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June 2009 (Revised October 2009)

Economics of Security Working Paper 13

## Economics of Security Working Paper Series

Correct citation: Bozzoli, C. and Müller, C. (2009). "Perceptions and Attitudes to a Terrorist Shock: Evidence from the UK". Economics of Security Working Paper 13, Berlin: Economics of Security.

First published in 2009

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ISSN: 1868-0488

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# Perceptions and Attitudes to a Terrorist Shock: Evidence from the UK

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*October 21, 2009*

**Keywords:** terrorism, civil liberties, risk perception

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# **Perceptions and Attitudes to a Terrorist Shock: Evidence from the UK**

## *Abstract*

The emergence of transnational terrorism in Western countries has raised the debate about security measures, some of which could constrain civil liberties. This is the first paper that uses terrorist attacks (on 7<sup>th</sup> July, 2005 in London) as an exogenous source of variation to study the dynamics of risk perceptions and its impact on the readiness to trade off civil liberties for enhanced security. In this framework we show that the willingness to trade off security for liberties is dramatically affected by changes in individual risk assessments brought on after a terrorist attack, and document the extent of its persistence.

## 1. Introduction

Terrorist attacks in the Western world (9/11, Madrid 2004, London 2005) have raised much discussion and concern about appropriate anti-terrorism measures, especially those that could affect civil liberties such as (electronic) surveillance and the rights of accused and suspicious people. Following the attacks of July 7<sup>th</sup> 2005 in London, the European Union and its member states have debated policies to fight international terrorism that caused much controversy about the trade off between civil liberties and human rights standard.<sup>1</sup> Support for civil liberties can be seen as a construct involving value trade-offs where a balance between freedom and control is to be found. Finding the “right” balance between security measures that need to be taken to combat terrorism and respecting human rights and freedom thus could lead to a new “set” of civil liberties granted to citizens after the attack.<sup>2</sup> For the general population – probably more than for experts – the *perception* of risk plays a dominant role when decisions concern situations surrounded by extreme uncertainty. These perceptions also play an important role in the preparedness to deal with the threat of terrorism and the readiness to trade-off civil liberties for security.<sup>3</sup>

Previous studies have identified that education, socio-economic background, political and social participation, and party identification play central roles in

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<sup>1</sup> T. Balzacq and S. Carrera, ‘The EU’s Fight against International Terrorism - Security Problems, Insecure Solutions’, CEPS Policy Brief No. 80 (2005).

<sup>2</sup> Darren W. Davis and Brian D. Silver, ‘Civil Liberties vs. Security: Public Opinion in the Context of the Terrorist Attacks on America’, *American Journal of Political Science*, 48 (2004), 28–46; Walter Enders and Todd Sandler, *The Political Economy of Terrorism*, Cambridge: Cambridge University Press, 2006; W Kip Viscusi and Richard Zeckhauser, ‘Sacrificing Civil Liberties to Reduce Terrorism Risks’, *Journal of Risk and Uncertainty*, 26(2003), 99-120.

<sup>3</sup> Paul Slovic and Elke U. Weber, ‘Perception of Risk Posed by Extreme Events’, Paper prepared for discussion at the conference ‘Risk Management strategies in an Uncertain World’, Palisades, New York, April 12-13, 2002

explaining tolerance and support for civil liberties.<sup>4</sup> However, the demand for civil liberties can also be affected by pressure put on societies through threats and external shocks. For example, it has been shown that constant pressure from China and perceived threats from the Taiwan independence movement significantly impact on citizens' level of tolerance.<sup>5</sup> Also, on the analysis of the effect of trust in the government and the sense of threat on support for civil liberties, it was found that U.S. Americans are generally favour of protecting liberties over security. Nevertheless, when the trade-off is being framed as a need to be safe in specific associations with terrorism, people do seem to be prepared to accept some cuts in their civil liberties.<sup>6</sup>

Factors that determine peoples' proclivity for security measures are perceived threat and trust level; attitudinal measures such as interpersonal trust and national pride; and individual characteristics (e.g. ethnicity, age and education). Similarly, perceived threat consistently results in higher support for domestic anti-terrorism policies such as national identification cards or monitoring of telephones and e-mails. Higher perceived risks also lead to more concerns about failure to enact strong measures than to concerns about restricting civil liberties.<sup>7</sup>

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<sup>4</sup> e.g. W. B. Devall, 'Support for Civil Liberties among English-Speaking Canadian University Students', *Canadian Journal of Political Science / Revue canadienne de science politique*, 3 (1970), 433-449; J. L. Guth and J. C. Green, 'An Ideology of Rights: Support for Civil Liberties among Political Activists', *Political Behavior*, 13 (1991), 321-344.

<sup>5</sup> T. Y. Wang and G. A. Chang, 'External Threats and Political Tolerance in Taiwan', *Political Research Quarterly*, 59 (2006), 377-388.

<sup>6</sup> Davis and Silver, 'Civil Liberties vs. Security: Public Opinion in the Context of the Terrorist Attacks on America', *American Journal of Political Science*, 48 (2004), 28-46.

<sup>7</sup> L. Huddy, S. Feldman, C. Taber and G. Lahav, 'Threat, Anxiety, and Support of Antiterrorism Policies', *American Journal of Political Science*, 49 (2005), 593-608.

The theoretical literature that addresses policy prescriptions to terrorism is rich and builds on different model setups. The conceptual framework for our analysis echoes on the articles who have modelled the trade-off between security and civil liberties<sup>8</sup>. They show how an increased risk (perception) leads to a new equilibrium with less civil liberties as the expected damages evoked by terrorist attacks increase. They also show that different groups display different levels of willingness to trade civil liberties for more security. Despite the attention that these models have raised, there is little empirical evidence about the dynamics of risk perceptions and attitudes surrounding a terrorist attack. Post-attack dynamics on people's willingness to trade off civil liberties for personal security have been explored by using two waves of a US-based survey implemented after 9/11.<sup>9</sup> While it has been found that the support for civil liberties did not change significantly between both post-attack surveys, it is not clear if those attitudes change right after the attack occurred. With the data available to our analysis, we can test that.

In this study, we use the terrorist attacks in on July 7<sup>th</sup> 2005 in London to analyze the dynamics of risk perceptions (in terms of perceived likelihood of a future attack in the near future, and the degree of perceived personal threat), the readiness to trade off civil liberties for enhanced security, and the demand for additional funding for security issues. Our analysis builds on previous studies that have focused on post-attack attitudes towards security enhancing measures, but goes one step further by using unique survey data that includes both pre- and post- attack observations. Thus, our paper adds to the existing literature by studying how public opinion *reacts* to the occurrence of a terrorist attack.

