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2 Socio-political risk management: Psychological aspects

2.1 Introduction

Risk management is about assessing uncertainty and understanding how we make choices is part of this process. This chapter examines psychological factors that influence individual decisions in ways that deviate from what might expected from a thorough or "objective" analysis of problems. These include heuristics, risk intelligence, cognitive styles, and emotional issues associated with identity.

Heuristics or short cuts in cognitive processing may work but their effectiveness may depend on context in unknown ways. Risk intelligence is defined in terms of how good individuals are at understanding the likelihood their judgments are correct. Cognitive styles were considered by Messick (1982) as heuristics at the level of how an individual thinks and show stable variations in the processes used. Cognitive styles considered here include: (1) complexity simplicity, (2) use of previous memories (levelers vs sharpeners), (3) impulsivity-reflectivity, and (4) field dependence/independence, a measure of the influence of context. There are individual differences in the complexity of cognitive structures used, how they are differentiated and integrated. Levelers tend to overuse past memories with a consequent tendency to underestimate differences, whereas sharpeners focus on differences. Impulsivity-reflectivity is measured on tasks as a contrast between accuracy and speed of responses: impulsive people are faster but less accurate than reflective people. Field independent-people are better at filtering out contextual details. Lastly, individuals may be influenced by emotional issues such as deep personal needs and by the views of their social group.

In what follows heuristics are introduced and key themes are considered that have implications for understanding how people think about uncertainty. This is followed by a section on risk intelligence. The chapter then considers behaviors influenced by personal needs and by social groups. The conclusion outlines implications.

2.2 Introducing heuristics

Heuristics are central in understanding human cognition. This is especially the case for thinking about uncertain social and political events where understanding the implications of decisions are important for risk management. The study of heuristics in the past century shows a slowly emerging recognition of the importance of psychological factors in making choices in uncertain contexts where estimating probabilities can play an important role.

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In the USA during the 1940s and 1950s, expected utility theory (EUT) was an accepted model of economic thinking. EUT is based on the idea that individuals value commodities or money in terms of their use, and importantly that such judgments were rational and stable. Such judgments involve comparisons and Thurstone (1927) had shown that comparisons fluctuate for individual psychological reasons like distraction and judgment errors and had extended his studies of comparisons to the economic domain. Moscati (2016) reviewed early attempts by American psychologists to study subjective judgments of economic utility under risky conditions in the 20th century.

In these experiments the utility of money was measured using preferences between gambles on small amounts of money. The studies described by Moscati (2016) supported the experimental measurability of utility and EUT. There were some initial criticisms of the validity these laboratory studies and of their applicability to actual commodities. To overcome these objections, Von Neumann and Morgenstern (1944) imposed a number of constraints or axioms in their studies of individual perception of utility in the laboratory and showed that under these conditions EUT was preferred (Moscati, 2016 p.4 ff). These constraints were that the individual:

- has clear preferences in gambles;
- understands the probabilities involved (simple or complex);
- does not distort probabilities subjectively;
- only benefits from the gambling payoffs rather than the gambling itself (extrinsic motivation rather than intrinsic motivation).

These experiments confirmed the individual variability in the results, so indicating limits to the stable objective reasoning proposed by EUT. While these laboratory studies were performed with small numbers of subjects, they pointed to the advantages of studying EUT in the laboratory. They revealed features of the difference between mathematical and psychological probabilities, with bettors overvaluing low probabilities and undervaluing high probabilities. In addition, the studies showed that economic decisions were influenced by psychological variables such as willingness to take risks. Allais (1953) also challenged the stability of EUT judgments, arguing that human values and subjective probability estimates influenced economic decisions. However, Moscati's (2016) review concluded that EUT continued as the dominant theory until the 1970s when the psychological complexity of human decision making was recognized as fundamental in economic decisions. Of course, psychological elements play a role in all sorts of judgments and decisions, not just economic ones.

Laboratory studies on economic themes continued from the 1940s and the importance of two sets of studies were recognized in the 2002 Nobel Memorial Prize Awards in economics. The first set of studies emphasized economic issues. Smith began his Nobel prize-winning work in his university classes on "a series of experimental

games designed to study some of the hypotheses of neoclassical competitive market theory." (1962, p 111). A subsequent paper on induced value theory (1976) was mentioned in the Nobel citation (NobelPrize.org). Tversky and Kahneman were responsible for the second set of studies on psychological dimensions in economic decision making. Tversky died in 1996 aged 59 and did not receive the Nobel Prize as it is not awarded after death. The Nobel Prize to Kahneman mentioned ".. having integrated insights from psychological research into economic science, especially concerning human judgment and decision-making under uncertainty": In Smith's case it mentioned ".. having established laboratory experiments as a tool in empirical economic analysis.." (NobelPrize.org).

