

# Terrorism in the Worlds of Welfare Capitalism

Tim Krieger\*      Daniel Meierrieks†

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## Abstract

This contribution investigates the link between welfare policies and domestic terrorism for 15 Western European countries during 1984-2003. We argue that welfare policies improve national socio-economic conditions and thus increase the opportunity costs of terrorism. We investigate whether spending in certain policy fields translates into a reduction of terrorism, and whether certain worlds of welfare capitalism [Esping-Andersen (1990)] are more resistant to the threat of domestic terrorism. We find strong support that higher spending in certain policy fields is associated with a significant reduction in domestic terrorist activity. Only moderate evidence indicates that the different worlds of welfare capitalism are differently prepared to deal with domestic terrorism. Spending – or the mere existence of a social system – seems to be more strongly associated with a reduction in domestic terrorism than the actual welfare systems' institutional design. Our findings are robust to a variety of specifications.

*Keywords:* Domestic Terrorism, Social Policy, Welfare Regimes, Worlds of Welfare Capitalism, Western Europe, Paradox of Redistribution, Beveridge vs. Bismarck

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\*University of Paderborn, Department of Economics, Warburger Straße 100, 33098 Paderborn, Germany, Ph.: +49-(0)5251-60-2117, Fax: +49-(0)5251-60-5005, E-mail: tim.krieger@notes.uni-paderborn.de.

†Corresponding author. University of Paderborn, Department of Economics, Warburger Straße 100, 33098 Paderborn, Germany. Ph.: +49-(0)5251-60-2115, Fax: +49-(0)5251-60-3540, E-mail: daniel.meierrieks@notes.uni-paderborn.de.

# 1 Introduction

Many Western European countries have suffered from major episodes of domestic terrorist activity since the 1950s which were often driven by left-wing or separatist ideologies (cf. Shughart, 2006; Engene, 2007). As indicated by Figure 1, between 1984 and 2003 alone almost 2600 internal terrorist attacks occurred in which nearly 3800 individuals were killed or injured. Internal terrorist activity also entailed notable indirect effects as it negatively impacted the economy and polity of targeted countries.<sup>1</sup> Because of its sizable direct and indirect costs, this contribution seeks to investigate the determinants of domestic terrorist activity in Western Europe. In particular, we aim at augmenting the academic discourse on a potential *welfare policy-terrorism nexus*, as commenced by Burgoon (2006). Analyzing whether social policies and welfare state institutions impact the patterns of domestic terrorism is especially interesting for this world region because all scrutinized countries exhibit developed welfare states. Burgoon (2006) argues that social policies which aim at improving socio-economic conditions may reduce terrorist activity by removing several material causes for violence. He offers an empirical analysis of his main hypothesis, finding that welfare efforts are indeed linked to a reduction in the production of and vulnerability to transnational terrorism. His analysis has come under some criticism, especially by Crenshaw *et al.* (2007) who point at several potential flaws in Burgoon's argumentation and econometric procedure. We take Burgoon's (2006) analysis as a starting point of our investigation, also keeping in mind already raised objections to improve our empirical approach. We add on to and complement Burgoon's analysis by, *inter alia*, (i) concentrating on domestic instead of transnational terrorism, as we expect the relationship between social systems and domestic terrorism to be particularly strong, (ii) employing welfare policy proxies that allow for an improved analysis of economic mechanics, (iii) furthermore analyzing – for the first time – related institutional aspects of welfare regimes and their influence on terrorism, (iv) focusing on one world region only that is particularly suited for an analysis of the interaction of welfare policies and terrorism, and (iv) carefully accounting for a variety of factors which may also interact with terrorism.

– Figure 1 here –

We scrutinize domestic terrorist activity for Western Europe during 1984-2003, using time-series cross-sectional data for 15 countries. In general, we hypothesize that welfare policies alter the national socio-economic conditions in ways that reduce domestic terrorist activity, implicitly stating that terrorism at least

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<sup>1</sup>Several studies analyze the impact of terrorism on various economic and political factors in Western Europe. See Gaibulloev and Sandler (2008) for a general overview of the negative effects of terrorism on economic growth in this world region. See Enders and Sandler (1996), Abadie and Gardeazabal (2003), Fielding (2003) and Greenbaum *et al.* (2007) for case studies that investigate the influence of terrorism on tourism, production, investment, employment and the like in Spain, Greece, Northern Ireland and Italy. See Indridason (2008) for the effect of terrorist activity on political systems in Western Europe.

has some material roots. The opportunity costs of violence increase when, for instance, as a consequence of successful social policies poverty and inequality diminish or additional economic alternatives open up. Taking up the debate whether terrorism in fact has material roots, we also turn to a more general description of welfare states by considering their institutional design. We argue that certain *worlds of welfare capitalism* – a concept originally introduced by Esping-Andersen (1990) – may be more successful in achieving socio-economic security through welfare policies and should thereby be less prone to terrorism. As our main results, we find that (i) higher spending in certain policy fields is indeed associated with a significant reduction in domestic terrorist activity. For instance, total social spending is significantly and negatively correlated with terrorist activity, indicating that the mere existence of a welfare system tends to discourage terrorism. (ii) There are some policy fields where more spending does not translate into less terrorism as, for instance, spending on labor market programs or public housing. (iii) Only moderate evidence indicates that the different worlds of welfare capitalism are differently prepared to deal with domestic terrorism. Some findings indeed suggest that *conservative* or *social-democratic* systems are less prone to terrorist activity than *liberal* systems. But this evidence is not systematic. Spending – or the mere existence of a social system – seems to be more strongly associated with a reduction in domestic terrorism than the actual welfare systems’ institutional design. (iv) To sum up, we find ample evidence that links welfare policies with domestic terrorism. Welfare policy activities in certain arenas seem to translate into a reduction of domestic terrorism, presumably due to their effects on the socio-economic conditions of potential terrorists or terrorist supporters. Our findings are robust to a variety of specifications.

The remainder of this paper is structured as follows. After this introduction, we review existing literature on potential links between social policies and terrorism in Section 2. In Section 3, we present the data and the empirical framework used for our investigation. Section 4 provides the empirical results. Section 5 discusses our findings. In Section 6, we sum up this contribution’s findings.

## 2 Welfare Systems and Terrorism

### 2.1 Social Policies and Terrorism

#### Material Causes of Terrorism

Economic theory identifies terrorists as rational actors who use violence as a means to achieve certain political goals. The terrorists’ calculus includes the costs and benefits – and opportunity costs – arising from terrorist activity. Depending on the costs, benefits and general budget constraints linked to terrorist activity, the actual level of terrorism is chosen (cf., e.g., Frey and Luechinger, 2003). Country-specific factors may influence the terrorists’ calculus. For instance, they may make recruitment more costly – for instance, because potential terrorists can capitalize on non-violent opportunities instead – or may increase

the payoffs from terror when economic and political power is centralized; in either case, the actual terrorism level is influenced by specific determinants. In this contribution, we focus on social policy as one determinant of domestic terrorism. We argue that social policies and terrorism are linked via economy-related channels. Basically, welfare policies change the socio-economic conditions of countries favorably, so they become less vulnerable to violence that is incited by these very conditions. In other words, social policies increase the opportunity costs of terrorism, making non-violence more attractive. This argumentation requires that terrorism indeed has material roots – an issue that is strongly discussed in related literature. Before we outline potential channels of interaction between social policies and terrorism, we hence first review some existing evidence on possible terrorism causes.<sup>2</sup>

A variety of studies find that economic conditions determine terrorist activity. Blomberg and Hess (2008a) find that high income and trade openness reduce the likelihood of transnational terrorism production. A similar results is obtained by Blomberg and Hess (2008b). When analyzing the phenomenon of domestic terrorism, they find that economic success also reduces this kind of terrorist activity. Li and Schaub (2004) investigate the effect of economic integration on transnational terrorist attacks. While they find no direct linkages, they nevertheless argue that economic integration discourages transnational terrorism indirectly through its positive effect on economic development. Blomberg *et al.* (2004) find that short-run and long-run economic conditions – that is, economic growth and income levels – are important determinants of transnational terrorist attacks. A number of further studies which also control for the effect of short-run and structural economic conditions on the production and targets of transnational terrorism likewise find that economic factors matter (cf., e.g., Braithwaite and Li, 2007; Lai, 2007; Freytag *et al.*, 2008).

Other studies challenge the view of strong linkages between economic factors and terrorism. Abadie (2006) does not find that poverty drives terrorism but that it is rather political factors – in particular in times of political transformation – that influence terror risks. Kurrild-Klitgaard *et al.* (2006) also dismiss the hypothesis that short-run as well as long-run economic factors are linked to terrorism. Rather, they argue that political development – in terms of political rights and civil liberties – is more closely connected with the genesis of terrorism. Providing micro as well as macro evidence, Krueger and Maleckova (2003) take the same line. They find that Palestinian terrorists are rather well-off compared to their non-violent counterparts. In a country-level analysis, they similarly detect no relationship between poverty and terrorism, arguing that evidence on political factors driving terrorism is more convincing. The results of Krueger and Laitin (2008) also suggest that transnational terrorism is more likely to originate from countries suffering from political repression, while economic factors matter only to the explanation of attack decisions of transnational terrorists.

