiments “in which theories originate”; and the last one the way that “sentiments are reflected in theories” and their various individual and social consequences.

Language can be seen as a tool of science – the pursuit to develop a way to communicate without problems of ambiguity and vagueness is maybe one of the holy grails of logic 's history, as seen in the 20<sup>th</sup> century in the Vienna Circle and the first Wittgenstein. Pareto (p. 58, 1935) differentiates three kinds of language: “The language of the logico-experimental and non-logico-experimental sciences and ordinary language”. He states that

the vast majority of people use ordinary language – from which they are prompted to assume that “a word necessarily corresponds to a thing, whereby the name becomes everything and sometimes even acquires mysterious properties”. From that assumption, according to Pareto, a “science” can be constituted with great ease – a characteristic of non-logico-experimental language, as the author puts: “To ruminate on ‘natural law’ is a much more comfortable profession than to dig out the legal codes of the various countries in various periods of history” or “to prattle about ‘value’ and ask when and under what circumstances it is said that a ‘thing has value is much less difficult than to discover and comprehend the laws of the economic equilibrium.” Pareto approximates himself of nominalism, stating that: “Definitions are mere labels that are used to help us keep track of things. Names defined in that way may be replaced at will with letters of the alphabet.”

### Non-logical conduct

Using the inductive method, Pareto (p.75, 1935) aims to study the human conduct without an a priori notion – mainly “the states of mind to which it corresponds and the ways in which they express themselves.” For Pareto social phenomena can be considered from two classes: objective and a subjective – as it is in reality and how it presents itself the mind of a person, the representation and intensionality-extensionality problems. The author asserts that the names given to the classes must not be misleading, for all it is known they are only subjective, as all human knowledge. For Pareto (p.77, 1935) there are human actions that “use means appropriate to ends and which logically link means with ends. There are other actions in which those traits are missing.” According to the subjective standpoint, nearly all human actions belong to the logical class, since in most cases an action is perpetrated expecting to reach a certain consequence. Pareto (p.78, 1935) argues that a logical action must be not only logical from a subjective standpoint, but also from an objective one, “means to ends not only from the standpoint of the subject performing them, but from the standpoint of other persons who have a more extensive knowledge.” The other kind of action, that is only logical to a subjective standpoint, Pareto calls non-logical (not the same as illogical). Logical actions are means to an end both objectively and subjectively, the same is not applicable to non-logical ones. “Logical actions are at least in large part results of processes of reasoning. Non-logical actions originate chiefly in definite psychic states, sentiments, subconscious feelings, and the like.” Pareto states that non-logical actions play an important part in society, since it is “admirably adapted to the realization of logical purposes.”

To Pareto (p. 175, 1935) it is important to differentiate the “logico-experimental truth of a doctrine and its social utility or any other utility that it may have”. A doctrine can have utility even though it not consists of a logical-experimental truth – certain non-logical behaviors sometimes are proved beneficial to individuals or groups. The prohibition in certain religions to eat pork meat may not consist of a logical-experimental truth, but it

was useful to protect its followers from many diseases pork meat can easily transmit to humans, especially in times when the level of sanitization was lower in cities of west culture societies. The author states that using the utility argument, sometimes human beings give logical form to non-logical actions. Since non-logical actions sometimes, by some way, lead to desired ends, travestied in logical form, they are of great importance to society, being an instance that must be studied.

Pareto (p. 171, 1935) questions himself: "If non-logical actions are of such great importance how have the many men of talent who have concerned themselves with human societies failed to perceive them?" He answers stating that innumerable authors have perceived them, from Plato and Aristotle, to Comte and Mill, at times taking implicitly into account, others considering them under different names or noting only individual cases, without any attempt of a general theory. Pareto (p. 177, 1935) asserts that logical interpretation (or rationalization) "of non-logical conduct become in their turn causes of logical conduct and sometimes even of non-logical conduct; and they have to be reckoned with in determining the social equilibrium." In that matter, "the interpretations of plain people are generally of greater importance than the interpretations of scholars. As regards the social equilibrium, it is of far greater moment to know what the plain man understands by 'virtue' than to know what philosophers think about it."

