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Working Paper
Terrorism and Business

CREMA Working Paper, No. 2007-12

Provided in Cooperation with:

CREMA - Center for Research in Economics, Management and the Arts, Zürich

Suggested Citation: Frey, Bruno S. (2007) : Terrorism and Business, CREMA Working Paper, No. 2007-12, Center for Research in Economics, Management and the Arts (CREMA), Basel

This Version is available at:

<https://hdl.handle.net/10419/214386>

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Center for Research in Economics, Management and the Arts

Terrorism and Business

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Working Paper No. 2007 - 12

TERRORISM AND BUSINESS

by

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This paper is based on previous work by the authors, see Frey and Luechinger 2003, 2004, Frey 2004.

The author is grateful to Christine Benesch, Simon Luechinger and Susanne Neckermann for their helpful remarks, and to Isabel Ellenberger for checking the manuscript and improving the English.

Abstract

Deterrence has been a crucial element in fighting terrorism, both in politics and in rational choice analyses of terrorism. However, there are two strategies that are superior to deterrence. The first one is to make terrorist attacks less devastating and less attractive to terrorists through decentralization. The second one is to raise the opportunity cost – rather than the material cost – for terrorists. These alternative strategies will effectively dissuade potential terrorists. It is here argued that they not only apply to society as a whole but can also usefully be applied by business enterprises.

(96 words)

JEL Classification: D74, H56, K42

Keywords: Terrorism, Deterrence, Decentralization, Opportunity Cost, Business, Enterprises.

I. INTRODUCTION

Politics has always been committed to fighting terrorism by using deterrence: Terrorists are best dissuaded from attacking through the threat of heavy sanctions and by using police and military forces to fight them (see e.g. Chalk (1995), Kushner (1998) or Wilkinson (2000)). The reaction to the terrorist attacks of September 11, 2001 is a striking example. The American president first declared a „crusade“ against terrorists. This “crusade” was, after some thinking, changed to a „War against Terrorism“. This war has been widely supported by a great many democratic as well as authoritarian countries. This war on terrorism is completely based on *deterrence*: Actual and prospective terrorists must be annihilated by killing them without any further ado, or they must, at least, be captured, held prisoner, or (perhaps) put on trial and sentenced to long or indefinite periods of time. It is expected that such harsh treatments impose such high expected costs on prospective terrorists that no individual will engage in terrorist activities in the future.

History, as well as recent experience suggest, however, that using deterrence in dealing with terrorism is *ineffective* and may even be *counterproductive*. The number of terrorist acts may well increase, rather than decrease. A policy based on deterrence also has a second disadvantage. It threatens civil and human rights in the countries engaged in fighting terrorism. Deterrence policy thus tends to undermine exactly those values it claims to protect. Even if deterrence were effective (which it is not) the world may end up significantly less democratic than before it was engaged in the war against terrorism. Many people share these concerns but they do not see any alternative to deterrence (e.g. Harmon 2000, Carr 2002). This contribution suggests that such alternatives indeed exist and are viable (see, more fully, Frey 2004, Frey and Luechinger 2003, 2004, Frey

and Rohner, 2007, forthcoming)ⁱ, and that they are applicable both at the level of society as well as in businesses.

Two strategies are proposed here to deal with terrorism:

1. *Decentralisation.* A system with many different centres is more stable due to its diversity, enabling any one part to substitute for the other. When one part of the system is negatively affected, one or several other parts may take over. A country that is the prospective target of terrorist attacks can reduce its vulnerability by implementing various forms of decentralisation:

- (1) *The economy*, by relying on the market as the major form of decentralised resource allocation. It refers to both decision-making as well as over space;
- (2) *The polity*, by using to the classical division of power between government, parliament and the courts. Decentralisation over space is achieved by a federalistic structure, that delegates decision-making power to lower levels of the polity (states, provinces, regions and communes);
- (3) *The society*, by allowing for many different actors, such as churches, non-governmental organisations, clubs and other units.

Decentralisation is effective in reducing risk and uncertainty. A target's vulnerability is lower in a decentralised, than in a centralised, society. The more centres of power there are in a country, the smaller the chances that terrorists are able to harm it. In a decentralised system, terrorists will not know which targets to attack as any one part of that system can substitute for the other. An attack will have a much smaller negative effect than in a centralized society. As a result, terrorists will be dissuaded from attacking.