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<sup>2</sup>Krieger and Meierrieks (2008) offer a far more comprehensive overview of potential terrorism causes and related empirical evidence.

## Linkages to Terrorism

We acknowledge that there is no academic consensus on whether economic factors and terrorism share significant connections. Still, for our sample – 15 Western European countries during 1984-2003 – a variety of other explanatory approaches do not appear to be fitting. For instance, this applies to the role of a variety of political factors – repression or state failure – as terrorism catalysts. For a number of other factors, we control for accordingly in the empirical analysis. Considering the links between social policies and terrorism, we argue that such policies reduce terrorism by (i) promoting short-run economic performance and (ii) ameliorating structural economic conditions, thus generally curtailing and impeding extremist influence in societies. In the following, we present corresponding empirical evidence before verbalizing our first hypothesis.

Social policies may be associated with increased economic performance, productivity and competitiveness. Harris (2002) argues that specific social policies – for instance, health care, education or labor market programs – may accelerate aggregate growth and productivity by raising national levels of human capital accumulation or by stimulating labor market participation, innovation or investment. The findings of De Grauwe and Polan (2005) indicate that international competitiveness and social security systems are correlated. That is, countries with developed welfare systems exhibit high international competitiveness, for example, as social systems increase national levels of human capital.

Welfare policies may also improve structural economic conditions. Förster and Pearson (2002) show that aggregate poverty in 14 OECD countries decreased as a consequence of social transfers. The results of Caminada and Goudswaard (2001) indicate that income inequality in OECD countries increased with retrenchments in social system generosity. Harris (2002) furthermore argues that increases in income inequality may be associated with poorer economic performance, thus giving a further incentive for social policies. At the same time, Alesina *et al.* (2004) show that life satisfaction is reduced in more unequal societies, with traditional welfare states – such as the Scandinavian ones – providing a particularly high level of ‘happiness’. High levels of ‘happiness’ – as they are ‘produced’ by sound welfare states – should coincide with a low vulnerability to or generation of terrorism (cf., e.g., Frey and Stutzer, 2005).

To sum up, social policies may reduce terrorist activity by increasing macro-economic performance, hence providing additional economic opportunities; this should reduce grievances linked to economic marginalization as economic opportunities accrete. In other words, the opportunity costs of terrorism should increase, making domestic terrorism less likely. Social policies may also improve structural economic conditions linked to poverty and income inequality; this should lower discontent associated with economic exclusion. This again should increase the opportunity costs of violence. With social policies at work, potential terrorists and terrorist supporters have more to lose. Regarding both kinds of transaction channels, we implicitly argue with the idea that terrorism is at least partially driven by material causes. By swaying the material conditions of

societies in favorable ways, welfare policies should reduce extremist influence in societies, given their effects on the opportunity cost considerations of potential terrorists and terrorist supporters.

*Hypothesis (H<sub>1</sub>):* Increased social spending and welfare policies, inter alia, increase economic performance, augment socio-economic conditions and supply citizens with increased economic opportunities. By this means, terrorist actions becomes less likely, given that – ceteris paribus – the opportunity costs of terrorism increase.

## 2.2 Worlds of Welfare Capitalism and Terrorism

### The Worlds of Welfare Capitalism

Previously, we highlighted the role of social policies – in a more material sense – in reducing incentives for political violence. We now focus on the typology or design of welfare states. Welfare regimes may differ in terms of, for instance, the rules of access to the system, the conditions under which one receives social support, the role of the state, the role of the market and so forth. These rules and conditions determine a general *welfare state philosophy* which is not necessarily related to material aspects but instead focuses on questions of, for instance, social inclusion or solidarity between societal groups. Basically, we hypothesize that certain kinds of welfare regimes are more successful in reaching their policy goals, and thus in harnessing the terror-dampening effects of welfare policies.

In order to investigate the nexus between terrorism and this specific view on the welfare state, we first consider different kinds of welfare regimes, building on the concept of Esping-Andersen (1990) who offers a classification of welfare states, taking into account cross-country differences of social systems. He argues that in advanced economies 'ideal' worlds of welfare capitalism exist which differ with respect to two fundamental dimensions: decommodification and social stratification.<sup>3</sup> Although not exempted from criticism, the typology of welfare states by Esping-Andersen (1990) allows for the differentiation of welfare regimes along these two dimensions.<sup>4</sup> Esping-Andersen (1990) identifies three 'ideal' worlds of welfare capitalism for Western Europe, namely the liberal, corporatist and social-democratic ones.

The *liberal type of welfare capitalism* emphasizes the importance of the individual and of the market, whereas the role of the state is belittled as a consequence

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<sup>3</sup> *Decommodification* refers to the degree to which a citizen is dependent on the labor market to keep up a certain standard of living. In social systems that offer generous welfare services, the degree of market dependence is smaller than in systems that offer only minimum compensations, and thus their degree of decommodification is higher. *Stratification* refers to the societal structuring fostered by welfare policies. Social policies may aim at conserving a society's status quo, at unleashing societal potential for individual success, or at overcoming class cleavages. Consequently, social systems may rely on narrow or broad solidarities, depending on which concept is more fitting to underlying ideas of social structuring.

<sup>4</sup> We refer to the excellent survey of Arts and Gelissen (2002) for a broader discussion of the classification of welfare regimes, of related literature and extensions, of criticism and the like.

of an anti-state bias rooted in ‘weak state’ traditions. In a liberal system, the level of decommodification is low, for instance, as insurances are often privatized. The primacy of the market usually leads to a social stratification where a minority is dependent on low levels of state benefits, while a majority can afford private insurance schemes. That is, high inequality and social cleavages may be prominent in liberal systems. The United Kingdom is a prototype in the liberal world of welfare capitalism.

*Corporatist or conservative welfare systems* are usually operated by ‘strong states’ and exhibit moderate levels of decommodification. Benefit recipients may maintain their level of income for some time, where benefits usually increase with previous contributions to the system. With respect to social stratification, such welfare regimes tend to preserve a ‘natural’ order, for instance, with respect to the role of the family or of women in society. Germany or France are prototypes in the corporatist world of welfare capitalism.

*Social-democratic welfare regimes* are often rooted in countries with traditions of leftist governments. The level of decommodification is high, as such regimes are universalistic and highly redistributive. The impact of the market and of private insurance is rather marginal. With respect to social stratification, social-democratic systems aim at overcoming social cleavages, and at promoting the ideas of universality and broad solidarity. The Scandinavian countries are prototypes of the social-democratic system.

Related to the idea of different worlds of welfare capitalism is the *paradox of redistribution* (cf., e.g., Korpi and Palme, 1998; Conde-Ruiz and Profeta, 2007; Lefebvre, 2007). It states that the more a welfare state is concerned with creating equality via equal public transfers to all, the less likely it is to reduce poverty and inequality. Welfare states which redistribute larger amounts of money through earnings-related benefits may create more unequal income distribution but are more successful in reducing poverty. Earnings-related transfers are a typical feature of corporatist welfare states, while equal transfers are more common in liberal (at a low level) and social-democratic (at a high level) welfare states.<sup>5</sup>

### **Linkages to Terrorism**

The links between welfare regimes and terrorism are related to previous discussions. That is, when implementing certain social policies, all welfare regimes are potentially able to benefit from terror-reducing effects as described beforehand – for instance, as social policies mitigate poverty, they also mitigate terrorist support by increasing the opportunity costs of terrorism. Still, different welfare regimes may experience different degrees of social policy success. Basically, we hypothesize that some worlds of welfare capitalism are able to reach policy goals linked to terrorism reduction more successfully than others. These policy goals include, on the one hand, the corresponding manipulation of economic

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<sup>5</sup>In the literature, the terms *Beveridgean* and *Bismarckian* welfare systems are often used for flat benefit and earnings-related benefit, respectively, welfare systems.

variables – for instance, poverty reduction (notice the relation to the *paradox of redistribution*), economic mobilization and so forth – which feed through to a reduction of terrorism. On the other hand, more general political goals – such as solidarity and social inclusion – may also be reached with different success. It should be noted these variables are often interlinked – for instance, Scandinavian countries are usually assumed to exhibit a high level of solidarity but have at the same time large welfare states – and cannot be separated easily, partly due to the problem of measuring hard-to-define concepts such as solidarity. It nevertheless appears reasonable to assume that any type of policy success drives up the price of terrorism. We present some corresponding empirical evidence in the following and verbalize a second hypothesis accordingly.

The studies of Green *et al.* (1994) and Scruggs and Allan (2006) show that more generous welfare regimes are more successful in diminishing absolute poverty and income inequality, respectively. Korpi and Palme (1998) indicate that welfare systems with earnings-related benefits are particularly successful in reducing poverty, at least in comparison to typical *liberal* welfare states.<sup>6</sup> By trend, these results suggest that social-democratic or corporatist welfare regimes are more capable than liberal ones of changing unfavorable economic structures that may be related to political violence.

