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The Socio-Economic determinants of terrorism and political violence in Western Europe (1994-2007).

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Abstract: *The main objective of this paper is to empirically investigate the socio-economic causes of terrorism and political violence in a sample of 12 countries in Western Europe. Results are mixed. First, we show that in western European countries the classical economic argument of opportunity cost can be confirmed. That is, the larger is the set of economic opportunities for an individual the lower is the likelihood or the willingness for him to be involved in a terrorist activity. Second and, however, in line with modernization theory, expected future economic growth seems to be associated with an increase in current terrorist activities. Eventually, our results also show that terrorist brutality (measured in people killed) is explained following the productivity argument. That is, the number of terrorist casualties is positively associated with real GDP per capita.*

Keywords: Terrorism, political violence, economic deprivation, 'productivity' of violence.

Jel Codes: D72, D74, J49, D8, D62, H4.

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1. Introduction

The main objective of this paper is to empirically investigate the socio-economic causes of terrorism and political violence in a sample of countries in Western Europe. The most important economic explanations of terrorism generally focus on two aspects[1]. On one hand, poor economic conditions and lack of economic opportunities are supposed to favor the emergence of terrorism and political violence. In fact, poverty and income inequality would feed frustration, hatred and grievance which make political violence more likely. In fact, in the presence of widespread poverty, the opportunity cost for individuals is very low. This also favors the recruitment process undertaken by terrorist organizations. This point (which is mostly based on the classical opportunity-cost argument) is commonly known as *economic deprivation* argument. The recent most cited source of the *economic deprivation* argument is Gurr (1970) which studied the root causes of political violence in western societies.

A second interpretation of the causes of terrorism is commonly known as the *modernization theory*. Thus, according to this theoretical argument, economic development is expected to produce a shift in the distribution of interest so as fuelling the grievances of some groups of the society. Namely, the basic intuition of this argument is that socio-economic changes over long-run affect socio-economic conditions. In this view, terrorist organizations would flourish if they are able to collect and capitalize on the grievances of losers. Therefore, terrorism and political violence would emerge in the presence of economic growth and development and not viceversa.

In the latest years some scholars expounded and tested the hypothesis that terrorist activity is positively related to the education and standard of living. That is, better educated individuals would become bloodier terrorists. This can be defined as a *productivity argument* since it stresses the positive relationship between education and terrorist activity. That is, better educated individuals would also become more productive and bloodier terrorists. This argument has been christened by Lenin (1901) while theorizing about political agitation and it had been recently rediscovered by Krueger and Maleckova (2003) for political violence in Israel.

[1] For a comprehensive discussion please refer to the survey by Schneider et al. (2010).

Our analysis of terrorism in western European countries is peculiar in this respect. In fact, western European countries are high-income countries where schooling and education are spread across society. Moreover, a complex architecture of welfare state reduces inequality within countries. In addition political and civil rights of citizens are guaranteed to a large extent. Then, in this context, it is interesting to investigate how political violence and terrorism might take shape.

In fact, the goal of our paper is to investigate the economic roots of political violence in a sample of western European countries. The paper is structured as follows: In chapter 2, the sample of countries and some stylized facts about political violence are presented. In chapter 3, both dependent and explanatory variables are presented and discussed. Chapter 4 presents the econometric results and aims to explain the emergence of terrorist events, and chapter 5 shows the econometric results trying to explain the brutality (measured in number of people killed) of terrorist events. Chapter 6 then summarizes and concludes.

2. Terrorism and political violence in Western European countries: facts and figures

The present study is based on a sample of 12 countries: Italy; France; Germany; Spain, Switzerland, Sweden, UK, Netherlands, Belgium, Austria, Greece, Ireland. The data of terrorist incident are drawn from GTD. Differently from the original GTD dataset, we aggregated England and Northern Ireland as well as France and Corse. The table below reports the figures for terrorist incidents for the period 1994-2007. France is the country where the highest number of incidents has been reported (29%) followed by UK (23%) an Spain (18%). As it is clear from table 2.1, most incidents do not span victims. More precisely, for the 97% of incidents a non-negative number of victims less than five is reported.