In contrast, in a centralised system, important decision-making power with respect to the economy, polity and society is to be found in one location. This power centre presents itself as an ideal target for terrorists and therefore is in great danger of being attacked. If the centre is targeted and hit, the whole decision-making structure may collapse and could so promote chaos.

2. *Positive Incentives to Leave Terrorism.* Actual and prospective terrorists could be offered rewards for *not* engaging in violent acts. This represents a completely different approach from the conventional anti-terrorist policy of deterrence, which is based on coercion, or “the stick”. By offering *more favourable* alternatives these proposals seek to break the organizational and mental dependence of terrorists on their terrorist organizations. They are given an incentive to relinquish terrorism. In contrast, deterrence policy locks prospective and actual terrorists into their organisation and provides no alternatives to staying on. When incentives to leave the terrorist organization exist the interaction between terrorists and the government is transformed into a *positive sum game*: both sides benefit. The government’s effort is no longer directed towards destruction. Rather, the government makes an effort to raise the utility of those terrorists who choose to enter the programmes offered. The government so provides alternatives to engaging in terrorism. This strategy *undermines the structure and cohesiveness of the terrorist organisation*. That its members do have an incentive to leave is an ever-present threat to the terrorist organisation. When good outside offers are available to the members of a terrorist group, its leaders tend to lose power and authority. The terrorist organisation’s effectiveness is thereby reduced.

The next section analyses the consequences of applying deterrence by focusing on the incentives offered to potential terrorists. The problems of anti-terrorist policy using deterrence will be pointed out. Section III presents the first alternative to deterrence, namely decentralization. Decentralising prominent, potential targets makes them less attractive to terrorists and can so reduce terrorist attacks. The fourth section discusses the second strategy, the raising of opportunity costs – rather than the material costs – to terrorists. Two specific strategies of raising terrorists’ opportunity costs are suggested. Section V evaluates the weaknesses and strengths of the general strategy. The following section VI considers the extent to which businesses may profit from adopting the two strategies discussed. Section VII draws conclusions.

II. DETERRENCE POLICY

The potential benefits of an anti-terrorist policy based on the use of force have been widely emphasized by the governments undertaking it. However, the benefits are difficult to pinpoint and even more difficult to measure, particularly because of possible indirect and long-term effectsⁱⁱ. A basic problem is identifying how much worse off (if at all) individuals would have been if a deterrence policy had not been adopted. Constructing such a counterfactual situation is tricky especially as long-run and macro-economic as well as macro-societal effects have to be taken into account.

1. *Disadvantages*

Some of the costs of employing a deterrence policy are readily apparent and measurable (Rathbone and Rowley 2002).

First are the direct costs to the country applying a deterrence policy.

Most obvious are the substantial *budgetary costs* involved in the prevention of terrorist attacks such as border controls and the collection and interpretation of information by intelligence agencies. The more aggressive part of the deterrence policy relies on the military, police and the various secret services. The total number of employees and the size of the budget are difficult or even impossible to know because most of this information is not public knowledge. The overall budgetary cost of an anti-terrorist policy is certainly large.

The use of force deterrence policy always risks adopting means, which are repressive. In the name of the “war on terrorism” *constitutional civil and human rights* are undermined or completely suppressed (Chang 2002, Cole and Dempsey 2002). This concern has been discussed frequently in connection with the anti-terrorist policy the United States and the United Kingdom have adopted after September 11, 2001 (see Sterba 2003, Viscusi and Zeckhauser 2005, Goodin 2006). For the citizens concerned, this erosion of human and political rights represents the costs entailed in a deterrence policy. Such a result plays into the hands of the terrorists and, if going too far, proves completely counter-productive. Costs of this type do not only arise domestically but also internationally. If a country, by adopting a deterrence policy, violates the rules various countries have agreed upon, a cumulative worsening of international relationships may take place.

The *second* type of costs produced by deterrence policy relates to its *effects on terrorists*.

It is generally agreed that complete deterrence is impossible. No country, not even one that has exhaustive surveillance and punishing power will have the ability to thwart all conceivable future terrorist activity. Experience has shown that terrorists are capable of

ever new responses to deterrence policy. They do not only seek new ways of achieving their aims but also quickly *substitute* targets that are impossible or too costly to protect. Costs are raised further when terrorists move their attention from less to more devastating objectives, resulting in more casualties and damage.

A coercive response tends to *reinforce the cohesiveness and influence of a terrorist group*. At the same time it exacerbates nationalism and xenophobia in those countries which have been associated with the terrorists.

