

Perceptions and Attitudes to Terrorist Shocks: Evidence from the UK

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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 a terrorist attack (on 7th 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 rights of accused and suspicious people. Following the attacks of July 7th 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 standards (Balzacq & Carrera 2005). Support for civil liberties could be seen as a construct involving value trade-offs where a balance between freedom and control is to be found. Particularly after an attack, finding a new “right” balance when implementing additional antiterrorist measures could lead to a new “set” of civil liberties granted to citizens. The question is how much of that trade-off between freedom and security citizens are actually willing to make. The level of commitment to democratic values depends on context. For example, Davis & Silver (2004) show that in situations threatening security and safety, individual’s willingness to sacrifice part of their liberties to gain more security rises.

In this study, we use the terrorist attacks in London as a natural experiment to study the dynamics of risk perceptions, and the readiness to trade off civil liberties for enhanced security. Our analysis builds on previous studies that have focused on post-attack attitudes towards security enhancing measures, but goes one step further by including observations prior to the terrorist event in order to understand both impact and dynamics. Our paper thus contributes to the scientific literature and public discussion by exploiting an exogenous variation in individual’s risk perceptions about a terrorist attack to estimate the extent to which risk perceptions affect the trade-off between civil liberties and security.

We use the British Social Attitudes survey¹ (National Centre for Social Research, 2005), collected between June and November 2005, to show that the perceived risk (measured in terms of perceived event likelihood and perceived threat) of an attack in the future increases

¹ The data was kindly made available by the National Centre for Social Research and the UK Data Archive. The usual disclaimer applies.

significantly. Furthermore, our evidence shows that these perceptions do not revert to pre-attack levels (at least not during the time span of the survey), while the willingness to trade off civil liberties for security only changes temporarily. Following the literature on risk perceptions and decision-making, we also evaluate the determinants of individual decision-making about terrorism. In this framework, we show that the demand for security is driven similarly by the perceived level of threat and the likelihood of a future attack.

The paper proceeds as follows: In section 2, we motivate our study, listing some of the relevant literature. Section 3 describes data and methodology, while in Section 4 we present results. Section 5 concludes.

2. Motivation

The threat of transnational terrorism has raised the discussion about the use of security measures. In fact, some of those measures that might also constrain civil liberties (e.g. the desire to increase domestic surveillance and limit certain freedoms in order to deal with the threat of terrorism) are controversial issues. Looking at the support for civil liberties from the perspective of a value trade-off (i.e. making the decisions about the preferred level of security and liberties) requires an individual to form opinions about the relative costs and benefits of averting a potential attack. This encompasses an assessment about the likelihood of a terrorist attack, potential welfare losses implicated with its occurrence, and the costs and deterrence impact of different levels of security. 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 (Slovic & Weber 2002).

Terrorism – where outcomes can be severe and the likelihood to be personally affected is very low – is an “extreme event” with very uncertain outcome and risk. Research demonstrates that risk assessments can deviate from true population risks for various reasons. Especially the

likelihood of events which are very much dreaded (perceived lack of control, catastrophic potential, fatal consequences) and unknown (unfamiliar situations) are prone to assessment bias (Slovic & Weber 2002).

How does the perceived threat of terrorism relate to the support for civil liberties? Individual preferences (“taste”) for civil liberties is driven by various factors. Usually higher education, socio-economic background, political and social participation and party identification are assumed to play the most important roles in explaining tolerance and support for civil liberties (e.g. Devall 1970, Guth & Green 1991).

However, the demand for civil liberties can also be affected by pressure put on societies through threats and external shocks. Wang & Chang (2006) show that the impact of constant pressure from China and the perceived threats from the Taiwan independence movement exert a strong influence on citizens’ level of tolerance. In their analysis of the effect of trust in the government and the sense of threat on support for civil liberties, Davis & Silver (2004) show that 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 seem to be prepared to accept some restrictions on their civil liberties. Davis & Silver (2004) also identify factors that determine peoples’ proclivity for security measures: perceived threat and levels of trust in the government; attitudinal measures such as interpersonal trust and national pride; and also factors like ethnicity, age and education. Similarly, Huddy et al. (2005) find that perceived threat consistently results in higher support for domestic anti-terrorism policies such as national identification cards or monitoring of telephones and emails. Also, higher perceived threats lead to more concerns about failure to enact strong measures than to concerns about restricting civil liberties.