With respect to economic performance, there is some discussion whether more liberal welfare systems may experience more economic success by means of more efficient markets and a better adjustment to global competition. Here, the results of Bernard and Boucher (2007) show that there is no evidence for such a hypothesis. Their results suggest that different welfare regimes adapt to economic changes in different ways, where there is no system particularly outperforming the others with respect to competitiveness or short-run economic performance. While there is no precise empirical evidence on the relationship of extremism, social conflict and different welfare regimes, we can take the findings of Tsakloglou and Papadopoulos (2002) as a starting point of such a discussion. They find that social exclusion – in the sense of 'chronic cumulative disadvantages' linked to income, living conditions, social relations or so forth – is associated with underlying welfare regimes. That is, the risk of social exclusion is higher in liberal countries than in corporatist ones, whereas the risk of social exclusion is lowest in social-democratic ones. By trend, this suggests that more universalistic and generous welfare regimes are able to effectively counter not only economic but also social marginalization. In consequence, we may hypothesize that the influence of extremist influence and the emergence of social cleavages – as possible root causes of terrorism – should be less pronounced in such welfare regimes that are able to accomplish societal balancing.

Hypothesis (H<sub>2</sub>): Terrorism is, inter alia, linked to socio-economic marginal-

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<sup>6</sup>The explanation for this observation is that in Bismarckian (earnings-related) welfare systems both the poor and the middle class benefit from redistribution and therefore politically support large systems in absolute terms. This allows for more generous benefits towards the poor compared to a small-size Beveridgean system where the middle class itself has to contribute to (flat) transfers to the poor, clearly reducing political support for substantial transfers.



ization. The social-democratic and corporatist welfare worlds are more capable of reducing social – or at least socio-economic – exclusion than the liberal one. Welfare regime generosity parallels with a reduction in terrorist activity because of its effect on the opportunity costs of terrorism.

## 3 Econometric Methodology

### 3.1 Variables and Data

#### Dependent Variables

We indicate terrorist activity by two measures. The frequency of terrorism is measured by the total number of domestic terrorist attacks. The intensity of terrorism is indicated by the sum of people injured or killed in domestic terrorist attacks. Both variables are event counts. We obtain information on terrorist activity from the *Terrorism in Western Europe: Events Data (TWEED)* dataset. From the 18 countries for which TWEED provides information, we choose the 15 Western European countries which actually experienced noticeable terrorist activity during our observation period of 1984-2003.<sup>7</sup>

#### Independent Variables

To test our hypotheses of significant influences of welfare policies and welfare systems on domestic terrorism, we employ a variety of measures which come from two main categories. First, we use social expenditure proxies. Second, we utilize indicators that characterize the design of welfare systems and thus their affiliation with the broad worlds of welfare capitalism clusters. Comprehensive information on all our independent variables is given in the appendix.

With respect to social spending, our overall measure is *total social public expenditure (SOCEXP)*. As we have argued earlier that we expect welfare policies to interact with terrorism through economy-related channels, we choose corresponding proxies that account for related welfare policy fields. We consider spending variables for the three main pillars of the welfare state, i.e. for *public health (HEALTH)*, *unemployment (UNEMP)* and *old age (OLD)*. In line with our first main hypothesis, we expect higher spending to generally coincide with decreases in domestic terrorism, for instance, by means of increased economic security or participation, or augmented social stability and satisfaction. When we control for robustness, we check for the impact of further expenditure variables that play a less important role in most welfare systems or that are complements to the three main expenditure indicators. These variables should be less strongly linked to potential terrorists' living conditions and should thus be less likely linked to violence propensity. We incorporate public expenditure

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<sup>7</sup>The countries included in our sample are: Austria, Belgium, Denmark, France, Germany (includes only information for West Germany prior to 1990), Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom (includes information for Northern Ireland).

on *survivors* (*SURV*), spending on the *active labor market programs* (*LABOR*), the *family* (*FAMILY*) and on *housing* (*HOUSE*).

With respect to measures for welfare state design, we first employ three simple dummy variables to account for the *liberal* (*LIB*), *conservative* (*CONS*) and social-democratic (*SOC*) worlds of welfare capitalism which are based on Esping-Andersen's (1990) original classification. These dummies are of a purely qualitative nature. Further indicators include elements of welfare state generosity as well. Acknowledging that welfare states may be designed as to account for both an *intragenerational* and *intergenerational* perspective, we describe the design of welfare states along these lines by considering their effect on income distributions. The so-called *Bismarckian factor* (*BISM*) measures redistribution between individuals of the same generation by dividing benefits into a flat and into an earnings-related component. A high Bismarckian factor stands for a strong earnings-related component and thus a low degree of intragenerational redistribution; this may lead to sustained income inequality because poverty during working life transfers into poverty during unemployment, retirement and sickness. However, a high Bismarckian factor is usually connected with a large welfare system in absolute terms as it is typical for corporatist welfare states (cf. Krieger and Traub, 2008). According to the *paradox of redistribution*, poverty may be reduced more effectively under this regime. Thus, we expect it to be associated with less terrorism, as such a system may be linked to less economic insecurity or more social satisfaction, at least in comparison to a liberal regime.<sup>8</sup>

One possible measure of intergenerational redistribution is the *replacement rate for pensions* (*PENSREP*). In general, replacement rates are one of the most often used proxy for describing the worlds of welfare capitalism. Replacement rates are figures which indicate of the level of well-being that is made up for by insurance when labor market participation – in the event of unemployment, sickness or old age – is interrupted. Higher replacement rates coincide with higher degrees of decommodification, in particular with respect to unemployment replacement rates. Replacement rates are high in social-democratic and corporatist countries, and rather low in liberal systems. In our analysis we will therefore make use of the replacement rates for *sickness* (*SICKREP*), *unemployment* (*UNEMPREP*) and *pensions*. In line with our second main hypothesis, we expect a negative relationship between replacement rates – as proxies for welfare state design and generosity – and terrorism, as more generous regimes should be more successful in discouraging political violence by means of countering economic or social disenfranchisement.

## Controls

Terrorist activity may also be influenced by a variety of other factors. We take such considerations into account by choosing several control variables that

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<sup>8</sup>It should be noted that our measure of the Bismarckian factor is based on data for pension systems only, hence, we have to control for intergenerational redistribution as well, that is, the importance of transfers between generations. Many transfers have an intergenerational aspect such as pensions, long-term care or health.

account for economic, political, demographic and systemic factors. Additional information on all of these proxies is given in the appendix.

A number of studies find that higher income deters the production of terrorism (cf., e.g., Lai, 2007; Blomberg and Hess, 2008b). Higher per capita income should make it more costly for terrorists to recruit troops or find support, given that the opportunity costs of violence are comparatively high. We therefore include *real GDP per capita* as a first control.<sup>9</sup> Further empirical findings also show that a better quality of economic institutions also discourages terrorism production (cf., e.g. Basuchoudhary and Shughart, 2007; Freytag *et al.*, 2008). We include a measure for *economic freedom* in our analysis, where higher levels of freedom should mean more economic opportunities for individuals and thus less violence.

Political factors may also influence terrorism patterns. Burgoon (2006) argues that the presence of left-wing governments should make terrorism less likely, as left-wing parties are argued to represent disenfranchised social groups more strongly. When such groups are able to enforce their goals – for instance, a redistribution of wealth – politically, they should resort less to violence. Therefore, we include a variable to account for *left-wing governments*. The strength of the state to counter terrorism may also act on terrorist activity. More capable governments may be able to drive down terrorism by making it more costly. We include a measure for the *institutional quality of law enforcement* to capture this idea.

Demographic factors may also matter. We take into account *population size* because it is almost always found to be positively associated with terrorism in empirical analyses (cf., e.g., Krueger and Maleckova, 2003; Li and Schaub, 2004; Burgoon, 2006; Lai, 2007). Larger populations should, for instance, make monitoring for governments more expensive, while making recruitment for terrorist groups less costly. We also control for the effects of *ethnic polarization*. As Montalvo and Reynal-Querol (2005) show, ethnic polarization increases the risk of conflict. Similarly, Basuchoudhary and Shughart (2007) argue that identity conflict – which is linked to ethnic polarization – leads to terrorism. Higher ethnic polarization may coincide, for instance, with an increased likelihood of social and economic exclusion or of struggles over rents, thus increasing the risk of terrorism.

Lastly, we also control for a major systemic change that occurred during our observation period of 1984-2003, namely the end of the *Cold War*. We expect a positive influence of our Cold War variable on domestic terrorism. A number of studies finds that the dynamics of terrorism have changed since the end of the Cold War in the early 1990s (cf., e.g., Robison *et al.*, 2006; Basuchoudhary and Shughart, 2007). For instance, left-wing groups may find harder to recruit troops, given the collapse of Communism, driving down related risks of terrorist activity.

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<sup>9</sup>One may expect GDP per capita and welfare spending to be strongly correlated. Tests on collinearity – reported later – proved otherwise, so we include this measure in our analysis.

### 3.2 Estimation Model

Our analysis is done within a panel context, thereby dissociating from previous studies on the determinants of terrorism which often relied on cross-sectional approaches. We are able to capitalize on both cross-sectional information which reflects differences between countries and time-series information which reflects dynamics within countries over time. As summarized by Baltagi and Raj (1992), panel analyses, amongst others, allow for a better control of heterogeneity effects, reduce problems of collinearity and deliver more efficient econometric estimations.