In the following section a number of influences on cognitive choices are considered. These include difficulties understanding probability, some examples of heuristics, and the perception of loss and gain.

2.3 Key issues in understanding how thinking influences risky decisions

Probability. In Moscati's review (2016) of EUT laboratory experiments, one concern was how well subjects in the experiments understood how to calculate probabilities. Assessing probabilities is central in risk taking and Bayes' theorem is a basis of statistical inference and describes probability as degree of belief linked to evidence. Bayes' theorem can be outlined in this way:

The probability of two events, A and B, occuring jointly can be written as $P(A \cap B)$. This is found two ways:

(1) the mariginal probability of A, P(A), multiplied by the conditional probability of B when A is true, P(B | A)

$$P(A \cap B) = P(A)P(B \mid A)$$

and using

(2) the marginal probability of B, P(B), multiplied by the conditional probability of A when B is true, P(A | B)

$$P(A \cap B) = P(B)P(A \mid B)$$

From (1) and (2), we find:

$$P(A \mid B) = P(A)\,P(B \mid A) / P(B)$$

Shweder (1977) noted that people tend to use likeness to estimate co-occurrence because correlation and contingency are complex concepts. The difficulties with correlation arise as it is a relationship between two variables, and in this way a second-order concept. Contingency is complex as in estimating P(A | B) there is a tendency to ignore other relevant probabilities such as P(not A | B), and P(A | not B). As an

Table 2.1: Correlation-Relevant Frequency Information on the Relationship between a Hypothetical Symptom and a Hypothetical Disease in 100 Supposed Patients (Shweder, 1977).

		Disease		
		Present	**Absent**	**Total**
Symptom	Present	37	33	70
	Absent	17	13	30
	Total	54	46	100

example, Shweder (1977) considered what happened when nurses were asked if there was a relation between having the symptom (A) and having the disease (B) (what is P(A | B)) with the figures in Table 1. He discussed an experiment by Jan Smedslund (1963) with the figures in Table 1 showing how adults without statistical training focus on joint occurrences of the symptom and the disease. The well-known statistical cliché "correlation does not imply causation" is basic to Shweder's (1977) documentation of magical thinking and resemblance as a prevalent cognitive tool. Also, it lays the ground for understanding the adoption of fake news by groups of like-minded individuals who propagate incorrect facts, for example, about vaccines and the benefits of social isolation that can lead to public health risks.

Tversky and Kahneman (1974) list common misunderstandings about statistics and probability that influence judgments. These include: (1) insensitivities to sample size, (2) ignoring prior probabilities and (3) ignoring phenomena like the levelling effect of large samples. In a small hospital, for example, it is more likely that the number of female babies born will be over 60% on any given day than is the case in a big hospital where a larger number of babies are born. (4) Understanding and applying "regression to the mean" to everyday examples also poses challenges. (5) Many people may be tempted to think that previous events will influence subsequent events, on a roulette wheel for example. Research on human judgment and decision making by Evans (2011) provides additional evidence that humans are not good at thinking clearly about risky choices and probability.

Common heuristics. A major achievement in Tversky's and Kahneman's research was revealing the details about how people depart predictably from rationality in their judgments (Kahneman 2012). Tversky and Kahneman (1974) measured the effects of three specific heuristics, **representativeness, availability – and adjustment/ anchoring.** Stereotypes are a form of "representativeness". For example, in one study people were given a personality description that included shy, helpful and tidy. They were asked: is this person likely to be a farmer, salesman, airline pilot, librarian, or physician? Respondents tend to ignore both the frequency of these jobs in the populations and also ignore information concerning sample size. In one example,

people were told that Linda is 31, single, outspoken and clever. If participants were asked whether it is more probable that she works in a bank, or works in a bank and is a feminist, more people responded that she worked in a bank and is a feminist. This is known as the conjunction error as from a statistical point of view each added detail lowers the probability that the judgment is correct and has been linked to belief in conspiracy theories and belief in the paranormal (Brotherton & French, 2014).