Table 2.1: Terrorist Incidents in Western Europe (1994-2007)

Country	Number of incidents	classified by number of victims			
		≤5	<5≤25	<25≤50	>50
France (incl. Corse)	781	767	12	1	1
UK (incl. Northern Ireland)	608	579	16	7	6
Spain	493	475	11	3	4
Germany	329	319	9	1	0
Greece	262	260	1	0	1
Italy	93	91	1	1	0
Netherlands	26	26	0	0	0
Austria	25	25	0	0	0
Belgium	22	20	2	0	0
Ireland	22	22	0	0	0
Switzerland	21	20	0	1	0
Sweden	13	13	0	0	0
Total	2695	2617	52	14	12

Source: GTD. Note: victims are computed as the sum of killed and wounded people

The peculiarity of European political violence is that it spans different types. Table 2.2 below reports the number of active groups which perpetrated some terrorist actions in the period considered (1994-2007). Coding and definitions of terrorist groups are those applied in GTD dataset. Then, we divided the total numbers into main five categories: (i) right-wing and neo-nazi extremists; (ii) left-wing; (iii) anarchist; (iv) separatist and indipendentist; (v) international. In particular, by 'international' we meant either the groups which have either an international vocation or those with specific national targets but which are operating abroad. The Al-qaeda-style jihadist is an example of the first category. The Kurdistan Workers' Party (PKK) is an example of the second category. In fact, it seems the PKK have operated continuously in Germany in early 90s.

Table 2.2: Types of Terrorist Activities/Groups

	Active groups in the period 1994-2007*	right-wing/neo-nazi	left-wing	anarchist	separatist/independentist	inter-national	other
France (incl. Corse)	29	1	0	0	16	4	8
UK (incl. Northern Ireland)	24	2	0	0	13	3	6
Spain	10	1	1	1	3	2	2
Germany	26	3	5	1	1	11	5
Greece	50	5	14	16	1	4	10
Italy	23	2	8	2	3	0	8
Netherlands	4	0	0	1	0	2	1
Austria	10	2	1	0	0	5	2
Belgium	5	0	0	0	0	3	2
Ireland	5	0	0	0	2	0	3
Switzerland	4	0	1	0	0	2	1
Sweden	7	4	0	0	0	2	1

Source: GTD.
*

Such diversity in terrorist scenario is certainly a peculiar trait of western European countries. To summarize, table 2.2 presents quite nicely the diversity of terrorist activities in our sample of European countries.

3. Main explanatory variables, source and expected meaning

In order to study deeply the peculiar traits of European terrorism and political violence, two dependent variables have been used: 1) the number of terrorist incidents per year; 2) the number of victims per incident. The chosen dependent variables are assumed to capture two different aspects of incidence of terrorism and political violence.

Our first dependent variable, namely the number of terrorist incidents per year, is expected to capture the choice of perpetrating some terrorist attack. That is, the first model is expected to infer the political and economic determinants of terrorist activity. In any case, they can be considered *preconditions* for terrorism, namely «*factors that set*

the stage for terrorism over the long run[2]*»,* as defined in Crenshaw (1981). To sum up, when using the number of incidents per year in a given country, we are studying the pre-conditions for terrorism in that country.

Our second dependent variable is the number of victims per incident, which is intended to capture the brutality of terrorism. In particular, brutality of terrorism is somehow a measure of terrorist output. Therefore, our second empirical model is intended to capture the productivity of terrorist activity, whereas productivity of terrorism and political violence is proxied by the number of casualties. This is a specific crucial point because, as noted above, in the latest years some studies have refreshed the idea of a positive relationship between education and terrorism activity. Elsewhere we referred to this idea as the *productivity argument*. That is, better educated individuals would also become more productive and bloodier terrorists. Since all western European countries exhibit very high levels of schooling and education, we are not investigating directly this relationship. Instead, we have to refer to different economic variables which either directly or indirectly might be related to the idea of the productivity argument.