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<sup>8</sup> Viscusi and Zeckhauser (2003), and Enders and Sandler (2006)

<sup>9</sup> Davis & Silver (2004)

In particular, we pay attention to shifts in public support for civil liberties vs. security, risk perceptions, and the approval of additional funding for security expenditures. We study if such shifts in public opinion existed, their magnitude and persistence, and to what extent this reaction differs across groups. Lastly, we also exploit the exogenous occurrence of an attack to study to what extent risk perceptions affect changes in the proclivity for security measures. Since risk perceptions may be driven by unobserved individual characteristics, we set up a two step model in which we use the attacks as an instrumental variable to estimate the effect of risk assessments on the support for civil liberties.

Using the British Social Attitudes survey<sup>10</sup>, collected between June and November 2005, we show that the perceived likelihood and concern about a future terrorist attack increases significantly. Furthermore, our results show that these perceptions do not revert to pre-attack levels (at least not during the time span of the survey). However, we find that the willingness to trade off civil liberties for security and the support of additional public expenditures has a more nuanced pattern. Within our framework, we show that the willingness to trade off security for liberties is driven similarly by perceived threats and likelihoods. More importantly, our results show that the post-attack shift in public support for security policies in detriment of civil liberties is sizable: pre-post changes in the support for civil liberties are even larger than prevailing pre-attack differences between a politically conservative and a non-conservative person.

The paper proceeds as follows: In section 2, we describe the data and pre-post- attack dynamics in attitudes and perceptions. Section 3 we exploit the before-

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<sup>10</sup> National Centre for Social Research, British Social Attitudes Survey, 2005 [computer file]. 2nd Edition. Colchester, Essex: UK Data Archive [distributor], October 2007. SN: 5618.



after dimension of the dataset (pre-post attack) to study how changes in risk perceptions shift the balance between civil liberties and security. Section 4 discusses the findings and concludes.

## **2. Data and post-attack dynamics**

### *Data and Measurement*

For our analysis, we use the British Social Attitudes Survey 2005 carried out by the National Centre for Social Research (NatCen) in Great Britain. This survey is being conducted every year since 1983, asking respondents about their attitudes and opinions on a wide range of issues. The data relevant for our purpose has been collected between June and November 2005, and thus provides information on the variables of interest just before and after the London attacks on July 7<sup>th</sup> 2005.

A total of 1,052 respondents have been asked about their attitude towards eight policy measures that could be implemented to tackle the threat of terrorism – such as freedom of speech, compulsory identity cards, rights for suspects of being involved with terrorism activities and people charged with a terrorist-related crime, surveillance of suspects, and the torture of suspects to get information.<sup>11</sup> On a four-point scale, respondents could express either their definite or probable agreement (as a proposed measure is “a price worth paying to reduce the terrorist threat”) or their definite or probable opposition to proposed policies (as “it reduces people’s freedom too much”). We condense these eight different measures that define choices between civil liberties and security into a single index, ranging from 1 to 4.<sup>12</sup> This is done by taking a simple average among all answers for each individual, which were each

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<sup>11</sup> Please find the question wording and possible answers relevant for this study in the Appendix.

<sup>12</sup> The internal consistency of our index is confirmed by a Cronbach’s Alpha of 0.74.

coded on a scale from 1 to 4.<sup>13</sup> The higher the index is, the higher the willingness to trade-off liberties for more security. We will subsequently refer to this as the willingness to trade-off index. Figure 1 gives information about the composition and evolution of the willingness to trade-off index. Averages before and after the attack for each of these components are displayed, with all figures being higher after the attack. That is, for every type of civil liberty considered, citizens were more likely to trade-off in favour of more security after the attack than before that event.<sup>14</sup>

[Figure 1 about here]

We use two indicators as proxies for the perceived risk of a terrorist attack. First, we construct an index based on respondent's opinion about how *likely* it is that a terrorist attack would happen in the next 2 years. We take their answers as a proxy for the perceptions of *likelihood* of a future attack, which is based on a scale from 1 to 5 (higher values indicated higher perceived likelihood). Second, we compute an index based on the individual's opinion about how the *threat* of a terrorist attack in Britain *concerns* them. We take those answers as a proxy for the perceived threat, which is also tabulated in a scale from 1 to 5 (lowest to highest degree of concern). From now on, we will refer to these two indexes as perceived likelihood and perceived threat indexes.

Figure 2 displays a non-parametric estimation (lowess regression) of the evolution of the willingness to trade off civil liberties for security, and both perceived risk indexes between the months of June and November 2005. The figure shows the sharp increase in the perceived likelihood of a terrorist event in the near

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<sup>13</sup> A very small fraction of respondents chose not to rank some of the items. In order to accommodate for this without ignoring all other valid responses from the same participant (which could lead to selection bias), we use indicators that a particular item was not rated by the respondent.

<sup>14</sup> Statistically significant were changes in categories 1 to 4, 6 and 8.

future and in the perceived threat level, both of which do not revert to pre-attack levels during the length of the survey. It also displays the dynamics of the willingness to sacrifice civil liberties in favour of more security induced by the terrorist attack and during the following months, showing a more nuanced pattern.

[Figure 2 about here]

### *Post-attack dynamics*

Figures 3 to 6 show the change in four indexes describing the reaction of the public to the 7/7 events. In order to understand post 7/7 dynamics for each of these indicators, we created time since attack indicators depending on the time elapsed since July 7th: Days 0-1 for July 7th and 8th, Days 2-6 for July 9th till July 13th, week 1 for days 7-13 since the attack, etc. Notice that the attempted attacks (July 21<sup>st</sup>) occurs in week 2. We first normalized each index so that the newly transformed index has a pre-attack mean of 0 and a pre-attack standard deviation of 1. This allows comparability across post-attack dynamics between indexes. We then ran regressions of the four indexes against a constant, time since attack indicators and individual characteristics: age (age 18-35, age 36-60, age above 60), gender, person having first degree or postgraduate, marital status and religion (Christian, religious but not Christian, no religion).

Figure 3 shows that the change in the perceived likelihood of an attack increased immediately (pre-attack levels are, by construction, equal to 0 and thus not displayed) and remained significantly higher than baseline values throughout the duration of the survey (the 95% confidence interval falls in the non-negative region). There are no significant fluctuations after the initial adjustment: in particular, no shifts are apparent in week 2, where the attempted attacks were thwarted. This finding suggests that the public did not revise their risk estimates upwardly in

response to the attempt: the fact that the attempt was not materialized may have been interpreted as an increased effectiveness to prevent attacks from occurring, and may have counteracted the ominous news of an attempt 2 weeks after a terrorist attack had occurred (on July 7th).