Imperfections of the ordinary language, from a scientific point of view, tend to promote this kind of rationalization, according to Pareto (p.179, 1935), for example, when "two phenomena are placed in a relationship of cause and effect for the simple reason that they are found in company."

There are narrations, theories, doctrines, that refer to social facts. How are we to take them? Do ordinary terms like morality or law correspond to anything definite, Pareto (p. 231, 1935) asks, or are some kind of rationalization of non-logical conducts? With this questions, Pareto is considering these theories strictly from the objective point of view – from a standpoint of logical validity, and not taking into account the sentiments underlying them of their individual or social utility. Pareto states that for centuries people question themselves about terms like law and morality, having defined them in many ways without a consensus, many times designating different things by the same name. In those cases, often theory and practice do not coincide; there is a moral theory and a moral practice, slightly deviated from the theory. Discussions about that matter, according to Pareto (p. 245, 1935), lose all exactness. Excellent examples of that for the author are theories of natural law and law of nations:

Many thinkers have more or less vaguely expressed their sentiments under those terms, and have then exerted themselves to link their sentiments with practical ends that they desired to attain. As usual, they have derived great advantage in such efforts from using indefinite words that correspond not to things, but only to sentiments. We are now going to examine such manners of reasoning for such correspondence as they may (or may not) have with experimental reality. But the conclusions we reach must not be carried over into any other field (§41). The question of their experimental validity is independent of any question of

their social utility; and a theory may, be as beneficial as one could wish under certain circumstances and in this or that period of history without having any bearing at all on experimental realities. "Natural law" is simply that law of which the person using the phrase approves; but the cards cannot be ingenuously laid on the table in any such terms; it is wiser to put the thing a little less bluntly, supplement it by more or less argument. (PARETO. p. 245, 1935)

The prime matter of sociology, according to Pareto (p. 281, 1935), is facts. "A practical fact is the result of many other facts, some of which give rise to theories and may therefore be learned through them." In law, for example, a "court decisions depend largely upon the interests and sentiments operative in a society at a given moment; and also upon individual whims and chance events; and but slightly, and sometimes not at all, upon codes or written law." For Pareto "all such factors, provided they be general and strongly influential, give rise to theories." In a theory there are at least two parts: a subject-matter and a nexus connecting the matter – elements and rules of combination – semantic and syntax counterparts. The problem with the matter of social theories is that: "Now most theories on social matters that have been current down to our own time tend to approximate the type of theory that is made up of non-experimental entities, but usurps the form and appearance of experimental theory." Pareto affirms:

Theories of that kind are evolved in great numbers when thinking is based on concepts and words rather than on facts. And when the error becomes manifest, when it can no longer be decorously denied, instead of abandoning the method of reasoning that led to it, people obstinately try to preserve it and merely seek ways of adapting it to the data of experience. (PARETO. p. 300, 1935)

A second problem refers to nexuses by which elements are combined. In moral theories, according to Pareto (p. 313, 1935): "There is no trace of any experimental verification of any sort. People ask how things ought to be, and they conduct the inquiry in such a way as to I find certain relations that exist, or which they would like to have exist, among things."

In science "the unknown has to be explained by the known. The present helps to an understanding of the past and to some lesser extent the past to understand the present." (PARETO, p. 331, 1935) The conclusion reached is in probability, showing a model of a possible world, and not the world itself. Neutrality is impossible, there is always interpretation:

A certain amount of interpretation is nearly always necessary. A person reporting a fact does so in his own language, adding little or much to it from his own sentiments. To get at the fact we have to divest what he says of such accessories. That will be sometimes easy, sometimes difficult; but we must never forget the necessity, or at least the utility, of doing it. (PARETO. p. 331, 1935)

Sometimes in that activity "abstract entities are explicitly introduced and are known independently of experience", due to universal consensus or authority, for example, and sometimes even "incidentally and secondarily supported by experience." Often theories have elements subordinated to experience, and those superior to it (not corroborated). (PARETO, p. 383, 1935)

The question arises of how to get from “a theory to the facts in which it may possibly originate?” (PARETO, p. 385, 1935) Some “theories are not logico-experimental, but there is an effort to make them appear so (...) theories in which abstract entities are explicitly referred to origins that lie beyond experience.” Most of the theories that rely on common good share that aspect. In some cases the non-experimental element can be eliminated, in other not. To Pareto (p. 387, 1935) in non-logico-experimental theories  $c$ , there are two elements:  $a$ , a quasi-constant element, “the principle that is functioning in the mind of the human being”, that can be logical or non-logical; and  $b$ , a very variable element, which is the explanation a person gives of  $a$  or of the “conduct which it inspires”.

