A Prospect Theory Perspective on Terrorism

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ABSTRACT

This paper presents a new approach to the study of terrorist behaviour and argues that a framework based on Prospect Theory can provide novel insights on the understanding of the terrorist mind-set. Such a framework allows different pathways to become a terrorist and although individual decisions are studied, the model also takes into account environmental factors. By changing these environmental factors and/or framing the choice differently, PT also shows how the terrorist group and/or a charismatic leader can influence the individual's whether or not to turn to terrorism. Having a clear conceptual framework is a first crucial step towards comprehension and in the case of terrorism, towards detection and/or prevention. In this way, the PT framework can also contribute significantly to counter-terrorism policy and can guide the budgetary means in efficient way.

1. INTRODUCTION

The events of 9/11, the bombings in Madrid and London and more recently, the attacks in Paris, Nice, Brussels, Berlin and Quebec make it painfully clear that terrorism is no longer a remote event for the Western world. Hence, also the number of academic papers studying the concept has snowballed the last decade trying to understand the phenomenon. In order to effectively reduce terrorism and to efficiently use our limited budgetary means it is indeed crucial to comprehend the terrorist's reasoning. As Hoffman (2002, p. 306) notes "knowing your enemy is a cardinal rule in warfare". Will we increase the probability of detection and interception by increasing the budget for internal security or will we invest more in de-radicalization programs? In order to optimize our counterterrorism policy and to allocate our resources efficiently, we need a clear conceptual framework. Literature on terrorism abounds with different models suggesting different causes and determinants. The purpose of this paper is not just to add to this list but rather to present a unifying framework.

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An overview of the literature on terrorism suggests that the answer on how and why an individual engages in terrorism is often sought by formulating the question on how and why an individual radicalizes (Silke & Brown, 2016). Borum (2011a, 2011b) however warns for the danger of this one-sided focus. Indeed, radicalization can be a pathway to terrorism but it is neither a necessary nor a sufficient condition. A lot of people supporting radical ideas indeed never turn to terrorism and the recent wave of Foreign Fighters in Syria and Iraq exemplify a group of terrorists not really driven by a radical belief in a specific ideology but they are rather motivated by the opportunity to escape their meaningless life (Coolsaet, 2016a). Hence, one can be a terrorist without supporting radical ideas while one can also be radical without engaging in terrorist activities. Moreover, focusing too much on radicalization in counterterrorism policy can even have a counterproductive effect. As Coolsaet (2016b, p. 4) states "radicalization is to an underlying factor what fever is to illness – a symptom. An adequate diagnosis is crucial in countering the symptom. An inadequate diagnosis will on the contrary result in worsening the situation." It is thus important to distinguish terrorism from radicalization. Whereas a radicalized person has an extreme worldview and justifies the use of violence, a terrorist goes a step further by actively participating in this violence (Hafez & Mullins, 2015). Given the heterogeneity in terrorists' motives and roles, Victoroff (2005, p. 7) concludes that "any effort to uncover the "terrorist mind" will more likely result in uncovering a spectrum of terrorist minds". Indeed, any attempt to find a universal profile of the terrorist is bound to be fruitless. What is needed is a conceptual framework integrating all the possible "routes" leading to terrorism. In this paper it is suggested that Kahneman & Tversky's Prospect Theory (1979, 1992) can provide such a unifying framework. Before this theory is discussed more in detail, the next section will give a short overview of the literature on terrorist behavior. In the third section, prospect theory will be discussed and some examples will be given as to how this framework can champion most seminal theories of terrorism. The last section will conclude and will suggest some future research topics.

