

A Study of the Impact of the July Bombings On Londoners’ Travel Behaviour

Barbara Fasolo et al., London School of Economics, UK

b.fasolo@lse.ac.uk

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1. Overview

The purpose of this research is to investigate Londoners’ behavioral response to the 7/7 bombings across a range of transportation modes and analyze the underlying psychological mechanisms. In particular, we examine cross-culturally Gigerenzer’s dread hypothesis (2004, 2006) and its three components, namely avoidance, substitution and risk-taking. Previous investigation found support for an increased fatality in the US as a result of increased car usage after 9/11; no such evidence was found in Spain (as documented in Lopez-Rousseau, 2005). Hypothesized reasons include three main psychological accounts: cultural differences, past exposure to risks and better developed public transportation. The discrepancy could also be attributable to the level of analysis. As in the US, analysis of Spanish data used country-wide transportation statistics. While in the US country-wide transportation statistics might be appropriate, because the 9/11 attack was targeted to air transport, country-wide statistics might be less appropriate to model the Spanish case given that the mode attacked was train, with a smaller coverage than airplanes.

Considering the three psychological accounts, UK appears similar to Spain, except for the fact that London imposes a congestion charge on any private vehicle entering the central London congestion charge zone. This policy can exert a double effect that simultaneously decreases the usage of private vehicles and increases the usage of public transportation. To tease out the effect of these confounding factors, this research (a) collected both UK and London casualty data by transportation mode before and after 7/7, while focusing on the London-wide data; (b) analyzed avoidance, substitution and risk-taking behaviour in the context of the London transportation policies (including Governmental measures to increase safety and cost of private transportation); (c) analyzed the level of fatality of each transportation mode.

This research found differences in UK country-wide and London-wide transportation statistics. Neither level of analysis provides evidence for an increased fatality as a result of the 7/7 bombings. While London-level analysis supports avoidance and substitution, UK-level analysis found only substitution. A conceptual framework was developed with the aim of providing an account for the disparities observed in the responses to terrorist attacks in the three countries. Aided by this framework, three explanations were ruled out: 1). Fatalities might not have increased because the mode to which travellers substitute is less risky (found not to be true); 2). Fatalities might not have increased because we only analyzed some London areas but not others (not true); and 3). Fatalities did not increase but casualties did (not true). This research concluded with the suggestion that the discrepancy between UK and the other countries could be attributed to several concurrent events, such as a) congestion charge levied against private cars entering central London. This charge is expected to have decreased the appeal of cars – a mode that is less dreaded but is actually riskier as it causes more fatal accidents. b) infrastructure changes that have made roads safer.

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This research benefits greatly from assistance of two UK transportation authorities, i.e. Transport for London, which holds all London transport statistics (Sandra Cowland; Gerry Weston; Phil McKenna), and Department of Transport, which holds UK-wide data (Claudia Farley, Paul Jobber), as well as from collaborations with the CREATE team at USC (Fynnwin Prager).

2. Research Accomplishments

A conceptual framework was developed with the aim of providing an account for the disparities observed in the responses to terrorist attacks in the three countries. The results of the analysis based on this framework are presented in Table 1. As can be seen, the three interrelated hypotheses are listed as the first column, and the result of data analysis are presented in the table, a country at a time.

Table 1 - Comparison of the three-fold dread risk hypothesis applied to US, Spain and London/UK reaction to recent terrorist attacks

Events	9/11	M/11	7/7	
<i>Level of analysis</i>	<i>US[#]</i>	<i>Spain*</i>	<i>London</i>	<i>UK</i>
Avoidance	Found for airlines	Found for commuter trains	Found for underground and buses	Unknown for underground; not found for buses
Substitution	Found for cars	Not found	Found for pedal cycles and powered 2-wheelers)	Found for pedal cycles and powered 2-wheelers
Increase in fatality	Found for cars	Not found	Not found	Not found

Gigerenzer, G. (2004). Dread risk, September 11, and fatal traffic accidents. *Psychological Science*, 15(4), 286,287.

Gigerenzer, G. (2006). Out of the frying pan into the fire: Behavioral reactions to terrorist attacks. *Risk Analysis*, 26(2), 347-351.

* Lopez-Rousseau, A. (2005). Avoiding the death risk of avoiding a dread risk. *Psychological Science*, 16(6), 426-428.

3. Applied Relevance

The London experience suggests that one way for Governments to mitigate citizens' reactions to attacks perpetrated by terrorists on public transport is to enhance the attractiveness of safer transportation substitutes (or, alternatively increase the relative cost of riskier modes e.g., charging for car travel) as well as to provide a better public transportation system which decreases the chance of substitution-induced fatalities.

4. Collaborative Projects

This research was conducted at the Department of Management of the London School of Economics and Political Science. It has benefited greatly from assistance of two UK transportation authorities, i.e. Transport for London (Sandra Cowland; Gerry Weston; Phil McKenna), and Department of Transport (Claudia Farley, Paul Jobber). Transport for London holds all London-wide transport statistics. They kindly made available to us detailed fatality and casualty data of different transportation modes by month by London borough for a period of five years from 2002-2006.

Department of Transport holds all UK-wide transportation statistics. They made available to us country-level statistics including transportation volume and fatality rate. They also assisted in seeking a definition of 'transportation efficiency', although the last effort was not successful.

The collaboration with the CREATE team at USC (Fynnwin Prager) was key as they provided daily data of London bus usage following 7/7, offering evidence for avoidance of buses that was not clear from monthly data.

5. Research Products

Research Products (Please detail below)		#
5a	# of peer-reviewed journal reports published	0
5a	# of peer-reviewed journal reports accepted for publication	0
5a	# of non-peer reviewed publications and reports	1
5a	# of scholarly journal citations of published reports	0
5b	# of scholarly presentations (conferences, workshops, seminars)	1
5b	# of outreach presentations (non-technical groups, general public)	0
5c	# of products delivered to DHS, other Federal agencies, or State/Local	0
5c	# of patents filed	0
5c	# of patents issued	0
5c	# of products in commercialization pipeline (products not yet to market)	0
5c	# of products introduced to market	0

5.1. Publications and Reports

Fasolo, Barbara - London School of Economics	Ref	Not Ref
1. Fasolo, B., Ni, Z., Phillips, L., a study of the impact of the July bombings on Londoners' travel behavior for CREATE, 2008		x

5.2. Presentations

Fasolo, B., "A Study of the Impact of the July Bombings on Londoners," Decision Capability group seminar, London School of Economics, May, 2008

6. Education and Outreach Products

Education and Outreach Initiatives (Please detail below)	#
# of students supported (funded by CREATE)	1
# of students involved (funded by CREATE + any other programs)	1
# of students graduated	0
# of contacts with DHS, other Federal agencies, or State/Local (committees)	0
# of existing courses modified with new material	0
# of new courses developed	0
# of new certificate programs developed	0
# of new degree programs developed	0