The dependent variables of our model are count variables which assume only discrete, non-negative values. Standard regression models need the dependent variable to be continuous and random. Our dependent variables violate this requirement, thereby making standard panel-based analysis not feasible. We hence employ a count model. As summarized by Winkelmann and Zimmermann (1995) and Greene (2007), such count models may take various forms, depending on the underlying distributions describing the counting process. The variances of our dependent variables are larger than their respective means, as it can be seen from the summary statistics in Table 1. Because of this so-called overdispersion, we employ a Negative Binomial count model instead which does not suffer from inefficiency problems which may result from overdispersion.<sup>10</sup>

– Table 1 here –

We employ a non zero-inflated negative binomial model for our analysis of the welfare policy-terrorism nexus, utilizing cross-sectional time-series data for 15 Western European countries during 1984-2003. We use fixed effects.<sup>11</sup> The equation of the model is as follows:

$$Terror_{jit} = \alpha_i + \beta_1 SOC_{ji,t-1} + \beta_2' X_{i,t-1} + \lambda_t + \epsilon_{it} \quad (1)$$

where  $Terror_{jit}$  is the  $j$ th terrorism indicator for country  $i$  in period  $t$ , and  $SOC_{it}$  is our  $j$ th welfare policy measure for country  $i$  in period  $t-1$ .  $X_{i,t-1}$  is the vector of control variables for  $i$  in the  $(t-1)$  lagged form.  $\beta_1$  and  $\beta_2$  are coefficients,  $\lambda_t$  are the fixed time effects, and  $\epsilon_{it}$  is the error term. We let both the independent variable and control variables enter the model with  $(t-1)$  lagged values as we assume that any changes in these parameters should affect terrorist behavior only after some time.

<sup>10</sup>We may need to take into account the possibility of excess zeros in our sample which may be the actual cause of overdispersion. Zero inflation can cause efficiency problems if not accounted for. Burgoon (2006) argues that zero inflation in the context of terrorism analysis may occur because of systematic differences in the likelihood and causes of terrorist activity. Additionally, zero inflation may be a consequence of under-reporting biases of terrorist activity in countries with low levels of press freedom. Given our data sample for Western Europe during 1984-2003, we see no reason for assuming the existence of systematic differences in terrorist activity across countries or of any substantial under-reporting bias. On these grounds, we do not see the necessity to correct for zero inflation.

<sup>11</sup>As reported later, our results do not change systematically when employing random instead of fixed effects in our estimations.

## 4 Empirical Results

### 4.1 Main Findings

#### Welfare Expenditures and Terrorism

We first consider the connections between social spending and the number of terrorist attacks. Here, we find that total social expenditure and health expenditure significantly reduce the number of terrorist attacks; spending on unemployment and on old age is not found to diminish the frequency of domestic terrorism. Our findings thus offer some support for our first main hypothesis that links increased social spending to a reduction of terrorism. Interestingly, however, the impact of social spending for unemployment – which should be solidly linked to terrorism if it has a material basis – on the frequency of terrorism is not very strong; still, the estimator has the expected sign. Perhaps the long-run dynamics of the welfare policy-terrorism nexus – for instance, the build-up of human capital or social satisfaction through public health expenditures – are more important than its short-run ones. The important role of health spending is confirmed when we run our regression with all three spending variables simultaneously, where only the health variable have a significantly negative effect on terrorism.

Turning now to the ferocity of domestic terrorism, our results for total social expenditure and health spending are confirmed as we detect a significant and negative association between them and the number of victims from domestic terrorism. In contrast to our former findings, we now also find a statistically significant effect of both unemployment expenditures and old age spending on terrorism, so such spending also reduces terrorist violence. When running the regression with all three variables simultaneously, only unemployment exhibits a significant and negative relationship with terrorist violence. When we change our dependent variable, we again find support for our first main hypothesis. That is, there is evidence that increased welfare spending in the most relevant policy fields is linked to a significant reduction in terrorist violence. We argue that this mechanism most likely works through a positive effect of welfare policies on the socio-economic basis of targeted countries.

Considering our results for the controls, we find a consistent negative relationship between per capita income and the frequency and ferocity of domestic terrorism. A strong and positive association is found between population size and terrorism, as well as between ethnic polarization and terrorism. More terrorist attacks appear to have happened during the Cold War era, while this age does not matter to the explanation of terrorist violence. Economic freedom as an institutional factor is only very weakly associated with a reduction in domestic terrorism, just as the rule of law or left party power. Overall, economic and demographic factors appear to be more important for explaining terrorist dynamics in the region than institutional or political ones.

– Table 2 here –

## Welfare System Design and Terrorism

We now consider the interactions between welfare system design and generosity on the one hand and domestic terrorism on the other hand. First, we consider the effect of different welfare state regimes on the number of attacks. Our results for the world of welfare capitalism dummy variables – reported in Table 3 – show weak evidence that all welfare states tend to reduce terrorism at different degrees, although only the dummy for corporatist welfare states is statistically significant; the latter effect may indicate that the *paradox of redistribution* is valid. This finding is supported by the fact that the Bismarckian factor alone has a strong negative effect on terrorism. However, this effect may be due to the greater size of the respective countries' welfare systems. As a robustness check, we hence control for total spending expenditures and the pension replacement rate as a measure for intergenerational redistribution. We again detect a significant negative effect of the Bismarckian factor on the dependent variable. Measures of generosity or intergenerational redistribution, respectively, do not seem to matter.<sup>12</sup> This picture changes when considering the ferocity of terrorism as a dependent variable. Here, the Bismarckian factor is insignificant. When we combine the Bismarckian factor with total spending and pension replacement rate in one estimation, we show that only the spending variable yields significant results. The measures of redistributiveness – both intra- and intergenerational – are insignificant. Both findings give partial support for our second hypothesis. While welfare system design matters, it cannot be separated from the aspect of welfare state generosity. Again, there is some support for the idea that liberal welfare regimes are more prone to terrorism than social democratic or corporatist regimes.

Our results are generally less convincing when considering the ferocity of domestic terrorism. Neither of our dummy variables has a significant effect on domestic terrorist violence. For the Bismarckian factor – as indicated above – we find negative but insignificant relationships with domestic terrorist violence. When interchanging the dependent variable, we find little support for our second main hypothesis that links welfare regime design and generosity to terrorist activity. That is, terrorist violence does not seem to be discouraged by more solidly and generous welfare systems. We do not find strong evidence that any world of welfare capitalism is particularly immune to terrorist violence. Given that the effects on terrorist attacks are more pronounced than the effects on violence in general, we may conclude that the design of a welfare state helps to provide a more positive environment which promotes solidarity and reduces the frequency of terrorist attacks. However, if terrorist activity takes place at all, it tends to be of the same severity – in terms of victims – regardless of the type of welfare state.

– Table 3 here –

Turning next to replacement rates alone as indicators for welfare state generos-

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<sup>12</sup>Note that multicollinearity between the considered variables does not play a role.

ity, our results show that a higher unemployment replacement rate is strongly associated with a decrease in the number of terrorist attacks. The results for the sickness and pension replacement rates indicate the same direction of influence but without statistical significance. Our findings thus in general offer moderate support for our second main hypothesis, as more generous welfare systems – indicated by higher replacement rates or Bismarckian factors – are less often targeted by domestic terrorism. Presumably, more generous systems are more successful in improving the social and socio-economic conditions which may have otherwise promoted terrorist activity. This means that the conservative and social-democratic worlds of welfare capitalism should be somewhat less prone to domestic terrorism.

Our results considering the ferocity of domestic terrorism show that only higher sickness replacement rates significantly reduce the number of terrorism victims. For the unemployment replacement rate, we find negative but insignificant relationships with domestic terrorist violence. For the pension replacement rate, we even find a positive and insignificant relation. That is, when we interchange our dependent variable, we only find little support for our second main hypothesis that links welfare regime design and generosity to terrorist activity. Violent terrorist activity does not seem to be discouraged by more solidly and generous welfare systems in particular. That is, we again do not find substantial evidence that any world of welfare capitalism is particularly resistant to the phenomenon of terrorist violence.

– Table 4 here –

Lastly, we also have a brief look on the general results for the controls. We again detect a robust positive impact of population size on domestic terrorism. There is also – in comparison to our previous estimation – a negative effect of per capita income and a positive effect of ethnic polarization on terrorism; still, for both variables the influences is generally less pronounced. Our Cold War dummy and our variable accounting for the efficiency of the rule of law are now only significant in a very few specifications, where their respective signs are as expected. We do not find evidence that the level of economic freedom or left party power are consistently linked to terrorism dynamics in Western Europe, once we control for welfare state design and generosity and the other factors. Again, our evidence generally indicates that economic and demographic factors matter more to terrorism than institutional and political ones.

## 4.2 Robustness

We undertake some robustness checks. First, we use a number of further proxies accounting for welfare expenditures in certain policy arenas. Second, we include several additional control variables into our estimations in order to avoid biases resulting from omitted variables. Here, we refer to our introductory discussion on the complexity of terrorism causes. Third, we alter our econometric approach in order to see if our estimation results are sensitive to methodological changes.

First, we employ a number of additional welfare expenditure variables. As described earlier, we use expenditure proxies for survivors, active labor market programs, family and public housing. Table 4 reports the results. Public spending on survivors discourages both the frequency and ferocity of domestic terrorism. Family expenditures share a significant correlation with the number of terrorist attacks. Neither spending on active labor market programs nor on public housing is substantially correlated with either terrorism indicator. Our findings indicate that spending on policy fields beyond the 'classical' branches of the welfare state – which presumably are not that closely linked to the 'usual terrorist' – may nevertheless discourage terrorist activity, albeit not stringently. There seems to be a general dampening effect of social policies on terrorist activity, for instance, as economic and social satisfaction are augmented. Still, in line with our previous discussion this effect does not seem to be as strong and stable as the effect of the other social policies analyzed beforehand, the exception being survivor benefits. These may be interpreted as a sign of a state's strength as it shows its care for survivors including those suffering from the loss of relatives due to terrorist attacks.