How do these dynamics compare to changes in perceived threats? The profile of changes in the perceived threat index (Figure 4) after the attack is very similar to the patterns shown in perceived likelihood index, although its shift is less pronounced, about 0.6 standard units (on average) throughout the post-attack period.

One of the central discussions after the occurrence of 9/11 was whether individuals would trade off civil liberties for more security. Because the survey was conducted before and after the 7/7 bombings occurred, we can evaluate to what extent the occurrence of an attack reduced the public support for civil liberties. More importantly, we can document the timing of a potential shift against civil liberties and its magnitude. Interestingly, as Figure 5 shows, there is a delay between the attacks and the change of support in civil liberties, even when expectations about a future attack and the concern it created changed almost overnight. As Figure 5 shows, the change in the willingness to sacrifice civil liberties became significant only one week after the attack occurred, that is, it did not materialize in the first seven days. Notice, however, that this shift occurred before the attempts of 21/7. The patterns shown in Figure 5 do not suggest any other relevant fluctuations thereafter.

With the data at hand, one can only speculate why the support for civil liberties changed with a delay whereas expectations changed immediately. It is possible that shifts in public opinion about which policies to implement takes time to

build because it requires thinking about the benefits and costs of different policies, whereas expectations may change immediately because the news of the attack caught the attention of the public almost instantly.

So far, none of the three indicators we have considered returned to baseline levels, at least not during the time the data was being collected. As an extension, we have used responses from a different section of the survey asking the public about priorities for additional government spending. In particular, one of the questions inquired them which item in a list of options would be the highest priority for extra spending, and the second-to highest option. The list included 11 choices, amongst them “Defence” and “Police and Prisons”, which –at least in part- would account for the costs of increasing internal security. From these responses, we created an index for Security expenditures as budget priority, indicating whether the public included none, one or two items from “Defence” and “Police and Prisons” in their list of top-two priorities for additional expenditures. This index can thus take a value of 0, 1, 2 for a given individual.

Quite interestingly, as figure 6 shows, immediately after the attack occurred, expenditures related to security became top priorities for additional public funds, but that shift did not last long. In the days 2 to 6, the index of Security as Priority returned to baseline levels, only to become significant briefly on week 2 (when the attempts occurred). It is possible, but remains a speculation, that the public may have incorporated an increase in expenditures after the attack occurred and thus expressed no need for further increases from week 3 onwards.

*Did different groups react differently?*

These findings lead us to dig deeper into the question whether different groups reacted differently to the attack. To do so, we created an indicator that the observation was collected on or after July 7<sup>th</sup>, together with interactions with indicators classifying individuals in different groups according to age, religion education, gender, marital status and ideological orientation. We then regress our four indexes (perceived likelihood, perceived threat, willingness trade-off civil liberties for security, and security expenditures as budget priority) on these interactions and indicators for age, religion education, gender, marital status and ideological orientation. The sign and significance of the coefficients, as displayed in Table 1, indicate whether a certain group had, on average, a higher, lower or equal index when compared to the same group at baseline (pre-attack). We also report a test that indicates whether the reaction of the groups considered in each model is statistically indistinguishable from one another.

[Table 1 about here]

We find that the effect of the London attacks on 7/7 on the perceived likelihood, perceived threat and willingness to trade-off indexes has been significant and universal across the entire population of respondents. The only grouping for which the reaction was heterogeneous is religion. Though individuals of all religious groups (including non-religious) revised their expectations of a future attack upwards, non-Christian religious groups revised their expectations with more intensity.

As seen in Table 1, column 4, the effect of the attacks on the demand for higher security expenditures is rather low. This is not surprising if we recall the findings shown in Figure 6, where the pressure for additional spending to security policies was only transient after the attack, and only noticeable in the first 2 days

after the attack and in the week that the attempt occurred. These isolated reactions at specific times are likely to be diluted when comparing observations before and after. We do not find remarkable differences in the reaction of different groups.

### **3. Using the attack to measure the role of risk perceptions on the support for civil liberties**

#### *Methodology*

So far, we have analyzed our four indexes in a temporal and descriptive perspective, identifying to what extent the population reacted to the events on July 7<sup>th</sup>, whether this response was persistent or short-lived, and whether the change from baseline levels was more prominent in specific groups. There is another type of analysis that is possible and worth exploring with the data at hand. One could use the events in London as an exogenous shift in expectations (likelihood of an attack, perceived threat) to interpret how these expectations drive the willingness to trade off civil liberties for security. We anticipate that it is equally interesting to explore whether a shift in expectations creates a shift in the willingness to trade-off civil liberties (which is, a priori, very likely), but also the magnitude such change. The support of civil liberties may be determined by individual characteristics, but this exercise illustrates to what extent this support is also driven by expectations and feelings of threat, which could be volatile in the aftermath of a terrorist attack.

Normally, testing the link between expectations (perceived likelihood) and feelings of threat and the support for civil liberties is difficult to test in a cross-section of individuals, because of unobservable factors, such as individual preferences for civil liberty (“tastes”) or differences in risk perceptions may also affect our variables of estimates. These unobservables may drive –to some extent– the correlations that one observes in a typical cross section, making inference on the determinants of the trade-off between security vs. civil liberties hard to interpret.

OLS or even more sophisticated regression models that do not account for unobserved heterogeneity are likely to yield biased estimates of the relation between security choices and risk perceptions. One solution to this problem is to use an instrumental variable that affects security choices (the variable to be explained) only through its effect on the perceived likelihood of an attack (the explanatory variable). A terrorist attack, by altering the perceptions about the likelihood of an event, could be used as such an instrument, since it is plausible that it alters the perceptions about the likelihood of an attack and that only through this channel it induces a change in the balance between civil liberties and security.

