

Psychological Insights Into Decision-Making

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This paper considers the widely approached problem of how individuals and groups make economic decisions. The author's belief is that the answer to this question is highly interdisciplinary and lies not only in areas of study such as microeconomic theory and organisational behaviour, but also psychology, neuroscience and ethics. The author attempts to summarise a few chosen, existing models, which can help analyse both logical and psychological aspects of the process, and mentions a new, rising interdisciplinary field of neuroeconomics, which offers high potential for construction of new decision-making models in the future.

Keywords: decision-making, heuristics, neuroeconomics, game theory, theory of mind

Introduction – defining decision-making

A simple definition of decision-making is presented in the business dictionary, which states that it is *the thought process of selecting a logical choice from available options*. According to George and Jones (2008) decision-making can be defined as *The process by which members of an organisation choose a specific course of action to respond to the opportunities and problems, that confront them. Good decisions help an individual, group or organisation be effective. Bad ones hinder effectiveness and result in poor performance and negative attitudes at all organisational levels (...)* (p. 500).

Furthermore, Rollinson (2002) considers it to be the process of producing a solution to an identified problem. The question, however, has been for decades whether or not decisions are always rational. Are they truly, purely based on logic, and a selection of the best of all available options? Over the years various studies have shown that there is much more to it than just pure logic.

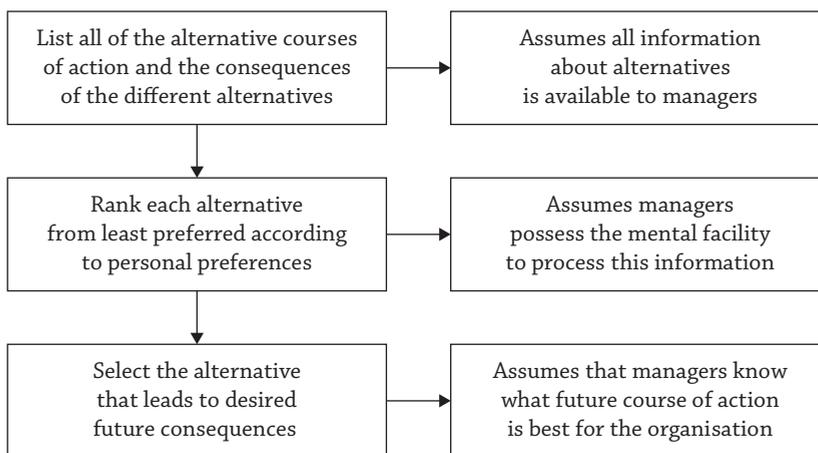
George and Jones (2008) mention two types of decisions: programmed and non-programmed. If the situation has not been previously experienced and much additional information is needed we are dealing with a non-programmed decision, as opposed to programmed where the decisions are made as a response to problems or opportunities, which we had previously been faced with. According to Koontz and Weichrich (2009) structured decisions tend to be made at lower company levels, where performance programmes will be followed. Upper management will more often deal with unstructured and non-programmed decisions.

Making the best possible decisions has always been essential to being a successful manager, which is why much time is dedicated to helping people better understand the process.

The classical decision making model

This model is a prescriptive one, which suggests how people *should* make decisions (George, Jones, 2008). It follows 3 distinctive steps as illustrated in Figure 1.

Fig 1. Classical model of decision making



Source: www.studyblue.com.

The process commences with asking the right questions and preparing a list of alternatives, which are various responses to the issue at hand. The next step is deciding upon the most preferred, considering own preferences, and finally selecting the one, which will result in the most preferred set of consequences. The assumption is that the model helps managers make optimal decisions. This

however is not fully true as the expectation is one that the decision makers have all of the necessary information and use it in full, which in most cases is impossible due to both the company's limitations in gathering a complete set of information and being aware of all possible alternatives, as well as a person's cognitive limitations in respect to analysing all available information.