With respect to the controls, Table 4 confirms some earlier results, showing that income is a negative determinant of domestic terrorism, whereas population size and ethnic polarization are consistent positive ones; some connection between domestic terrorism and the Cold War era and institutional quality can also be recognized, while economic freedom and left party power do not contribute to the explanation of the terrorism phenomenon.

– Table 5 here –

We also consider a variety of further control variables, where we refer to the overview of Krieger and Meierrieks (2008) for an in-depth discussion of the respective theoretical and empirical background for each variable. In detail, we check for: (i) *democratic accountability*, indicated by a rescaled index from ICRG (2006), as some scholars argue that regime characteristics may attract or distract terrorist activity; (ii) *government fractionalization*, measured by an index from Beck *et al.* (2001) which should measure the integrative appeal of and cleavages in societies which may drive terrorism; (iii) *urbanization*, measured as the percentage of the total population that lives in urban areas from World Bank (2006) because more urban areas may potentially attract more terrorist strikes; and (iv) the *share of population over 65*, indicated with data from World Bank (2006), as an aging population may lead to increased social spending as well as less terrorist activity.<sup>13</sup>

Generally, our previously reported results do not change. That is, we do not find convincing evidence that the composition of the democratic systems and governments in Western Europe – as further political factors – independently drive terrorism. Our results also do not indicate that more urbanized countries are more prone to terrorism. We find a weak and negative correlation between

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<sup>13</sup>This variable is also in line with our discussion of intra- vs. intergenerational redistribution, as it may be used as a proxy for the extent of intergenerational transfers.



national age structures and terrorism – so older societies experience less terrorism – but this additional correlation does not alter our former findings on the welfare policy-terrorism nexus.

Lastly, we also consider two methodological changes: (i) We switch from fixed to random effects models.<sup>14</sup> (ii) We also use year dummies and a lagged terrorism indicator to account for potential trending effects and serial correlation that may plague time-series cross-sectional analyses. Again, our previously reported results do not change systematically. To the contrary, when we use random effects, evidence for the welfare policy-terrorism nexus becomes stronger. For instance, we now also find that public expenditure on unemployment and active labor market programs discourages terrorist attacks significantly. Also, the unemployment replacement rate is negatively correlated with terrorist attacks when using random effects. Considering our results on the controls, we also do not detect any systematic shift; at best, the impact of per capita income on terrorism becomes somewhat less pronounced.

## 5 Discussion

### Policy Implications

From our empirical findings, we can deduce several policy implications. (i) Social spending – in particular, when it is associated with certain policy fields – has a discouraging effect on domestic terrorism. Thus, policy makers should carefully consider social welfare reforms or social system retrenchments that especially focus on these policy fields. Here, they should weigh considerations of, for instance, potential international competitive or fiscal pressures against a decrease in security that may accompany social cutbacks. (ii) Social spending seems to be more important than the design of welfare regimes, as we do not find that any world of welfare capitalism truly trumps the others, although liberal welfare states seem to lag behind somewhat. That is, the existence of a social system – or perhaps a threshold of social security – matters more than the institutionalization of this very system. (iii) In a more general sense, our analysis sides with other contributions that emphasize the importance of raising the opportunity costs to terrorists instead of relying on ‘hard’ strategies like deterrence or retaliation (cf., e.g. Frey and Luechinger, 2003). In connection to our analysis, this means that by offering better access to economic success and opportunity and by fostering solidarity within a society via welfare policies, terrorist activity should become less attractive, for instance, because recruitment is aggravated, a process theoretically discussed by Faria and Arce (2005). (iv) Considering our results for the controls, we find that other factors also matter to the explanation of terrorism. In particular, population dynamics – population size and ethnic polarization – are of importance. Policies that aim at easing related demographic problems may thus also be successful in scaling down domestic terrorism in Western Europe.

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<sup>14</sup>A systematic application of the Hausman test is not possible due to our small sample size.

## Caveats

Some caveats may be brought forward with respect to our analysis. (i) Our empirical analysis is limited to Western Europe. It is unclear whether other world regions can similarly benefit from a potential welfare policy-terrorism nexus. Other world regions may not exhibit such mature welfare regimes as Western Europe does. Furthermore, non-material causes of terrorism – for instance, political instability, repression and so forth – may matter more strongly in other world regions, so the effects of social policies on terrorism may not be that prominent. (ii) We focus only on domestic terrorism. Transnational terrorism – in particular, when it originates from outside Western Europe – should generally be less responsive to benevolent social policies due to its weaker anchoring in the welfare systems it targets (cf. Crenshaw *et al.*, 2007). Furthermore, as suggested by Siqueira and Sandler (2006), state sponsorship and terror franchising – as prominent dimensions of a globalization of terrorism – may also make terrorist organizations less dependent on the socio-economic conditions of the countries they attack, and thus less sensitive to the effects of welfare policies. When terrorism internationalizes, the terrorism-dampening effect of welfare policies may generally suffer. (iii) Newer forms of terrorism may also be problematic. Religiously motivated terrorists who are increasingly active in Western Europe may be less responsive to social measures. As argued by Bernholz (2006), such terrorists are driven by the belief in the superiority of their world view. The possibilities of changing their minds by means of welfare policies are clearly limited – in fact, Crenshaw *et al.* (2007) provide first empirical evidence that international terrorism driven by religious world views is unlikely to be affected by welfare means. Also, extremist world views coincide with extreme forms of violence, in particular with suicide terrorism (cf. Wintrobe, 2006). It appears to be much more difficult to discourage terrorists who are willing to give their life for their cause from committing suicide terrorism by classical welfare policy.

In the light of these caveats, we do not want to over-generalize our findings due to a lack of transferability to other world regions, the additional repercussions of transnational terrorism and potential new waves of domestic and transnational terrorism that are less responsive to welfare policy-terrorism mechanics looming in the near future. That is, while we provide evidence for the existence of a welfare policy-terrorism nexus and deduce corresponding policy advice, we still acknowledge potential limitations of our analytical approach.

## 6 Conclusion

In this contribution, we argued that welfare policies alter national social and socio-economic conditions in ways that reduce domestic terrorist activity. The opportunity costs of violence increase when, for instance, as a consequence of successful social policies poverty and inequality diminish, additional economic alternatives open up or solidarity within society is fostered. We also argued that certain worlds of welfare capitalism should be more successful in achieving

social cohesion and socio-economic security through welfare policies and should thereby be less prone to terrorism. We empirically tested our hypotheses on links between welfare spending, welfare systems and domestic terrorism for 15 Western European countries during 1984-2003.

As our main results, we found that (i) higher spending in certain policy fields is indeed associated with a significant reduction in domestic terrorist activity. This in particular applies to spending on health, unemployment, survivors and – to a lesser degree – old age. Total social spending is also negatively correlated with terrorist activity in statistically significant ways, indicating that the mere existence of a welfare system also discourages terrorism. (ii) There are also policy fields where more spending does not translate into less terrorism as, for instance, spending on labor market programs or public housing. (iii) Only moderate evidence indicates that the different worlds of welfare capitalism are differently prepared to deal with domestic terrorism. Some evidence indeed suggests that more generous systems – some of them having a low degree of intragenerational redistributiveness in a Bismarckian sense such that there is support for the *paradox of redistribution* – face less terrorism, so conservative or social-democratic systems are less prone to terrorist activity. But this evidence is not systematical. Spending – or the mere existence of a social system – seems to be more strongly associated with a reduction in domestic terrorism than the actual welfare systems’ institutional design. (iv) In general, we found ample evidence that links welfare policies with domestic terrorism. Welfare policy activities in certain arenas indeed seem to translate into a reduction of domestic terrorism, presumably due to their effects on the social and socio-economic conditions of potential terrorists or terrorist supporters. Our findings are robust to a variety of specifications.

As our main policy advice, we argued that welfare systems may be helpful tools in raising the opportunity costs of terrorism. Welfare state retrenchments should be considered with caution because they may lead to more domestic terrorism, in particular when related policies – for instance, cuts in spending – bring about deteriorating socio-economic conditions. A trade-off may exist between the positive effects of welfare state retrenchments – for example, fiscal stabilization – and its negative ones which may become manifest in less socio-economic security.

With this contribution, we added to the discussion on a potential welfare policy-terrorism nexus started by Burgoon (2006) and Crenshaw *et al.* (2007). We also focussed on potential differences in the interaction between the three worlds of welfare capitalism and domestic terrorism. In general, we found ample support for the hypotheses that suggest a strong and negative interdependency between welfare policies and domestic terrorism in Western Europe during 1984-2003. Still, welfare policies do not necessarily need to discourage the threat of new waves of internationalized or identity-driven terrorism which Western Europe may have to face in the future. In the past, Western Europe mainly suffered from waves of domestic left-wing and ethnic-nationalistic terrorism (cf. Shughart, 2006; Engene, 2007). Given the results of our contribution, welfare policies

appear to be useful tools in combating these forms of domestic terrorism in particular.