There are two characteristics in the data that guide our estimation strategy. On the one hand, we want to instrument for the perceptions about risks when explaining the choice between civil liberties and security measures: this suggests a two step modelling approach in which, in the “first stage”, risk perceptions are modelled, and in which, in the “second stage” the structural-form relation between support for security measures (security index) and risk perceptions is estimated. On the other hand, our variable for risk perceptions is coded in a scale from 1 to 5, so a natural option for the first stage is an ordered-choice type of model. Both these preferences are satisfied by a multi-equation, recursive mixed process model in which the security index ( $S_i$ ) is modeled as a linear function of predetermined variables ( $X_i$ ) and the discrete choice  $Y_i$  representing the risk assessment of individual  $i$ , plus an idiosyncratic error term ( $\varepsilon_{i1}$ ) that is

$$S_i = \beta X_i + \gamma Y_i + \varepsilon_{i1} \quad (1)$$

The risk assessment is modeled as typical ordered probit where the latent variable,  $Y_i^*$ , is parametrized as

$$Y_i^* = \phi Z_i + \varepsilon_{i2} \quad (2)$$



where  $Z_i$  is a vector including predetermined variables and excluded instruments. In our case, we instrument risk assessments with an indicator that the observation is collected after the terrorist attack. As usual, the formulation that  $Y_i = j$  if  $\gamma_j \leq Y_i^* \leq \gamma_{j+1}$  (for “cut-off points”  $\gamma$  to be estimated, subject to normalization to ensure identification) and a multivariate normal distribution for both errors closes the empirical model.

Research shows that risk assessments are driven by different factors such as gender, race, education, socio-economic background, political worldviews and trust.<sup>15</sup> In general, women and people with lower levels of education perceive greater risks associated with terrorism.<sup>16</sup> Individual characteristics such as religious background, social class, education and political identification have been found to determine the taste for civil liberties.<sup>17</sup>

Consequently, we consider the following additional controls: age, gender, an indicator of marital status (married or not), population density in the sampling cluster, number of household members, an indicator that no child lives in the household, religious affiliation (being Christian, being religious but not Christian) and

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<sup>15</sup> e.g. P. Slovic, ‘Trust, Emotion, Sex, Politics, and Science: Surveying the Risk-Assessment Battlefield’, *Risk Analysis*, 19 (1999), 689-701; J. Flynn, Paul Slovic and C. K. Mertz, ‘Gender, Race, and Perception of Environmental Health Risks’, *Risk Analysis*, 14 (1994) 1101-1108.

<sup>16</sup> B. Fischhoff, R. M. Gonzalez, D. A. Small and J. S. Lerner, ‘Judged Terror Risk and Proximity to the World Trade Center’, *Journal of Risk and Uncertainty*, 26 (2003), 137-151; J. S. Lerner, R. M. Gonzalez, D. A. Small and Baruch Fischhoff, ‘Effects of Fear and Anger on perceived Risks of Terrorism: A national field Experiment’, *Psychological Science*, 14 (2003), 144-150.

<sup>17</sup> e.g. Wang and Chang, ‘External Threats and Political Tolerance in Taiwan’; Devall, ‘Support for Civil Liberties among English-Speaking Canadian University Students’; Guth and Green, ‘An Ideology of Rights: Support for Civil Liberties among Political Activists’.

educational achievements (an indicator that the person has either a completed undergraduate or postgraduate degree).<sup>18</sup>

In light of results depicted in Figure 2, one may want to allow for a more flexible specification that includes the time elapsed since the attack. The indicators of risk perceptions show an immediate jump after the attack, while the average willingness to trade-off shows a smoother transition pattern and a gradual downward trend after hitting a maximum in early August. This suggests a “wedge” between perceptions and willingness to trade-off which should be taken into account which we allow for by including a time variable “days since”.

### *Results*

Table 2 and 3 display the results obtained when jointly estimating the effect of the perceived risk on the willingness to trade civil liberties for security – equation (1), the so-called “second stage” equation; and the effect of the attacks on July 7<sup>th</sup>, 2005 on the perceived risk indicators, that is (2) or “first stage” equation.

Table 2 shows the link between the two indicators for risk perceptions (the perceived likelihood and the perceived threat) and the willingness to trade-off, controlling for sociodemographic indicators. Both indicators for the perceived risk have a significant influence on the willingness to trade-off. Because it is plausible that post-attack fluctuations may occur, we include a time dimension of days elapsed since 7/7 and its squared value ( $\text{days since } 7/7^2$ ). Other than the attempted attacks on July 21<sup>st</sup>, 2005, we believe that other factors such as public policy discussions and media reports following the attacks could explain those fluctuations. Unfortunately, we are not able to clearly identify dynamics due to the *attempted* attacks because the

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<sup>18</sup> Indicators of household income were also included, but remained statistically non-significant, perhaps because of additional controls that capture socioeconomic status.

number of observations from the immediately preceding and subsequent days is too limited to support sound statistical inference.

[Table 2 about here]

Table 3 displays the first stage regression results for likelihood and threat perceptions as a function of the above mentioned sociodemographic characteristics and different time indicators, signalling that the observation comes before (after) the attack. We find that both the perceived likelihood and the perceived threat are significantly affected by the attacks. There is a significant slight non-linear decline in the perceived threat and likelihood, consistent with findings of studies for the U.S.<sup>19</sup> Our calculations based on the regression estimates show that 40 percent of the change in willingness to trade off liberties for security after the attacks can be explained by the effect of the attack through changed risk perceptions.

[Table 3 about here]

Both the perceived likelihood and the perceived threat are significantly determined by education and income status. This suggests that people of higher economic status might feel less vulnerable, and that risks are estimated differently depending on the level of education.<sup>20</sup> The willingness to trade-off is consistently affected by various characteristics – independent of whether we control for the perceived threat or likelihood of a terrorist event. As seen in Table 2, opposed to absence of children in a respondent’s household and his educational level (which reduced the willingness to trade off), age, income status and conservative ideology have a positive effect on the willingness to sacrifice civil liberties for more security.

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<sup>19</sup> e.g. by Huddy et al., ‘Threat, Anxiety, and Support of Antiterrorism Policies’.

<sup>20</sup> This point has already been made by Elke U. Weber, ‘Origins and Functions of Perceptions of Risk’ (paper presented at NCI Workshop on ‘Conceptualizing and Measuring Risk Perceptions’, Washington, DC, February 13-14, 2003).

Also, people of Christian religion display a higher willingness, having already shown a higher perceived likelihood and threat level.

#### **4. Discussion**

This is the first paper using pre and post attack data to clearly identify the implications of a “shock” on risk perceptions, on the balance between security and civil liberties, and on the support for further public budgeting in security-enhancing policies. We find that risk perceptions, measured as perceived likelihood of an attack in the future and concern over terrorism increased after the attack. The change in perceptions correlates to a certain extent with changes in the willingness to trade-off civil liberties for security, although this shift only manifests a week after the attack occurs. All these changes in public opinion may not be surprising, but its persistence and magnitude are. Our results show that the post-attack shift in public support for security policies in detriment of civil liberties is sizable: pre-post changes in the support for civil liberties are even larger than prevailing pre-attack differences between a politically conservative and a non-conservative person. However, the impact of the attacks on the support for additional funding in security policies is weak and limited to the first days after the attack, and to the week when the attempted attacks occurred.

