Terrorism and electoral accountability: One strike, you're out!

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Abstract

We examine the relationship between terrorism and electoral accountability. We find that terror has a robust positive effect on the probability that the incumbent government is replaced. The magnitude of the effect increases with the severity of the terrorist attack.
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1. Introduction

On March 11, 2004 several bombs exploded in four commuter trains around Madrid killing almost two-hundred people. Only three days later general elections were held in which the Aznar administration was replaced. While both events could be the consequence of the Spanish participation in the Iraq war, we argue that there is a systematic linkage between terrorism and electoral accountability. Barro (1973) and Ferejohn (1986) show that the electorate holds the government accountable for the provision of public goods. As national security is arguably one of the most important public goods, terrorist attacks are likely to affect the government's re-election probability.[1] We examine the relationship between terrorism and electoral accountability using a conditional fixed effects logit model and a dataset containing more than 800 elections in 115 countries.

The paper proceeds as follows: Section 2 derives our hypothesis. Section 3 provides our estimation results. Section 4 concludes.

2. Theoretical background

The political economy literature provides two different entries to investigate the effect of terrorism on the probability of government replacement. These are the literature on electoral accountability originating in the work of Barro (1973) and the game theoretical approach on coalition termination by Lupia and Strøm (1995).

The electoral accountability approach of Barro (1973) and Ferejohn (1986) is based on the idea that incumbent governments face a trade-off between rent extraction and public goods provision. In order to obtain enough votes at the next election, the incumbent needs to provide a minimal amount of public goods to appear competent in the eyes of the electorate. If this minimal amount of public goods is not provided, the incumbent is judged to be incompetent and will be replaced at the next election. Regarding terrorism, the electorate generally does not observe how much of the public good is provided. That is, voters do not, or at least not completely, observe the counter terrorism activities of the government. However, they do observe the number of terror events that materialize. As the number of terror events is believed to be decreasing in both the

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[1] While election outcomes and cabinet changes are mainly of interest to political scientists, recent studies find evidence that changes in government affect macroeconomic outcomes such as economic growth (Jones and Olken, 2005) and inflation (Aisen and Veiga, 2006).

Table 1
Correlation matrix terror indicators

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1)	Terror events	1.00											
(2)	Lagged terror events	0.79	1.00										
(3)	Terror event dummy	0.80	0.59	1.00									
(4)	Terror events w/o 0	0.88	0.71	0.61	1.00								
(5)	Terror event dummy w/o 0	0.77	0.59	0.75	0.82	1.00							
(6)	Terror event dummy no bodily harm	0.22	0.13	0.54	−0.12	−0.15	1.00						
(7)	Fatal terror event dummy	0.71	0.56	0.65	0.79	0.86	−0.13	1.00					
(8)	Sum of fatalities	0.71	0.58	0.51	0.86	0.69	−0.10	0.80	1.00				
(9)	Fatalities per event	0.42	0.30	0.45	0.54	0.60	−0.09	0.69	0.84	1.00			
(10)	Fatalities per event w/o 0	0.53	0.40	0.51	0.62	0.67	−0.10	0.78	0.89	0.96	1.00		
(11)	Fatalities at the median event	0.22	0.13	0.36	0.34	0.47	−0.07	0.55	0.59	0.86	0.76	1.00	
(12)	Fatalities at the median event w/o 0	0.44	0.33	0.49	0.51	0.65	−0.10	0.75	0.77	0.91	0.95	0.80	1.00

Note: Correlation coefficients are based on all available observations ($N=7488$). We use the logarithm of the variables that are based on events to mitigate the effect of outlying observations. 'w/o 0' indicates that all terror events without fatalities or injuries are excluded. Terror event dummy no bodily harm is a dummy taking on the value of 1 if at least one terror attack occurred but no person was killed or injured and 0 otherwise. Fatal terror event dummy is a dummy taking on the value of 1 if at least one fatal terror attack occurred and zero otherwise.

amount of resources spent by the government on terror protection and the competence of the government, the amount of terrorism provides a signal about the competence of the incumbent. If the electorate believes that the level of terror under the current government is too high (relative to the expected level of terror under a different government), the incumbent government is more likely to be ousted from office.

The game theoretical approach of Lupia and Strøm (1995) explains why single events might cause the fall of a cabinet. Their model starts from the premise that three parties have bargained about a cabinet coalition. After the government was formed, an unexpected event (such as a terrorist attack) occurs that alters the power distribution within the coalition through a public opinion shock. After the shock it may become beneficial for one of the coalition members to opt out of the coalition to enforce early elections. As a consequence of the public opinion shock, it is probable that a different coalition will be installed after the elections.