People use the availability of examples to assess probability. Tversky and Kahneman (1974) described how **"availability"** is influenced by how examples are accessed from memory. For example, people were shown two lists of men and women with well-known personalities distributed though the names listed. One list contained more well-known men than the second one that contained more well-known women than the first. They were asked if the lists contained more men or women. Their responses were influenced by the numbers of well-known men or women in the lists because they remembered the well-known personalities more easily. In another example, if people were asked to judge the relative frequency of works beginning with r, compared to words in which the third letter was an r, they judged that there were more words beginning with an r as this is an easier task. In the stock market domain, Barber, Odean and Zhu ((2009) show that individuals invest on the basis of previous good returns and also high volume or attention-grabbing stocks. Availability also may restrict an individual's search for new information about stocks by focusing on past experience rather than on emerging trends. As an example of an **"anchor"**, they note that students given 5 seconds to calculate ($8 \times 7 \times 6 \ldots 1$) and ($1 \times 2 \times 3 \ldots 8$) guess that the first grouping is larger. The five seconds limit may have been critical, but the result showed a clear preference. Ariely et al. (2006) show that individuals often do not know how to evaluate goods (prices of computer equipment) or experiences (entry fee to a poetry reading) and that their judgments are influenced by their first experience of an event or product that provides an anchor. Khan et al. (2017) have demonstrated that each these heuristics influence stock market trading with influence moderated by education and experience. Anchoring exerts a biasing effect on financial and business decision making by influencing estimates of a firm's future success in terms of earning forecasts. Investors are influenced by representativeness in failing to consider sample size when evaluating stocks, and availability influences the visibility and attractiveness of known products.

Perception of loss and gain. The 1974 Tversky and Kahneman published *Prospect Theory: An analysis of decision under risk* in *Econometrica*. It was a key paper in establishing their reputation (Kahneman, 2012). The theory depends on variations in how individuals perceive losses. Some people prefer certainty to risk taking when the gain is certain, but when the risk of loss is high, they willingly gamble. In addition, people judge losses and gains in terms of the personal significance of the sums of money involved. The results reported in this paper show that choice is not just about maximum utility or gain. Loss aversion has generated a lot of research with some detractors but research continues to support the principle that losses impact decision making more than gains (Mrkva et al., 2019).

The isolation effect, previously mentioned in Allais's work, shows that people react differently to identical choices that are presented in different forms, so demonstrating the powerful effects of context on decision making. For example, telling a patient that a heart operation will have 80% change of success will be more likely to help patients decide to undergo the operation than telling them that they have a 20% change of dying. The complexity and uncertainty mean that decision making does not depend only on careful weighing of evidence but will depend also on heuristics and personality. The form or the optics of how information is presented is part of social conventions in relation to people's feelings. People naturally want to avoid losses and danger. Engemann and Yager (2018) have proposed a comfort model for decision making. In this model each possible decision is evaluated by comparison with the worst case scenario so that comfort is derived from the comparisons. Evaluating each scenario in this way provides a summary measure of the future with comfort as a measure of satisfaction.

Kahneman (2012) distinguished between fast thinking and slow thinking. Fast (system 1) thinking is intuitive and emotional and uses heuristics provides a solution to problems without carefully assessing additional information. Slow (system 2) thinking is more thoughtful and logical. Illustrating the effect of affect, Johnson and Tversky (1983) showed that reports of accidents increased estimates of frequencies of risks and undesirable events and this tendency was independent of the type of risk. Further, an account of a happy event produced a comparable decrease in judgment of risk frequency. The advantages of this positive approach are illustrated by Keller et al. (2006) who in a series of experiments showed that (negative) affect can increase the perception of the availability of risks when risk information was provided over a long time period (30 years) in comparison to risk information provided over just one year. Recent work on this phenomenon refers to an "affect heuristic" providing additional details about how affect influences both perception of risk and of benefit and their interrelations (Västfjäll et al. 2014; Skagerlund et al. 2020). In this work the relation between risk and benefit (high risk being associated with low benefit) is shown to depend on how individuals feel about the risks and benefits. If feelings towards the activity are favourable the risks are judged as low and benefits as higher. In addition, Västfjäll et al. (2014) showed that this effect varied by domain and participants who were reminded of an experienced danger (the 2004 tsunami in Thailand) demonstrated an increased recognition of social benefits (friends and charity) and personal goals. Keller et al. (2006) who in a series of experiments showed that (negative) affect can increase the perception of the availability of risks when risk information was provided over a long time period (30 years) in comparison to risk information provided over just one year.

