

## Choice That's Rational

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### Abstract

In this paper, it is about the axiomatic basis of rational choice theory - the theory that is behind making rational choice and decisions. To make rational choices, we would require thinking rationally and understanding the reason and logic behind what makes a choice rational, and how we need to choose rationally. Decisions are made under various circumstances, i.e., under risk, and often under compulsion. In social choice theory, decisions are made by different types of decision making entities, i.e., committees, groups, individuals and collective judgments by various types of organizations, etc. This paper highlights these issues and addresses the fundamental tenets of making rational choices by examining and following the previous workings of experts on this field. As such, it introduces a novel concept and the idea of Social Choice Rationality in choosing what's rational.

**Keywords:** choice; decision making; rational; social choice rationality; welfare.

**JEL Classification:** I32.

### Introduction

Rational choice constitutes an important aspect of human decision making. Human actions are evaluated based upon their consequences, whether sensibly cogent or unreasonable, ethically moral or corrupt; i.e., right or wrong. It has been observed that even some animals provide evidences of rational decision-making with regard to their choice of mating, survival strategies, and foraging. This is more or less relevant for primates who constantly face decisions with regard to choose of mates, foraging, and survival (Stevens, 2010).

Rational decision making involves picking a strategy that help maximize utility, secure future benefits, or which concern a fruitful investment in the future. It also depends on what choice(s) you've got under given circumstances based on which you can make decisions. Choosing an option based on computation of its ensuing utility involves some degree of intelligence, reasoning, and acumen. It requires thinking and cogitation too. As an agent, you'll need to choose sensibly to render your choice rational. Of course, there are numerous factors that influence an agent's choice of a strategy. In most liberal-democratic societies, every individual has the right to choose freely and rationally (Kolm, 1996). The maxim of social rational choice based upon which decisions are made, assumed, and realized as rational, has been grounded on Arrow's (1951; 2012) landmark monograph, "Social Choice and Individual Values". Herein in this research, I introduce the idea of "Social Choice Rationality" as a concept based on that which would help empower agents to make rational decisions and understand how socially rational decisions need to be taken more efficiently under various circumstances. It takes into account what social choices are and how they are made.

In addition, in this paper, I discuss the social aspects of human desires to have choices that are assumed to be rational. A choice that's rational is considered as an optimal option leading to an (expected) outcome of a decision-making process. It may not be the 'best' choice given various alternatives; however, given the inconsistency in conditions of choice functions, it might be assumed that a specific choice is a rational one if it satisfies several axioms of the social choice theory. But in reality, this seems impossible. Impossibility results in social choice theory, for there persists informational inadequacy within the social choice framework. The entire framework of social choice theory revolves around the relationships between individuals, preferences, and choices (Fishburn, 1973; Sen, 1977) - whether they be rational or not, or if optimal or suboptimal for, if choices are rational, outcomes too could be expected to be realistically beneficial due to the utility of choice involved. A decision maker has the option to select strategies that are strictly dominated, or she/he may fumble upon choosing an optimal strategy from several given options, if there be any such options available in specific circumstances. In prisoner's dilemma, however, one may wish to cooperate when restraints are imposed upon individual instrumental choices. That is, under game theoretic perspective that involve prisoner's dilemma, a prisoner has the option (to be rational) to confess the truth, or lie. In other words, choosing to cooperate under a situation of not confessing would depend whether the prisoner would probably act according to the best interests of law, or according to the best interests of

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self. Now, what choice is rational, or if a strategy chosen by a decision maker is rational, would most likely depend on the ability of an individual to choose an *optimal* strategy that's most probably "rational".

## 1. Rational Agents

Humans are economizing social animals. They are as well rational maximizers (Hollis, 1990), for in an ideal world everyone aims for maximizing utility. Besides, everyone has reason to act rationally, and everybody has reason to act morally (McPherson, 2007). Indeed, rational decisions come from rational agents, for they are able to use the information effectively in choosing what's rational. Rational agents also have the ability to know more and seek more information before making a decision. They have the ability to think rationally. Under uncertain, risky situations, rational agents generally utilize a model of choice under risk that is the foundation of the theory of decision making under risk (Kahneman & Tversky, 2013).

"However, it is also true that not all decisions are made by rational agents. Besides, rational agents often make irrational judgments too - for it has often been seen, that errors and foolish mistakes have been made by rational agents as well."