Both theoretical approaches lead to the following hypothesis: *Terrorism increases the probability that the incumbent government is replaced at the next election.*

3. Empirical analysis

We examine the effect of terrorism on the probability of government replacement using a conditional fixed effects logit model as proposed by Chamberlain (1980). We focus on more than 800 elections in about 115 countries over the period 1968–2002. Our terrorism indicators are from the Memorial Institute for the Prevention of Terrorism (MIPT) Terrorism Knowledge Base (2006).[2] Our main terrorism indicator is the yearly number of total terror

events in a country. As a test for robustness, we also present results using alternative indicators based on the number of casualties as well as various dummy variables.[3] The pairwise correlation coefficients between all used indicators are shown in Table 1.

Our regression model is as follows:

$$c_{it} = \alpha_i + \delta_t + \beta T_{it} + \gamma X_{it} + \varepsilon_{it} \qquad (1)$$

where c_{it} is a binary variable equal to 1 if the cabinet of country i is replaced in an election year t and 0 if the cabinet of country i in year t remains in office after elections.[4] Data on elections and cabinet changes are taken from Databanks International (2005). α_i is a country specific effect that accounts for all characteristics specific to country i and δ_t is a time effect that accounts for all variation common to year t.[5] T_{it} denotes our terror measure. X_{it} is a vector of control variables and ε_{it} is an error term. We control for a broad set of variables, which have been suggested to affect cabinet change (see Grofman and Roozendaal, 1997 for an extensive overview). These variables can be categorized as follows: (i) macroeconomic variables, (ii) crises variables (both economic and political), (iii) political regime variables, (iv) indicators of political violence and (v) variables capturing mass civil protest.[6]

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[2] The MIPT defines an act of terror as "violence calculated to create an atmosphere of fear and alarm." Terror is used to discourage others from acting at their free will. The motives for engaging in terror are political while the acts themselves are generally conducted in a way that will achieve maximum publicity, mainly by attacking civilians. Moreover, terrorist acts are mostly intended to create more than immediate physical damage – a long-time situation of fear and intimidation. See http://www.tkb.org/.

[3] In our analysis, we use information on all terror events documented by the MIPT. However, the MIPT has started to collect data on domestic terrorism systematically only from 1998 onwards. To examine whether the inclusion of these observations bias our results, we also did the analysis without these events. It turns out that all our results are unaffected. The results are available upon request.

[4] A cabinet change is defined as the replacement of the premier and/or the replacement of at least 50% of the ministers in cabinet.

[5] Using Hausman tests, we checked for the inclusion of common effects as well as random effects. Both types of effects are rejected at the 5% significance level for all specifications. The presence of time effects is examined using Wald tests. The null-hypothesis of no time effects is rejected for all specifications.

[6] The economic variables are taken from the World Bank (2006). The data on critical political events are from Databanks International (2005). The political regime variables are from the Polity IV dataset of Marshall and Jaggers (2002). The data on banking crises are from Caprio and Klingebiel (1999) and currency crises data are from Dreher et al. (2006).

Table 2
Estimation results

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Terror events	0.475	0.483	0.437	0.441	0.485	0.513	0.474
	(3.28)***	(2.78)***	(3.06)***	(3.21)***	(3.65)***	(2.45)**	(3.29)***
Lagged inflation	1.6E-4					0.002	
	(0.57)					(1.34)	
Lagged economic growth per capita	−0.028					−0.016	
	(1.52)					(0.49)	
Lagged GDP per capita	−0.582					0.310	
	(1.49)					(0.42)	
Major government crises		0.543				0.573	
		(1.89)*				(1.65)*	
Currency crises		0.353				0.270	
		(0.86)				(0.54)	
Banking crises		0.340				0.517	
		(0.86)				(1.04)	
Democracy			0.089			0.136	0.119
			(2.85)***			(2.76)***	(4.36)***
Regime duration			−0.019			−0.016	
			(1.73)*			(0.92)	
Purges				1.491		2.374	1.759
				(2.40)**		(1.87)*	(2.88)***
Civil War				0.949		1.252	1.090
				(1.68)*		(1.50)	(1.96)*
Assassinations				0.438		−0.023	
				(1.36)		(0.05)	
Guerilla warfare				0.403		0.388	
				(0.92)		(0.46)	
Riots					−0.240	−0.758	
					(0.93)	(1.96)*	
Demonstrations					0.271	0.456	
					(1.20)	(1.38)	
Strikes					0.200	0.024	
					(0.50)	(0.04)	
Observations	824	624	814	930	1017	479	842
Countries	120	104	113	125	140	78	115

Note: The results are based on conditional fixed effect logit regressions. Time dummies are included in all specifications. We use the logarithm of the variables that are based on events as well as for GDP per capita to mitigate the effect of outlying observations. Due to data availability the number of countries per specification differs. */**/*** indicates significance at the 10%/5%/1%-level. Absolute value of z statistics in parentheses.

