

Terrorism, Identity, Psychology and Defence Economics

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Abstract

That a dividing line has been drawn between economics and psychology is evident from a review of the most recent terrorism studies literature. The division is centred on the motivations of terrorism and the payoffs to terrorism. Psychology has generally been interested in motivations. Economics has generally been interested in payoffs. The objective of this paper is to show, by examining the psychologically important factor of 'identity', that it is very difficult to draw a clear dividing line between motivations and payoffs. Identity and self image are factors that motivate individuals to become terrorists but the gains and losses in identity and self image that result from engagement in terrorism are payoffs to terrorism. Factors that are important to the study of terrorism must sometimes be understood as both motivations and payoffs. The analysis of these factors requires the analytical frameworks of both economic science and psychology.

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Introduction

Victoroff (2005) presents a comprehensive review of the psychological approaches to the analysis of terrorism in which a clear line is drawn between the economic analysis and psychological analysis of terrorism. To the extent that a 'dividing line' between the economic analysis and psychological analysis of terrorism does exist, it is drawn somewhere between 'motivations' and 'payoffs'. Following a longstanding tradition in economic science, defence economics has predominantly occupied the 'payoffs' side of this line. Indeed, this has often been viewed by economists as being a very sensible thing to do. An individual's underlying motivations for having a particular objective or end in mind appear to be shaped by a multiplicity of unique circumstances whereas once the end or objective is given, individuals appear to respond in systematic ways to 'incentives' or 'payoffs' to the actions that are directed towards achieving the given end or objective. For example, if the objective is 'free passage

to Cuba' as it was for many hijackers in the 1970s¹, then the choice between various legal or illegitimate means, including hijacking, to achieve this objective is identified as the focus of the economic analysis and not the motivations for seeking free passage to Cuba. Defence economists, following tradition, have often stated this explicitly or otherwise implied it and it is not surprising that it emerges as a prominent point of division between economics and psychology in Victoroff's review.

Despite outward appearances, however, this dividing line is more a division of expertise or labour among those who study terrorism and terrorist behaviour than a dividing line between economic science and psychology. Economists should not ignore the results of psychology. What is wrong in psychology is also wrong in economics. Economic analysis is enriched by both removing erroneous treatments of psychological factors and incorporating salient psychological factors into its theoretical frameworks. Economists have not always been exceedingly quick at incorporating psychological factors into their economic analysis of choice scenarios. This has no doubt contributed to the impression that economic analysis is not capable of incorporating important psychological factors or, worse, that there is a dividing line between economics and psychology that cannot be bridged. Much will need to be done to rectify this impression that is so clearly evident in the terrorism studies literature. A place to start is with the ways in which economic analysis has treated the important psychological factor 'identity'. In this paper, it is shown how the 'dividing line' between 'motivations' and 'payoffs' can be traversed by the incorporation of identity into an orthodox economic analysis of terrorism. On the one hand, economic analysis is enriched by incorporating a salient psychological factor while on the other hand the 'motivational' factor is considered from a new 'payoffs' perspective.

Psychological factors such as identity and self image also provide a 'framework' within which terrorists pursue their objectives. The objectives of individual terrorists are usually treated as 'given' and economic analysis determines the optimality conditions for the achievement of those objectives. However, these objectives need not be treated as given and, in fact, it might be wise not to treat them as such. Individuals can and do change their minds before plans are completely carried out. The terrorists' objectives are pursued within a framework that keeps the plans 'intact' through the various stages of planning and execution. Although a deeper study of such frameworks is required, identity and self image might be found to be important components. The need for the terrorist group to ensure that its individual members continue to pursue the appropriate objectives is critical to group's success. The replacement of the identity of the individual group member with the identity of the group contributes to the suppression of individual motivations, objectives and assessment of payoffs that differ from those of the group. Terrorist groups that lack a strong group identity may find it much more difficult to maintain individual group members' commitment to the group's objectives long enough and consistently enough for plans to be executed and objectives achieved.

Identity in Economics

"The prominence of identity in psychology suggests that economists should consider identity as an argument in utility functions" (Akerlof and Kranton 2000, p.720)². Although identity is important in shaping motivations for behaviour³, in economics its relevance lies in the ways in which it shapes the payoffs to choices and actions⁴. There is more than one way to incorporate 'identity' into economic analysis (Davis 2006). Akerlof and Kranton's (2000) neoclassical approach is the dominant approach within the economics literature. The utility functions that Akerlof and Kranton (2000) attempt to augment are fundamentally equivalent to the utility functions deployed in many of the contributions to

¹ See Landes (1978).