There is, for example, a principle, or if you prefer, a sentiment, in virtue of which certain numbers are deemed worthy of veneration: it is the chief element,  $a$ . But the human being is not satisfied with merely associating sentiments of veneration with numbers; he also wants to “explain” how that comes about, to “demonstrate” that in doing what he does he is prompted by force of logic. So the element  $b$  enters in, and we get various “explanations,” various “demonstrations,” as to why certain numbers are sacred. There is in the human being a sentiment that restrains him from discarding old beliefs all at once. (...) But he feels called upon to justify, explain, demonstrate his attitude, and an element  $b$  enters in, which in one way or another saves the letter of his beliefs while altering them in substance. (PARETO, p. 480, 1935)

Pareto (p. 481, 1935) states that element  $a$  is “the one to which the human being is most strongly attached and which he exerts himself to justify.” The element  $b$  is “made up, in variable proportions, of sentiments and logical inferences.” In social matters “its persuasive force depends as a rule chiefly on sentiments, the logic being accepted principally because it chances to harmonize with such sentiments.” Different from logico-experimental sciences, where in “proportion as they are brought to greater and greater perfection, the part played by sentiment tends to decrease towards zero, and the persuasive force lies altogether in the logic and in the facts.” In this limit case  $b$  changes to  $B$ , and the other instances:

we designate as  $C$  the concrete theories of logico-experimental science (...), we may break them up into an element  $A$  made up of experimental principles, descriptions, and experimental assertions, and an element  $B$  made up of logical inferences, along, further, with experimental principles and descriptions used for drawing inferences from the element  $A$ . (PARETO, p. 482, 1935)

However, this is only a limit case. As said before, the majority of theories have both logical and non-logical elements. To Pareto (p. 487, 1935, v. 1) it is essential when passing a judgment on a scientific theory “to distinguish the elements  $a$  and  $b$ . In general, in every theory it is necessary to distinguish carefully the premises — in other words, principles, postulates, sentiments — from the inferences that are drawn from them.” Sometimes, in theories that add something to experience, “premises are left at least partially implicit, yet those premises play a very important role in the reasoning that is used to constitute the theory.” Pareto (p. 499, 1935, v. 1) affirms that throughout history many efforts “have been made to derive doctrines,  $c$ , from arbitrary principles,  $a$ ”, such as social Darwinism and economic determinism. So, as said before, to a paretian investigation it is important to identify those two elements, in order to understand and classify them. According to Pareto (p. 497, 1935, v.1) “the

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theories, *c*, cannot attain an even moderately scientific form unless the principles, *a*, are to some extent exact. From that point of view, an arbitrary definition is better than no definition at all.”

### **Analysis of sentiments: a theory of residues**

As have been seen, Pareto (p. 499, 1935, v. 2) sees the concrete social phenomena as having a complex form. He used two elements in order to model his conjecture: logical and non-logical conduct. He highlighted the importance of non-logical conduct in human society. It plays an essential role in many *weltanschauungs* and even scientific theories, leading, sometimes, to desired results (like social equilibrium). That leads Pareto (p. 500, 1935) to the following assumption: “that the experimental ‘truth’ of certain theories is one thing and their social ‘utility’ quite another, and that the two things are not only not one and the same but may, and often do, stand in flat contradiction.” To the author it is useful also to separate those things, often a cause of error to social theories. Continuing his inductive process, Pareto observed another distinction: between elements of a theory – an element that was a constant, *a*, and a “deductive element that was designed to explain, justify, demonstrate, the constant element.” Pareto uses a deductive method to investigate the possible consequences of the modeled principles – the constant element *a* and the deductive element *b*. In logical experimental sciences one can imagine a basic element A a deductive element B, which, in some aspects, are analogous to *a* and *b* in non-strictly-logical-experimental sciences.