In addition to heuristics, the mind filters experience in other ways. For example, Downes (2012) describes how one unconsciously frames experience into distinctions (diametric spaces) or relationships (concentric spaces). This strategy seems at a different and prior level to discussions of heuristics, however its effect like heuristics is

to intuitively frame an experience as inclusive and sympathetic to relationship or as excluding by making distinctions. In this sense it seems closely associated with the heuristic of representativeness involved in stereotyping. This type of unconscious framing seems to play a major role in the political discussions where group cohesion is more important than analysis.

Recent research on heuristics. Hertwig and Pachur (2015) noted that while the approaches described above indicate how decision making may be influenced by heuristics, the view taken in the 1970s assumed that heuristics provided less than perfect solutions to problems caused by human irrationality associated with an accuracy-effort trade-off. Many events are complex and we have limited knowledge about what may happen, in these cases research has shown that using heuristics have advantages over more complicated strategies (Hertwig et al., 2015). Examination of the use of different heuristic strategies under varying conditions such as domain, amount of information and the problems' complexity shows that a heuristics' effectiveness depends on its match with the "environment" (this influences bias) and on the amount of information available (influencing variance) (Hertwig et al., 2015). Calculating bias assumes a true function and is the difference between the derived algorithmic function and the "real function". Error depends on bias, variance and noise (random error). Variance is the difference between the mean and the individual measures, that is, a measure of the range of the measurements.

The current literature on heuristics is extensive and biases have been shown to apply in a wide variety of tasks (Hertwig et al., 2015). Schirrmeister et al. (2020) have analyzed the use of heuristics in foresight and scenario processes in assessing future conditions. Schirrmeister (2020) and her colleagues suggest that the psychological literature focuses on precise details and while providing clarity does not offer clear guidance on ways of overcoming biases. The literature on scenario processes, however, provides good illustrations of ways to help companies overcome the inclination to focus on familiar parts of their experience and to benefit from the possibilities inherent in creatively imagining the future.

2.4 Risk intelligence

The study of risk intelligence provides another dimension to understand people's choices in uncertain conditions. Risk management and risk intelligence are well integrated in business culture and in using the scenario processes just mentioned (above). Evans (2012) developed a test of risk intelligence based on an individual's awareness or understanding of the reliability of their probability estimates. People who take the test are asked to estimate the accuracy of judgments that are either right or wrong. As such it measures variation in degrees of awareness that judgments might be wrong.

An early definition of risk emphasized the importance of distinguishing between incalculable uncertainty and calculable risk (Knight, 1921, as cited in Evans (2012)). Evans (2012) argues that this difference is really about ways probabilities are calculated. It is not that some types of events have incalculable probabilities, rather in some cases the calculations present significant challenges. For example, the risk of calculating probabilities in relation to coin tossing is a simple process in comparison with the uncertainty of calculating probabilities in relation to complex events like identifying winners in horse races, or calculating business risks and stock market investments.

Evans' approach is primarily cognitive and so avoids emotional issues such as appetite for risk or confidence in uncertain conditions. In defining risk intelligence, Evans did not compare subjective probability estimates with actual estimates. He emphasizes that his interpretation of probability is subjective following in the tradition of Jacob Bernoulli and Evan's measure prioritizes degrees of belief and not objective facts about the world. Evans used a form of calibration testing that involves assessing the likelihood of what one knows rather than measuring how much one knows. Here is an example about weather forecasting:

> Over the course of a year, you collect 365 estimates, for each of which you have also indicated whether it did, in fact, rain or not. Suppose that you estimated the chance of rain as 0 on 15 days. If you are well calibrated, it should have rained on none of those days. Again, if there were 20 days which you assigned a 0.1 probability of rainfall, it will have rained on 2 of those days if you are well calibrated. (Evans 2012, p. 608)

Evans (2012) contrasted the experience of probability estimates of weather forecasters and doctors and noted that the former used probability estimates on a daily basis and had clear feedback for each estimate. Doctors on the other hand, he surmised, were under no such obligation with their diagnoses and so did not have the benefit of constant feedback. Evans (2012) concluded that we have a lot to learn from gamblers and weather forecasters to make better decisions in various aspects of our lives.

The early intelligence tests included items based on memory, mathematics and language. The meaning of intelligence was contrasted with the tests used in psychology following Boring's (1923) article "*Intelligence as the Tests Test it.*" Carroll (1993) summarized 20th research on intelligence testing with a hierarchical three level system with generalized intelligence at the top, a set of less generalized factors, and specific abilities at the lower level. Gardner (1993) broadened our understanding of the specific abilities by including a number of cognitive skills including bodily-kinesthetic, musical, interpersonal and intrapersonal intelligence as well as the previously recognized verbal-linguistic logical-mathematical and visual-spatial intelligences. However, Eysenck (2009) argued that Gardner's approach is too loose, allows too many specific abilities and also that Gardner's dimensions are inter-correlated. Risk intelligence as described by Evans (2012) may be considered as another significant dimension of

human cognitive function with the interesting difference that it is a meta-cognitive skill as it involves thinking about a thought or judgment.