² Recent research indicates that identity has important implications for social and economic behaviour. See McLeish and Oxoby (2011), Li, Dogan and Haruvy (2011), Brady and Wu (2010), Benjamin, Choi and Strickland (2010) and Chen and Li (2009).

³ For example, the decision to become a terrorist or to join a terrorist group.

⁴ For example, the payoffs to a particular choice of attack method or target type.

the study of terrorism that can be found in the defence economics literature. This theoretical equivalence along neoclassical lines means that, although Akerlof and Kranton's approach is just one possible approach, it is a logical and expedient starting point at which to begin an incorporation of 'terrorist identity' into terrorist utility functions. Even within the orthodox neoclassical framework the inclusion of identity into the utility functions of terrorists generates insights that lie beyond existing economic analysis of the terroristic agent and highlights more clearly the points of intersection between economic analysis and psychological analysis of terrorism.

Akerlof and Kranton (2000, p.715) define identity as an individual's sense of self. The definition is usually linked with some social category (such as gender) or group. It is appropriate to think of a 'social identity' as: "The individual's knowledge that he or she belongs to certain social groups together with some emotional and value significance to him or her of group membership. Put another way, social identity is self-conception as a group member" (Abrams and Hogg 1990). Identity has long been recognised by psychologists as being of significant relevance to understanding terrorism and terrorist behaviour. In his review of the psychological approaches to the analysis of terrorism, Victoroff (2005) lists multiple examples where identity (or related concepts) occupies a prominent place in the analysis of terrorist behaviour, often in explaining 'motivations' rather than 'payoffs'. Rather than draw a dividing line between economics and psychology on this point, it is possible to learn more about identity and its role in explaining terrorism by exploring how identity or self image considerations shape the terrorist's 'payoffs'. Once established, this bridge from psychological to economic analysis can be traversed in the opposite direction with insights about the importance of identity and self image obtained from examining their effect on 'payoffs' to actions enhancing the analysis of identity and self image as motivational factors for terrorism. The implication, of course, is that such possibilities extend beyond identity and self image to other important psychological factors.

Identity and Terrorism: 'Payoffs' and 'Motivations'

Akerlof and Kranton (2000, pp.716-717) explain how identity changes the payoffs to different actions. These appear to hold their validity when terrorism is the context. The violation of the prescriptions (or norms) of the social category to which the individual is assigned evokes anxiety and discomfort in the individual and in others. The terrorist feels anxiety and discomfort when conforming to the prescriptions of the social category to which he or she is assigned. The violation of the prescriptions of that social category by engaging in terrorism yields reassurance and comfort in the individual but, of course, anxiety and discomfort in others. The salience of identity to the payoffs of the terrorist may also be explained with reference to social identity theory and the politics of identity (Abrams and Hogg 1990; Calhoun 1994)⁵. Calhoun (1994, pp.20-26) explains some relevant aspects of identity including recognition and non-recognition by others, the importance of social discourses about who it is possible, appropriate or valuable to be, the collective struggles for recognition, legitimacy and power and the resistance to imposed or fixed identities. In some ways at least, some terrorist groups may be said to be involved in 'identity politics' by violently (but also by other means) asserting the legitimacy of a particular identity, calling for solidarity among those who share this identity and demanding inclusion in the polity (Calhoun 1994, p.22).

There are several more ways in which the 'payoffs' to terrorist actions may be influenced by identity and self image⁶. First, identity can affect the payoffs to choices such that choices are made that would otherwise appear to have no utility and are detrimental, self-destructive or dysfunctional (see Hanming Fang and Loury (2005) for more on the rationality of dysfunctional identities). Terrorist

⁵ Just as there is more than one way to incorporate identity into economics, there is also more than one social psychological or sociological approach to identity that might be incorporated. Davis (2007) contrasts social identity (the social psychological approach embedded into neoclassical economics by Akerlof and Kranton) with an alternative framework (the sociological approach to identity).