We exploit the shift in perceptions brought on by the attacks to understand to what extent changes in perceptions may affect the support for civil liberties. This exercise illustrates to what extent this support is also driven by expectations and feelings of threat, which could be volatile in the aftermath of a terrorist attack. In fact, the average change in risk assessments in the population brought on by the 7/7 attacks sparked a change in the proclivity to security policies (and in detriment of civil liberties) of roughly the same order of magnitude than the difference in

proclivity to security policies of a conservative vs. a non-conservative person. This dramatic shift in attitudes following a terrorist attack has not been documented in previous research.

There are important differences in the evolution of risk perceptions and the proclivity for security policies and public funding for them after the attack occurred. Put differently, more support for security policies does not necessarily position security expenditures at the top of budget priorities. This divergence brings important questions: Why is the support for more funding in security policies only a transitory phenomenon when risk assessments experience a persistent change after the attack? Why does the support for civil liberties take time to adjust to a lower level and why does this shift become weaker (although still remains significant) over time? We can offer different hypotheses, which would require more data in order to be tested: i) evidence that the government is handling a post-attack situation effectively (by identifying potential offenders) restores the balance in favour of civil liberties (and security expenditures become less of a priority) even when the threat is still deemed high, or ii) even when the risk is high, individuals “learn” (after all, the attack is an unusual event) that the “price to pay” in terms of civil liberties was perhaps too high, and this gradually tips the balance back in favour of liberties, although such changes are gradual and slightly perceptible in a survey window of a few months. What is the role of news in the formation of public opinions? Our study suggests that fluctuations in the debate over civil liberties and on additional funding for security-enhancing policies may be related to events occurring after the attack. There is evidence linking time spent viewing TV coverage of attacks (9/11) and its content with signs of distress<sup>21</sup>. Government management of expectations, minimizing worrying and fear while enhancing public preparedness and vigilance may be important to

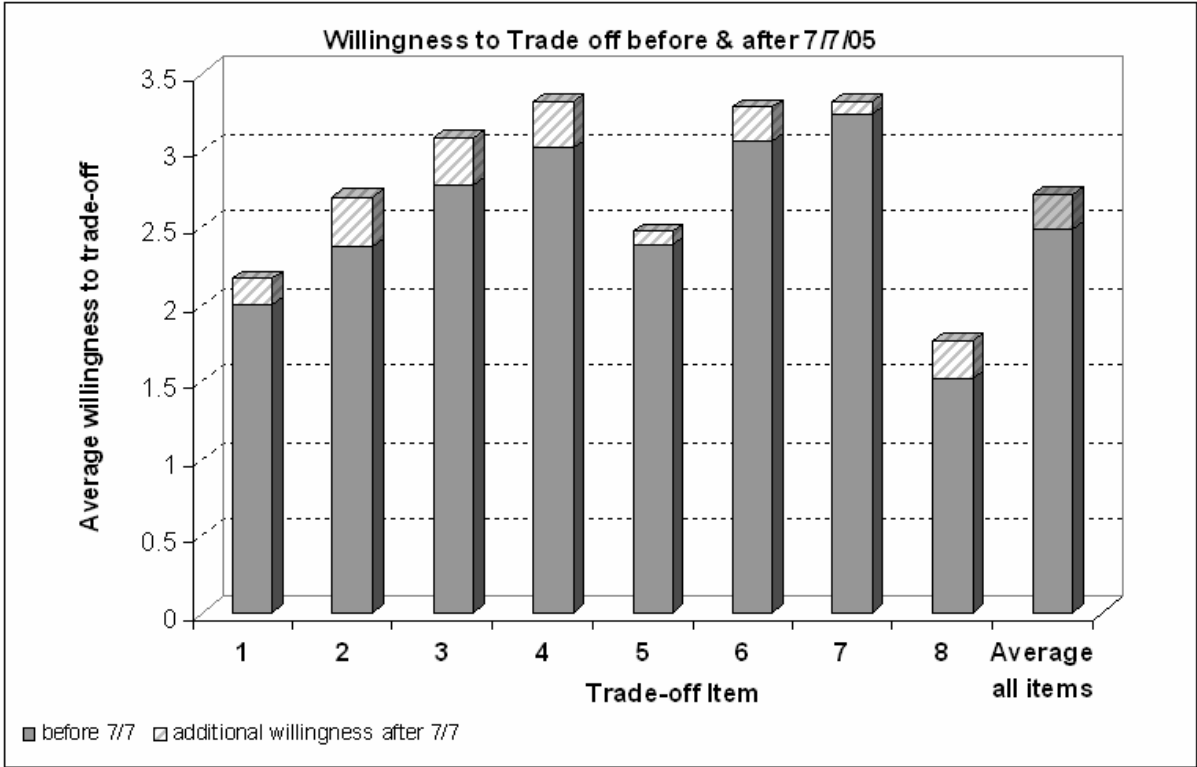
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<sup>21</sup> Schlenger et. al (2002). ‘Psychological Reactions to Terrorist Attacks: Findings from the National Study of Americans’ Reactions to September 11’, *Journal of the American Medical Association*, 288(5):581-588.

minimize welfare losses in the post-attack period. However, one can only speculate about policy prescriptions: without more information it is not possible to check whether the public “overreacted” to the news. A case study combining this survey data with information about news flows may help in this direction.

The implications for the study of the interrelationships between economics and security issues are twofold. First, it is conceivable that changes in individual attitudes affect the demand for security goods (even if they may be conceived as “public goods”) and may thus have a correlate in the share of resources that the society as whole devotes to minimize security risks. Second, it is possible that changes in attitudes and perceptions change the behaviour of individuals and firms having an impact on other sectors of the economy, apart from those directly related to security. While this is a conjecture, combining information about social attitudes and economic behaviour patterns may help elucidate this hypothesis.