The main variables used are listed below in table 3.1. Henceforth, we briefly describe them highlighting the relationships with the competing arguments. First, GDP per capita is commonly assumed to be the proper indicator for the socio-economic conditions. Therefore, a negative association between GDP per capita and emergence of terrorism would confirm the *economic deprivation* argument. At the same time, while considering the brutality of terrorist incidents, a positive association between GDP per capita and the number of victims would confirm the *productivity* argument. The investment share of real GDP measures the share of investments in relation to total production. In general, the investment share captures the new stimulus for economic development. Therefore, if the association between investments share of GDP and emergence of terrorism turns to be positive, it would support the *modernization* argument. Actual growth rate of real GDP per capita also would capture alternatively either the economic deprivation or the modernization argument; hence the sign is undecided.

[2] See Crenshaw (1981) p. 381.

Unemployment is also commonly assumed as a proxy for a broader social welfare. The higher is the rate in unemployment the lower is assumed to be social welfare. Moreover, the higher is the number of unemployed individuals, the higher might be the number of potential terrorist because of a lower opportunity cost. Therefore, needless to say, following the economic deprivation argument unemployment can be predicted to be positively associated with eruption of terrorism and political violence. Empirical evidence in this respect has been provided for several scenarios. Sayre (2009) shows a positive relationship between unemployment and Palestinian suicide bombings in West Bank. Honaker (2010) shows that unemployment is a leading factor to explain violence in Northern Ireland.

A collateral argument is related to youth unemployment. In fact, the youth unemployment rates in general are significantly higher than adult rates and they are more cyclically variables. In the presence of increasing youth unemployment rates, the sense of grievance and frustration can be channeled to political violence. In this respect it is also important to consider that youth unemployment rates often reflect discrimination in labor market based upon ethnic origins. In the UK, for example, the Department for Education and Employment estimated the unemployment rates of all ethnic minorities to be 17.6% compared to a rate of 7.7% for "Whites" (O'Higgins, 1997). Moreover, given the structural characteristics of youth labor market, the opportunity costs of would-be young terrorists is lower than adult. Such predicted association falls also within the broader argument of eruption of political violence in the presence of "youth bulge" (Urdal, 2006).

Eventually, labor productivity is a fundamental capacity of economic system to grow in the long-run. It captures the capacity of economic systems to grow continuously and in a sustainable way. Moreover, labor productivity also captures the ability of workers to earn higher salaries so shaping the set of economic opportunities for individuals. The measure of labor productivity adopted here is drawn from ILO-KILM database and it is computed as the GDP per hour worked. To our knowledge there is no previous analysis of the relationship between terrorism and labor productivity. Probably, if current labor productivity is high enough to raise the opportunity cost of would-be terrorist, the expected association between it and the emergence of terrorist incidents is to be expected negative.

Inflation denotes the average annual change in consumer price index and it is extracted from IMF/WEO. On one hand, it proxies changes in purchasing power of individuals which can affect the standard of living. For instance, Fielding and Shortland (2009) study the consequences of an increase in the price of bread on the number of casualties in Egyptian political violence. As the price of bread increases the number of Egyptian civilians killed and wounded by other civilians also increases as well as the number of security forces casualties. Caruso and Schneider (2010) found a robust negative association between inflation and the number of victims of jihadist terrorist incidents in a sample of twenty countries.

The current degree of openness has been drawn from Penn World tables, it is commonly assumed to be a channel of economic growth. Therefore it is expected to have the same sign of GDP per capita. Bugoon (2006) finds a negative association between the degree of openness and the number of incidents in a sample of countries. The main variables, their descriptive statistics and their sources are shown in table 3.1.