⁶ See Akerlof and Kranton (2000, p.717) for a discussion relevant to mainstream economics.

actions, particularly suicide attacks but even the action of 'going underground', appear to be detrimental and self-destructive to those who do not share the terrorist's identity. Second, identity underlies a type of externality in that the actions of some individuals can threaten the identity of others. The terrorist or terrorist group actively seeks to impose this type of externality and may experience utility from doing so. This is the essence of the particular form of violent identity politics in which the terrorist group is involved. Third, there are incentives to the manipulation of identity. Terrorist groups have an incentive, in the form of grassroots support, recruitment of members or other aspects of political influence, to change the preferences of others by manipulation of identity. Fourth, identity may impose limits on choices. In considering a model of terrorist behaviour where the terrorist is seeking a maximum payoff, identity may impose a constraint on this maximisation problem. Because of their identity or self image, a terrorist may not be able or willing to choose an action that would otherwise appear to be optimal. Similarly, active terrorist group members may find themselves restricted to a terrorist identity because it is not possible to leave the group without fear of retribution or without considerable loss of identity.

The psychological studies of terrorism reviewed by Victoroff (2005) highlight the relevance and importance of various aspects of identity and self image in seeking to explain and understand the motivations of terrorist behaviour. A distinction between 'motivations' and 'payoffs' emerges. Let us immediately resist the acceptance of this distinction and instead consider the much more likely possibility that the ways in which identity and self image affect the 'motivations' of terrorists are not completely removed or separate from the ways in which identity and self image affect 'payoffs'. Just as there is not a strict dividing line between economic analysis and psychological analysis there is not a strict dividing line between 'motivations' to terrorism and 'payoffs' to terrorism. To see this clearly, let us look at some of the ways in which Victoroff (2005) describes the relevance of identity and self image to the 'motivations' of terrorism:

1. Identity theory suggests that terrorists are individuals seeking to establish or consolidate their identities (Victoroff 2005, p.21). Individuals may be motivated to do terrorism or join a terrorist group in order to establish their identity.
2. Another motivation for joining a terrorist group is the anxiety and dissatisfaction that is experienced within an assigned social category. Unhappy with the social status of their assigned identity, individuals may seek through their actions to establish a re-ordering within society. This manifests itself in the complaints by nationalist-separatist and ethnic-separatist terrorists that their treatment at the hands of the government robs them of their identity (Victoroff 2005, p.20).
3. Membership of a terrorist group may involve a 'fusion' of the individual's identity with that of the terrorist group (Victoroff 2005, p.10). The individual's old identity, which may have shown no predispositions towards violence, is swept aside by the newly motivated terrorist identity.
4. Narcissism theory suggests the possibility of an 'identity deficit' that may be the motivation or trigger for narcissistic rage expressed in an act of terrorism (Victoroff 2005, p.24).
5. The group identity that defines the terrorist group may shape what is considered to be 'pro-social' behaviour within the group, so much so that terrorism is considered by some scholars to be a 'group-of-identity' phenomenon (Victoroff 2005, p.11, p.20). To the individuals sharing the identity of the group, violent behaviour may not be discouraged or treated as anti-social. Members of the group are motivated by their group identity to do terrorism and within the group there are no mitigating or damping factors because the violent behaviour is accepted as 'pro-social'.
6. Once within a terrorist group, the individual's identity may come to be defined by terrorist violence and other defining characteristics of the group. Theories of group process try to explain how individuals come to exhibit violent behaviour without clear predispositions

for such behaviour. The influence of the terrorist group's collective identity is considered to be an important motivating factor (Victoroff 2005, p.30).

Dissatisfaction with an assigned identity is a motivation for terrorism. Violation of the prescriptions of that identity is a part of the 'psychic' payoff to an act of terrorism. Identity is a motivation for detrimental or dysfunctional behaviour and it is a factor that shapes the payoffs of alternative actions in favour of detrimental or dysfunctional actions that might otherwise appear to have low or negative payoffs. The manipulation of the individual's identity explains the motivation of terrorist group members to do violence when they previously exhibited no predisposition to violent action. The violent action perpetrated by the group members is a payoff to the group. Identity deficit is a motivation for terrorism, perhaps as an expression of narcissistic rage. The expected augmentation in identity is a payoff to the action of terrorism. 'Motivations' and 'payoffs' are tightly intertwined. On the matter of identity and self image a clear dividing line cannot easily be drawn between motivations and payoffs, economic science and psychology.