2.   LITERATURE ON TERRORIST BEHAVIOUR

The earliest strand of the literature on terrorism largely consists of models trying to find psychopathological or psychiatric characteristics of the terrorist. Studying information from police files on Dutch possible jihadists, Weenink (2015) for example finds that a majority of these individuals has some behavioural and/or psychological problems. While one should be careful not to overgeneralize results (Corner, Gill & Mason, 2016), most empirical data do however not seem to support the idea of an insane terrorist. On the other extreme of the continuum some authors suggest that terrorist are perfectly rational human beings. This rational choice theory is however also not able to provide a complete explanation of the phenomenon. Hence, some authors suggest more psychoanalytic theories of terrorism focussing for example on narcissism (e.g. Crayton, 1983) or paranoia (Victoroff, 2005). The title of Horgan's (2008) seminal paper "From profiles to pathways and roots to routes" perfectly describes the turning point in the academic literature where the quest for a typical profile of a terrorist is transferred into a search for the process of the individual turning to terrorism. The primary research question shifted from "who" to "how" and scholars started to focus their efforts on the dynamic factors that form a terrorist instead of on the static qualities of the individual. In this tradition, Borum (2003) suggests a 4-stage model of ideological development leading to the use of terrorism. Whatever the ideology is of the individual, he proposes a process beginning with a feeling of "it's not right", to "it's not fair" and "it's your fault" which eventually leads to "you're evil" thereby justifying the use of violence. Based on interviews from members of the Al-Muhajiroun movement in the UK, Wiktorowiz (2004) distils 4 stages in the process of joining an extremist group, i.e. cognitive opening, religious seeking, frame alignment and socialization (King & Taylor, 2011). Moghaddam's (2005) seminal model conceptualises the process leading to terrorism by using the metaphor of a narrowing staircase. Compared to the other 2 models, the staircase model of Moghaddam consists of 5 stages/floors instead of 4. All three models do emphasise the importance of relative deprivation as the starting point of the process. The "it's not right" phase of Borum corresponds to the cognitive opening in Wiktorowicz's model and the ground floor of Moghaddam. The latter author explicitly stresses the importance of perception of deprivation which does not necessarily coincide with the actual situation. While the NYPD model of Silber and Bhatt (2007) was developed to describe the specific process of Jihadi-Salafi

radicalisation, the model nevertheless also exemplifies the procedural approach of the more general process of radicalisation. In their model this process is assumed to happen in 4 phases, i.e. pre-radicalisation, self-identification, indoctrination and jihadization. McCauley & Moskalenko (2008) present a pyramid model with 12 different mechanisms. These 12 mechanisms are divided into 3 levels of radicalisation, i.e. the individual level, the group level and the mass level. These 3 levels of factors also appear in the model of Doosje et al (2016) who describe radicalisation as a consequence of a sensitivity phase, a group membership phase and an action phase. Again the first phase is largely dominated by the feeling of relative deprivation which provides the individual with a "cognitive opening" to join a radical group. What these authors emphasise more than previous models is the importance of the group in the process. If an individual feels deprived because of a lack of belonging or a lack of meaning in life, the terrorist group will easily respond to these feelings by giving these individuals a new social environment or by presenting them a (holy) cause to live and fight for. Malet (2010) also stresses the importance of a shared identity whether this identity is religious or not. Recruiters hence frame their fight as a fight for the establishment and protection of this identity. Whether or not the individual will move on from one phase to another depends on different factors where each factor is neither necessary nor sufficient to explain the behaviour. It is a mix of different factors that make some people eventually turn to violent terrorism and Doosje et al (2016) also refer to these factors as micro (individual), meso (group) and macro (society) level factors. Kleinmann (2012) notes that these 3 levels actually cover most of the determinants suggested by the theoretical models described above. Hence, an all-encompassing conceptual framework of terrorism should cover all 3 levels. Table 1 gives an overview of these 3 levels as well as examples for each level and references to some empirical studies supporting the relevance of these factors in the process towards terrorism. This list of empirical studies is by far not exhaustive but is meant to illustrate the diversity of the empirical evidence.

Table 1: 3 levels of factors of the process towards terrorism

Level	Example	Empirical support
Micro/Individual	- Psychological disorders (e.g. narcissism) - Quest for personal significance/search for identity - Personal deprivation	- Verwimp (2016) - Lindekilde, Bertelsen & Stohl (2016) - Weenink (2015)
Meso/Group	- Social process as a way to embrace radical ideas/terrorism as a viable option (e.g. social movement theory)	- Kleinmann (2012) - Lindekilde, Bertelsen & Stohl (2016) - Gartenstein & Grossman (2009)
Macro/Mass	- Martyrdom - (perceived) oppression (e.g. discrimination or racism)	- Wiktorowicz (2004) - Sheikh (2016)