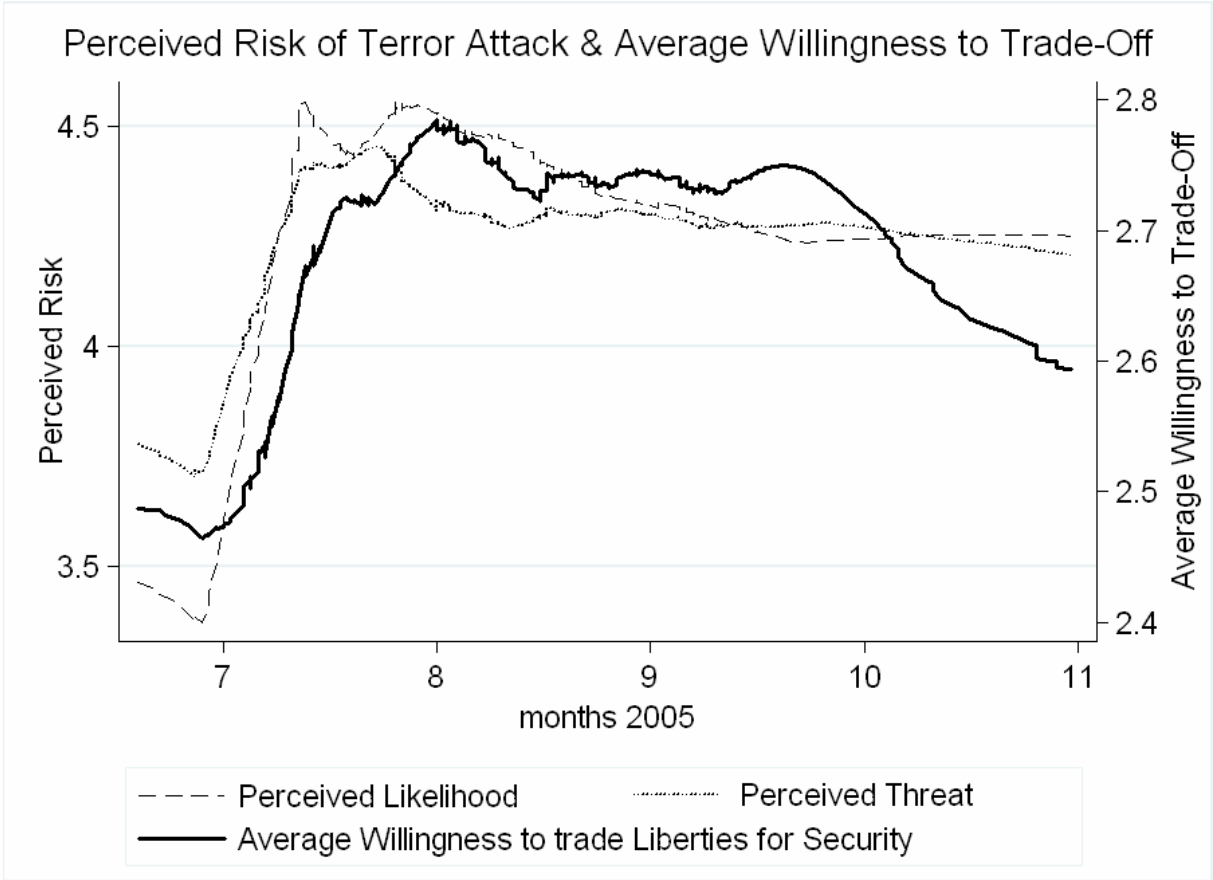
**Figure 1: The willingness to trade off civil liberties items for security**



Source: own calculations based on data from British Social Attitudes Survey 2005.

**Figure 2: Perceived Risk Indicators & Average Willingness to Trade Off**

**Liberties vs. Security**



Source: own calculations based on data from British Social Attitudes Survey 2005.