Table 3.1: Main variables, sources and descriptive statistics

Description	Source	Obs.	Mean	Std. Dev.	Min	Max
Real GDP per capita (logged)	Penn world tables	2579	10.091	.117	9.75	10.49
Investment share of real GDP per capita (logged)	Penn world tables	2694	3.261	.162	2.996	3.661
Growth rate of real GDP per capita (logged)	Penn world tables	2666	.705	.859	-1.787	2.414
Unemployment rate (logged)	ILO - KILM	2693	2.285	.416	.200	3.183
Youth unemployment rate (logged)	ILO - KILM	2695	2.987	.478	1.481	3.759
Inflation rate (logged)	IMF	2694	4.566	.076	4.323	4.839
Labor productivity GDP per hour worked (constant 1990 US$ at PPP) [logged]	ILO - KILM	2694	3.21	.195	2.667	3.555
Openness (logged)	Penn world tables	2694	3.853	.216	3.589	5.144

RAE index of electoral fractionalization	Armingeon et al.	1913	70.482	5.382	62.032	90.28
Duration of Polity	Polity IV	2694	3.443	.937	1.386	5.056

4. Explaining the emergence of terrorist events

Hereafter, in this section we examine first the socio-economic determinants of terrorism. That is, this section is intended to explain the causes of emergence of terrorism. We analyse this by using the following panel data model:

$$terr_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 I_{it} + \varepsilon_{it}$$

Where $terr$ is the log of number terrorist incidents in country $i = 1, \dots, 12$ at time $t = 1994, \dots 2007$. X and I are respectively the set of economic and political variables which have been presented in the previous section and listed in table 3.1. The dependent variable is a count data, and therefore, the econometric specification is a panel negative binomial regression. The fixed effect estimator is applied.

The results are presented in table 4.1. First of all, our results show a robust negative and statistically significant relationship between the structural economic conditions and the incidence of terrorism and political violence. The GDP per capita is negatively associated with the emergence of terrorism and political violence, and is robust using various specifications. The magnitude of the estimated coefficient is also relevant. For instance in the baseline specification of column 1, if GDP per capita increases by 1% the relative change in the expected number of terrorist incidents decreases by 3.5%. In columns 6 and 7 (once the political covariates have been added) the coefficients are even higher. That is, if GDP per capita increases by 1% the relative change in the expected number of terrorist incidents decreases by 5.5%. These findings support the economic deprivation argument. Moreover, in the other specifications coefficients for growth rate of real GDP per capita, labor productivity and degree of openness also confirm this result: (i) an increase by 1% of GDP growth rate is associated with a decrease of around 1.64% in the expected number of terrorist

incidents; (ii) an increase of 1% of labor productivity is associated with a decrease of slightly less than 5%; (iii) an increase of 1% of degree of openness is associated with a decrease in the expected number of terrorist incidents which vary from 1% to 1.5% .

That is, the first broad explanation which turns to be evident is that in western European countries the classical economic argument of *opportunity cost* seems to be confirmed. That is, the larger is the set of economic opportunities for an individual the lower is the likelihood or the willingness for him to be involved in a terrorist activity. In simpler words, the higher is the level of well-being the lower is the probability of terrorist activity in some territories.

However, second, there are some findings which, *ceteris paribus*, seem to confirm the hypothesis highlighted by modernization theory. In columns 3,4 and 5 a robust association between the share of investments in real GDP per capita. More precisely, an increase of 1% in the investment share in real GDP is associated with an increase of around 3% in the expected number of terrorist incidents. This suggests that another interpretation can be produced when considering future economic scenarios. In fact, the investment share captures somehow the future economic growth. That is, in simpler words, the higher is investments share of real GDP per capita today, the higher is assumed to be the economic growth tomorrow. This is confirmed also by the negative association between the incidence of terrorism and the long-term interest rate which discourages current investments. In sum, expected future economic growth is associated with an increase in current terrorist activity.

Eventually, this positive association between the changing economic environment and the incidence of terrorism and politically motivated violence is also confirmed when analyzing with the positive correlation with youth unemployment. In columns 4 and 5 of table 4, results show that an increase of 1 percent in youth unemployment translates into a .5 percent increase in terrorist activity. That is, frustration and poor expectations about future economic prosperity also can fuel terrorist activity.

Third, with regard to political variables, the results highlight some peculiar factors. There is also a positive association between current fractionalization of electoral votes between parties and the incidence of terrorism. The electoral fractionalization is captured by means of the Rae index of electoral fractionalization. That is, the higher is the index of electoral fractionalization, the higher is the number of terrorist incidents.