If further evidence of this is required, one need look no further than the treatment of 'motivations' and 'payoffs' in Akerlof and Kranton's (2000) analysis. At first the authors focus on the ways in which identity changes the 'payoffs' from different actions (p.717). Then 'motivation' is introduced with the authors' stated aim being to propose a utility function that incorporates identity as a 'motivation' for behaviour (p.717). This remains the case until it comes to the individual's actual choice or action. Now the matter of motivation is pushed to one side and motivations for action are presumed 'unconscious'. A dividing line is apparently drawn and Friedman's positivism is invoked. It does not matter whether the individual is aware of the reasons or motivations for his or her actions. Just as it does not matter whether the individual is aware that he or she is maximising a utility function, it does not matter whether the individual is aware that identity or self-image is the motivational 'force' of his or her behaviour (pp.719-720). But this dividing line is artificial. 'Gains' or 'losses' in identity are a 'payoff' to an action that is motivated by identity or self-image considerations and the prospective gains in identity are themselves a motivation. In the end, Akerlof and Kranton (2000) follow neoclassical tradition and model the individual such that action is directed towards the maximisation of 'payoffs', including gains in identity, after the individual is already motivated by identity or self-image considerations. The latter are taken as 'given'⁷ by the economic analysis but remain completely intertwined within it.

In the analysis of terrorism, a dividing line between 'motivations' and 'payoffs' cannot easily be drawn. This can be seen very clearly if a game or interaction is imagined to take place. There are two members of a terrorist group. As suggested by the psychological literature, the group's identity is important and the Terrorist A's identity has been 'fused' with that of the group. If another terrorist, Terrorist B, violates the prescriptions of the group identity it will cause disutility for Terrorist A in the form of a loss of identity (see Akerlof and Kranton 2000, p.728). Terrorist A can then respond and restore his identity, though this may come at a cost. The interaction can proceed completely analogously with Akerlof and Kranton's (p.728). An analysis of such an interaction may generate results that are relevant to understanding the actions of real-world terrorists. For example, in 1979 members of the Red Army Faction (RAF), which we use as our primary example because it has been studied so extensively by psychologists, 'handed back their weapons' following civilian casualties during two failed bank robberies (Peters 2008, p.542). Actions resulting in civilian casualties caused a disutility for these members that might be described by a loss of identity (a negative 'payoff'). But the disutility must be subtracted from something. It must diminish an established identity.

The explanation of the behaviour of Terrorist A and Terrorist B requires an understanding of the 'identity as motivation' that Akerlof and Kranton (2000) take as given in their general game theoretical model of interaction between two individuals. The payoffs that are depicted in the various

⁷ This is clear in Akerlof and Kranton's game theoretical analysis (p.729) involving Person 1 and Person 2. That the first person is of Type 1 and the second person is of Type 2 is given and the two individuals enter into the game scenario as a Type of person.

branches of a ‘game tree’ are shaped by identity but an individual’s established identity (or lack thereof) also motivates him to consider the actions depicted in the ‘game tree’. The terrorist enters the game theoretical scenario as a terrorist and his payoffs are shaped by his ‘terrorist identity’. From the point of view of economic science there are three ways with which this blending of ‘motivations’ and ‘payoffs’ can be approached analytically:

1. All motivations may be re-cast as payoffs and the entire set of behaviours, including the decision to become a terrorist, is encompassed within neoclassical economics. There is no doubt that a clever piece of theoretical work might be designed that appears to accomplish this⁸ but it would only serve to artificially extend the divisions that are evident between psychological and economic analysis.
2. Economists can look to psychology for a ‘proof’ or evidence that motivations are unconscious. Akerlof and Kranton (2000) mention this in footnote 27. This might take us one step closer to justifying the treatment of motivations as ‘given’ but it apparently relies on psychological theory that is not widely accepted.
3. The dividing lines that are drawn between economic science and psychological analysis can be bridged by work like Akerlof and Kranton’s, which brings an important psychological factor to the attention of economists, but which unlike Akerlof and Kranton’s does not immediately re-establish a dividing line once an important piece of psychological analysis has been procured.

The last point appears to be the most promising for economic science. In the following sections of this paper, we contribute an economic analysis that works through a particularly important choice for the terrorist or terrorist group: the choice of attack methods and targets. Following Akerlof and Kranton, identity is embedded within a neoclassical utility function. However, we are careful not to rebuild the dividing line between motivations and payoffs. Psychology has contributed a great deal to our understanding of how identity may be important as a motivating factor for terrorism. We can know more about the relevance of identity for terrorism and terrorist behaviour by examining how this motivating factor operates as a ‘payoff’ to terrorist choices.