**Figure 3-6: Dynamics of Changes of Responses to the Indices**

Figure 3: Response in Perceived Likelihood index – Timing

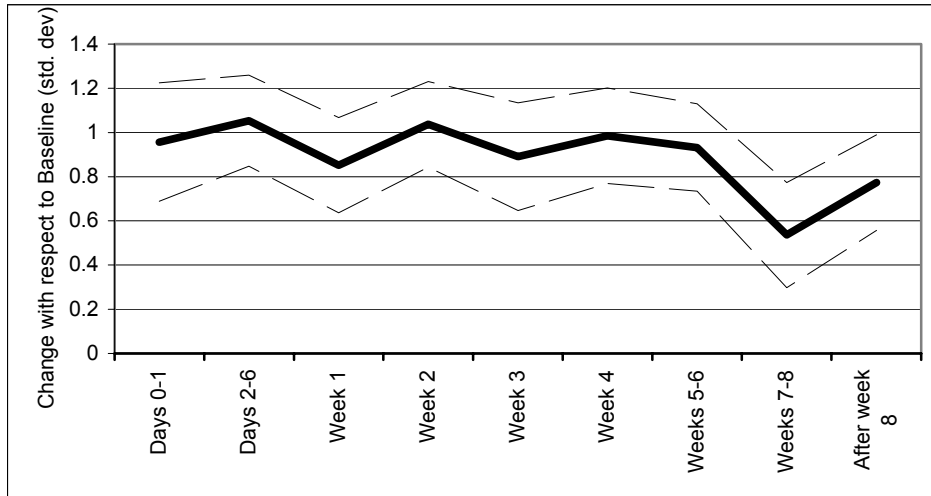


Figure 4: Response in Perceived Threat index – Timing

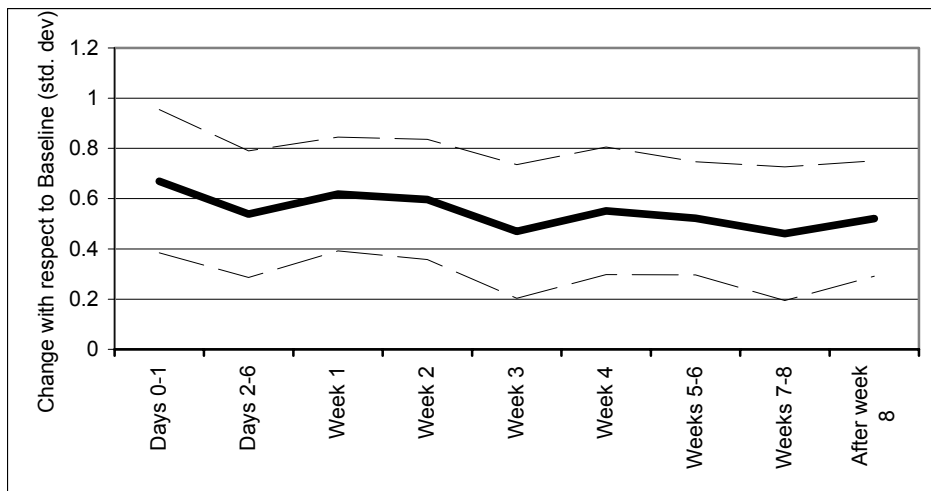


Figure 5: Response in Willingness to trade off index – Timing

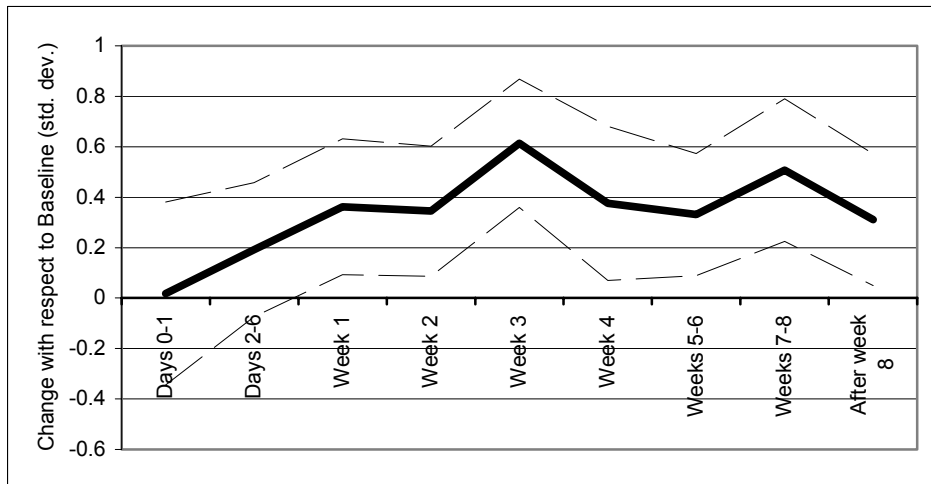
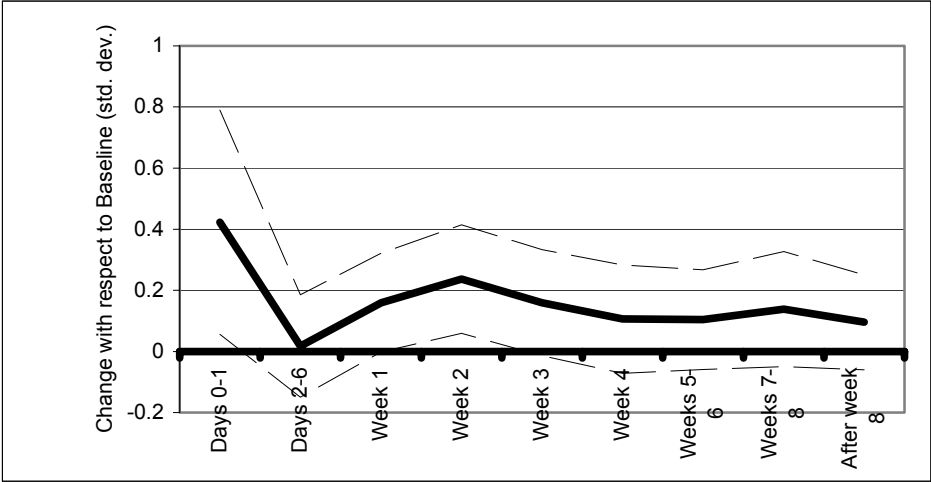


Figure 6: Response in Security as Fiscal Priority index – Timing



**Table 1: Interaction Effects: Modeling Heterogeneous Change After the 7/7**

**Attack**

Outcome	Perceived Likelihood	Perceived Threat	Willingness to trade off	Security expenditures
Scale	1-5	1-5	1-4	0-2
Mehod	Ord. Probit	Ord. Probit	OLS	Ord. Probit
Model: Change Before-After by Age				
After*Age1835	1.257*** (.268)	.697*** (.269)	.210* (.125)	.178 (.208)
After*Age3660	1.119*** (.126)	.642*** (.128)	.2325*** (.084)	.092 (.137)
After*Age60+	1.027*** (.154)	.667*** (.157)	.322*** (.101)	.069 (.153)
Test of Coefficient Equality, p-value	0.738	0.980	0.723	0.913
Model: Change Before-After by Religion				
After*Christian	1.034*** (.125)	.563*** (.119)	.292*** (.065)	.069 (.125)
After*NoChristian	2.300*** (.422)	.712 (.730)	.432 (.338)	.792 (.502)
After*NoReligion	1.055*** (.146)	.834*** (.153)	.121 (.102)	.0825 (.148)
Test of Coefficient Equality, p-value	0.013	0.371	0.312	0.373
Model: Change Before-After by Education				
After*NoDegree	1.107*** (.115)	.682*** (.115)	.236*** (.066)	.107 (.0100)
After*Degree	1.213*** (.221)	.555** (.219)	.353*** (.104)	.0146 (.242)
Test of Coefficient Equality, p-value	0.662	0.603	0,340	0.723
Model: Change Before-After by Gender				
After*Female	.997*** (.119)	.770*** (.119)	.199*** (.061)	.192 (.137)
After*Male	1.275*** (.172)	.539*** (.177)	.315*** (.102)	.008 (.129)
Test of Coefficient Equality, p-value	0.170	0.278	0.331	0.033
Model: Change Before-After by Marriage Status				
After*NoMarry	1.124*** (.164)	.546*** (.152)	.158** (.075)	.287** (.145)
After*Married	1.122*** (.132)	.736*** (.136)	.307*** (.080)	.0047 (.118)
Test of Coefficient Equality, p-value	0.994	0.351	0.176	0.132
Model: Change Before-After by Political Preferences				
After*Non-Conservative	1.176*** (.119)	.666*** (.117)	.219*** (.066)	
After*Conservative	.904*** (.198)	.623*** (.212)	.349*** (.120)	
Test of Coefficient Equality, p-value	0.228	0.858	0.345	
N	1052	1061	1065	2133

Notes: All models include age (age 18-35, age 36-60, age above 60), gender, person having first degree or postgraduate, marital status and religion indicators (Christian, religious but not Christian, no religion). Variable After is an indicator that the observation was collected on or after July 7<sup>th</sup>. Degree is an indicator that the person has first degree or a postgraduate degree. No degree is 1- Degree. Conservative is an indicator that the person considers him/herself as conservative and non-conservative is an indicator that the person does not consider him/herself as conservative.