The index of electoral fractionalization decreases in the concentration of electoral votes. The Rae index reaches its maximum only in the presence of an infinite number of equally supported parties. In simpler words, the higher is the current political fragmentation, the higher is the expected number of terrorist incidents. Moreover, the higher is the number of right-wing parties in percentage of total cabinet posts, the higher is the number of terrorist incidence. However, the latter results might be misleading at this stage because of simultaneity or also reverse causality. Other political variables as duration of polity and the rate of voter turnout do not show any significant relationship with the number of terrorist incidents.

To sum up, what can be highlighted is that economic deprivation and modernization theories both hold for western European countries. In fact, it seems that when considering current economic activity the economic deprivation theory holds. Instead, the modernization theory seems to hold when agents take into account future economic trends.

Table 4.1: Dependent Variable: Number of terrorist Incidents (Panel Negative Binomial Regression)

	FE 1	**FE 2**	**FE 3**	**FE 4**	**FE 5**	**FE 6**	**FE 7**	**FE 8**	**FE 9**	**FE 10**
GDP per capita	**-3.46*** **	**-2.56***				**-5.51*** **	**-5.54*** **			
	(1.25)	(1.504)				(1.345)	(1.82)			
	[.01]	[0.09]				[.00]	[.00]			
Investment share of real GDP per capita			**3.06*** **	**2.64*** **	**2.69*** **			1.43	1.32	
			(.98)	(.977)	(.881)			(1.032)	(.984)	
			[.00]	[.01]	[.00]			[.16]	[.18]	
Growth Rate			-.128	-.151				**-.145***	**-.164** **	**-.16***
			(.095)	(.099)				(.088)	(.089)	(.091)
			[.18]	[.13]				[.10]	[.07]	[.08]
Inflation	-.002	-.009	**-.076*** **	**-.07*** **	**-.041*** **	-.02	-.018	**-.05*** **	**-.047*** **	**-.04** **
	(.015)	(.016)	(.016)	(.015)	(.011)	(.02)	(.022)	(.0187)	(.018)	(.016)
	[.89]	[.59]	[.00]	[.00]	[.00]	[.30]	[.43]	[.01]	[.01]	[.03]
Unemployment	.10		-.022			**-.60***		.-26		
	(.265)		(.320)			(.356)		(.384)		
	[.70]		[.95]			[.09]		[.50]		
Youth Unemployment		.389		**.55** **	**.50*** **		-.02		.51	.44
		(.341)		(.30)	(.281)		(.402)		(.33)	(.311)

		[.25]		[.07]	[.08]		[.97]		[.12]	[.16]
Productivity					**-1.75*** **			**-4.90*** **	**-4.79*** **	**-4.93*** **
					(.704)			(1.066)	(1.036)	(.984)
					[.01]			[.00]	[.00]	[.00]
Openess	-.57	-.55	**-1.46*** **	**-1.09*** **	-.69	**-1.14** **	-.73	**-1.47*** **	-.89	**-1.12** **
	(.484)	(.477)	(.467)	(.462)	(.471)	(.60)	(.564)	(.591)	(.596)	(.505)
	[.24]	[.25]	[.00]	[.02]	[.14]	[.05]	[.20]	[.01]	[.14]	[.03]
Long-term interest rate			-.038	-.06		**-.12** **	**-.13** **	-.097	**-.10* **	**-.12** **
			(.54)	(.053)		(.066)	(.063)	(.061)	(.58)	(.058)
			[.48]	[.24]		[.06]	[.04]	[.11]	[0.08]	[.04]
Duration of Polity						-.241	-.051	-.021	.014	
						(.265)	(.235)	(.274)	(.263)	
						[.36]	[.82]	[.94]	[.96]	
Rae index of electoral fractionalization						**.05** **	**.046** **	**.083*** **	**.076*** **	**.086*** **
						(.022)	(.025)	(.029)	(.028)	(.027)
						[.03]	[.06]	[.00]	[.01]	[.00]
Voter Turnout						-.02	-.44	.083	-.915	
						(1.156)	(1.112)	(1.4127)	(1.395)	
						[.99]	[.70]	[.95]	[.51]	
Right govt %						**.007*** **	**.007*** **	**.007*** **	**.008*** **	**.007*** **
						(.0025)	(.003)	(.003)	(.0028)	(.002)
						[.00]	[.01]	[.02]	[.01]	[.00]
Const	**37.79*** **	**28.33** **	4.18	2.18	2.73	**62.28*** **	**60.86**	**17.34*** **	**17.42*** **	**17.78*** **
	(10.99)	(13.98)	(3.76)	(3.79)	(3.37)	(13.83)	(17.98)	(7.48)	(7.322)	(3.47)
	[0.00]	[.04]	[.27]	[.57]	[.42]	[.00]	[.00]	[.02]	[.02]	[.00]
Obs	168	168	155	155	168	164	164			155
Groups	12	12	12	12	12	12	12	12	12	12
Log Likelihood	**-415.34**	**-414.774**	**-371.60**	**-369.93**	**-407.142**	**-388.17**	**-389.57**	**-359.03**	**-358.07**	**-359.184**