Social sciences usually show elements closer to *a* than A, “through their failure to avoid intrusions of sentiments, prejudices, creeds, or other predilections, tendencies, postulates, principles, that carry the thinker outside the logico-experimental domain.”. The deductive element in social sciences sometimes gets very close to B, if only not “lack of definiteness in the premises *a*, which deprives the reasoning of strict validity. But oftentimes in the social sciences the deductive element stands very close to *b*, as containing many non-logical and non-experimental principles and showing great susceptibility to inclinations, bias, and the like.” (PARETO, p. 501, 1935) Pareto disserts about element *a* and *b*.

So let us make the elements *a* and *b* our main concern. The element *a* corresponds, we may guess, to certain instincts of man, or more exactly, men, because *a* has no objective existence and differs in different individuals; and it is probably because of its correspondence to instincts that it is virtually constant in social phenomena. The element *b* represents the work of the mind in accounting for *a*. That is why *b* is much more variable, as reflecting the play of the imagination.

But if the element *a* corresponds to certain instincts, it is far from reflecting them all; and that is evident from the very manner in which we found it. We analyzed specimens of thinking on the look-out for a constant element. We may therefore have found only the instincts that underlay those reasonings. There was no chance of our meeting along that road instincts which were not so logicalized. Unaccounted for still would be simple appetites, tastes, inclinations, and in social relationships that very important class called ‘interests’.

We may also have found only a part of one of the things *a*, the other part being a mere appetite. If the sex instinct tended only to unite the sexes it would not figure in our investigations. But that instinct is often enough logicalized and dissembled under guise of



asceticism; there are people who preach virtue as a way of lingering, in their thoughts, on sex matters. Examining their thinking, we accordingly find an element *a* corresponding to the sex instinct, and an element *b* that is the reasoning under which it hides. Diligent search might reveal similar elements corresponding to the appetites for food and drink. But in those cases the role played by simple instinct is far more considerable, at any rate, than in the case of sex. (PARETO, p. 501-502, 1935)

While analyzing a theory *c* to Pareto (p. 503, 1935), it is important to distinguish the objective and subjective standpoint. Errors often arise from this confusion. For example, “in the first place, as we have so often cautioned, the logico-experimental value of a theory is not kept distinct from its persuasive force or its social utility”; in second, “the objective study of a theory is replaced by a subjective research as to how and why it was evolved or adopted by its author. (...) A factor in the confusion oftentimes is regard for the writer's authority.” Pareto (p. 505, 1935) states that the study of element *b* is the study of the subjective element in a theory, that can be seen in two ways: “the general causes and the special causes that account for the genesis and success of a theory. General causes would be causes operative over fairly extensive periods of time and affecting considerable numbers of individuals. Special causes operate in an essentially contingent manner.”

Pareto (p. 506, 1935) explained that in addition to *a* there are appetites and interests. To the author “taking them all together we have the sum of the things that operate to any appreciable extent towards determining the social order.” But the social order also reacts upon them, forming not a relation of cause and effect, but of interdependence and retransmission. People in the scientific western society have “theories for very very many of their instincts and interests. An element *a* figures through virtually the whole range of their social life.”

Pareto (p.508, 1935) assigns arbitrary names to elements *a*, *b* and *c*, for the mere convenience to talk about them. As a nominalist, he is labeling the parts of his model, to facilitate discussions: he calls element *a* residues, element *b* derivations, and the things *c* derivatives. The author remembers that “that nothing, absolutely nothing, is to be inferred from the proper meanings of those words or their etymologies, that they mean respectively the things *a*, *b*, and *c* and nothing else.”