Herbert Simon's administrative model of decision-making

Herbert Simon had introduced an alternative to the mathematical, neoclassical approach of decision-making. He states that people are rationally bound, meaning they are limited by the information they have, time dedicated to making the decision, and their cognitive abilities. People are not normally able to consider all alternatives, their consequences and gather all detailed information (George, Jones, 2008). Individuals and organisations often engage in satisficing (a term also coined by Herbert), which aims to make acceptable decisions rather than search for optimal solutions. This allows limiting unnecessary use of certain resources such as energy, time, and money. Members of organisations can make better decisions, if they understand that we tend to perceive the world very differently, depending on our personal characteristics and our environment.

According to George and Jones (2008) due to the complexity of the process and the amount of decisions people need to make on a daily basis, there are certain rules that can help in simplifying this process, which are called heuristics. Heuristics may help in making decisions but may also lead to biases. There are three basic rules: the availability heuristic, the representativeness heuristic and the anchoring or adjustment heuristic.

Availability Heuristic a term (as the two that follow) first coined by psychologists Tversky and Kahneman (Epley, Gilovich, 2005). They suggest that we tend to remember events, which occur more often, with much more ease. Thus when making decisions one may be influenced by recent similar events or causes, and make rash decisions based on these recollections. This may lead to bad decisions. For example, a decision to install a very expensive high security system in a house may be based on someone having heard of recent robberies on the news (which statistically may in fact occur very rarely). In availability heuristic we deal with overestimation of recent events and also overestimation of extreme events.

Representativeness Heuristic reflects the tendency to assess an event based on similar events that have occurred in the past, with the assumption that the probabilities are similar. Deciding not to introduce a product into a specific market based on the notion that it had not been successful in other, similar markets may

be a mistake. If one does not take into account the base rate (the frequency of the failure), this may turn out to be the wrong decision (George and Jones, 2008).

Anchoring and Adjustment Heuristic, according to Epley and Gilovich (2005), *In the original formulation, the starting information, or anchor, tends to exert drag on the subsequent adjustment process, leaving final estimates too close to the original anchor. Countless experiments using this paradigm have demonstrated that peoples' absolute estimates are biased by the value considered in the comparative assessment* (Nelson, 2005, p. 125).

Another type of possible decision-making error is **Escalation of Commitment**, which is the tendency of people investing more resources into bad decisions, which had already been made.

Committing further, rather than change of strategy can be damaging to an individual or organisation. According to George and Jones (2008), the reasons for, which this phenomenon is quite common are threefold:

1. Decision makers often do not want to admit to themselves or to other people that they have made a mistake.
2. Given the amount of money or resources that have been lost, decision-makers erroneously believe that an additional commitment of resources is justified to recoup some of those losses.
3. Decision makers tend to take more risks when they frame or view decisions in negative terms (for example, as a way to recover money that has been lost) rather than in positive terms (for example as a way to generate more money) (p. 507).

In organisations we observe the dominance of team and group decisions over individual ones. There are many positive aspects of this configuration. In a group decision-making process we can benefit from the skills, knowledge, and expertise of all participants. There is usually greater acceptance for the decisions made, as well a larger probability of error correction. According to Martin (1993) diversity amongst group members is suggested. Not only of skills and knowledge but also of gender, age, race and backgrounds.

Within groups there is also an enhanced memory for facts, which is very useful in situations, where we deal with a lot of information.

Just as with individuals, also in groups there are certain disadvantages of decision making in such format. According to Janis (1982) one of the patterns of faulty decision-making is Groupthink. It is described as occurring in cohesive groups whose members strive for agreement at the expense of accurately assessing information relevant to the decision. Group members tend to value their association with a group thus wanting to remain part of it and as a result they often times do not properly assess the situation with all of its pros and cons, but

rather support the ideas of the leader or the majority. They may go even further as to not mention any doubts they may have.