By a rational agent, I mean herein a person or an individual who uses reason and logic to make decisions, besides using the available information to make sensible judgments. Although in an ideal world all agents are fully rational, this isn't the case in the real world. But they do have ordered preferences, and make decisions based on the information about the possible outcomes of ordered preferences. In the real world, it is impossible to know all the outcomes of possible course of actions beforehand, so agents opt to choose the most rational path when expected utility of an action exceeds that expected from an alternative policy of actions. Incidentally, Kahneman and Tversky (2013) have done away with the expected utility theory and introduced the concept of "prospect" theory which is a model of choice under risk. You may choose risky strategies knowing well the uncertainty attached to your decisions but on the basis of prospect of winning big by taking more risk. Here, expected utility has little if any role to play that would delineate the results from outcomes that are highly probable. Let us understand this prospect theory with an example in the light of rational agents making decisions under risk - and normal conditions, both.

Consider this new version of an old example of a game (Okasha, 2007) concerning decision under different possibilities, i.e., no risk or some risk. Suppose that there are two players 1 and 2 and they are given two choices based on coin flips whose outcome is tied to selecting between one of the two options given as:

A = Head or Tail, B = Tail

A = \$5, B= \$30

Now, in this game, you're given two options to choose from, option A and option B, with each one of you getting 5 turns to try your luck or limbo. Option A gives you a sure shot \$5 every time you flip a coin resulting in either a Head or Tail from your tossing, whereas Option B gives you either \$30 or \$0 contingent on your tossing giving you a Tail flip. Given a limited number of turns of the game, you may only chose either option A or option B, each one of you getting toss 5 turns from a total number of 10. Suppose you are risk averse and prefer to choose option A which would determinately give you a maximum of \$25. Or, if you prefer to take some risk by trying your luck on choosing option B, it will earn you a maximum of \$150, a minimum of \$30, or nothing, if your coin flips result in consecutive Heads.

What strategy of the game would you prefer to choose? A or B?

Herein, A and B do not have same the expected value, and hence you are not indifferent between two options, as it would have been the case if both A and B would have had an expected value that were similar.

The general convention of the rational choice theory is that most people are risk averse, and would likely choose option A which would reward him or her with a certitude of \$ 25 after 5 rounds of the game<sup>2</sup>. A few might choose to gamble and take risk by choosing option B to try their luck. Now, even if they win one tail, their yield would be \$30, and hence the yield from outcome B > A under any conditions of the game. But it may also be so that the player may win nothing if their coin flip yield 5 consecutive heads, where, in such case, it would A>B. Now, what's the best option for a (rational) player?

<sup>2</sup> This is denotative of no risk but little gain - a risk averse game theoretic strategy of choosing the most optimal but safe course of actions whose expected utility is known but not probable, contrary to the one "risky strategy" whose outcome is highly probable and unknown.

Making a decision involves choosing certain options (path or course of actions) that would lead to an expected outcome. It would be interesting to examine and understand what makes a choice rational, and how agents choose rationally to realize expected utility of an outcome under various conditions of decision making. It would be futile to deny the roles of expected utility theory in decision choice, for humans are utility maximizers and most of them aims for maximizing utility.

## 2. How Agents Choose to Make Rational Decisions?

There are, in essence, various factors that determine how people choose and make preferences, and whether if their choices are rational would depend on their elementary demands of reasonableness guiding their social and economic decision makings. Social decisions, including collective ones, demand some degree of rationality. It is difficult to assert that all social decisions are rational for it depends on their relationship to the contexts and circumstances under which some decisions are made.

Sen (1995) has indeed given us the finer notion of having the possibility of making most of our future decisions rationally - for we can decide to choose rationally to change our future, but we have no power and control over what's already happened in the past. This leaves a greater part of our future in our own hands, to decide whether we could make rational decisions in future, choose rationally, or be guided by the elementary reasonableness in what we do or how we act. Of course, there seems to remain certain demands of rationality in social decisions. To render our social decisions more rational, and further on - to make our choices rationally coherent, it might be reasonable to assume that choices be transitively governed by desires and reasoning directed to some end.