The ability to cope with risk is not just a cognitive skill, it also requires emotional stability. Evans (2012) and von Neumann et al (1944) both noted this. Recently, Craparo et al. (2018) published a subjective risk intelligence scale (SRIS) that moves beyond estimating probabilities accurately and identifies other abilities that play a role in risk taking. Craparo with his colleagues developed this new test because they found that previous studies on risk (1) had neglected opportunities related to risk, (2) had not viewed the subjective perception of risk in terms of probability estimates, and (3) had neglected the emotional side of risk taking. The SRIS was developed using measures of self-efficacy, emotional intelligence, coping strategies and the "big five" personality traits (openness, conscientiousness, extraversion, agreeableness and emotional stability, Rammstedt & John, 2007). The psychological dimensions that emerged in the SRIS were imaginative capacity, problem solving self-efficacy, emotional stress vulnerability, and attitude (+/−) to uncertainty (Craparo et al. 2018). McGhee et al. (2012) found that some of these personality dimensions (extraversion, openness to experience and low conscientiousness) were related to high risk-taking as early as late childhood. While Craparo et al. (2015) had shown persistent and maladaptive gambling is associated with impulsive risk taking, measures of impulsivity were excluded from SRIS for statistical reasons.

The SRIS (Craparo et al. 2018) provides evidence that extraversion and emotional stability are highly correlated with imaginative capability, and problem solving self-efficacy. It would be interesting to know how Evans' measure of risk intelligence relates to the SRIS and whether each as a role in risk management. At the time of writing the SRIS was validated on a Russian sample by (Kornilova & Pavlova 2020) and will be used in a forthcoming study on addiction (Craparo, 2021).

2.5 Cognitive styles as determinants of cognition

Cognitive styles have been described as high level heuristics and defined as "information processing regularities that develop in congenial ways around underlying personality trends" (Messick 1982 p. 4). Various styles express features related to thinking about uncertainty. For example, Messick discusses cognitive complexity versus simplicity, leveling and sharpening, reflection and impulsivity, and field independence-dependence. Cognitively complex individuals seem most effective at using dissonant information. Leveling and sharpening relate to how differences are managed in memory. Levelers tend to overuse past memories with a consequent tendency to underestimate differences, whereas sharpeners focus on differences. Impulsivity-reflectivity is readily associated with dimensions of risky behavior and is measured on tasks as a contrast between accuracy and speed: impulsive people

are faster but less accurate than reflective ones. As such it is associated with Kahneman's (2012) fast and slow thinking. Field independent people are more analytic, self-referencing and impersonal than field depend ones who are more socially sensitive and not so good at filtering out contextual details.

The cognitive styles mentioned in this section are stable ways individuals approach problems and that influence the ways that they think. As dimensions concerning differences in thinking processes, they are related to each other and to thinking about uncertainty. For example, Guilford (1980) saw field independence and complexity as related, impulsivity is a feature of problem gambling, and heuristics that ignore differences operate a form of leveling. Also thinkers that prefer complexity are likely to be wary of fast thinking.

2.6 Risks due to the need for personal consistency

An individual's thinking and judgment may be influenced by her need for (1) intra-individual consistency and (2) inter-individual consistency, each important to one's sense of self and one's identity that by definition is resistant to change (Gash 2014). An individual's sense of self-efficacy is related to emotional stability (Craparo et al., 2018). In the second case, an individual's identity is linked to how they are viewed in their social group (Gash, 2014). Inter-personal consistency is very much part of political party involvement with its risks and opportunities.

It is worth noting that calculating uncertain outcomes in both gambling and politics each depend on stable agreed rules. The internet gambling environment has enabled circumventing rules via match fixing (Andreff, 2017). Also, information gathered illegally from Facebook on individual choices enabled new forms of political manipulation exploited lucratively by Cambridge Analytica (Kaiser, 2019 & Wiley 2019). In what follows gambling is shown to meet intra-personal needs for risk and excitement, and populist politics meets intra-personal identity needs with inter-personal group support.