Our estimation results are reported in Table 2. The terror indicator is included in each regression. Columns (1)–(5) contain the estimates when the different sets of control variables are included. In column (6) all control variables are included simultaneously. As this specification decreases our sample and many of the controls are insignificant, we subject our model to a general-to-specific procedure in which we dropped the least significant variable at every stage of the test-procedure until only significant variables remain. The result of this analysis is displayed in column (7). In the remainder of our analysis we use this parsimonious model specification.[7]

Our main finding is that the number of terror events is significant at the 5%-level in all specifications. The positive sign indicates that the presence of terror increases the probability of a cabinet change at the election. Furthermore, it can be seen that the estimated coefficient of our terror measure is hardly affected by the different sets of control variables.

Concerning our control variables, we find that only the level of democracy, the number of purges and the presence of civil war are robustly related to electoral change. All three variables increase the likelihood of a cabinet change. The duration of the political regime and major government crises only marginally affect the probability of a change of the cabinet.

Table 3 shows the results when each of the other terror measures is included in specification (7) of Table 2. Here, we also report the marginal effect of each indicator on the likelihood of a cabinet change after the election. First, we include lagged terror events to examine our imposed direction of causality.[8] Second, we include a dummy equal to 1 if there was at least one act of terror and 0 otherwise. Although inclusion of this indicator comes at the cost of not utilizing all available information, it gives the estimated marginal effect a clear interpretation.[9] That is, the presence of at least one terror event

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[7] We also conducted the extreme bounds analysis of Sala-i-Martin (1997), in which the same variables turn out to be robustly related to cabinet changes. The results of both test procedures are available upon request.

[8] We also examined terror events at $t-2$ and found that they do not influence the election outcome. This result suggests that the electorate is short-sighted with respect to its voting behavior.

[9] This also mitigates the effect of outliers in the terror variable.

Table 3
Robustness analysis

Variable	Coefficient	z-stat	Marginal effect
Terror events	0.474	3.29***	0.118
Lagged terror events	0.464	2.78***	0.115
Terror event dummy	0.561	2.46**	0.138
Terror events w/o 0	0.510	2.44**	0.126
Terror event dummy w/o 0	0.647	2.53**	0.159
Terror event dummy no bodily harm	0.053	0.21	0.013
Fatal terror event dummy	0.822	2.93***	0.203
Sum of fatalities	0.536	3.13***	0.133
Fatalities per event	0.586	2.38**	0.140
Fatalities per event w/o 0	0.633	2.79***	0.158
Fatalities at the median event	0.488	1.85*	0.114
Fatalities at the median event w/o 0	0.710	2.87***	0.177

Note: The table contains point estimates and marginal effects of specification (7) of Table 2. The marginal effects are calculated at the mean of all explanatory variables with the fixed effects set to 0. For all indicators (apart from the dummy variables) we use the logarithm to mitigate the effect of outlying observations. 'w/o 0' indicates that all terror events without fatalities or injuries are excluded. 'Terror event dummy no bodily harm' is a dummy taking on the value of 1 if at least one terror attack occurred but no person was killed or injured and 0 otherwise. 'Fatal terror event dummy' is a dummy taking on the value of 1 if at least one fatal terror attack occurred and 0 otherwise.
*/**/*** indicates significance at the 10%/5%/1%-level.

increases the likelihood of a cabinet change after the election with 13.8%. Third, we include the number of terror events again, but exclude cases without casualties or injuries, since such terror events are expected to have less impact on the public opinion. Similarly, we construct three dummy variables to differentiate between the severity of different terrorist attacks. We make a distinction between events with at least one injury or casualty, events without any injuries or casualties and events with at least one casualty. The estimated marginal effects (15.9%, 1.3% and 20.3%, respectively) show that the probability of a cabinet change depends on the severity of the terrorist attack. While terrorist attacks without casualties or injuries hardly affect the probability of a cabinet change, the impact drastically increases when only terrorist attacks with casualties (and injuries) are considered.

Finally, we further test the robustness of our results using several terror measures based on the number of casualties. We include the sum of all casualties per year, the number of casualties per event and the casualties at the median event. The alternative measures confirm our findings above. Terrorism

significantly increases the likelihood of a cabinet change, while this likelihood is positively affected by the severity of the terrorist attack.

4. Conclusion

In this paper we analyze the impact of terrorism on the probability of government replacement. We find strong evidence that terrorist attacks increase the probability that the cabinet will be replaced after an election. Furthermore, we find that the magnitude of this effect increases with the severity of a terrorist attack. Our empirical evidence supports both the electoral accountability model of Barro (1973) as well as the Lupia and Strøm (1995) critical events model.

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