Now, why do we choose to make a decision? We make a decision to respond, act or achieve something. What makes a decision and its outcome rational? To derive an outcome from an action, we choose to make a decision that's most likely preferred and assumed to meet our desires to achieve something; i.e., a satisfactory outcome. Now follows the better half: how do we choose to render our decisions rationally reasonable depending on our individual preferences that are often so diverse? This paper attempts to answer this question by analyzing the basic tenets of social choice theory. In this brief paper, I attempt to underscore this issue relating rational decision making to the problem of making optimal choice. How we choose must depend on the availability of options - and on our ability to choose the most optimal alternative, and to compute the outcome of our choices in advance.

Our choice regarding social decisions would generally concern how far an economic policy adopted for the common welfare of the society could have a lasting effect; i.e., whether if the mechanism based on the policy is effectively good or bad. The ultimate goal of social choice theory is to underscore the real value and effectiveness of policy mechanisms that could be adopted by choosing the most optimal option from a given set of alternative choices. This may concern social policies or practices based on "choice functions" that augment the results of the market mechanism in operation in a particular society in a particular manner (in a positive way). Similarly, a good voting mechanism would veritably represent the choice of the people rightly as much as other mechanisms aimed for welfare of a state. Now, the rationality of the collective decisions in such order will most likely be determined by how well informed the decision makers are, and how reasonably they have chosen a particular option. Voting mechanism is employed to elect somebody on whom people could endow power to act and make decisions. Of course there are various possible ways of endowing some people with power; i.e., narrowly constrained power, full power and authority, etc. This could also pertain to how rights are characterized based on some specific formulations - which is, nevertheless, a social welfare action. Social choice theory involves making socially useful and welfare-centric actions.

This is in line with Sen's (1995) notion of rationality and social choice. However, there is one more thing to consider: the problem of impossibility, i.e., it is impossible to make all our decisions rationally, and to expect that everyone will be making most of their decisions sensibly seems unreasonable. Why? This is for the reason that, not everybody is equally informed to choose rationally to make rational decisions. In fact, and in simple words, it would be improbable to assume that all our decisions are always rational. That is not so. But the fact is that if we attach a condition of reasonability to a decision, it ought to be rational if it aims to maximize our welfare from making a decision. A reason (logic) behind a decision when understood is an important determinant of human actions - whether they are rational or not.

Here comes the importance of Arrow's Impossibility Theorem (Kelly, 1988), as we interpret it in an entirely different context. To make our choices rational so that our decisions could become rationally important too so as to maximize welfare out of such prudent decisions, it is pertinent for us to accept whatever that follows from rationally pre-planned approaches to decision-making. But it is also pertinent to examine or question such approaches and outline their rationalities. It may be correct to say that the choices we make do not satisfy all conditions of social rationality norms - they will never satisfy, for there always be net gainers and losers, who could

gain or lose from such decisions. Nevertheless, what it follows from Arrow's impossibility theorem is that that not all social decision is rational; it is highly probable that choices and preferences could be manipulated<sup>3</sup>, and conditions regarding individual preferences differ widely within and among the population, as much as preferences themselves differ (Arrow, Sen, and Suzumura, 2010). However, it might be that a well-planned decision may have a positive outcome, by a waning probability of a decision with a negative outcome of less than  $P_i < 1$ . All it depends on the tools, techniques, and methods (procedures) as policies to help generate good state of affairs ( $Y_i = 1$ , where  $i_x > 1$ ). The goodness of a good policy helps determine its apparent rationality based upon which the utility and welfare could be ascertained and maximized.

### 3. Towards the Science of Rational Collective Decision Making

It is widely acknowledged that not all our fingers have the same length, and neither do the individual members of a community of say 5-7 individuals have identical decision-making abilities. Decision making can be designated under several different kinds of exclusive frameworks. Executive and administrative decisions depend on the consideration of individual and collective inputs. Committee decisions aggregate the views and opinions of all the committee members depending upon their voting rights. Committee decisions are mostly grounded on firm evidence and bare facts when compared to systematic judgments that are based on well-defined normative criteria. Now, committee decisions need not always be the best or most rational, since such decisions are taken after execution of voting rights of the members. So committee decisions depend on voting. Social welfare judgments and their optimal interpretations are based on normative indicators. If we are to measure the magnitudes of welfare gains from social welfare judgments and compare the same with committee decisions, marked discrepancies could be observed in the gain from policy making or decision undertaken.