**Table 2: Estimation Output – Second Stage: Effect of Risk Assessments (Measures: Likelihood and Threat scales) on the Willingness to Trade Off**

Dependent Variable: Average willingness to trade-off liberties vs. security		
	<u>Model 1</u>	<u>Model 2</u>
<b>Perceived Likelihood</b>	0.101** (-0.051)	
<b>Perceived Threat</b>		0.170*** (-0.054)
Days since 7/7	0.006*** (-0.002)	0.006*** (-0.002)
(Days since 7/7) <sup>2</sup>	-0.000*** (0.000)	-0.000*** (0.000)
Age	0.004*** (-0.001)	0.003** (-0.001)
Indicator: person is male	0.004 (-0.036)	0.032 (-0.035)
Indicator: person is married	0.045 (-0.041)	0.031 (-0.041)
Log of population density of community where person lives	-0.011 (-0.011)	-0.017 (-0.011)
Indicator: no children in the household	-0.165*** (-0.054)	-0.132** (-0.053)
Number of household members	-0.024 (-0.023)	-0.022 (-0.022)
Indicator: person is of christian religion	0.073** (-0.036)	0.063* (-0.036)
Indicator: person has other religion	-0.036 (-0.121)	-0.088 (-0.117)
Indicator: first degree or postgraduate	-0.359*** (-0.049)	-0.319*** (-0.05)
Indicator: household income ranks in the top quintile	0.135** (-0.052)	0.118** (-0.051)
Indicator: person considers him/herself as conservative	0.081** (-0.04)	0.070* (-0.04)

Notes: Days since 7/7 measures the number of days elapsed since the attack if the observation comes from the post-attack period. For pre-attack period observations the variable takes the value of 0.

**Table 3: Estimation Output – First Stage: Effect of Terrorist Event on Risk Assessments (Ordered probit estimates)**

<b>Dependent Variable:</b>	<b>Perceived Likelihood</b>	<b>Perceived Threat</b>
Indicator: observation from after 7/7	1.451*** (-0.132)	0.900*** (-0.121)
Days since 7/7	-0.015*** (-0.004)	-0.010** (-0.004)
(Days since 7/7) <sup>2</sup>	0.000** (0.000)	0.000* (0.000)
Age	-0.001 (-0.003)	0.004* (-0.002)
Indicator: person is male	0.157** (-0.074)	-0.142* (-0.072)
Indicator: person is married	0.107 (-0.085)	0.144* (-0.082)
Log of population density of community where person lives	-0.008 (-0.022)	0.033 (-0.022)
Indicator: no children in the household	0.009 (-0.112)	-0.148 (-0.109)
Number of household members	0.004 (-0.045)	0.005 (-0.045)
Indicator: person is of christian religion	0.150* (-0.078)	0.163** (-0.077)
Indicator: person has other religion	-0.253 (-0.22)	-0.079 (-0.201)
Indicator: first degree or postgraduate	-0.162* (-0.098)	-0.294*** (-0.102)
Indicator: household income ranks in the top quintile	0.250** (-0.102)	0.264** (-0.112)
Indicator: person considers him/herself as conservative	0.029 (-0.083)	0.1 (-0.086)
Additional statistics for the full model (first and second stages)		
LLn (log likelihood)	-1907.169	-1977.452
N (number of observations)	1052	1061
AIC (Akaike Information Criterion)	3916.338	4056.904
BIC (Bayesian Information Criterion)	4169.219	4310.219

Notes: Days since 7/7 measures the number of days elapsed since the attack if the observation comes from the post-attack period. For pre-attack period observations the variable takes the value of 0.

## Appendix

### Original wording for questions and answers from the British Social Attitudes Survey

#### Questionnaire 2005.

#### Trade off Questions (civil liberties vs. security)

A number of measures have been suggested as ways of tackling the threat of terrorism in Britain.

Some people oppose these because they think they reduce people's freedom too much. Others think that the reduction in freedom is a price worth paying.

For each of the measures I mention, please say which of the views on this card comes closest to your own.

1. Firstly, banning certain peaceful protests and demonstrations.
2. Banning certain people from saying whatever they want in public.
3. Having compulsory identity cards for all adults.
4. Allowing the police to detain people for more than a week or so without charge if the police suspect them of involvement in terrorism.
5. ...denying the right to a trial by jury to people charged with a terrorist-related crime.
6. Following people suspected of involvement with terrorism, tapping their phones and opening their mail.
7. Putting people suspected of involvement with terrorism under special rules, which would mean they could be electronically tagged, prevented from going to certain places, or prevented from leaving their homes at certain times.
8. Torturing people held in British jails who are suspected of involvement in terrorism to get information from them, if this is the only way this information can be obtained.

#### Answers:

- 1 Definitely unacceptable as it reduces people's freedom too much
- 2 Probably unacceptable as it reduces people's freedom too much
- 3 Probably a price worth paying to reduce the terrorist threat
- 4 Definitely a price worth paying to reduce the terrorist threat

### **Risk assessment questions (Likelihood and threat)**

Please say whether you agree or disagree with each of the following statements.

- It is very likely that there will be a major terrorist attack in Britain in the next couple of years.  
(Likelihood)
- The threat of a terrorist attack in Britain is of great concern to me. (Threat)

### **Answers:**

- 1 Agree strongly
- 2 Agree
- 3 Neither agree nor disagree
- 4 Disagree
- 5 Disagree strongly

### **Choice for allocating additional financial resources to (at most) two issues**

Here are some items of government spending. Which of them, if any, would be your highest priority for **extra** spending? Please read through the whole list before deciding.

And which next?

### **List of choices:**

- 1 Education
- 2 Defence
- 3 Health
- 4 Housing
- 5 Public transport
- 6 Roads
- 7 Police and prisons
- 8 Social security benefits
- 9 Help for industry
- 10 Overseas aid
- 11 (None of these)

**Table A1: Summary statistics on sample**

Variable	Obs	Mean	Min	Max
<b>Dependent Variables</b>				
Average willingness to trade off civil liberties vs. security index	1062	2.68	1	4
Perceived likelihood index	1062	4.29	1	5
Perceived threat index	1060	4.26	1	5
<b>Continuous Variables</b>				
Age	1062	50.13	18	94
Number of household members	1062	2.28	1	8
<b>Categorical Variables (Indicators)</b>				
Person is male	1062	0.44	0	1
Person is married	1062	0.55	0	1
No children in household	1062	0.72	0	1
Person is of Christian religion	1055	0.59	0	1
Person is of other than Christian religion	1055	0.04	0	1
Education: First degree or postgraduate studies	1053	0.16	0	1
Household income ranks in the top quintile (above 44,000 £ per year)	1062	0.17	0	1
Person considers him/herself as conservative	1062	0.23	0	1
Interview was made after 7/7	1062	0.83	0	1