Despite the many claims to its effectiveness, deterrence may even be counter-productive. Based on a great many cases this position is supported by many scholars. To quote again Wilkinson (2000, 115):

“There is a widespread misconception that using terror to defeat terror will ultimately work. On the contrary, the evidence is that this policy is counter-productive”.

Most observers agree that deterrence is not effective in changing the target country's policy towards terrorism. A worthwhile evaluation must make an effort to compare the use of force with other anti-terrorist policies. The following two sections present two such alternatives.

III. Decentralisation

A country can to some extent be immunised against terrorist attacks by decentralising activity, both with respect to the polity and the economy. The basic idea is that a polity and society that sustains many different centres is difficult to destabilise. The single centre becomes less essential for the polity and economy and therefore loses much of its symbolic value. If one of the many centres is hit in a terrorist attack, the other centres

can immediately take over the tasks. Therefore, the attraction to perform violent actions is diminished as they prove to have less effect on the political stability and aggregate economic activity. Decentralisation as an anti-terrorism strategy on a country level may take two formsⁱⁱⁱ:

Firstly, political power is distributed between a number of different political actors (classical division of power, democracy and rule of law) and across various levels of government (federalism).

Secondly, a market economy based on an extreme form of decentralisation of decision-making and implementation is therefore less vulnerable to terrorist attacks than a highly regulated and monopolised economy is.

IV. OFFERING ALTERNATIVES TO TERRORISTS

An effective way to fight terrorism is to raise the *opportunity costs* to terrorists. This strategy differs fundamentally from traditional deterrence policy, which seeks to raise the *material* cost to potential terrorists. Indeed, the two approaches imply quite different policies.

The opportunity costs faced by potential terrorists consist in the utility they could gain by not engaging in terrorism. These are the activities they can undertake outside of terrorism. Higher opportunity costs reduce the willingness of a (potential) terrorist to commit terrorist activities. An increase in the opportunity costs or, equivalently, a reduction of the costs of all other activities, therefore reduces terrorism.

This strategy has several advantages over other anti-terrorist policies:

Firstly, due to a wider scope of opportunities outside of terrorist activities a member's dependence on the terrorist group is reduced. Exit is facilitated.

Secondly, a conflict between terrorist and other activities is created, which produces tensions within the terrorist organisation. Nobody knows who will succumb to the outside attractions and become a "traitor" by leaving the group. This uncertainty diminishes the effectiveness of the terrorist group. In contrast, a deterrence policy strengthens solidarity among the group members (see e.g. Wintrobe 2002a).

Thirdly, the interaction between the terrorists and the outside world is turned into a positive sum interaction. The chances of finding a peaceful solution are improved.

An obvious possibility is to raise opportunity costs by *increasing income in peaceful occupations*. The more an individual can gain from participating in an ordinary, non-violent activity, the less he or she is inclined to engage in terrorism. Recent experience with Palestinian suicide bombers suggests, however, that the resulting effect is small, if it exists at all. A substantial part of them seem to have above average education and therewith presumably^{iv} better outside opportunities than completely uneducated, destitute persons. For that reason, we propose three more specific strategies to *directly* raise (potential) terrorists' opportunity costs.

Increasing interaction with terrorists by contact and discussion processes

Terrorists could be involved in a discussion process, in which their goals and grievances are taken seriously and which tries to identify whether compromises are feasible. Moreover, terrorists could be granted access to the normal political process. This lowers

the costs of pursuing political goals through legal means and hence raises the opportunity costs of terrorism.

At first this seems to be a weak form of anti-terrorist policy. But there are quite a number of cases in which former “terrorists” became mainstream politicians later in life and several of them were even awarded the Nobel Peace Prize.^v

The anti-terrorism policy proposed here has some features in common with the policy often put forward for fighting terrorism by alleviating the causes (see Kirk 1983 for extensive references to the literature). It is to be expected that the confrontation with the liberal ideas existing in our universities will mellow their terrorist inclinations. The very least that this would achieve is that the (potential) terrorists gained access to new and radically different ideas, and no longer be limited to a situation in which they live within a closed circle of terrorists and ideas.