Factors at the individual level actually relate to all the 'internal' determinants driving a person towards violent terrorism. Stated in this way, all the early psychopathological models as well as psychoanalytic models are covered in this category. Off course, all the models referring to the importance of personal grievance or relative deprivation also touch upon this individual level. Although measured on a macro-level, empirical support for this 'grievance' hypothesis can be found in Verwimp (2016) for Belgian Foreign Fighters in Syria and Iraq. The gap in labour market and school outcomes between non-EU immigrants and native citizens is much larger in Belgium than in other EU countries. This large gap can explain the high number of Belgian Foreign Fighters leaving for Syria. The group- or meso-level factors relate to all aspects of the socialisation process of radicalisation. Kruglanski et al (2014) suggest that the quest for personal significance is a very important motivator for radicalisation but the authors state that the social process of networking and group dynamics is also a key factor in the justification of the use of violence as a means of significance gain. People can be introduced to a terrorist group by an active recruiter (top-down socialisation) or by friends or family members who already joined the group

(horizontal socialisation). In a study on the difference in radicalisation processes between converted and non-converted Sunni Islamists in the US, Kleinmann (2012) also makes note of the importance of this group-level motivation. In 90% of the cases (and even 94% for non-converts) the group-level process was a necessary factor. Individual-level factors proved to be less important in this study, especially for the non-converts (only 5 out of 83 expressed personal motives for radicalisation). Lindekilde, Bertelsen and Stohl (2016) also (partially) use social movement theory to explain why Denmark has so many Foreign Fighters. Next to the search for having control over their own (good) life, potential Foreign Fighters also need to be socialised in radical environments. Gartenstein & Grossman (2009) also find that in 20.5% of the studied cases of home-grown jihadists in the US and UK a spiritual leader played a crucial role in the process towards terrorism. The last category of macro- or group-level determinants refers to external social forces that lead to radicalization. This last category of variables contains factors which are external to the society. Radicalisation here is seen as a direct result of real or perceived experiences such as oppression by another group or (perceived) discrimination. Interviews with Danish (former) Foreign Fighters indicate for example that a lot of these terrorists are motivated by the narrative of revanchism. They joined IS in order to regain pride after a long history of crusades and colonialism (Sheikh, 2016). While one must be careful not to generalize these results and interpret the behaviour of Western Foreign Fighters joining IS as representative for the motivational factors of all terrorists, these findings are a good example of macro-level factors leading to terrorism.

Although the overview here is not even complete and others models have been suggested in the literature, it does already suggest some level of consensus between the different authors. While the models differ in the weight they attach to certain factors, a categorisation of the determinants of terrorist behaviour into micro-, meso- and macro-level factors nearly covers all the explanations given in the literature. Hence, the individual's decision to engage in terrorism needs to be conceptualised taking into account both individual factors as well as environmental ones (on group and macro level). A prospect theory framework does exactly this. In this framework the decision to pose a terrorist act is interpreted as a decision under risk that depends on the (perceived) individual situation but framed in, and hence influenced by, the environmental context. In the next section this framework will be presented and it will be argued why this framework is complementary to the other models suggested in the literature. Prospect theory can offer an explanation as to why some individuals actually turn to terrorism while being in the same social situation as hundred other individuals who do not turn to terrorism. In this way, prospect theory offers a framework which champions all the processes suggested by other scholars.

3.   A PROSPECT THEORY MODEL OF THE TERRORIST

In their seminal papers (1979; 1992) Kahneman and Tversky develop prospect theory (PT) as a model of decision making under risk. Their work starts from the experimental evidence that people do not always make rational choices and that these choices can be influenced by framing. This description almost necessarily hints to the application of the model to the analysis of terrorist behaviour. Hence, while 35 years and a Nobel Prize later this theory has been widely accepted as a valuable model in a whole range of decision making situations, e.g. consumption, finance, labour supply, (Barberis, 2013), political science and international relations (McDermott, 2004), crime (van Winden & Ash, 2012) and rebellion (Masters, 2004), it is rather surprising that there are almost no applications of PT in the literature on terrorism. The work of Phillips and Pohl forms an exception. These authors do use the theory to study the choices of terrorists but their work focuses on choices made by terrorists (e.g. the choice of attack method or of the target) rather than on the preliminary choice whether or not to become a terrorist (Phillips & Pohl, 2014 ; Phillips & Pohl, 2015). To our knowledge, this is the first paper studying the choice whether or not to engage in terrorism from a PT perspective.

A risky decision is a decision for which different outcomes are possible and you only know the probabilities of the outcomes (Betting on the outcome of a coin toss is an example for which there are 2 possible outcomes, i.e. x_1 = head and x_2 = tail with both outcomes having a 50% chance of occurrence, i.e. p = 0.5). In PT, a risky choice will be determined by the value of the n different possible outcomes

$v(x_i)$ and by the decision weights the decision maker puts on these outcomes π_i. Hence the value function to evaluate a risky choice reads

$$\sum_{i=1}^{n} \pi_i v(x_i)$$

The latter representation of a risky choice has four distinctive characteristics which make it very suitable to describe an individual's decision to engage in terrorism. If we interpret this decision as the justification and use of violence to change the current situation (individual, group or society), this framework exactly allows for the influence of these different factors suggested in the literature.