The author describes 8 possible symptoms of groupthink, which are the following:

- illusion of invulnerability (group members take risks due to over-optimism);
- belief in inherent morality of the group (failing to consider ethical consequences);
- collective rationalisations (ignoring information, which suggest they may be wrong);
- stereotypes of other groups (teams with opposing views are seen to be incompetent);
- self-censorship (failing to mention ones doubts to the group);
- illusions of immunity (the belief of group members that they are in total agreement);
- direct pressure on dissenters (pressure is put on those who do not agree with the group);
- emergence of self-appointed mind guards (shielding by group members, others from any information which may cause them to rethink the decision) (Janis, 1982).

A classic example of the discussed phenomenon is the collapse of Swissair. The airline was once called the *Flying Bank* because of its profitability. At one point they became too confident and did not stop to question faulty decisions and bad management, as a result of which they went bankrupt. Another example is the *Bay of Pigs* invasion, which was planned by the administration of US President Dwight Eisenhower, and carried out by Kennedy after he had taken over (no questions asked). *The administration ignored questions and accepted stereotypes about the Cubans without questioning whether the Central Intelligence Agency information made sense* (www.example.yourdictionary.com), which led to a failed invasion.

In groups all members are responsible for the outcome to which the decision leads. Either everyone receives praise, or all take blame. In difficult cases people may prefer to make decisions, which they know are safer, rather than truly the best ones, in which case diffusion of responsibility may be an advantage. It may also be a disadvantage, if there is no individual accountability and group members do not take the time to make the best possible decision.

George and Jones (2008) also discuss group polarization, where groups tend to make more risky decisions than individuals as the consequences are shared. Apart from diffusion of responsibility, group members may also be more confident in their decisions as they have the support of others, as well as some group members coming up with convincing arguments, which could lead to the choice of their preferred alternative by others, under their influence.

Situations may appear in which people could benefit from one alternative being chosen over another, in which case the potential for conflict arises. Conflict can also be caused by people not seeing eye to eye due to differences in knowledge, skills, and/or backgrounds.

As we can gather, how people make decisions depends on their personal characteristics as well as many different circumstances. What researchers have also been studying for years is what influences some to make ethical decisions, when others will go to the extreme of making decisions, which may even be illegal. I will now attempt to deeper explore what leads to one making the right choice.

Crane and Matten (2010) consider a decision to be assigned morale status if:

- the decision is likely to have a significant effect on others;
- the decision is likely to be characterised by choice, in that alternative courses of action are open;
- the decision is perceived as ethically relevant by one or more parties (p. 142).

James Rest (1986) had introduced a four-stage process of ethical decision making which states that people move through the following phases:

- recognise a moral issue;
- make some kind of moral judgement about that issue;
- establish an intention to act upon that judgement;
- act according to their intentions (Crane, Matten, 2010, p. 143).

Jones (1991) suggests, that if one reaches any given stage of the model, they may not necessarily go through all of the remaining phases. One may know that lying is wrong but may not choose to always tell the truth (Crane, Matten, 2010).

The authors further state that *models of ethical decision-making generally divide the factors, which influence decisions into two broad categories: individual and situational* (p. 144).

Individual factors are characteristics specific to the person making the decision such as age, gender, personality, education etc. Situational factors, on the other hand, refer to the context in which the person will be making the decision such as reward systems, organisational culture, the ethical framing of the issue and so on (Crane, Matten, 2010).

Individual influences

One of the elements, which represent individual influences, are psychological factors, which are the topic of this paper, thus I would like to briefly discuss these factors over situational ones. Demographic factors such as age and gender are often the subject of studies, however results generally have not been conclusive.

Researches are not able to answer the question whether these elements have a significant impact on how people make decisions. Nationality is also considered one of the main demographic factors. Studies have shown that nationality can highly influence peoples' beliefs as well as their views on business related matters. The differences may appear between managers from developed and underdeveloped countries, the US and Europe, amongst European countries, or between representatives of different ethnical groups in the same country (Crane, Matten, 2010).