Now, let us assume that there is a benefit and utility attached to social collective welfare. Benefit should follow utility in such sense, whereas the benefits of social collective welfare must override personal welfare to have effective utility define the collective benefits from all such social welfare judgments. In essence, systematic judgments are generally based upon normative criteria. Now, it is true that individual "interests" depend on judgments. Our intention to judge or decide would depend on the framework of social choice. Real benefits can indeed be derived from the utility of a social welfare judgment or collective decision. Or, there can be no benefits that could be accrued from something not having any utility at all. Besides, there are other heterogeneous non-normative mechanisms of choice theory and decision making having idiosyncratic benefits or utility. Seldom, a collective welfare decision may lead to a gain from policy execution. In such case, if we are to measure the magnitude of welfare gains, we may find it hard to establish or delineate the real gains from policy making. Who will gain more from such a policy - a poor, middle- class, or a rich person?

When a collective decision is made according to the fundamental tenets of social choice theory with regard to social preferences grounded on value judgments, optimal interpretation of any such social welfare judgment must involve ranking of personal welfare judgments (decisions) to determine their individual merits. It is here where problems arise in the general theory of social choice. To address such problems, it is necessary that such should be examined with regard to individuals categorically. The problems that may arise in terms of questions which could be hurled as follows:

- How rational are social choice judgments?
- How to categorize interpersonal aggregation problems?
- Are all social choices rationally just? (Kolm, 1996)

These are among several questions that may arise when one attempts to examine deeply how social choices become rational, and why they could be categorized as such? What gives strength and power of rationality to a social welfare decision? How to keep fortifying your decisions with the knowledge of rationality, and with the things beyond rationality? In this sense, we may assume that it would be wise for us not to be bounded by rationality all the time, for there are some decisions often made under crises that heavily depend on intuition and experience. Under such circumstances, such decisions would seem to appear as irrational to a rationale person. For this, you don't need to be peremptorily of rational in nature. I would also say that to make rational decisions, you don't need to be the most knowledgeable among the learned, for there are individuals who aren't much knowledgeable and yet make sound and rational decisions.

<sup>3</sup> That both individual and collective choices and preferences differ widely in our society is self-evident from the diversity of things that we like to prefer or choose to reject (Sen, 1995). Moreover, businesses astutely take advantage of such variances in manipulating our choices and preferences as they take advantage of such differences in producing goods and services that suits individual needs, and to satisfy consumer predilections. However, in doing so, consumers end up revealing their preferences after all.

However, it may be so that since individual choices, preferences, and decision-making abilities differ among people, they can, nevertheless, be integrated to derive a collective measure of outcome. Outcomes may vary according to the variances in individual choices and preferences. Probably much to our surprise it may also depend upon how rational are individual choices and preferences that make their outcomes reasonably favorable or adverse. This notion is critical to our understanding of how decisions are made and what makes them rationally important (Kahneman and Tversky, 2013)

#### **4. The Idea of Rational Social Choice: A Choice That's Rational**

Most often, we base our choices on reasoning. The idea of Social Choice Rationality means that social choices ought to be made within the framework of rational choice theory. This could be from choosing to buy something, elect somebody through voting mechanism, committee decisions, selecting something based on certain social determinants (qualities or traits), or choosing to opt for making certain decisions that relate to our careers or business frontiers. It also involves rationality of collective judgments those that originate from choices made by a Committee, group, or an agency. Whatever may be the mode and manner of decision making, they all involve a variable degree of reasoning, logic, intuition, and evidence. Business decisions are made based on facts, reasoning, and sometimes, on certain degree of intuition too. The idea of using reason and logic to support better decision-making is linked to promote better societies evolving from better state of affairs (Sen, 1977).

Some choices are rationally made backed by reason and on the assumption of consequence-based evaluation of prior decisions made earlier relating to social happenings. But this is not always so. For the reason that conditions regarding individual preferences vary greatly, it may be said that one must evaluate the cause for which a certain policy is designed. Better policies result in better state of affairs.