Our paper adds to the existing literature by using pre- and post-attack data to identify the effects of risk perceptions on the willingness to trade-off between civil liberties and security. More specifically, we use data before and after the attacks on July 7th to study to what extent a

shift in risk perceptions (such as the one triggered after the attack) explains changes in the demand for security measures. This complements results from a previous study by Davis & Silver (2003) which studies the durability of people's willingness to trade off civil liberties for personal security using two waves of a US-based survey implemented after 9/11. While they find 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. Our strategy is different in that it focuses not only on post-attack dynamics, but also accounts for pre-attack levels, thus allowing us to observe and understand changes in attitudes and perceptions triggered by the attack.

3. Data and Methodology

Data and Measurement

We use the British Social Attitudes Survey 2005 carried out by the National Centre for Social Research. This survey is being conducted every year, 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 7th 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.² 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 to much”). We condense these eight different measures (which we will refer to later, shown in Figure 2) that define choices between civil liberties and security into a single index,

² Please find the question wording and possible answers relevant for his study in the Appendix.

ranging from 1 to 4. This is done by taking a simple average among all answers for each individual, which were each coded on a scale from 1 to 4.³ The higher the index is, the higher the willingness to trade-off liberties for more security.

Attitudes and behaviour indicators are subjective questions and thus answers chosen could depend on question wording, different interpretation of phrasing, etc. Therefore, we use two indicators as proxies for the perceived risk of a terrorist attack: (1) Respondents were asked about how *likely* it was that a terrorist attack would happen in the next 2 years. We take their answers as a proxy for the perceptions of *likelihood*, and use the perceived likelihood scale from 1 (disagree strongly) to 5 (agree strongly). (2) Respondents were asked whether the *threat* of a terrorist attack in Britain *concerns* them. We take those answers as a proxy for the perceived threat, similar to the perceived risk scale.

Figure 1 displays a non-parametric estimation (*lowess* regression) of the evolution of the willingness to trade off civil liberties for security, and both perceived risk indicators between the months of June and November 2005. It shows the sharp increase in both the perceived likelihood of a terrorist event in the near 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 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,

³ 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.

citizens were more likely to trade-off in favour of more security after the attack than before that event.⁴

Methodology

Our analysis focuses on the effect of an external shock (terrorist attack) on the perceived threat and likelihood of an attack and its effect on the willingness to trade off civil liberties for more security. We 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.

Our main hypothesis of interest is to what extent the willingness to trade-off is affected by risk perceptions. Normally, this hypothesis 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 that could be explained by unobservable third factors. All this makes inference on the determinants of the trade-off between security vs. liberty hard to interpret. OLS or even more sophisticated regression models that do not account for unobservable 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 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

⁴ Statistically significant were changes in categories 1 to 4, 6 and 8.

“first stage”, risk perceptions are modelled, and in which, in the “second stage” the structural-form relation between security 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 (ε_{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 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” γ 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 (e.g. Slovic 1999, Flynn et al. 1994). In general, women and people with lower levels of education perceive greater risks associated with terrorism (Fischhoff et al. 2003, Lerner et al. 2003). Individual characteristics such as religious background, social class, education and political identification have been found to determine the taste for civil liberties (e.g. Wang & Chang 2006, Devall 1970, Guth & Green 1991).

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 educational achievements (an indicator that the person has either a completed undergraduate or postgraduate degree).⁵

In light of Figure 1, 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”.

4. Results

Table 1 and 2 display the results 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 7th, 2005 on the perceived risk indicators, that is (2) or “first stage” equation.

Table 1 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. There are dynamics going on after the attack which can not be explained by the attack itself (therefore the inclusion of days since 7/7 & (days since 7/7)²). Other than the attempted attacks on July 21st, 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

⁵ Indicators of household income were also included, but remained statistically non-significant, perhaps because of additional controls that capture socioeconomic status.

the number of observations from the immediately preceding and subsequent days is too limited to support sound statistical inference. Other controls which are familiar to the literature were used in the specification displayed in the tables. As expected, higher education levels are correlated with a higher desired level of civil liberties, all else equal. Both, individuals in the top quintile of household income and those who consider themselves as “conservative” are more prone to favour higher levels of security in detriment of civil liberties.

Table 2 displays the 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 slight non-linear decline in the perceived threat and likelihood, consistent with findings of studies for the U.S., e.g. by Huddy et al. (2005). 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. Education appears to be negatively correlated with levels of threat or risk perceptions, in line with previous findings. Interestingly, men judge the likelihood of a future attack more pessimistically than women. However, men feel less threatened, which suggests that the framing of the questions about risk assessments matter.