Notes: *** significant at 1%, ** significant al 5%, * significant at 10%. For sake of readability statistically significant coefficients are in bold.

5. Explaining brutality of terrorist events

In this section, we analyze the second hypothesis of our paper. That is, whether or not is it possible to infer some economic determinants for terrorist productivity, namely

terrorist brutality. The following model is intended to explain the brutality of terrorist activities.

$$vict_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 I_{it} + \varepsilon_{it}$$

The dependent variable $vict$ which has been assumed to proxy the brutality of terrorists is the log of the number of victims of actual incidents. The number of victims is computed as the sum of injured and dead people in country $i = 1, \ldots, 12$ at time $t = 1994, \ldots 2007$. All incidents are ordered by date within the same year. Needless to say, the number of incidents differ widely across years. However, it must be noted that in our sample the great majority of incidents present zero victims (2068 out of 2696). Even on this case a negative binomial regression has been applied. Table 5.1 reports the results of regressions which are intended to explain the brutality of terrorism.

Table 5.1: Dependent Variable: Number of victims per incident (Panel Negative Binomial Regression)

	FE 1	**FE 2**	**FE 3**	**FE 4**	**FE 5**	**FE 6**	**FE 7**	**FE 8**	**FE 9**	**FE 10**
GDP per capita	.313	**3.41*** **					1.61	**3.68*** **		
	(.818)	(.716)					(1.08)	(.880)		
	[.70]	[.00]					[.14]	[.00]		
Investment share of real GDP per capita			**-1.60*** **	**-2.43*** **	**-1.39*** **	**-2.27*** **			-.522	**-1.64*** **
			(.372)	(.292)	(.396)	(.317)			(.654)	(.579)
			[.00]	[.00]	[.00]	[.00]			[.40]	[.01]
Growth Rate of real GDP per capita			**.336*** **	**.319*** **	**.377*** **	**.355*** **			**.204** **	**.17***
			(.069)	(.068)	(.075)	(.074)			(.107)	(.105)
			[.00]	[.00]	[.00]	[.00]			[.06]	[.10]
Inflation	**-3.60*** **	**-5.70*** **	**-2.13*** **	**-1.28***	**-2.86*** **	**-1.86*** **	**-5.33*** **	**-6.88*** **	**-4.21*** **	**-3.09*** **
	(1.094)	(1.091)	(.813)	(.786)	(.958)	(.913)	(1.41)	(1.37)	(1.191)	(1.146)
	[.01]	[.00]	[.01]	[.10]	[.00]	[.04]	[.00]	[.00]	[.00]	[.01]
Unemployment	**-.958*** **	-.100	**-.604*** **		**-.618*** **		**-.53*** **		**-.656*** **	
	(.141)	(.086)	(.159)		(.159)		(.181)		(.1807)	
	[.00]	[.24]	[.00]		[.00]		[.00]		[.00]	
Youth Unemployment				-.10		-.101		.016		-.021
				(.088)		(.087)		(.092)		(.0921)

