

Description difference-in-differences (DID) analysis

Based on Eurobarometer (EB) data, I use a DID design, exploiting the occurrence of terrorist attacks in the EU during a fieldwork period of the EB to achieve a quasi-experimental setup.¹ Of the 2,649 attacks in Western Europe after 9/11, 1,391 had known perpetrators that could be categorized (data taken from the Global Terrorism Database, START 2017). Of these, 95 occurred during an EB fieldwork period² and fielded a question about terrorism. Upon exclusion of small attacks (less than 5 casualties and less than 10 injured), 5 attacks remain:³ the car bomb attack by ETA in Madrid in November 2001 (95 injured); a series of train bombings by Islamist terrorists in Madrid in March 2004 (191 killed, more than 1800 injured); a car bomb by suspected ETA members in Madrid in May 2005 (34 injured); a series of attacks with explosives and firearms by Islamist terrorists in Paris in November 2015 (137 killed, 413 injured); and an attack with explosives in Manchester in May 2017 (22 killed, more than 500 injured; see Table 1 for overview of the analysed attacks). The five EB surveys fielded during these attacks all ask questions about fear and the two most important topics, including terrorism (see Table 2 for question and response details). The answers—the outcome of interest—are dichotomous (“afraid”/“not afraid” or terrorism “mentioned”/“not mentioned”).

¹ 1990-2017; EB36.0 – EB87.3, only surveys including questions about terrorism.

² Excluding attacks occurring during the first or last days (resulting in one of the groups to be compared being too small).

³ Refer to extended appendix, “1990-01-01_2016-12-31_GTD-Export_Western_Europe.xlsx” for detailed initial list of attacks.

The analysis is conducted with the following considerations and assumptions. Firstly, the responses to the EB survey can be grouped by country (i_1) or by region (i_2):

$$i_1 = \{\text{GER, UK, FRA, ESP, BEL, ...}, N\}. \text{ (country);}$$

$$i_2 = \{1, 2, 3, 4, 5, \dots, N\}. \text{ (region within country).}$$

Secondly, then, (for i_1 and i_2 separately) for the attack having occurred on day x , the survey's time window is

$$t = \{x - n, x - (n + 1), \dots, x - 1, x, x + 1, \dots, x + (m - 1), x + m\}$$

with $n, m \in \mathbb{N}$

I introduce the binary indicator D_{it} (*attacked*), which is coded “1” for survey respondents where an attack occurred in the country (for i_1) or the region (for i_2). This indicator is geographical and only becomes meaningful in combination with the temporal indicator. Then, Y_{it} denotes potential outcomes of interest—the proportion of people afraid of or mentioning terrorism. Y_{1it} and Y_{0it} indicate the pair of potential mentions of terror in (country or region) i at time t when exposed to the treatment or the control condition, i.e. when attacked or not attacked.

The quantity of interest is the effect of the attack, defined as the average treatment effect on the treated (ATT)—the average difference between the posttreatment proportion of the affected participants with and without the treatment—and is given by

$$\alpha = E [Y_{1i,x+1} - Y_{0i,x+1} \mid D_i = 1].$$

Since $E [Y_{0i,x+1} \mid D_i = 1]$ is not observed, this missing potential outcome is identified based on the usual DiD assumption of parallel trends. Specifically, I assume:

$$E [Y_{0i,x+1} - Y_{0it,x-1} \mid D_i = 1] = E [Y_{0i,x+1} - Y_{0it,x-1} \mid D_i = 0],$$

which is to say that in the absence of the attack, the proportion of participants afraid of or mentioning terrorism after the attack would have followed a similar trend as the proportion of the non-affected participants. This is tested with a visual representation of the proportions per group and an interaction of the sample's regions and time. Based on this assumption, the ATT is identified from observed outcomes as:

$$\alpha = \{ E[Y_{i,x+1} \mid D_i = 1] - E[Y_{i,x-1} \mid D_i = 1] \} \\ - \{ E[Y_{i,x+1} \mid D_i = 0] - E[Y_{i,x-1} \mid D_i = 0] \}.$$

I estimate α using a standard fixed effects regression given by

$$Y_{it} = \eta_i + \delta_t + \alpha D_{it} + X'_{it} \beta + \varepsilon_{it},$$

where η_i is a fixed effect for the country or region-level (controlling for any time-invariant unobserved factors); δ_t is a period fixed effect (controlling for common trends); α is the treatment effect; X_{it} is a vector of time-varying covariates including a constant, and ε is an idiosyncratic error term with $E[\varepsilon \mid \eta, \delta, D, X] = 0$.

Due to the aforementioned scarce number of attacks that can meaningfully be analysed, hypotheses regarding number of fatalities and ideology of perpetrators cannot be tested due to the homogeneity of cases. This will be done in the next section; here, the following hypotheses are tested:

After a terrorist attack, the likelihood of respondents to consider terrorism a more pressing issue or be more afraid of it

(H II.1.0) remains unchanged in the affected country (H0).

(H II.1a) increases in the affected region but remains unchanged in the rest of the affected country.

(H II.1b) increases in the entire affected country.

Tables

Date	City	Category	No. †	No. Injured	EB no.
2001-11-06	Madrid	Separatist	0	95	56.2
2004-03-11	Madrid	Islamist	191	450	61.0
2005-05-25	Madrid	Separatist	0	34	63.4
2015-11-13	Paris/St. Denis	Islamist	137	413	84.3
2017-05-22	Manchester	Islamist	22	512	87.3

Table 1: Overview of difference-in-differences cases.

EB	Q no.	Question	Answers	Coding
56.2	Q35	“Here is a list of things that some people say they are afraid of. [incl. “Terrorism” ...] please tell me if, personally, you are afraid of it, or not?”	“Afraid”; “Not afraid”; “DK”	Dummy
61.0	Q27	“What do you think are the two most important issues facing [OUR COUNTRY] at the moment? (possibilities shown)”	Terrorism “Mentioned”; “Not mentioned”	Dummy
63.4	QA26			
84.3	QA3A			
87.3	QA3A			

Table 2: Overview of EB questions referring to terrorism.