Gambling. Parke et al. (2019) showed that gambling satisfied needs for; mastery, detachment, self-affirmation, risk and excitement, and affiliation. Poker satisfied the needs for challenge, self-affirmation and affiliation more than gambling on sports. While affiliation is related to inter-personal needs, challenge and self-affirmation can be considered as being primarily about intrapersonal needs. Detachment which is clearly about intra-personal needs was measured with items about relaxation, stress release and escaping from one's problems. Playing slot machines had higher satisfaction on detachment than betting on sports. Finally, poker players and sports gamblers were slightly but significantly happier than those with different gambling preferences.

Gambling on cockfights in Bali was described by Geertz (2005) as "deep play" as risks arising from the size of the bets out-weight possible gains. The cockfighting rituals allow resolution of these conflicts and economic damage is avoided because fights and bets are organized so that over a series of fights losses tend to equal out. Geertz attributed part of the sport's popularity to psychological tensions arising in Balinese society due to unresolved interpersonal conflicts. Bateson (1958) made similar comments about the opportunities for resolving rivalries between the Squire and villagers in English cricket matches. Each of these examples takes "fair play" for granted and it is worth noting that part of the appeal of some blood sports like badger bating in Ireland (Viney, 1985) and bull fighting in Spain (Iliopoulou & Rosenbaum, 2013) is that it is primarily about male identity and dominating the animal.

Politics. Populism is defined as "[. . .] a thin-centered ideology that has three core concepts (the people, the elite, and the general will) and two direct opposites (elitism and pluralism)" (Mudde & Rovira Kaltwasser, 2012, p. 9). In the Brexit debate in England, complexity was avoided and fast thinking emphasized in the three word political slogans chosen by a political advisor: The People's Government; Take back control: Get Brexit Done! The simple solutions are often too simple. McWilliams (2021) described the complex details of the political arrangement agreed to ensure a hard border is avoided between the North of Ireland and the Republic of Ireland. Lack of detail can appeal and Unionist politicians claim the hard border is needed to ensure the North of Ireland is no different from England. However, details count and the overall political agreement balances varying political requirements. Here the risks involve a return to the violence of a generation ago. Populist politics as expressions of the people's will lack detail and are examples of fast thinking. There are dangers to democracy from populist politics due to certainty about the justice of their cause and frustration with Government:

> Ironically, by advocating an opening up of political life to non-elites, populism's majoritarian, anti-elite thrust can easily promote a shrinkage of 'the political' and cause a contraction of the effective democratic space. (Mudde et al. 2012, p. 22)

The effective democratic space contracts and discussion is blocked when minds are inflexible. Populists believe fake news, conspiracy theories and reinforce their views effectively using social media (Reusswig, 2020). This is a significant risk for socio-political risk management as it facilitates division, making community and discussion impossible as there is no "consensual community" (Maturana 1988, p. 34). Therefore, when discussions begin, the unconscious immediately prioritizes difference and division (Downes, 2012).

Insistence on politically correct choices demonstrates focused exclusionary demands making discussion impossible. Finding a suitable translator of Amanda Gorman's poem read at President Biden's inauguration is a high profile example of this. So far, a Dutch and a Catalan professional have withdrawn or been rejected as translators (APF Barcelona, 2021).

The important role of personal variables in political affiliation have been deepened in work on ideological attitudes in a recent study using large numbers of cognitive tasks (37) and personality surveys (22) (Zmigrod et al. 2021). The research demonstrates the overwhelming importance of personality and cognitive profiles of participating subjects in understanding ideological attitudes, particularly in comparison with demographic variables. Nationalism and conservatism were related to low scores on strategic information processing (including cognitive flexibility) and high scores on caution (in perceptual decision-making). Dogmatism was related to impulsive tendencies and a slower capacity to accumulate evidence (Zmigrod et al., 2021). The findings show how ideas suggested above regarding the importance of personal styles in determining how decisions are made can be extended to the political domain.

2.7 Future directions

This chapter outlined ways subjective dispositions influence decision making in uncertain conditions. These included heuristics, cognitive styles and risk intelligence. Increased challenges to managing risk arise in unstable risky contexts such as sports betting. Andreff (2017, 2020) has outlined the extent of cheating in sports, part of what he calls "the dark side of sport". Populist politics raises the problem of how to deal with risk in the context of strongly held views like denying science and climate change. World views involving identity exclude others, value division, and make it difficult to discuss differences. In such a context there is a need to find ways of weighing and qualifying competing arguments as seeking compromise is not viable (Reusswig, 2020). Risk has opportunities as well as dangers, this chapter has highlighted ways cognition influences decision making that need careful attention in risk management.

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