According to Hardin’s (2002) economic theory of knowledge, interaction between groups is likely to reduce extremist views. Hardin starts with the premise that a person’s knowledge depends on the costs and benefits of acquiring and then applying pieces of knowledge. Because of the high cost of attaining and verifying every bit of knowledge, people typically rely on sources of authority and the society in which they spend most of their lives (see also Hardin 1992). A person also has little incentive to acquire knowledge and beliefs that are at odds with the beliefs of the society he or she lives in. Extremist views are therefore more likely to flourish in isolated groups of like-minded people. This is a generally recognized fact in research on religious sects (see e.g. Knoke 1990). Moreover, extreme views serve as norms of exclusion (Hardin 2002).

Extremism, therefore, reinforces segregation and *vice versa*. Wintrobe (2002b) and Breton and Dalmazzone (2002) stress the role of political entrepreneurs who exploit and

magnify the differences between the isolated groups. Similarly, Glaeser (2002) argues that politicians supply hatred^{vi} if it complements their policies or in Glaeser's words, if "hatred makes a particular politician's policies more appealing" (4). He further argues that the demand for hatred falls when consumers start to interact with the targeted group. He explains the lower demand for hatred due to social interactions by referring to Becker (1957), who discusses the lowering effect of hatred on returns in social interaction.

Terrorism, as well as deterrence, can be seen in this context as an attempt to enhance segregation and thereby strengthen exclusiveness. Extending to terrorists an invitation to foreign countries will not only raise opportunity costs of terrorism but will also break the vicious circle of segregation and extremism. This may therefore be a promising strategy to lower the inclination of terrorists to participate in violent activities.

Analytically speaking, this reflects a change in preferences and could be depicted in the graphical model by a flatter indifference curve.

There is also abundant evidence from experimental research, which shows that communication between players (and even identification; see Frey and Bohnet 1999a, 1999b) increases cooperation. On the basis of his meta-analysis of social-dilemma experiments, Sally (1995) concludes that "the experimental evidence shows quite clearly that discussion has an extremely positive effect on subjects' willingness to cooperate". Sociological studies indicate that (residential) segregation is often largely responsible for repeated ethnic conflict (see Harris 1979 and Whyte 1986 for the case of Ireland, Diez Medrano 1994 for the Basque Country and Hasson 1996 for Israel).

Evaluation.

As has become clear, increasing the *opportunity* costs to terrorists represents a completely different approach than conventional anti-terrorist policy using deterrence. A conscious effort is made to break the organisational and psychological dependence of the members of terrorist organisations by offering them *more favourable* alternatives. Deterrence policy does the opposite: the costs of staying a terrorist are raised remain low.

A policy that opens up alternatives to terrorists is far from ideal. It has some important disadvantages. It is useful to discuss two often-raised objections:

Firstly, the strategy of offering valued alternatives to actual and prospective terrorists will not work. There can be various reasons for this. One is that the incentives offered are insufficient to affect terrorists. This may be especially true for highly intrinsically motivated or fanatical terrorists. In this case, the strategy, in order to be effective, would require excessive incentives and would entail considerable costs. The incentives are therefore likely to be ineffective in persuading the hard core of a terrorist organisation to participate in more legitimate activities. However, they may prove successful in restraining the *Umfeld*^{vii} of the terrorists from engaging in terrorist activities. Without the support of their *Umfeld*, the hard core of a terrorist organisation will at least only be able to undertake low scale terrorist activities.

Secondly, the “benevolence” strategy could create perverse incentives through which some individuals will be induced to engage in terrorism in order to receive future rewards for abandoning terrorist activities (see e.g. Shahin and Islam 1992; Krueger and Maleckova 2002). This argument applies to positive incentives in a wide range of policy areas, for example compensation payments in environmental affairs or positive

sanctions in the case of international cooperation (see e.g. Cortright and Lopez 1998). However, these cases show, that often the implementation of positive incentives more successfully promotes cooperation than deterrent threats do. For example, when focusing on horizontal nuclear proliferation, Bernauer and Ruloff (1999) demonstrate that positive incentives have the potential to produce significant behavioural changes for the short term and fostering more stable solutions to the problem in the long run.

There are important *advantages* to the strategy of offering alternatives to terrorists:

The whole interaction between terrorists and the government becomes characterised by a *positive sum game*. Both sides will benefit. The effort of the government is no longer directed towards destruction. Rather, the government makes an effort to raise the utility of those terrorists who choose to enter the programmes offered. In contrast, deterrence policy by necessity produces a worse situation for both sides. The terrorists are punished (incarcerated, killed, etc), while the government often has to raise large sums of money to finance its deterrence strategy.