First, in PT all possible outcomes are weighted by their subjective decision weights instead of by their objective probabilities. While the decision weights are based on the probabilities they are not necessarily equal and also include the desirability of these outcomes. In this way, going to paradise and receiving 72 virgins may pose more weight in the decision for the martyr to sacrifice his life whereas for a non-believer the choice of martyrdom may not ever be considerable. Based on the experimental evidence, Kahneman and Tversky (1979) suggest that these decision weights are generally higher for low probabilities and lower for high probabilities. Stated differently, people seem to overweigh events of low probability while they seem to underweigh high probability events. Even if a terrorist attack has a minor chance of changing the political or social situation, this probability and hence the value of terrorism will be overweighed in the eyes of the individual considering this option.

The other three distinctive features of the PT model relate to the value function $v(x_i)$. This value function is defined in terms of deviations from a particular reference point. This reference point does not necessarily coincide with the current situation of the individual (in terms of wealth, housing, education, autonomy, …) but can also be a desired situation or the situation of another person (e.g. a neighbour who has a nice house and a car). Underlying this formulation is the reasoning that people value changes in wealth rather than absolute levels of wealth. This feature actually perfectly reflects the importance of perception as emphasised by many models in the literature on terrorist behaviour. It is not the absolute, objective situation that is important for the terrorist but rather the individual's perception of his situation. Even if a person does not necessarily life in deprived conditions, the mere feeling and perception of deprivation can induce people to risky decisions, in casu terrorism.

While deviations from the reference point are assumed to determine the value of an outcome, the magnitude of this impact also seems to vary with the deviation from the reference point. Giving $1 to a person will make this person happier but the marginal effect of the donation will depend on the person's initial wealth. It is very reasonable to assume that the marginal effect of this $1 will be higher when given to a very poor person than when given to a millionaire. To incorporate this diminishing sensitivity the value function is typically concave for gains and convex for losses. Concavity in the domain of gains and convexity in the domain of losses means that the value/impact of the first gain (loss) had a higher impact on the total happiness of the person than all subsequent gains or losses. The difference in concavity/convexity between gains and losses also implies a difference in risk attitude. Concavity of the value function in the domain of gains implies that people are risk averse over moderate gains. Convexity of the function in a loss situation means that people will be more risk loving when confronted with a loss. Again, this characteristic can explain some findings on terrorism. The more an individual feels himself in a deprived situation, the more he senses a feeling of loss, the more likely he will be to take risky decisions and to turn to terrorism. The importance of a loss framework in the awakening of terrorism can also explain the findings of Findley & Young (2012) who find that most terrorism occurs in the context of civil war or shortly before or after one. Although people will be more sensitive to losses when these losses are personally meaningful (Masters, 2004), this does not necessarily mean that these losses need to be incurred at the personal level. Personal losses can also be tied to the aspirations of a group or even of an entire society. In this way, factors of the different levels (individual, group or mass-level) can stimulate the pathway to terrorism. Hence, socialisation can be an efficient way for terrorist groups to motivate engagement.

The last distinguishing feature of the PT value function implies that people are more sensitive to losses than to gains. This idea of loss aversion is conceptualized by making the value function steeper for losses than for gains. Losses seem to hurt more than gains of the same magnitude can please. As McDermott (2004) notes, the aspect of loss aversion can have a large impact on discussions over territory when both parties feel entitled. Loss aversion can also explain why peace negotiations are often difficult and why parties are rather averse to give up (perceived) rights or property (McDermott, 2004). Although not initially intended as an example on terrorism, the example of Masters (2004) can be translated into the scene of terrorism to show the importance of loss aversion in understanding the terrorist's mind. Suppose a group of a certain ideology dreams of being able to practice their belief in a society with no discrimination and racism and they want to be integrated in the society without having to concede on ideological habits and norms. In country A this group is not discriminated, can practise their belief openly, has a political voice, … For this group the current situation (not changing anything) approximates the reference point. Hence, they 'operate' in a framework of gain and since engaging in terrorism is a risky alternative, they will refrain from terrorism. In country B this same group would on the other hand be discriminated (or would have the feeling that they are discriminated). Their current situation is far from their desire/reference point so they observe their situation from a loss perspective. Hence, they become more risk loving and turning to terrorism becomes an interesting option to reach their reference point.