Residues are not the same as sentiments, feeling or emotions, they correspond to certain human instincts, “and for that reason they are usually wanting in definiteness, in exact delimitation. That trait, indeed, nearly always serves to distinguish them from scientific facts or principles *A*, which otherwise bear some resemblance to them.” It is the indefiniteness of residues “that unsuits them to serve as premises in strict reasonings, whereas *A* propositions can be and are constantly being so used in the sciences.” (PARETO, p. 509-511, 1935) Residues must not be confused with sentiments or instincts to which they correspond – they are more like manifestations of them, just like the rise of mercury in a thermometer is a manifestation of heat. To Pareto it is necessary a classification of this kind of residues, in order to grasp an understanding of non-logical actions. According to Pareto, residues manifest themselves in six different groups:

1. Class I (instinct of combination): this residue is the manifestation of human sentiments for inventiveness, progress and adventure;
2. Class II (preservation of aggregates): this residue shows the conservative side of human being, his desire for permanence and security, which can be observed in loyalty and maintenance of institutions;
3. Class III (necessity to express sentiments with exterior acts – symbolical): human beings tend to manifestate their sentiments externally through symbols, like marriage or a salutation to the national flag;
4. Class IV (sociability or social instinct): reveals the manifestation of sentiments tending to support individual and social disciplines, indispensable to the social order maintenance;
5. Class V (individual and dependencies integrity): this residue reveals the will of self-preservation, which contributes to social stability;
6. Class VI (sexual residue): the last residue deals with the tendency to see social situations with sexual connotation.

According to Pareto, these residues are the primary motivation of human conducts; therefore their understanding would permit a better comprehension of the human being decision-making process. From the knowledge of the motivations (residues) that lead individuals to action, would be possible to acknowledge the decision-making process in a situation, in other words, the reason for the choice of a possibility instead of another.

### **Sentiments in thinking: a theory of derivations**

The element *b*, or derivations, in the paretian model are considered from the subjective point of view - "they account for the production and acceptance of certain theories". As said, people are persuaded mainly by residues (sentiments, feelings, emotions, etc.) and also "derivations derive the force they have, not, or at least not exclusively, from logico-experimental considerations, but from sentiments". That being said, for Pareto the nucleus of *c* or derivative (non-logico-experimental theory) is a residue or a group of residues, and around it another secondary residues cluster. The combination of residues, consolidated by the powerful force of human need for "logical or pseudo-logical developments", originates derivations in Pareto's model. (PARETO, p. 885, 1935)

Concrete theories in social connexions are made up of residues and derivations. The residues are manifestations of sentiments. The derivations comprise logical reasonings, unsound reasonings, and manifestations of sentiments used for purposes of derivation: they are manifestations of the human being's hunger for thinking. If that hunger were satisfied by logico-experimental reasonings only, there would be no derivations; instead of them we should get logico-experimental theories. But the human hunger for thinking is satisfied in any number of ways; by pseudo-experimental reasonings, by words that stir the sentiments, by fatuous, inconclusive "talk." So derivations come into being. They do not figure at the two extreme ends of the line, that is to say, in conduct that is purely instinctive, and in strictly logico-experimental science. They figure in the intermediate cases. (PARETO, p. 889, 1935)

Pareto (p.888, 1935) classifies derivations “according to the character of the explanation. Where there is no explaining there is no derivation; but the moment an explanation is given or sought, a derivation comes into play.” They are both used by the non-logico-experimental and the logico-experimental sciences, but the first one “often ascribe an intrinsic value to derivations and regard them as functioning directly as determinants of the social equilibrium”. In Pareto’s model derivations figure only as “manifestations, as indications, of other forces that are the forces which really determine the social equilibrium” – mainly residues. Pareto (p. 891, 1935) affirms that other authors have perceived the role sentiments play on derivations, but again never a complete theory has been created, for many reasons, “prominent among which is the preconception that the leading role in human activity is played by logical thinking.”

In scientific thinking the most stable conclusions are obtained by drawing strictly logical inferences from premises that have experimental verifications which are as nearly perfect as possible. In unscientific thinking the strongest conclusions are those which rest on powerful residues without any derivations. (PARETO, p. 897, 1935)

Pareto (p. 898, 1935) states that “the proof of a derivation is very often different from the reason for its acceptance”, or sometimes it can coincide. “A precept may be demonstrated by appeal to authority and accepted in deference to the same authority, but then again the two things may be altogether at odds.”