Another major strength of the strategy is that it will *undermine the cohesiveness of the terrorist organisation*. An incentive to leave poses a strong threat to the organisation. The terrorist leaders will no longer know whom to trust because, after all, most persons can succumb to temptation. Efforts to counteract these temptations by prohibiting members from accepting the attractive offers (e.g. to spend a period of time at a research institute) will lead to conflicts between leaders and the rank and file. When good outside offers are available to members, the leaders tend to lose their influence and authority. The terrorist organisation's effectiveness is thereby reduced.

When considering the usefulness of the strategy, it is important to keep in mind that the deterrence strategy often does not work, and is counterproductive. Many examples

demonstrate that terrorist movements have survived despite a strong deterrence policy. In a comparative perspective, a strategy that offers alternatives can be regarded as superior.

VI. APPLICATION TO ENTERPRISES

Enterprises, as a rule, cannot use a deterrence strategy against terrorists, at least not directly. They can try to convince the respective governments to embark on it or they can try to finance private armed forces to fight terrorists. Both pursuits tend to be futile. Even if they were successful, this does not mean that the terrorist threat disappears as deterrence rarely works. Therefore, it is important for businesses to seriously consider alternative ways of dealing with terrorism.

The strategy of *decentralisation* is immediately applicable to business. Many enterprises are faced with immediate or at least potential terrorist threats. This applies in particular to firms located in developing countries where local terrorism exists (e.g. in South America, Africa, and Asia) but is also important for firms in developed countries. If the principal part of an enterprise, most importantly headquarters, is located in one prominent building, it offers an attractive target to terrorists. If an attack is successful current business is strongly disrupted, valuable documents and the content of computers are destroyed, and fear and uncertainty are spread among the employees. The ensuing costs tend to be out of proportion compared to the rather low cost of an actual attack or even of a threat of an attack. In many cases headquarters of large firms are landmark buildings, sometimes even “icons”. This makes them even more attractive targets to

terrorists, especially as one of their major ambitions is to receive media attention (Frey 1988, Frey and Rohner, forthcoming).

If the headquarters and other important parts of an enterprise are decentralised, the terrorists' destructive task is made much more difficult. They are no longer sure where they should attack, and even if they do, the damage caused is much lower than if the firm is centralised in one location. In several respects, firms already pursue a decentralisation strategy. In particular, they disperse the safety backups of the computer contents in a different location. In the case of the terrorist attack against the firms in the New York World Trade Centre Towers this strategy proved to be very beneficial.

The strategy of *offering peaceful alternatives* to actual and prospective terrorists is more difficult to employ. Businesses require careful procedures in order not to antagonise the other side. Thus, it would in most cases be a mistake to make direct monetary offers to terrorists for giving up their attack plans. This would be seen by terrorists as an attempt to "corrupt" them, and therefore make it impossible for them to accept. Moreover, direct monetary compensations invite further demands in the future. Nevertheless, it is not unheard of that firms have resorted to these means, especially when dealing with the Mafia. In most cases, more subtle ways to establish contact and to integrate terrorists and their "Umfeld" are more successful. One option could be that relatives (parents, brothers and sisters, and cousins), friends and acquaintances are hired by the threatened firm. This may well dissuade terrorists from attacking as an attack may cost the job or even the life of their relative.. In any case, such a job offer creates tensions between the "Umfeld" and terrorists if the terrorists forbid them to accept it. But how this strategy of offering valued alternatives is applied must be decided case by case.

VII. Conclusions

This paper argues that deterrence is not the only possibility for a country to counter terrorism. Two alternatives have been discussed; they are viable and do not have the grave disadvantages of deterrence policy. The first alternative to deterrence is to reduce terrorist attacks by *decentralising* political, economic and social activities and to therewith make them less attractive to terrorists. The *second* strategy raises the opportunity cost to terrorists by *offering them peaceful alternatives*. This strategy has both weaknesses and strengths. But when the strategy is compared to deterrence policy, its favourable features prevail.

Both strategies may also be applied to businesses faced by terrorist threats. The strategy of decentralization is directly applicable: a firm dispersed over many different locations is more immune to terrorist attacks than a firm whose headquarters and other crucial parts of the enterprise are concentrated in one place. The strategy of offering valued alternatives to terrorists and especially their “Umfeld” may be more difficult to employ but could also be viable.