5. Discussion

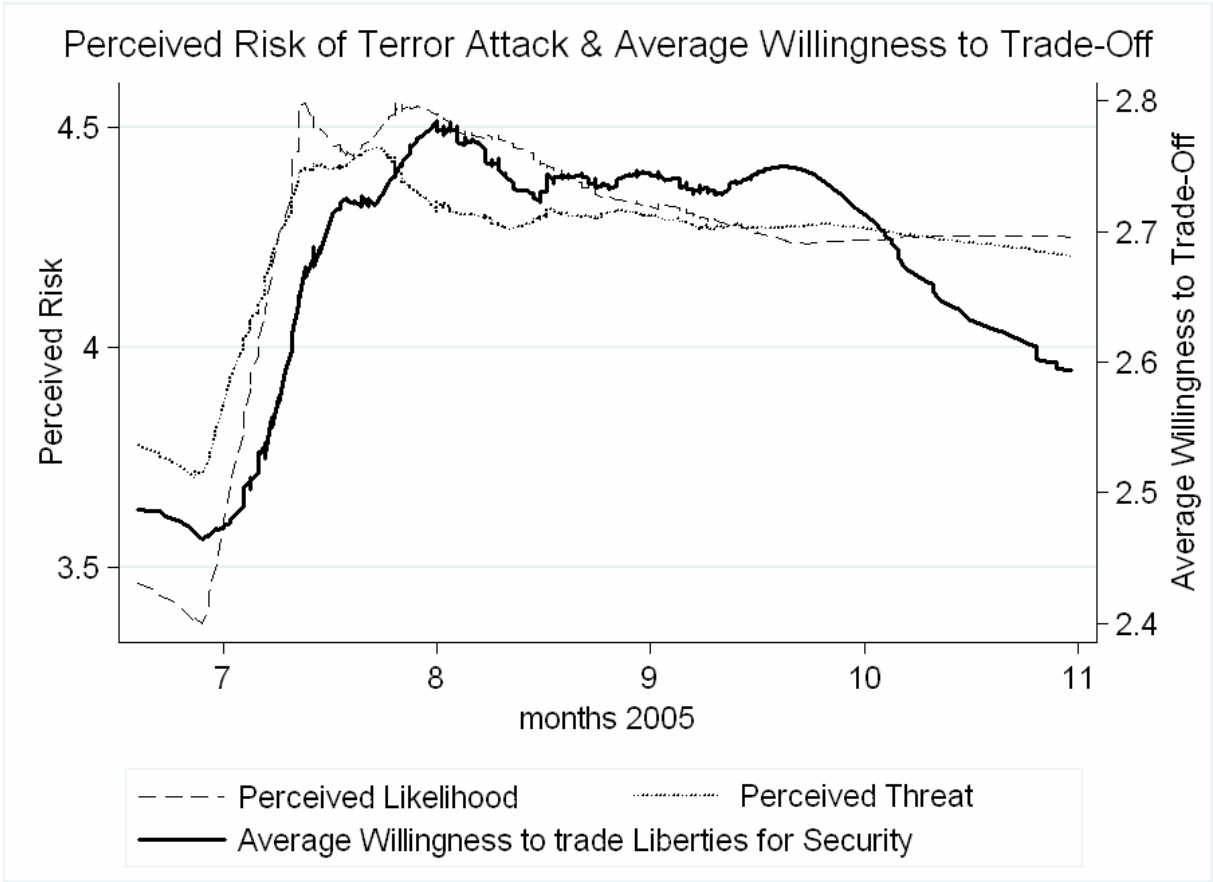
This is the first paper using pre and post attack data to clearly identify the implications of a “shock” on risk perceptions on the balance between security and civil liberties. The main finding and contribution of this article is that an exogenous variation in risk assessments about terrorism can bring a strong support for security policies which may come at the expense of civil liberties. There are, however, two qualifications that are important. First, the magnitude of the change in support for security *vis-à-vis* liberty: our estimates indicate that a change in risk perceptions can “shift” preferences in favour of security to a large extent. The change in risk assessments 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.

Second, there are important differences in the evolution of risk perceptions and the proclivity for security policies after the attack. Risk assessments changed abruptly after the attacks and displayed significant persistence. The proclivity for security policies (willingness to trade off civil liberties in favour of security) on the other hand, increased gradually after the attack, but slowly decreased after hitting a peak. Therefore, the dynamics are different, even if at the time immediately after the attack both indicators moved in the same direction. This divergence brings important questions: Why is the willingness to trade-off less persistent after the attack? We can offer different hypothesis, 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 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.