As said before, Pareto (p. 899, 1935) classifies derivations mainly based on explanations. For the author there are four main classes of derivations

Derivations of affirmation: the first derivation includes apriori or dogmatic affirmations, like “the good above all” or “honesty is the best way”;

Derivations of authority: the second derivation consists in an appeal to arguments of authority esteemed in some tradition. In law this kind of derivation is very common, in sentences as “the author X affirms Y”;

Derivations in consonance with common sentiments and principles: the third derivation appeals to arguments as general will or public interest to justify actions;

Derivations of verbal proof: the last kind of derivation utilizes verbal form, like metaphors or allegories, to justify certain behaviour, like como “like father, like son” ou “when in rome, do it like the romans”.

From the analysis of residues and derivations, Pareto wanted to comprehend the paradox of human behavior. He deconstructs the *homo economicus* myth, that purely rational being, who makes purely rational decisions, not based in sentiments or emotions. It can be observed, from the study of residues and derivations, that the subject may not be so rational in his decisions.

## INTERDEPENDENCIES: RESIDUES AND DERIVATIONS

The model designed by Pareto tries to overcome the separation between reason and emotion, enabling to comprehend the decision making process from a conjunction of both. According to Pareto, residues and

derivations are mechanisms that provide equilibrium to society.

Having established the relation between residues and derivations, one question emerge: "How do residues and derivations function?" The common view – as in the *homo economicus* myth, defends that human conduct depends mainly on derivations, and at times, to some extent, on sentiments or residues. To overcome that notion, first it necessary to investigate how these elements function. To Pareto (p. 1120, 1935) it is necessary to differentiate two kinds of derivations: "there is the derivation proper and the manifestation to which it leads: there is, in other words, a demonstration, or rather a pseudo-demonstration, and then a theorem, or pseudo-theorem." The latter is called the derivation proper, and the first the manifestation. Pareto analyses these instances:

When we find it important to distinguish the two aspects we will designate them respectively as "manifestation" and "derivation proper." Analyzing "derivations proper" we find, first of all, as the foundation for all the rest, the need of logical developments that human beings feel; then residues of combination (Class I) whereby that need is satisfied; finally residues from all the other classes that are used as instruments of persuasion. Analyzing "manifestations," we get an underpinning of residues analysis of manifestations, in fact, was our method of looking for residues in the chapters preceding. Such residues have, as a logical varnish, a supplement of derivations proper and reasonings of different kinds. In the concrete case, furthermore, disposed about the principal residue is an array of secondary or incidental residues. (PARETO, p. 1121, 1935)

It is possible to see from these writings that Pareto did not agreed with the common conception shown before. He thought that the two main errors of metaphysical and common thinking are: the "inversion of terms in the relationship between derivations and human conduct the derivation being taken, in general, as the cause of the conduct, whereas really, the conduct is the cause of the derivation". To Pareto (p. 1121, 1935) "The fact is that in general derivations result from sentiments and conduct." The second error is in "ascribing objective existence to derivations proper and to the residues in which they originate." To Pareto certain concepts only exists "in the minds of men, what we mean is that in the minds of certain numbers of individuals there is a concept to which that name is given." From these types one concepts one may only infer what ought to happen, not what actually happens – they are manifestations of sentiments.

As seen before, to Pareto (p. 1126, 1935) sentiments are manifested by residues, these elements are among the ones that stand "toward the social equilibrium in a relationship of reciprocal determination." It is important to remember that the author do not give objective existence to his elements, so residues must be understood as abstractions, which underlay in human actions – all that can be observed. Once the residues are investigated, maybe it is possible to know the actions, and understand better the human decision-making process.

Sentiments are also manifested in derivations. According to Pareto (p. 1127, 1935), derivations manifests directly the sentiments that correspond to residues in which they originate, "indirectly they manifest sentiments through the residues that serve for purposes of derivation."

According to Pareto these elements are distributed among individuals in society, serving to constitute and maintain its equilibrium, in combination and interdependency.