REFERENCES

- Becker, G.S. (1957). *The Economics of Discrimination*. Chicago: University of Chicago Press.
- Bernauer, T. and Ruloff, D. (eds) (1999). *The Politics of Positive Incentives in Arms Control*. Columbia, S.C.: University of South Carolina Press.
- Breton, A. and Dalmazzone, S. (2002). Information Control, Loss of Autonomy, and the Emergence of Political Extremism. In: *Political Extremism and Rationality*, edited by A. Breton, G. Galeotti, P. Salmon and R. Wintrobe. New York: Cambridge University Press: 44-66.
- Brück, Tilman (ed.) (2007). *The Economic Analysis of Terrorism*. London and New York: Routledge.
- Carr, C. (2002). *The Lessons of Terror. A History of Warfare against Civilians: Why It Has Always Failed and Why It Will Fail Again*. New York: Random House.
- Cauley, Jon and Im, E.I. (1988). Intervention Policy Analysis of Skyjackings and Other Terrorist Incidents. *American Economic Review* (2): 27-31.
- Chalk, P. (1995). The Liberal Democratic Response to Terrorism. *Terrorism and Political Violence* 7(4): 10-44.
- Chang, N. (2002). *Silencing Political Dissent. How Post-September 11 Anti-Terrorism Measures Threaten Our Civil Liberties*. New York, NY: Seven Stories Press.
- Cole, D. and Dempsey J.X. (2002). *Terrorism and the Constitution. Sacrificing Civil Liberties in the Name of National Security*. New York: The New Press.
- Cortright, D. and Lopez, G.A. (1998). Carrots, Sticks and Cooperation: Economic Tools of Statecraft. In: *Cases and Strategies for Preventive Action*, edited by B.R. Rubin. New York: The Century Foundation Press.
- Diez Medrano, J. (1994). The Effects of Ethnic Segregation and Ethnic Competition on Political Mobilization in the Basque Country, 1988. *American Sociological Review* 59(6): 873-889.
- Enders, W. and Sandler, T. (2006). *The Political Economy of Terrorism*. Cambridge: Cambridge University Press.
- Frey, B.S. (1988). Fighting Political Terrorism by Refusing Recognition. *Journal of Public Policy* 7: 179-188.
- Frey, B.S. (2004). *Dealing with Terrorism - Stick or Carrot?* Cheltenham, UK and Northampton, MA: Edward Elgar.

- Frey, B.S. and Bohnet, I. (1999a). Social Distance and Other-Regarding Behavior in Dictator Games: Comment. *The American Economic Review* 89(March): 335-339.
- Frey, B.S. and Bohnet, I. (1999b). The Sound of Silence in Prisoner's Dilemma and Dictator Games. *Journal of Economic Behaviour and Organization* 38(1999): 43-57.
- Frey, B.S. and Luechinger, S. (2003). How to Fight Terrorism: Alternatives to Deterrence. *Defence and Peace Economics* 14(4): 237-249.
- Frey, B.S. and Luechinger, S. (2004). Decentralisation as a Disincentive to Terror. *European Journal of Political Economy* 20(2): 509-515.
- Frey, B.S. , Luechinger, S. and Stutzer, A. (2004). Valuing Public Goods: The Life Satisfaction Approach. IEW Working Paper No. 184, University of Zurich.
- Frey, B.S., Luechinger, S. and Stutzer, A. (2007). Calculating Tragedy: Assessing the Costs of Terrorism. *Journal of Economic Surveys* 21(1): 1-24.
- Frey, B. S. and, Rohner, D. (2007). Protecting Cultural Monuments against Terrorism. *Defence and Peace Economics* 18(3): 245-252.
- Frey, B. S. and Rohner, D. (2007). Blood and Ink! The Common Interest-Game Between Terrorists and the Media. Forthcoming in *Public Choice*.
- Glaeser, E.L. (2002). The Political Economy of Hatred. NBER Working Paper No. 9171, Cambridge, MA: National Bureau of Economic Research.
- Glaeser, E.L. and Shapiro, J.M. (2001). Cities and Warfare: The Impact of Terrorism on Urban Form. Research Paper 1942, Harvard Institute of Economic.
- Goodin, R.E. (2006). *What's Wrong with Terrorism?* Cambridge, UK: Polity Press.
- Hardin, R. (1992). Commonsense at the Foundations. In: *Essays on Henry Sidgwick*, edited by B. Schultz. Cambridge: Cambridge University Press: 143-160.
- Hardin, R. (2002). The Crippled Epistemology of Extremism. In: *Political Extremism and Rationality*, edited by A. Breton, G. Galeotti, P. Salmon and R. Wintrobe. New York: Cambridge University Press: 3-22.
- Harmon, C.C. (2000). *Terrorism Today*. London: Frank Cass Publishers.
- Harris, R. (1979). Community Relationships in Northern and Southern Ireland: A Comparison and a Paradox. *Sociological Review* 27: 41-53.
- Hasson, S. (1996) Local Politics and Split Citizenship in Jerusalem. *International Journal of Urban and Regional Research* 20: 116-133.
- Kirk, R.M. (1983). Political Terrorism and the Size of Government: A Positive Analysis of Violent Political Activity. *Public Choice* 40: 41-52.