Akerlof and Kranton (2000): A Formal Overview

Akerlof and Kranton (2000, p.719) present an identity-augmented neoclassical utility function in which the motivations for the individual’s actions are given or objective:

$$U_j = U_j(\mathbf{a}_j, \mathbf{a}_{-j}, I_j) \quad (1)$$

In Equation (1), \mathbf{a}_j represents the actions of individual j , \mathbf{a}_{-j} represents the actions of others, and I_j is j ’s identity or self-image. Identity is represented as:

$$I_j = I_j(\mathbf{a}_j, \mathbf{a}_{-j}, \mathbf{c}_j, \mathbf{e}_j, \mathbf{P}) \quad (2)$$

In Equation (2), \mathbf{c}_j is j ’s social categories or groups and the social status of a category or group is given by $I_j(\cdot)$. The individual’s own characteristics are represented by \mathbf{e}_j and the prescriptions (or norms) of each social category are represented by \mathbf{P} . Identity is shaped by the individual’s social categories, the social status of those categories, the extent to which the individual’s own characteristics align with the prescriptions or norms of the social category and the extent to which the individual’s and others’ actions align with these prescriptions or norms. Enhancements in self image may be associated

⁸ For example, if the decision to become a terrorist were to be depicted as a ‘meta game’ that was played ex ante where ‘payoffs’ entice or discourage the person to be a terrorist. The game that involves payoffs to terrorist actions becomes a branch of the ‘meta game’ and is relevant if, during the ‘meta game’, the individual becomes terroristic by being attracted to the ‘payoffs’ to terrorism. Of course, this does not take us closer to a real understanding of why some people are interested in the ‘payoffs’ to terrorism and others are only interested in legitimate actions.

with assignment to a category enjoying a higher status (Akerlof and Kranton 2000, p.719). Increases or decreases in utility may be experienced with changes in I_j . These are 'payoffs' to gains and losses in identity.

The choices of the individual are more extensive than those that may be encompassed by a traditional utility function. In Equation (1), the behaviour usually encompassed by a traditional utility function for an individual is captured in the arguments \mathbf{a}_j and \mathbf{a}_{-j} . Akerlof and Kranton (2000, p.719) suggest that these two vectors determine the individual's consumption of goods and services and are sufficient to capture the standard economics of own actions and externalities. When augmented by identity, I_j , the individual in Akerlof and Kranton's analysis chooses actions that maximise utility where \mathbf{c}_j , \mathbf{e}_j and \mathbf{P} are given. Additionally, the individual may be able to make choices with regard to the category \mathbf{c}_j to which he or she is assigned. Individuals have some degree of choice regarding their identity. Furthermore, individual actions may affect the prescriptions or norms of social categories \mathbf{P} , the set of social categories \mathbf{C} and the status of different social categories. In making his or her choices, the individual attempts to maximise his or her utility.

Akerlof and Kranton (2000) and the Analysis of Terrorism

The utility function of Equation (1) can be reinterpreted within a 'terrorism context'. The two arguments \mathbf{a}_j and \mathbf{a}_{-j} capture the terrorist's actions—both legal and illegal—and the actions of others, who might include 'the government'. The actions of the terrorist accord the terrorist utility or disutility as do the actions of others. When the choices are interdependent, the terrorist and 'the others' may engage in a strategic interaction that can be modelled in a game theoretical framework. Equation (1) predicts that the choices would be designed to maximise utility and, in the presence of strategic interaction, would take into consideration the responses of others. The terrorist's self image or identity, I_j , adds a new dimension to this type of analysis. The increase or decrease in utility that derives from a particular action a_j depends also on its identity payoff I_j . The terrorist may, for example, experience a loss in identity from engaging or not engaging in particular actions.

In the context of terrorism, the terrorist's particular actions are specified by the definition of the two arguments \mathbf{a}_j and \mathbf{a}_{-j} . Sandler et al. (1983) undertook a theoretical analysis of negotiation scenarios between 'the government' and 'the terrorists'. In their analysis, the terrorists' utility is depicted as a function of gains from legal activities (for example, political activity such as distribution of pamphlets), demands that the terrorist makes against the government as a result of a terrorist (illegal) activity, the probability that the demands are met and the most recent concessions that the government has made. These arguments of the utility function are equivalent to arguments \mathbf{a}_j and \mathbf{a}_{-j} but with definitions particular to the behaviour of terrorists and the government⁹. The terrorists' actions include both legal activities and terrorist activities. The government's actions are defined by the concessions provided (if any). When the terrorists' (and government's) identity are embedded within the analysis, the comparative statics results generated by the Sandler et al. (1983) analysis are, to the extent that identity is an important factor, enhanced.