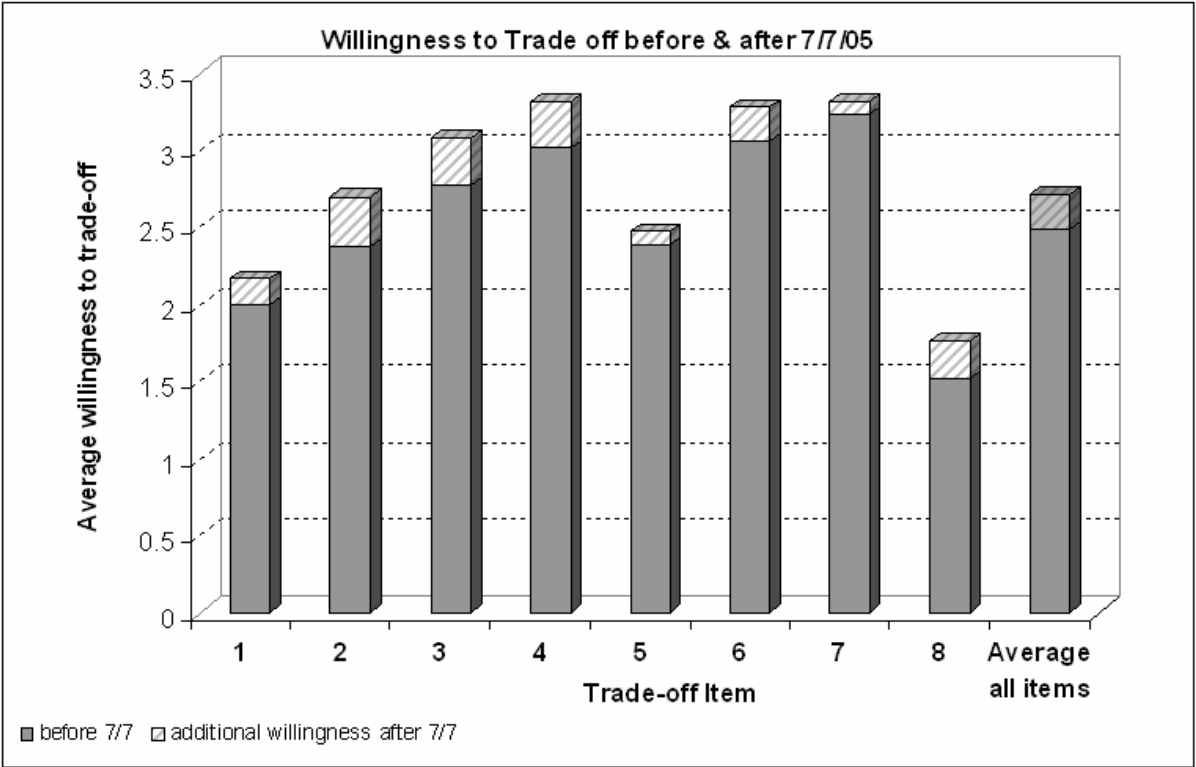
The implications for the study of the interrelationships between economics and security issues are twofold. First, it is conceivable that changes in individual attitudes affect the demand for security goods (even if they may be conceived as “public goods”) and may thus have a correlate in the share of 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: Perceived Risk Indicators & Average Willingness to Trade Off Liberties vs. Security



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

Figure 2: The willingness to trade off civil liberties items for security



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

Table 1: 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>
Perceived Likelihood	0.101** (-0.051)	
Perceived Threat		0.170*** (-0.054)
days since 7/7	0.006*** (-0.002)	0.006*** (-0.002)
(days since 7/7) ²	-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 population density of community where person lives	-0.011 (-0.011)	-0.017 (-0.011)
no children in 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)

Table 2: Estimation Output – First Stage: Effect of Terrorist Event on Risk

Assessments (Ordered probit estimates)

Dependent Variable:	Perceived Likelihood	Perceived Threat
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) ²	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 population density of community where person lives	-0.008 (-0.022)	0.033 (-0.022)
no children in 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

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

Table A1: Summary statistics on sample

Variable	Obs	Mean	Min	Max
Dependent Variables				
average willingness to trade off civi 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
Continuous Variables				
age	1062	50.13	18	94
number of household members	1062	2.28	1	8
Categorical Variables (Indicators)				
male	1062	0.44	0	1
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
first degree or postgraduate	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

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