## References

- [1] Abadie, A. (2006). Poverty, Political Freedom, and the Roots of Terrorism. *American Economic Review* 96(2), 50-56.
- [2] Abadie, A., Gardeazabal, J. (2003). The Economic Costs of Conflict: A Case Study of the Basque Country. *American Economic Review* 93(1), 113-132.
- [3] Alesina, A., Di Tella, R., MacCulloch, R. (2004). Inequality and happiness: are Europeans and Americans different? *Journal of Public Economics* 88, 2009-2042.
- [4] Armingeon, K., Gerber, M., Leimgruber, P., Beyeler, M., Menegale, S. (2008). Comparative Political Data Set 1960-2005. Institute of Political Science, University of Berne.
- [5] Arts, W., Gelissen, J. (2002). Three worlds of welfare capitalism or more? A state-of-the-art report. *Journal of European Social Policy* 12(2), 137-158.
- [6] Baltagi, B.H., Raj, B. (1992). A Survey of Recent Theoretical Developments in the Econometrics of Panel Data. *Empirical Economics* 17, 85-109.
- [7] Basuchoudhary, A., Shughart, W.F. (2007). On Ethnic Conflict and the Origins of Terrorism. Mimeo, University of Mississippi.
- [8] Beck, T., Clarke, G., Groff, A., Keefer, P., Walsh, P. (2001). New Tools in Comparative Political Economy: The Database of Political Institutions. *World Bank Economic Review* 15(1), 165-176.
- [9] Bernard, P., Boucher, G. (2007). Institutional competitiveness, social investment, and welfare regimes. *Regulation and Governance* 1, 213-229.
- [10] Bernholz, P. (2006). International political system, supreme values and terrorism. *Public Choice* 128, 221-231.
- [11] Blomberg, S.B., Hess, G.D. (2008a). The Lexus and the Olive Branch: Globalization, Democratization and Terrorism. In: Keefer, P., Loayza, N. (Eds.), *Terrorism, Economic Development, and Political Openness*, Cambridge University Press: New York, pp. 116-147.
- [12] Blomberg, S.B., Hess, G.D. (2008b). From (No) Butter to Guns? Understanding the Economic Role in Transnational Terrorism. In: Keefer, P., Loayza, N. (Eds.), *Terrorism, Economic Development, and Political Openness*, Cambridge University Press: New York, pp. 83-115.

- [13] Blomberg, S.B., Hess, G.D., Weerapana, A. (2004). Economic conditions and terrorism. *European Journal of Political Economy* 20, 463-478.
- [14] Braithwaite, A., Li, Q. (2007). Transnational Terrorism Hot Spots: Identification and Impact Evaluation. *Conflict Management and Peace Science* 24(4), 281-296.
- [15] Burgoon, B. (2006). On Welfare and Terror: Social Welfare Policies and Political-Economic Roots of Terrorism. *Journal of Conflict Resolution* 50(2), 176-203.
- [16] Conde-Ruiz, J.I., Profeta, P. (2007). The Redistributive Design of Social Security Systems. *The Economic Journal* 117, 686-712.
- [17] Crenshaw, E.M., Robison, K.K., Jenkins, J.G. (2007). The 'Roots' of Terrorism: A Replication and Extension of Burgoon. Paper presented at the Annual Meetings of the Sociological Association, New York, NY, August 2007.
- [18] De Grauwe, P., Polan, M. (2005). Globalization and Social Spending. *Pacific Economic Review* 10(1), 105-123.
- [19] Enders, W., Sandler, T. (1996). Terrorism and Foreign Direct Investment in Spain and Greece. *Kyklos* 49(3), 331-352.
- [20] Engene, O. (2007). Five Decades of Terrorism in Europe: The TWEED Dataset. *Journal of Peace Research* 44(1), 109-121.
- [21] Esping-Anderson, G. (1990). *The Three Worlds of Welfare Capitalism*. Princeton University Press: Princeton, NJ.
- [22] Faria, J.R., Arce M., D.G. (2005). Terror Support and Recruitment. *Defence and Peace Economics* 16(4), 263-273.
- [23] Fielding, D. (2003). Investment, employment, and political conflict in Northern Ireland. *Oxford Economic Papers* 55, 512-535.
- [24] Förster, M., Pearson, M. (2002). Income Distribution and Poverty in the OECD Area: Trends and Driving Forces. *OECD Economic Studies* 34, 7-39.
- [25] Frey, B.S., Luechinger, S. (2003). How to Fight Terrorism: Alternatives to Deterrence. *Defence and Peace Economics* 14(4), 237-249.
- [26] Frey, B.S., Stutzer, A. (2005). Happiness Research: State and Prospects. *Review of Social Economy* 62(2), 207-228.
- [27] Freytag, A., Krüger, J.J., Meierrieks, D., Schneider, F. (2008). The Origins of Terrorism: Cross-Country Estimates on Socio-Economic Determinants of Terrorism. Mimeo, University of Jena.

- [28] Gaibulloev, K. and Sandler, T. (2008). Growth Consequences of Terrorism in Western Europe. *Kyklos* 61(3), 411-424.
- [29] Greenbaum, R.T., Dugan, L., LaFree, G. (2007). The Impact of Terrorism on Italian Employment and Business Activity. *Urban Studies* 44(5-6). 1093-1108.
- [30] Green, F., Henley, A., Tsakalotos, E. (1994). Income inequality in corporatist and liberal economies: a comparison of trends within OECD countries. *International Review of Applied Economics* 8(3), 303-331.
- [31] Greene, W.H. (2007). Fixed and Random Effects Models for Count Data. Working Paper NYU EC-07-16, Stern School of Business.
- [32] ICRG (2006). International Country Risk Guide. Political Risk Services Inc.: East Syracuse, NY.
- [33] Harris, R.G. (2002). Social Policy and Productivity Growth: What Are the Linkages? In: Sharpe, A., St-Hilaire, F., Banting, K. (Eds.), *The Review of Economic Performance and Social Progress 2002: Towards a Social Understanding of Productivity*. Centre for the Study of Living Standards: Ottawa, pp. 277-306.
- [34] Indridason, I.H. (2008). Does Terrorism Influence Domestic Politics? Coalition Formation and Terrorist Incidents. *Journal of Peace Research* 45(2), 241-259.
- [35] Korpi, W., Palme, J. (1998). The Paradox of Redistribution and Strategies of Equality: Welfare State Institutions, Inequality, and Poverty in the Western Countries. *American Sociological Review* 63(5), 661-687.
- [36] Krieger, T., Meierrieks, D. (2008). What causes terrorism? CIE Working Paper 2008-05, University of Paderborn. Available at SSRN: <http://ssrn.com/abstract=1148682>.
- [37] Krieger, T., Traub, S. (2008). Back to Bismarck? Shifting Preferences for Intragenerational Redistribution in OECD Pension Systems. CIE Working Paper 2008-06, University of Paderborn. Available at SSRN: <http://ssrn.com/abstract=1151175>.
- [38] Krueger, A.B., Laitin, D.D. (2008). Kto Kogo?: A Cross-Country Study of the Origins and Targets of Terrorism. In: Keefer, P., Loayza, N. (Eds.), *Terrorism, Economic Development, and Political Openness*, Cambridge University Press: New York, pp. 148-173.
- [39] Krueger, A.B., Maleckova, J. (2003). Education, Poverty and Terrorism: Is There a Causal Connection? *Journal of Economic Perspectives* 17(4), 119-144.

- [40] Kurrild-Klitgaard, P., Justesen, M.K., Klemmensen, P. (2006). The political economy of freedom, democracy and transnational terrorism. *Public Choice* 128, 289-315.
- [41] Lai, B. (2007). "Draining the Swamp": An Empirical Examination of the Production of International Terrorism, 1968-1998. *Conflict Management and Peace Science* 24(4), 297-310.
- [42] Lefèbvre, M. (2007). The Redistributive Effects of Pension Systems in Europe: A Survey of Evidence. Luxembourg Income Study Working Paper 457, University of Liège.
- [43] Li, Q., Schaub, D. (2004). Economic Globalization and Transnational Terrorism: A Pooled Time-Series Analysis. *Journal of Conflict Resolution* 48(2), 230-258.
- [44] Montalvo, J.G., Reynal-Querol, M. (2005). Ethnic Polarization, Potential Conflict, and Civil Wars. *American Economic Review* 95(3), 796-816.
- [45] OECD (2007). Social Expenditure Database. OECD: Paris.
- [46] Robison, K.K., Crenshaw, E.M., Jenkins, J.C. (2006). Ideologies of Violence: The Social Origins of Islamist and Leftist Transnational Terrorism. *Social Forces* 84(4), 2009-2026.
- [47] Scruggs, L. (2004). Welfare State Entitlements Data Set: A Comparative Institutional Analysis of Eighteen Welfare States, Version 1.2. University of Connecticut: Storrs, CT.
- [48] Scruggs, L., Allan, J.P. (2006). The Material Consequences of Welfare States: Benefit Generosity and Absolute Poverty in 16 OECD Countries. *Comparative Political Studies* 39(7), 880-904.
- [49] Shughart, W.F. (2006). An analytical history of terrorism, 1945-2000. *Public Choice* 128, 7-39.
- [50] Siqueira, K., Sandler, T. (2006). Terrorists versus the Government: Strategic Interaction, Support, and Sponsorship. *Journal of Conflict Resolution* 50(6), 878-898.
- [51] Tsakoglou, P., Papadopoulos, F. (2002). Aggregate level and determining factors of social exclusion in twelve European countries. *Journal of European Social Policy* 12(3), 211-225.
- [52] Winkelmann, R., Zimmermann, K.F. (1995). Recent Developments in Count Data Modelling: Theory and Application. *Journal of Economic Surveys* 9(1), 1-24.
- [53] Wintrobe, R. (2006). Extremism, suicide terror, and authoritarianism. *Public Choice* 128, 169-195.