Consider Sandler et al.'s hostage-taking scenario. The terrorists choose action \mathbf{a}_j with \mathbf{c}_j , \mathbf{e}_j and \mathbf{P} given. These vectors describe the social category 'terrorist', the individual terrorist's

⁹ Sandler et al. (1983, p.40) notes that the arguments of their terrorist utility function depict a single legal activity and a single terrorist activity for ease of exposition. These arguments could just as well be vectors of actions.

characteristics and the prescriptions of the social category ‘terrorist’. Terrorists are involved in particular activities and engaging in these activities (such as taking hostages) is what ‘terrorists’ do. In response to the terrorists’ choice to take hostages, the government may choose to “concede” or “not concede”. Similar to the terrorist, the government is described by c_j , e_j and P which, it is plausible to suggest, imply an identity for the government that includes a “never concedes to terrorism” prescription. The government loses identity by conceding. If the government chooses “not concede”, the terrorists can either “give up” or “respond”. If the terrorists do not give up but respond by killing the hostages, the terrorists may restore any loss in identity suffered by not forcing the government to concede but they incur the costs—which might include the loss of their own lives—of undertaking this response. The government, likewise, by not conceding may not suffer a loss in identity but this gain (or absence of loss) may come at significant cost if the terrorists do not give up. The weighing up of the gains and losses normally considered to be salient to a hostage-taking situation is, in this case, augmented by an assessment of the potential gains and losses in identity. What normally could be a positive expected payoff to an action may be more or less offset by an expected negative payoff in the form of a loss of identity. Once these gains and losses of identity are figured into the analysis, the predicted outcomes might diverge from an analysis not augmented by considerations of identity and self image.

Identity and the Choice of Attack Method

The Red Army Faction is a terrorist organisation that has been studied quite extensively. The choices that the RAF made with regard to attack method and target type reveal a group that, for the most part, did not engage in terrorist attacks where there was a likelihood of significant civilian mortality. The non-engagement in attacks designed to inflict substantial human casualties is an action that may be said to have been shaped by the group’s identity or self image. The evidence implies that the RAF’s identity and the attack method choices it helped to define were important considerations for RAF members. When these identity prescriptions were violated, considerable disutility appears to have been suffered by RAF members, even leading some to leave the group. For example, in 1979 several RAF members ‘handed back their weapons’ following civilian casualties during two failed bank robberies (Peters 2008, p.542). The RAF was also known to have taken deliberate steps to minimise civilian casualties. For example, in a failed attack on a government building in August 1977, the RAF had placed a sign to advise police not to inadvertently harm the occupants of the apartment from which the attack was to be launched (Winkler 2010, p.306). The targeting of particular facilities and individuals (for either assassination or kidnapping), a choice set shaped by the identity and self image of the RAF, in turn shaped the payoffs that could be expected and the risks that it would be necessary for the group to bear. This particular approach to attack method and target choice is clearly evidenced by the RAF’s choice of attack methods and targets.

In the late 1960s and early 1970s, the RAF was engaged in arson attacks on business interests, bombing attacks on US army establishments, German police facilities and the Springer Verlag and assassination attempts on members of the judiciary. In the mid 1970s, the RAF was engaged in taking hostages at the German embassy in Stockholm, the successful assassination of Siegfried Buback (a government official), the failed kidnapping and shooting of Jürgen Ponto (a member of the board of Dresdner Bank) and the kidnapping of Hanns Martin Schleyer (a leading representative of employer interests) during an armed attack in which his driver and three body guards were killed. The RAF was also associated at around this time with the Palestinian hijacking of a Lufthansa flight that was eventually stormed by German commandos in Mogadishu. Although this event precipitated the suicide in prison of several members of the RAF, the group continued its activity into the 1980s. During this period, the RAF undertook failed assassination attempts on senior NATO and US military figures and senior German government officials, bombing attacks on NATO and US military establishments and successful assassinations of Siemen’s board member Karl Heinz Beckurts, Gerold von Braunmühl (a

senior civil servant), Alfred Herrhausen (spokesman for the board of Deutsche Bank) and Ernst Zimmermann (board member of *Motoren und Turbinen Union* (MTU), a commercial and military aircraft engine producer). The last generation of the RAF remained active into the 1990s with armed attacks on the US embassy in Bonn, the successful assassination of Detlev Rohwedder (a business manager and government official) and the bombing of a newly constructed prison facility (*Weierstadt bei Darmstadt*).