Therefore, according to the theory and the economics of welfare maximization and public choice as could be understood from the researches by Sen (1995; 1977) and Feldman & Serrano, (2006), I would consider it as necessary and vital to lay down the idea of "Social Choice Rationality" in the context of choosing rationally given the complexities of diverse human preferences. In my attempt to do so, I am hitherto inclined to reconsider the matter concerning how choices are made, and what factors come to act as important determinants of how we choose or what choices we make. Our preferences direct us to make certain choices - and that's one of the ways by which we choose to make important decisions. If we have a greater ability to choose rationally, the better becomes the outcome of such choice. Our ability to choose depends on the quality of information available to us to make a choice, and the number of opportunities to exploit, as well as on the number of accessible alternative options to choose from. Now, the choice that we have made may lead us to a variety of outcomes, some computed in advance, and some others that may give rise to unexpected results. We may say that the efficiency of a choice more likely determines the utility and effectiveness of an outcome.

#### **5. Choosing Rationally: How to Choose What is Rational?**

The choices we make determine the outcomes of our decision-making process. Whether we choose rationally depends upon our ability to analyze and understand contexts (circumstances) and on an ordering of different states of affairs. How rational our decisions are and the rationality of procedural judgments could be ascertained from the outcomes that are favorable or indisposed to our understanding. The real problem relates to choosing what's rational and choosing rationally. There exist some differences between these two phenomena: While making choices, we must be aware of the states that are rational. On the other hand, choosing rationally depends on the precedence of appropriate procedures and rationality of our procedural judgments, i.e., how we choose is factually determined by the elementary criteria of freedom and the liberty to choose from given alternatives. The alternatives given are diverse states that may lead to a variety of outcomes. Now, in order for results to be favorable in their own rights, it depends on how wisely we have chosen something for decision making that could either be based on reason or cause. Our approaches to decision making might constitute an important factor in determining the purpose for an approach that was assumed. If it were based on the classical utilitarianism approach or guided by the logic of welfare maximization on the procedures of individual or collective choices, the idea of Social Choice Rationality would still be relevant. The primary concern is - for what purpose a socially organic decision is being made, and whether if the properties of social choice are consistent and hold well with the social preference theory. For, the choices we make would depend much on our preference ordering and if they be rational or not, would be determined by the "cause" for making a decision. That is to say, for what cause you are taking a decision? For what purpose a certain policy is designed? To what ends are certain means justified rationally?

There must be something rationally coherent in the design policy aimed for a specific purpose. If the purpose aimed for is rational, the decision that needs to be made to achieve that purpose, i.e., goals and objectives should

be weighted based on reason. Reasoned questioning should be targeted towards possible outcomes from procedural judgments that are assumed to be rational in the first place.

Suppose that we need to make a social decision based upon some given choices. What options do we have to choose from a set of given alternatives? Herein, I may have to consider whether choices are socially rational, if the outcomes concern the collective benefits that are to be gained from social welfare actions. Given a limited number of alternative proposals for actions to choose from, in order to choose rationally and render the outcomes beneficial, it would be best to select by examining the relative merits of the available alternative proposals. The axiomatic foundations of rational choice - or choosing most reasonably depends on the amount of information at the hands of the decision maker: the goodness or effectiveness a decision greatly depends on how informed the decision maker is. Information determines the levels of human rationality. Some individuals may not have an incentive to reveal their preferences. Some people may not want or prefer not to reveal their preferences for some specific reasons. Now, things not revealed remains partially known (a secret), and it is this partial knowledge that leads to inadequacy of information. To make sound decisions in every sphere or professional activities - including businesses, you'll need strong evidences that would provide adequate information regarding consumer preferences, choices, and particular tastes or predilections. Better information leads to better decision making thus having contributing elements to rational choice theory. Of course there are some factors that limit the rationality of choice, and Kahneman & Tversky (2013) have addressed them using the Prospect theory that deals with framing of decisions, analysis of choice, among others (Tversky, 1984). Now, these important studies could shed more light on how socially rational decisions need to be taken more efficiently to obtain collective benefits - benefits that have common welfare aspects.

### Conclusion

In this paper, we have discussed the foundational basis of social choice theory with regard to rational decision making. Rational choice theory involves framing of decisions, analysis of alternative options, and the mechanism of choosing rationally from a set of given alternatives. Various types of decisions are made with the aim of obtaining some results; not all decisions are rational, and neither every decision is made rationally. Finally, this research highlights the axiomatic basis of rational choice theory by underpinning the mechanism of making a rational choice. If one chooses wisely, the outcome becomes rationally positive. Hence, all it depends on how we choose, and how we should be empowered to choose wisely so that the outcome becomes reasonably sensible.

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