[54] World Bank (2006). World Bank Development Indicators. World Bank: Washington, DC.

## Appendix A. Independent Variables

*Total Social Public Expenditure* — *Description*: Broad expenditure measure on publicly financed health and social protection, for instance, on unemployment, sickness or so forth. *Notes*: For information on missing values, see OECD (2007). *Source*: OECD (2007). *Unit*: Expenditure to GDP, logged.

*Public Health Expenditure* — *Description*: Measures public spending on in- and out-patient care, medical goods or so forth. Proxy for the volume of welfare policies to total economic activity *Notes*: For information on missing values, see OECD (2007). *Source*: OECD (2007). *Unit*: Expenditure to GDP, logged.

*Unemployment Benefits* — *Description*: Indicates cash expenditure unemployment compensation and so forth. *Notes*: For information on missing values, see OECD (2007). *Source*: OECD (2007). *Unit*: Expenditure to GDP, logged, where unity is added to even series.

*Active Labor Market Programs* — *Description*: Measures public spending on employment services, youth training or so forth. *Notes*: For information on missing values, see OECD (2007). *Source*: OECD (2007). *Unit*: Expenditure to GDP, logged, where unity is added to even series.

*Old Age Spending* — *Description*: Indicates spending on pensions, residential services or so forth. *Notes*: For information on missing values, see OECD (2007). *Source*: OECD (2007). *Unit*: Expenditure to GDP, logged.

*Survivor Expenditures* — *Description*: Indicates spending on survivor pensions or so forth. *Notes*: For information on missing values, see OECD (2007). *Source*: OECD (2007). *Unit*: Expenditure to GDP, logged, where unity is added to even series.

*Family Expenditure* — *Description*: Proxy for spending on childcare support, sole parent payments or so forth. *Notes*: For information on missing values, see OECD (2007). *Source*: OECD (2007). *Unit*: Expenditure to GDP, logged, where unity is added to even series.

*Public Housing* — *Description*: Measures public expenditure on housing allowances and so forth. *Notes*: For information on missing values, see OECD (2007). *Source*: OECD (2007). *Unit*: Expenditure to GDP, logged, where unity is added to even series.

*Bismarckian Factor* — *Description*: Measures the design of national pension systems. Divides pension benefits into a flat, or minimum pension, and into an earnings-related component. High Bismarckian factors coincide with high generosity, so the degree of intragenerational redistribution is small *Source*: Krieger and Traub (2008). *Unit*: Index, average for 1984-2003.

*Sickness Replacement Rate* — *Description*: Indicates welfare regime generosity with respect to short-term illness. *Notes*: For missing values, see Scruggs (2004).



*Source:* Scruggs (2004). *Unit:* Ratio of net insurance benefit for general short-term illness.

*Unemployment Replacement Rate* — *Description:* Indicates welfare regime generosity with respect to unemployment. *Notes:* For missing values, see Scruggs (2004). *Source:* Scruggs (2004). *Unit:* Ratio of net unemployment insurance benefit to net income for an unmarried person earning the average production worker wage.

*Pension Replacement Rate* — *Description:* Indicates welfare regime generosity with respect to minimum pension. *Notes:* For missing values, see Scruggs (2004). *Source:* Scruggs (2004). *Unit:* Ratio of net public pension paid to a person with no work history at retirement (beginning of year) to the net wage of a single average production worker.

*Welfare Regime Dummies* — *Description:* Indicates the respective type of welfare state regime (liberal, conservative, social-democratic). *Source:* Esping-Andersen (1990). *Unit:* Dummy Variable.

## Appendix B. Control Variables

*GDP per Capita* — *Description:* Real gross domestic product per inhabitant. Indicates structural economic conditions of a country. *Hypothesis (Expected Sign):* Better structural economic conditions are linked to lower levels of terrorism (-). *Source:* World Bank (2006). *Unit:* Logged, in constant 2000 US-\$.

*Economic Freedom* — *Description:* Indicator of economic freedom. Captures the security of property rights and so forth, for instance, with respect to the risk of expropriation. *Hypothesis (Expected Sign):* More economic freedom is connected with less terrorism (-). *Source:* ICRG (2006). *Unit:* Rescaled index, between 0 and 1 (higher value indicates more freedom).

*Law and Order* — *Description:* Indicator of institutional quality considering national police forces, judicial systems and so forth. *Hypothesis (Expected Sign):* Better institutional quality is associated with less terrorism (-). *Source:* ICRG (2006). *Unit:* Rescaled index, between 0 and 1 (higher value indicates more effective systems).

*Left Party* — *Description:* Indicates whether a left-wing government is in power. *Hypothesis (Expected Sign):* Left-wing governments tend to represent groups that are more likely to resort to terrorism. As they are able to enforce their goals politically, terrorism should decrease (-). *Source:* Beck *et al.* (2001). *Unit:* Dummy variable (1 when left party is in power, 0 otherwise).

*Population Size* — *Description:* Total population size. *Hypothesis (Expected Sign):* More populous countries face a higher likelihood of terrorism (+). *Source:* World Bank (2006). *Unit:* Logged, in thousands.

*Polarization* — *Description:* Indicator for the degree of ethnic polarization of a country. *Hypothesis (Expected Sign):* More polarized countries are more likely

to generate terrorism (+). *Source*: Montalvo and Reynal-Querol (2005). *Unit*: Constant index.

*Cold War* — *Description*: Indicates the Cold War period (1984-1990). *Hypothesis (Expected Sign)*: During the Cold War, more terrorist activity takes place due to systemic dynamics (+). *Unit*: Dummy variable.

## Appendix C. Figures and Tables

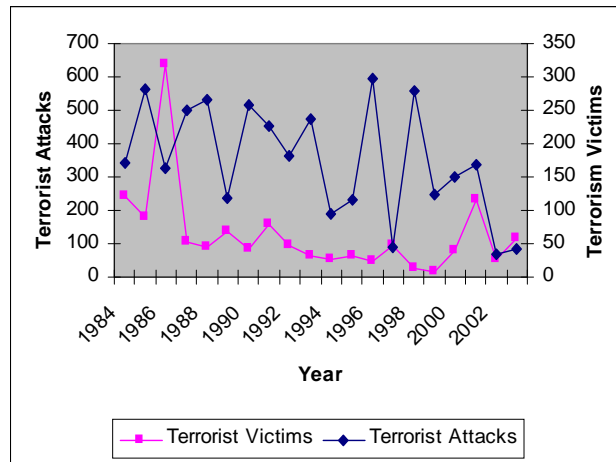


Figure 1: Terrorist Activity in Western Europe, 1984-2003 (Source: TWEED)

Table 1: Summary Statistics

Variable	Observations	Mean	Std. Deviation	Minimum	Maximum
Terrorist Attacks	300	8.587	34.855	0	541
Casualties in Terrorist Attacks	300	12.6	35.456	0	266
Total Social Public Expenditure [SOCEXP]	292	3.087	0.220	2.382	3.588
Public Health Expenditure [HEALTH]	292	1.703	0.190	1.061	2.115
Unemployment Expenditure [UNEMP]	293	0.868	0.419	0	1.836
Active Labor Market Expenditures [LABOR]	281	0.609	0.264	0.086	1.351
Expenditures on Survivors [SURV]	292	0.662	0.352	0.100	1.409
Expenditure on Old Age [OLD]	292	1.981	0.355	0.806	2.549
Expenditure on Family [FAMILY]	292	1.032	0.386	0.140	1.773
Public Housing Expenditures [HOUSE]	271	0.318	0.265	0	1.037
Sickness Replacement Ratio [SRR]	225	0.712	0.241	0	1
Unemployment Replacement Ratio [URR]	224	0.576	0.204	0	0.898
Pension Replacement Ratio [PRR]	227	0.387	0.090	0.176	0.531
Bismarckian Factor [BISM]	280	0.392	0.191	0.061	0.738
Real GDP per Capita [Income]	300	9.823	0.402	8.697	10.551
Economic Freedom [Economic Freedom]	300	0.686	0.177	0.25	1
Left Party in Power [Left Party]	300	0.417	0.494	0	1
Law and Order [Law and Order]	300	0.907	0.136	0.5	1
Scale of Population [Population]	300	16.514	1.022	15.070	18.229
Ethnic Polarization [Polarization]	300	0.324	0.254	0.02	0.871
Cold War Dummy [Cold War]	300	0.4	0.491	0	1