If a terrorist organisation's choices of attack methods can be shaped by the organisation's identity or self image, how can economists analyse choice of attack methods and targets under such circumstances? Phillips (2009) showed how the economic analysis of the choice of attack method may be constructed on the basis of the two moments of the distribution of expected payoffs, E_Z , to particular attack methods and the risks involved, σ_Z . If identity is relevant to the choice of attack, the terrorist's utility could be described as:

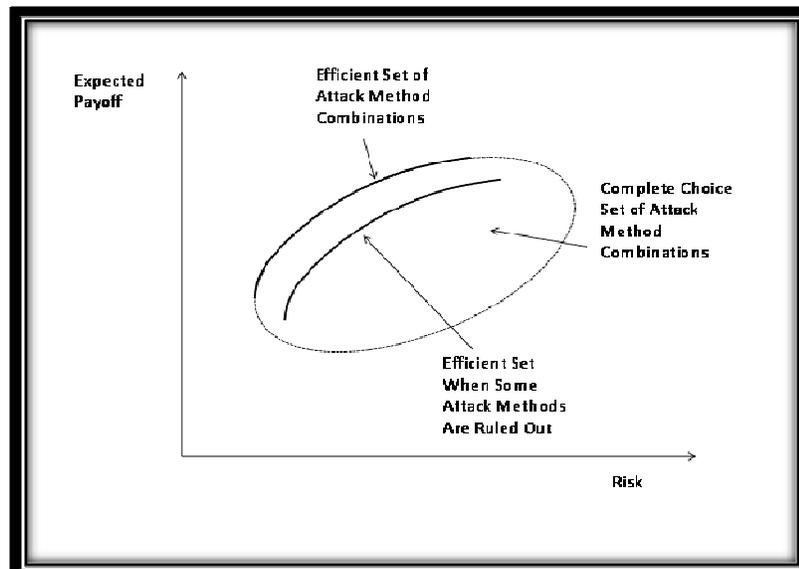
$$U_j = U_j(E_Z, \sigma_Z, I_j) \quad (3)$$

$$I_j = I_j(E_Z, \sigma_Z, \mathbf{c}_j, \mathbf{e}_j, \mathbf{P}) \quad (4)$$

The utility of the terrorist is a function of the expected payoffs resulting from a particular attack method or attack method combination, the standard deviation (risk) of the payoffs from that which was expected and the gains and losses in the terrorist's identity or self image. The terrorist's identity is a function of the expected payoff and risks of an attack method or attack method combination and the identity vectors introduced by Akerlof and Kranton (2000). By studying identity as a payoff in this context, we can analyse the terrorists' choices of attack methods and the influence of identity and self image on those choices. A number of possible scenarios emerge.

First, if identity and self image rule out particular types of attack methods, the set of attack methods from which the terrorists choose will be a sub-set of the complete choice set (containing all possible attack methods). For example, if a terrorist group such as the RAF avoids attack methods that have higher probability of civilian mortality, certain types of attacks will be ruled out. In payoff-risk-space, identity may define an efficient set of attack methods for a particular terrorist or terrorist group that lies within the 'global' efficient set. This is depicted in Figure 1. Governments and security agencies that confront such terrorist groups may expect more targeted attack methods that result in lower levels of civilian mortality on average. However, even if this is the case on average, it is possible that any particular attack method will result in higher levels of civilian mortality than expected. The terrorist group cannot escape the standard deviation that characterises each attack method.

Figure 1: Identity and the Efficient Set of Attack Methods



Second, identity and self image may define a particular region or regions of the efficient choice set or, in some cases, particular points. In each case, the terrorist group may be a greater or lesser threat to civilians than would be the case if identity were not a relevant consideration. Particular types of attack methods have come to define particular types of terrorists or terrorist organisations. Once a terrorist or terrorist group's identity is formed around a particular attack method, economic analysis may focus on the relevant region of the choice set. Conclusions for governments and their security agencies can be generated. For example, if the terrorist group engages only in bombing, it will be expected to cause approximately six fatalities and injuries for each attack. If the terrorist only engages in arson, he will be expected to cause less than 1 fatality for each attack (see Phillips 2009). To the extent that insights into identity and self image are obtainable about a terrorist or terrorist group, such insights can guide analysis that may generate operationally relevant advice for governments and security agencies. If it is known that the identity and self image of a particular group is defined by particular prescriptions, the risk that the group presents to civilians from its terrorist attacks may be analysed with a higher level of specificity.