Geert Hofstede, a well-known cultural researcher, had conducted studies, which had a great impact on the understanding of the above-mentioned variances. As a result of his studies on the IBM company in 40 countries, he had devised 5 cultural dimensions based on which we can better understand the above-mentioned differences (individualism vs. collectivism, power distance, uncertainty avoidance, masculinity vs. femininity, and long term vs. short term orientation) (<http://geert-hofstede.com/>). I will at this point, not follow up with a detailed description, as this is not the subject matter of the article.

Education and employment, their quality and type, also impact decision making, particularly from an ethical perspective. *For example, research reveals that business students rank lower in moral development than those of other majors...Business students have also been found to be driven more by self-centred values than other students(...)* Similarly, individual values may shift as a result of exposure to particular working environments (Crane, Matten, 2010, p. 152).

This leads us to the influence most related to the subject, which are Psychological Factors. These deal with cognitive processes. Understanding how people think can help us better comprehend how they make certain decisions, both in terms of ethics, and generally.

One of the most famous theories is Lawrence Kohlberg's (1969) theory of cognitive moral development (CMD) and locus of control. According to Kohlberg there are three levels of moral development:

1. Level one (pre-conventional): the individual exhibits a concern with self-interest and external rewards and punishments.
2. Level two (conventional): the individual does what is expected of them by others.
3. Level three (post-conventional): the individual is developing more autonomous decision-making based on principles of rights and justice rather than external influences (Crane and Matten, 2010, p. 153).

As the authors explain, CMD theory suggests that as one moves through the phases, they are *moving* to a higher level of moral reasoning and the higher the level, the more ethical the decision.

Another psychological factor known to have an impact on ethical decisions is locus of control. *Locus of control describes the degree to which individuals perceive that outcomes result from their own behaviours, or from forces that are external to themselves.* If one has a high external locus of control, they believe that events in their lives are shaped by actions of others, luck etc. One with a high internal locus of control believes that the events in their life can be shaped by their own efforts (www.mindtools.com).

Trevino and Nelson (2007) state that those with high internal locus may take more responsibility for their decisions as opposed to those with high external locus (Crane, Matten, 2010, p. 156).

Personal values have also been known to have a great impact on the decision making process. According to Crane and Matten, psychologist Rokeach (1973) defines personal values as:

An enduring belief that a specific mode of conduct or end state of existence is personally or socially preferable to an opposite or converse mode of conduct or end state (p. 157).

He also suggests that values persist over time, they influence behaviour and are concerned with individual and/or collective well-being. Some examples of personal values may be: honesty, equality or responsibility. Our values impact how we behave and what our perceptions of right and wrong are, thus impacting the morality of our decisions.

As we can infer from the above, the decision making process is a highly complex one. We observe the influence of both environmental and personal factors on how people behave and how they make judgements about the best possible options in various situations.

Current research is taking the study of decision making to a whole new level, combining economics, psychology and neuroscience. A new interdisciplinary field of study called neuroeconomics, which explores decision making *and studies how economic behaviour can shape our understanding of the brain, and how neuroscientific discoveries can constrain and guide models of economics*, has emerged (<http://dibs.duke.edu/research/d-cides/research/neuroeconomics>).

Alan G. Sanfley of the University of Arizona, in his article titled: *Social Decision-Making: Insights from Game Theory and Neuroscience* (2008), discusses how, by combining models of Game Theory with modern psychology and neuroscience, neuroeconomists attempt to understand brain mechanisms involved in decision making processes.

He claims that *most experimental studies of decision-making to date, have examined choices with clearly defined probabilities and outcomes, such as choosing between monetary gambles. Given that we live in highly complex social environments, however,*

many of our most important decisions are made in the context of social interactions, which are additionally dependent on the concomitant choices of others.

He then continues to explain researchers' investigations of the correlation of the psychological and neural correlates of social decisions using Game Theory.