As Pareto tried to stress by his social system metaphor, individuals are acted upon by immensely complex constellations of forces, a logically complete account of which must involve recourse to the full range of sociological and psychological levels of explanation. These forces are constantly changing and are brought to bear in shifting combinations throughout the individual lifespan. However, Pareto felt this interplay could be reduced to manageable proportions for the purposes of very general, yet meaningful description, at least where aggregations of large social groups are concerned. His decision to classify behaviours as different kinds of residue may thus be understood as a concern with the outward manifestations of those enduring psychic structures by which groups of individuals who have undergone similar experiences have commonly learned to settle complex forces in order to bring some degree of consistency to their thoughts and behaviours. (MARSHALL, p. 95)

Pareto's model aims to model a complex society, as observed by Marshall. It serves to better understand the complex relations formed in a society, based on the interrelation between reason and emotion, and maybe guide better human actions. But the reality cannot be reduced to it, and even Pareto knew that – the world is more complex than any theory.

## CONCLUSION

The present paper tried to work with the complex relation between reason and emotion in human decision-making from a paretian standpoint, trying to ascertain the role of sentiments in the process. Going against classical economic myths, like the *homo economicus* figure, Pareto tries to deconstruct the common sense that separates reason and emotion in decision-making, stating that sentiments have a pivotal role in this process.

Some remarks on Vilfredo Pareto's were made on the first chapter, in order to introduce his sociological work, often overshadowed by his economic theories. The main goal in his sociological work was to understand how economics, politics and society function in interdependency – how a society maintains certain equilibrium, based on what he calls residues and derivations. Pareto has a cyclical approach to sociology, unlike authors that defend a progressive history, like eschatological philosophers of the “end of times”, such as Hegel, Marx and Fukuyama. By that vichian *corso and ricorso* standpoint, history is not a continuous evolutionary progress line towards a better end, but made of contingent cycles. His ambition was to understand how those cycles function. He thought that some sociological schools, like marxism or positivism, did not pay attention to the irrational, or non-logical, component of society.

In the second chapter Pareto's sociological sentiments and reasons theory was investigated, mainly from three elements: non-logic actions, residues and derivations. Vilfredo Pareto tries to deeply understand how actions mainly based on emotions, feelings or sentiments move society, being deeply connected with the way people make decisions. It is important to note that the author, in alignment with current thoughts on philosophy of science, is not trying to reach the absolute, the certain, the truth. Using the inductive method, Pareto aims to study the human conduct without an a priori notion. Logical actions are means to an end both objectively and subjectively, the same is not applicable to non-logical ones. Pareto states that non-logical actions play an important

part in society. A doctrine can have utility even though it not consists of a logical-experimental truth – certain non-logical behaviors sometimes are proved beneficial to individuals or groups. Continuing his inductive process, Pareto observed another distinction: between elements of a theory – an element that was a constant, *a*, and a deductive element, *b*, that was designed to explain, justify, demonstrate, the constant element. Pareto uses a deductive method to investigate the possible consequences of the modeled principles – the constant element *a* and the deductive element *b*. He calls element *a* residues, element *b* derivations. Residues are not the same as sentiments, feeling or emotions, they correspond to certain human instincts. They must not be confused with sentiments or instincts to which they correspond – they are more like manifestations of them, just like the rise of mercury in a thermometer is a manifestation of heat.

According to Pareto, residues manifest in six different groups, common to all humanity: instinct of combination; preservation of aggregates; need to express feelings by outward acts – symbolic acts; sociability; integrity of the individual and its dependencies; and sexual residue. According to the Italian author the investigation of residues allow an understanding of the subject's decision making process. Understanding the motivations that lead individuals to action enables to model more accurately the decision-making process within a situation. Pareto's theory also deals with derivations - ostensibly logical justifications in order to rationalize sentimental actions brought up by residues. Pareto designs four classes of derivations: derivations of affirmation; derivations of authority; derivations in consonance with common sentiments and principles and; derivations of verbal proof. This classification, as seen, is mainly based on the explanation given for the action, which justifies it.