Third, group identity (and other psychological factors) provides an 'institutional framework' within which attack methods are chosen and attacks planned and executed. This goes to the heart of the 'objective' or 'end' that underlies every application of an expected utility function. Something must keep these objectives or ends intact long enough for plans directed towards their achievement to be put in place and carried through. This is likely to be found in the dominance of the group identity as an institutional framework for ensuring the adherence of individual identity to the group's identity. For example, the expectations placed on RAF members by the group for a deep and lasting existential change in identity are evident in the documented tension between Ensslin and Meinhof regarding Meinhof's 'lapse' in wishing to contact her children (Prinz 2003). Even if members' motivations, ends or objectives change, the group identity and other important considerations provide the framework necessary to keep the group from falling apart and to keep the planning process intact. Of course, some terrorist groups will not have strong frameworks and will more easily collapse as group members depart or as the planning process continually breaks down.

The importance of the group's identity as a framework for the actions designed to achieve the objectives of the group is further evidenced by examples taken from the literature on the RAF. First, Irene Goergens was pressured by Ulrike Meinhof to continue with a hunger strike action. She was told by Meinhof, "der punkt ist, dass der kampf so ist wie der hs [Hungerstreik] jetzt¹⁰" (Peters 2008, p.318). Second, Ensslin wrote to Holger Meins just before his death as a result of an extended hunger strike, encouraging Meins to recognise the 'historical dimension' of his possible death. Such was the accordance of Meins' e with the prescriptions, P, of the group that he appears to have viewed such a possibility (i.e. his death) as a victory and implied that his death should be viewed as murder (Peters 2008, pp.318-320). With regards to terrorist activities, the imprisoned members of the RAF chose to alter the prescriptions of the group to be characterised by more forceful terroristic activities. It was communicated to those outside prison that, "[dass sich] Guerilla immer über die Qualität des Angriffs definiert¹¹" (Winkler 2010, p.307). The outside members were instructed not to use the name of the RAF until they had devised a 'real' attack method rather than excuses.

V. Motivations, Payoffs, Psychology and Economics

The terrorism studies literature is characterised by a dividing line between economics and psychology that is centred on the treatment of motivations for terrorism and payoffs to terrorism. A careful consideration of this dividing line reveals a division that is much less clearly defined than it first appears and one that is more accurately described as a division of labour and expertise than an unbridgeable difference in analysis. A consideration of identity and self image reveals the

¹⁰ The point is that the [RAF's] struggle is like the hunger strike is now.

¹¹ It is the quality of the attack that defines the Guerilla.

interconnectedness of motivations and payoffs to terrorism. A factor that may be a motivation for terrorism from one perspective may equally be considered a payoff to terrorism from another. The temptation for economic science is to obtain relevant psychological factors and embed them within the economic analytical frameworks. There is no doubt that this adds another dimension to economic analysis and demonstrates the capability of economic analysis to incorporate psychological variables but it does little to bridge the divisions that are perceived to characterise the two disciplines. What would be more valuable is a synthesis of motivations-focussed analysis and payoffs-focused analysis such that relevant factors are considered holistically.

Identity and self image is an expedient starting point because psychology has already made substantial progress in determining its place in explaining terrorist behaviour and identity and self image have already been accorded considerable analytical treatment by mainstream economists over the last ten years. An important step in developing an approach to the analysis of terrorism in which the perceived divisions between economic science and psychology are mitigated is the full working out of the ways in which psychological factors like identity and self image form a part of the institutional frameworks of terrorist organisations. These frameworks permit the organisation's plans to be formulated and carried through to completion in a context where the individuals within the organisation do not have 'given' objectives or ends. The fusion of the individuals' identity with that of the group will likely be found to be an important component of the frameworks that prevent the planning processes of the terrorist organisation from collapsing due to the oscillation of individual members' subjective—not given—motivations and objectives. An understanding of the institutional structures that foster the successful (or unsuccessful) planning and execution of terrorist attacks will be a useful contribution that economics and psychology may offer to law enforcement and security agencies.

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