				[.26]		[.25]		[.86]		[.82]
Productivity					.617	.526			.739	.656
					(.405)	(.403)			(.542)	(.541)
					[.13]	[.19]			[.17]	[.22]
Openess				**1.17*** **	.511	**1.16*** **			.229	**1.10*** **
				(.285)	(.352)	(.284)			(.456)	(.365)
				[.02]	[.15]	[.00]			[.61]	[.00]
Duration of Polity							**.32*** **	**.415*** **	**.17***	.152
							(.063)	(.055)	(.100)	(.104)
							[.00]	[.00]	[.09]	[.14]
Rae index of electoral fractionalization							.000	.001	.001	.001
							(.009)	(.009)	(.009)	(.009)
							[.99]	[.89]	[.90]	[.93]
const	**13.06*** **	**-10.53*** **	**11.51*** **	**6.79*** **	**12.28*** **	**7.25*** **	5.77	**-9.79** **	**15.97*** **	**10.00*** **
	(5.31)	(4.23)	(3.204)	(2.97)	(3.31)	(3.03)	(6.94)	(4.85)	(4.00)	(3.647)
	[.01]	[.01]	[.00]	[.02]	[.00]	[.02]	[.40]	[.04]	[.00]	[.01]
Obs	2579	2579	2665	2666	2665	2666	1860	1860	1897	1897
Groups	12	12	12	12	12	12	12	12	12	12
Log Likelihood	-2599.63		-2605.15	-2612.08	-2603.99	-2611.22	-2046.09	-2050.32	-2054.69	-2061.40

Notes: *** significant at 1%, ** significant al 5%, * significant at 10%. For sake of readability statistically significant coefficients are in bold.

The first important result is that the number of victims is increasing in GDP per capita as well as in the growth rate of GDP per capita. In particular, in columns 2 and 8, a 1 percent increase in GDP per capita is associated with an increase of around 3.5 percent in the expected number of victims. In columns 3-6, the growth rate of real GDP per capita is positively and significantly associated with the number of victims. In particular, an 1 percent increase in growth rate translates into a .3-.4 percent increase in the number of victims. The positive association between terrorist brutality and GDP per capita may reflect the capability argument. That is, terrorists in high-income countries are supposed to be terrorists able to carry out bloody attacks. In other words, in high-income countries as western European countries, terrorists can be assumed to be highly 'productive'. All the variables which contribute to current economic growth present coefficients in line with this point. In sum, brutality of terrorists is expected to be higher in the presence of higher economic development. This is in line with the productivity argument.

Brutality of terrorists is also positively associated with the duration of polity. This suggests that in the presence of a durable and persistent polity, terrorists are likely to be more brutal in order to gain more attention and support from population. This is also partly confirmed by the positive relationship between the degree of openness and the brutality of terrorist incidents. At the same time, the negative association with the investment share of GDP per capita is probably explained along the line of a reverse causality. That is, it would be predictable that investments decrease in brutality of terrorism.

6. Conclusions

The goal of this paper is twofold: First, to empirically investigate the economic and socio-political causes of the number of terrorist attacks and second, to explain political violence and terrorist brutality (number of people killed) again with economic and non-economic variables for 12 countries of Western Europe over 1994 to 2007. As usual the econometric/empirical results of this panel estimation are mixed.

First, our results clearly demonstrate that in Western European countries the classical economic argument of opportunity costs can be confirmed; i.e. the larger the set of economic opportunities for an individual, the lower the likelihood or the willingness for her/him to be involved in terrorist activities. However and second, as well as in line with modernization theory, expected future economic growth is positively associated with an increase in current terrorist activities. Third, our econometric findings demonstrate that terrorist brutality (measured in victims per accident) is explained following the productivity argument; i.e. the number of terrorist causalities is positively associated with red GDP per capita. Brutality of terrorists is also associated with the duration of polity; i.e. measuring that in the presence of a durable and persistent polity, terrorists are likely to be more brutal in order to gain more attention.

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