From the analysis of residues and derivations, Pareto wanted to comprehend the paradox of human behavior. He deconstructs the *homo economicus* myth, that purely rational being, which makes purely rational decisions, not based in sentiments or emotions. It can be observed, from the study of residues and derivations, that the subject may not be so rational in his decisions. Pareto tries to overcome the separation between reason and emotion, enabling to comprehend the decision making process from a conjunction of both. According to the author, residues and derivations are mechanisms that provide equilibrium to society, and a useful sociological study should not forget either one, as has been done so many times throughout history.

## RAZÃO E EMOÇÃO NA TOMADA DE DECISÕES HUMANAS: UMA ABORDAGEM PARETIANA

### Resumo

Uma pessoa pode tomar decisões somente baseada na razão? O senso comum responde essa questão afirmativamente; se pede frequentemente a alguém para esquecer as emoções e decidir somente com a razão. Abordagens clássicas científicas e econômicas, que lidam com o modelo do *homo economicus*, também tentam

separar razão e emoção no processo de tomada de decisão. Baseado nisso, o presente artigo trabalha com a seguinte questão: qual a relação entre razão e emoção na tomada de decisão humana? Vilfredo Pareto oferece ideias para um novo olhar sobre essa relação. Para Pareto, pessoas tomam decisões baseadas em sentimentos ou resíduos. Resíduos não são equivalentes à sentimentos – são manifestações de sentimentos ou correspondentes a eles. Sua teoria também lida com derivações – justificações lógicas com a função de racionalizar ações trazidas à tona por resíduos. Resíduos e derivações são mecanismos de equilíbrio da sociedade. Desse modo, Pareto tenta compreender o processo de tomada de decisão humano baseado na combinação entre resíduos e derivações. Desse ponto de vista, o argumento da separação total entre razão e emoção nesse processo pode não ser tão acurado – o sujeito pode não ser tão racional quanto se pensa.

**Palavras-chave:** Razão, Emoção, Tomada de decisão, Sociedade, Pareto.

## REFERENCES

- BAUMOL, William. **Economic theory and operations analysis**. 2. ed. New Jersey: Prentice Hall, 1965.
- BINMORE, Ken. **Rational Decisions**. New Jersey: Princeton University Press, 2009.
- CHURCHMAN, c. West. **Introdução à teoria dos sistemas**. 2. ed. Rio de Janeiro: Vozes, 1972.
- CHURCHMAN, West at al. **Introducción a la investigación operativa**. Madrid: Aguilar, 1971.
- DAVIS, Morton D. **Teoria dos Jogos: Uma Introdução não Técnica**. São Paulo, CULTRIX, 1973.
- DUTTA, P. J. **Strategies and games: theory and practice**. Cambridge: MIT, 2000, p. 437.
- JONES, A. J. **Game Theory: mathematical models of conflict**. Chichester: Ellis Horwood, 1980.
- KEENEY, R. L. Decision Analysis. In: MODER, J.J.; ELMAGHRABY, S. E. **Handbook of operations research**. New York: Van Nostrand Reinhold, 1978, 2 v.
- KLEINDORFER, Paul R. et al. **Decision sciences: an integrative perspective**. Cambridge: Cambridge University Press, 1997.
- KNIGHT, F. H. Risk, **Uncertainty, and Profit**. Boston, MA: Hart, Schaffner & Marx; Houghton Mifflin Co, 1921.
- MARSHALL, A. **Vilfredo 's Pareto sociology**. Ashgate: England, 2007.
- NEUMMAN, John Von; MORGENSTERN, Oskar. **Theory of Games and Economic Behaviour**. Princeton: Princeton University Press, 1953.
- PARETO, Vilfredo. **The Mind and Society**. New York: Harcourt, Brace and Company, 1935. 4 v.  
\_\_\_\_\_. **Manual de econômica política**. São Paulo: Nova Cultural, 1996.
- POWERS, C. H. **Vilfredo Pareto**. New York: Sage, 1987.
- PUGLIESI, Márcio. **Teoria do Direito**. 2. ed. São Paulo: Saraiva, 2009.

RAIFFA, Howard. **Teoria da Decisão**: aulas introdutórias sobre escolhas em condições de incerteza. Petrópolis: Vozes, 1977.

SOBEL, J. H. **Taking chances**: essay on rational choice. New York: Cambridge, 1994.

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