- Knoke, D. (1990). *Political Networks: The Structural Perspective*. Cambridge: Cambridge University Press.
- Krueger, A. and Maleckova J. (2002). Education, Poverty, Political Violence and Terrorism. Working Paper No. 9074, NBER.
- Kushner, H.W. (ed.) (1998). *The Future of Terrorism: Violence in the New Millennium*. London: SAGE Publications.
- Rathbone, A. and Rowley, C.K. (2002). Terrorism. *Public Choice* 111(1-2): 9-18.
- Sally, D. (1995). Conversation and Cooperation in Social Dilemmas. A Meta-Analysis of Experiments from 1958 to 1992. *Rationality and Society* 7(1), 58-92.
- Shahin, W.N. and Islam, M.Q. (1992). Combating Political Hostage-Taking: An Alternative Approach. *Defence Economics* 3(4): 321-327.
- Viscusi, W.K. and Zeckhauser, R.J. (2005). Recollection Bias and the Combat of Terrorism. *The Journal of Legal Studies* 34:27-55.
- Whyte, J.H. (1986). How Is the Boundary Maintained between the Two Communities in Northern Ireland? *Ethnic and Racial Studies* 9(2): 219-223.
- Wilkinson, P. (2000). *Terrorism Versus Democracy: The Liberal State Response*. London: Frank Cass.
- Wintrobe, R. (2002a). Can Suicide Bombers be Rational? Paper prepared for the workshop on "The Economic Consequences of Global Terrorism", organised by DIW Berlin, June 14 - 15, 2002.
- Wintrobe, R. (2002b). Leadership and Passion in Extremist Politics. In *Political Extremism and Rationality*, edited by A. Breton, G. Galeotti, P. Salmon and R. Wintrobe. New York: Cambridge University Press: 23-43.

FOOTNOTES

ⁱ These works also provide extensive further references to the literature. Major general contributions to the economics of terrorism are e.g. Enders and Sanders (2006) and Brück (2007).

ⁱⁱ A survey on measuring the effects of terrorism is provided in Frey, Luechinger and Stutzer (2004, 2007).

ⁱⁱⁱ Investigating the impact of terrorism on urbanisation, Glaeser and Shapiro (2001) refer to another aspect of decentralisation that may be important in the context of terrorism, namely that high population densities make urban centres ideal targets.

^{iv} Persons with higher education may also have higher income expectations. When they are not able to find a job, or only a poorly paid one, they are very disappointed. This may make terrorism more attractive. Investigating the relationship between income, education and participation in terrorist activities in the Middle East, Krueger and Maleckova (2002) speculate that the selection of terrorists by terrorist organisations from the pool of potential applicants may lead to a positive relationship between education and participation.

^v Examples are Menachem Begin, one of the principal leaders of *Irgun Zvai Leumi* (National Military Organisation), later Prime Minister of Israel and 1978 Nobel Peace Prize laureate, Nelson Mandela, founder of the *Umkhonto we Sizwe* (Spear of the Nation), 1993 Nobel Peace Prize laureate and president of South Africa, and Yasser Arafat, founding member of the *Al Fatah* (Victory), 1994 Nobel Peace Prize laureate and president of the Palestinian council governing the West Bank and Gaza Strip, to name only the most prominent ones.

^{vi} Glaeser defines hatred as „the willingness to sacrifice personally to harm others“ (2002, 2) and refers in his analysis explicitly to terrorism.

^{vii} Due to the lack of an appropriate English word, we use the German word *Umfeld* (literally translated as environment or periphery), which means the rank and file, as well as sympathisers and supporters.