This brief description shows that framing the decision to engage in terrorism in a PT framework allows reconciling the different so-called procedural models (e.g. Borum, Moghaddam, Silber & Bhatt, …). Conceptualising the decision in this way does not request that this process is linear or the same for every individual. A PT model allows different pathways to become a terrorist. Although the theory studies decisions at the individual level, the model also takes into account environmental factors. By changing these environmental factors and/or framing the choice differently, PT provides insights as to how one can influence the individual's decision making. Hence, a prospect theory model can also explain the role of the terrorist group and/or the charismatic leader. Also findings from the generation of psychoanalytical models can be framed in a PT model. Many of these 'early' authors suggested a link between narcissism and terrorism. The underlying reasoning was that terrorists had a damaged self-image which could explain why they turn to terrorism as an aggressive response to this perceived injustice. Indeed, if we define a narcissist as someone "with a positive, inflated and agentic view of the self and a self-regulatory strategy to maintain and enhance this positive self-view" (Campbell, Goodie & Foster, 2004, p. 298) terrorism and violence can be interpreted as a strategy to maintain this positive self-view. Devaluing others in order to increase the own self-esteem. Translated into the language of PT, narcissists have a very high reference point. They feel that they are entitled to more in life than other persons. Hence, any small deviation from this reference point is also immediately experienced as a loss. This is in line with research findings suggesting that narcissists are more risk-loving. Moreover, narcissists love fame. They dream of being famous and are willing to sacrifice a lot in order to gain this fame. In this light, engaging in terrorist activity and being the hero of the fight can be seen as a way to inflate the image of oneself and the fame to others (Campbell, Goodie & Foster, 2004).

4.   CONCLUSION AND POLICY IMPLICATIONS

If there is one aspect of consensus in the literature on terrorist behaviour this is the observation that there are as many processes to turn to terrorism as there are terrorists. The process is very individual and there is no universal pathway. Hence, in this paper it is argued that the study of terrorist behaviour should therefore start from the individual's decision. Since terrorism is a risky business, we believe that the Prospect Theory model of Kahneman and Tversky is very suitable as a framework. This model does not only reflect the importance of the perception of the individual, which may or may not coincide with the objective reality, but the model also allows for the influence of environmental factors on this individual decision.

A PT model on terrorism does not only reconcile most of the ideas of earlier models, it is also complementary to some more recently suggested overarching approaches. While Hafez and Mullins

(2015) suggest a puzzle approach to synthesise different studies, the approach they propose is complementary to the PT model. Both approaches depart from the uniform, linear process-view of radicalisation. In the PT model terrorism is however conceptualised starting from the individual's decision to engage in terrorism and all the influencing factors are modelled starting from this point of view.

This paper launches a new approach for the study of terrorist behaviour and argues that a PT model of the terrorist can provide new, useful insights into the understanding of the terrorist mindset. Empirical studies based on the model should shed light on some of the crucial aspects of the model. Important questions related to how people form their reference point in a process leading to terrorism, how this reference point changes throughout the process but also related to the influence of environmental factors on the formation and deviation of the reference point need an empirically based answer. These studies will however be plagued by the same problems inherent in any empirical study on terrorist behaviour. The most important problem relates to the availability of data. As prospect theory is a model for individual choice, any empirical test of the model needs data on the individual level. Since engagement in terrorism is illegal, it is very difficult to access primary source data. Using information from prevented attacks risks the problem of not having a representative group of individuals. Nevertheless, the difficulty in finding the answers should never hamper the academic in posing the correct question.

Having a clear conceptual framework is a first crucial step towards comprehension and in the case of terrorism, towards detection and/or prevention. In this way this paper can contribute significantly to counter-terrorism policy and to an efficient use of the budgetary means in this domain. Empirical studies starting from the Prospect Theory framework will have to guide policy makers in their choices. Do we need to increase the means for prevention and invest in community programs? The more options an individual has to give sense to his/her life, the higher the opportunity cost of terrorism and hence, the lower the probability of turning to terrorism. Another option for counter-policy is to increase the probability of detection and interception. In a way, an increased probability of interception also rises the cost of the behaviour which can have a dissuasive effect.

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