In his words Game Theory is a collection of rigorous models attempting to understand and explain situations in which decision-makers must interact with one another. It offers a rich source of both behavioural tasks and data, in addition to well-specified models for the investigation of social exchange. He says Game Theory is often criticised for its inaccuracy (behaviour does not always match mathematical predictions), as decision makers are not as selfish and strategic as the models would suggest, in his words, *they value reciprocity and equity.*

In his article he describes four various focuses of Game Theory: the Ultimatum Game, the Trust Game, Prisoner's Dilemma and coordination games. For the purpose of this summary I will discuss his findings on the Trust Game and the Prisoner's Dilemma.

Sanfey explains that in the Trust Game *a player (the investor) must decide how much of an endowment to invest with a partner (the trustee). Once transferred, this money is multiplied by some factor, and then the trustee has the opportunity to return money to the investor, but, it is important to note, need not return anything. If the trustee honours trust and returns money, both players end up with a higher monetary payoff than the original endowment. However, if the trustee abuses trust and keeps the entire amount, the investor takes a loss. As the investor and trustee interact only once during the game, Game Theory predicts that a rational and selfish trustee will never honour the trust given by the investor. The investor, realizing this, should never place trust in the first place, and so will invest zero in the transaction. Despite these grim theoretical predictions, a majority of investors do in fact send some amount of money to the trustee, and this trust is generally reciprocated (Sanfey, 2008).*

The Prisoner's Dilemma Game (PDG), he describes, *as similar, except that both players simultaneously choose whether or not to trust each other, without knowledge of their partner's choice. In the PDG, payoffs depend on the interaction of the two choices. The largest payoff to the player occurs when he or she defects and the partner cooperates, with the worst outcome when the decisions are reversed (player cooperates while partner defects). Mutual cooperation yields a modest payoff to both players, whereas mutual defection provides a lesser amount to each. The Nash equilibrium for the PDG is mutual defection, a worse outcome for both players than mutual cooperation, but again, in most iterations of the game, players exhibit more trust than expected, with mutual cooperation occurring about 50% of the time.*

As we can see based on these two examples, the players' behaviours, in many cases, do not match theoretical predictions.

According to the article researchers have been observing brain function in humans who interact with others in significant scenarios such as reciprocal exchange or coordination games. As a result of these studies 3 themes have emerged: social reward, competition cooperation and coordination, and strategic reasoning.

As each of these concepts consist of very complex neuroscientific insight, I will not proceed to discuss them in detail, but only to mention briefly one of them, namely *Strategic reasoning: Theory of Mind (ToM)*, as an example.

Sanfey explains that *studies of ToM reveal a network of areas that appear to be involved in this ability (to process the intentions and actions of others), primarily medial prefrontal cortex and anterior paracingulate cortex, and decision-making studies have similarly demonstrated activation in these regions when players are immersed in thinking and acting on the beliefs of others, either by guessing partner strategy or when comparing play with another human to play with a random device, such as a computer partner. This suggests that these regions may be involved in “intention detection,” that is, assessing the meaning of behaviour from another agent. (...) a recent study uncovered neural activation arranged spatially along the anterior cingulate cortex corresponding to either “me” or “not me” responses in a Trust Game. These activations were only observed in the presence of a partner, which suggests that they were involved in encoding the social aspects of the exchange (Sanfey, 2008).*

Sanfey concludes by saying that neuroeconomics is a very young and constantly developing field, and there is yet much to be studied. He believes, however, that *there is little doubt that the combination of Game Theory tasks, with their formal, detailed mathematical models, and the techniques of modern neuroscience offers fruitful opportunities for the study of social decision-making. This approach can both advance the predictive accuracy of theoretical models by constraining them based on behavioural performance and the underlying neurobiology, as well as further our knowledge of how people make decisions in a social context (Sanfey, 2008).*

As mentioned at the beginning of the article decision-making is a very complex process. Much is yet to be explored. Hopefully with new emerging fields and studies, in the future, we will be able to have a better understanding of what drives our behaviours.

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