Table 2: Welfare Expenditures and Domestic Terrorism

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
SOCEXP ( $t-1$ )	-2.225 (2.74) <sup>***</sup>					-2.297 (2.69) <sup>***</sup>				
HEALTH ( $t-1$ )		-2.511 (3.18) <sup>***</sup>			-2.61 (2.78) <sup>***</sup>		-1.521 (1.66) <sup>*</sup>			0.012 (0.01)
UNEMP ( $t-1$ )			-0.489 (1.60)		-0.183 (0.54)			-1.082 (2.99) <sup>***</sup>		-0.991 (2.45) <sup>**</sup>
OLD ( $t-1$ )				-0.422 (0.89)	0.357 (0.35)				-0.829 (1.64) <sup>*</sup>	-0.445 (0.73)
Income ( $t-1$ )	-1.041 (2.25) <sup>**</sup>	-0.888 (1.89) <sup>*</sup>	-1.465 (3.28) <sup>***</sup>	-1.443 (3.22) <sup>***</sup>	-0.872 (2.40) <sup>**</sup>	-1.301 (1.80) <sup>*</sup>	-1.444 (2.52) <sup>**</sup>	-1.920 (3.74) <sup>***</sup>	-1.920 (3.74) <sup>***</sup>	1.923 (3.05) <sup>***</sup>
Economic Freedom ( $t-1$ )	-0.228 (0.42)	-0.213 (0.38)	-0.371 (0.64)	-0.072 (0.13)	-0.349 (0.60)	-1.008 (1.68) <sup>*</sup>	-0.909 (1.50)	-1.405 (2.27) <sup>***</sup>	-0.812 (1.32)	-1.330 (2.12) <sup>**</sup>
Left Party ( $t-1$ )	0.166 (1.00)	0.153 (0.93)	0.102 (0.62)	0.097 (0.57)	0.147 (0.89)	0.035 (0.18)	0.055 (0.27)	0.039 (0.19)	0.049 (0.24)	0.041 (0.20)
Law and Order ( $t-1$ )	-0.612 (0.79)	-0.552 (0.71)	-0.849 (1.08)	-0.728 (0.91)	-0.639 (0.82)	-1.211 (1.42)	-1.191 (1.41)	-1.337 (1.59)	-1.380 (1.62)	-1.334 (1.56)

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Table 2 (contd.)

Population ( $t-1$ )	1.011 (5.81)***	1.109 (6.17)***	0.928 (5.50)***	0.920 (5.45)***	1.107 (6.12)***	1.204 (6.58)***	1.287 (6.86)***	1.288 (6.77)***	1.201 (6.60)***	1.270 (6.39)***
Polarization	1.555 (2.44)**	1.439 (2.29)**	2.180 (3.26)***	1.521 (2.27)**	1.804 (2.41)**	2.153 (3.90)***	2.218 (4.12)***	3.428 (5.03)***	1.672 (2.58)**	2.995 (3.50)***
Cold War	0.311 (1.65)*	0.283 (1.50)	0.462 (2.64)***	0.388 (1.89)*	0.353 (1.72)*	0.161 (0.76)	0.210 (1.00)	0.301 (1.48)	0.103 (0.42)	0.202 (0.84)
Prob. Wald Chi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mean VIF	1.42	1.44	1.33	1.43	1.53	1.42	1.44	1.33	1.43	1.53
Observations	277	277	278	277	276	277	277	278	277	276

Notes: The dependent variable is *Domestic Terrorist Attacks* in models 1 to 5, and *Victims of Domestic Terrorist Attacks* in models 6 to 10. The numbers in brackets are absolute  $z$ -values. (\*), (\*\*), and (\*\*\*) indicate significance at 10%, 5% and 1% levels, respectively. *Mean VIF* indicates the mean Variance Inflation Factor (*VIF*) to test for multicollinearity. *VIF* below 5 indicate no sign for multicollinearity.

Table 3: Welfare Regime Characteristics and Domestic Terrorism

	(1)	(2)	(3)	(4)	(5)	(6)
BISM	-2.554 (3.67)***		-1.917 (2.09)**	-0.487 (0.61)		0.847 (0.71)
LIB		-1.062 (1.33)			-0.395 (0.51)	
CONS		-1.995 (2.48)**			-0.987 (1.14)	
SOC		-0.611 (0.81)			-0.985 (0.98)	
SOCEXP ( $t-1$ )			-1.538 (1.32)			-2.785 (1.83)*
PRR ( $t-1$ )			-0.611 (0.28)			1.819 (0.68)
Income ( $t-1$ )	-1.739 (3.78)***	-0.032 (0.04)	-2.652 (2.31)**	-1.621 (2.93)***	-0.935 (0.98)	-1.607 (1.22)
Economic Freedom ( $t-1$ )	-0.048 (0.09)	-0.460 (0.82)	0.466 (0.61)	-0.896 (1.46)	-1.058 (1.73)*	-0.472 (0.50)
Left Party ( $t-1$ )	0.100 (0.57)	0.034 (0.21)	0.282 (1.27)	0.098 (0.47)	0.011 (0.05)	0.180 (0.64)
Law and Order ( $t-1$ )	-0.952 (1.30)	-0.702 (0.92)	0.334 (0.31)	-1.761 (2.02)**	-1.090 (1.26)	-0.300 (0.17)
Population ( $t-1$ )	0.712 (4.11)***	1.359 (4.87)***	0.560 (2.26)**	1.204 (6.16)***	1.179 (3.69)***	1.430 (4.80)***
Polarization	0.059 (0.08)	0.620 (0.86)	-0.739 (0.79)	2.238 (3.37)***	1.672 (2.01)**	2.685 (2.54)**

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Table 3 (contd.)

Cold War	0.330 (1.86)*	0.719 (3.19)***	0.178 (0.56)	0.250 (1.22)	0.489 (1.77)*	0.206 (0.52)
Prob. Wald Chi	0.00	0.00	0.00	0.00	0.00	0.00
Mean VIF	1.45	3.07	1.49	1.45	3.07	1.49
Observations	266	285	219	266	285	219

Notes: The dependent variable is *Domestic Terrorist Attacks* in models 1 to 3, and *Victims of Domestic Terrorist Attacks* in models 4 to 6. The numbers in brackets are absolute z-values. (\*), (\*\*), (\*\*\*) indicate significance at 10%, 5% and 1% levels, respectively. *Mean VIF* indicates the mean Variance Inflation Factor (VIF) to test for multicollinearity. VIF below 5 indicate no sign for multicollinearity.



Table 4: Further Welfare Regime Proxies and Domestic Terrorism

	(1)	(2)	(3)	(4)	(5)	(6)
SRR $(t-1)$	-0.722 (1.02)			-1.154 (1.65)*		
URR $(t-1)$		-2.557 (4.27)***			-0.823 (1.12)	
PRR $(t-1)$			-1.775 (1.16)			1.175 (0.62)
Income $(t-1)$	-2.663 (2.19)**	-1.723 (1.54)	-2.287 (2.03)**	-0.834 (0.62)	-0.593 (0.44)	-1.171 (0.87)
Economic Freedom $(t-1)$	0.973 (1.23)	0.446 (0.58)	0.746 (0.96)	-0.907 (0.98)	-0.853 (0.92)	-0.634 (0.68)
Left Party $(t-1)$	-0.048 (0.22)	0.011 (0.06)	0.096 (0.42)	0.194 (0.69)	0.193 (0.67)	0.234 (0.83)
Law and Order $(t-1)$	0.552 (0.48)	0.218 (0.19)	0.235 (0.20)	-0.683 (0.51)	-0.653 (0.49)	-0.546 (0.41)
Population $(t-1)$	0.463 (2.02)**	0.463 (2.14)**	0.523 (2.25)**	1.305 (4.83)***	1.327 (4.79)***	1.488 (5.44)***
Polarization	0.487 (0.41)	-0.586 (0.70)	0.238 (0.29)	1.757 (1.78)*	2.520 (2.91)***	2.743 (3.25)***
Cold War	0.193 (0.63)	0.298 (0.99)	0.309 (1.07)	0.503 (1.35)	0.507 (1.36)	0.452 (1.23)
Prob. Wald Chi	0.00	0.00	0.00	0.00	0.00	0.00
Mean VIF	1.30	1.34	1.31	1.30	1.34	1.31
Observations	225	224	227	225	224	227

Notes: The dependent variable is *Domestic Terrorist Attacks* in models 1 to 3, and *Victims of Domestic Terrorist Attacks* in models 4 to 6. The numbers in brackets are absolute z-values. (\*), (\*\*), (\*\*\*) indicate significance at 10%, 5% and 1% levels, respectively. *Mean VIF* indicates the mean Variance Inflation Factor (VIF) to test for multicollinearity. VIF below 5 indicate no sign for multicollinearity.

Table 5: Additional Welfare Expenditures and Domestic Terrorism

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SURV ( $t-1$ )	-1.100 (3.19)***				-0.734 (2.00)**			
LABOR ( $t-1$ )		-0.404 (0.64)				-0.443 (0.69)		
FAMILY ( $t-1$ )			-0.975 (2.34)**				0.097 (0.19)	
HOUSE ( $t-1$ )				-0.451 (1.00)				0.275 (0.59)
Income ( $t-1$ )	-1.665 (3.70)***	-1.458 (2.69)***	-0.866 (1.69)*	-1.260 (2.81)***	-1.954 (3.86)***	-1.555 (2.53)**	-1.993 (3.08)***	-1.728 (3.14)***
Economic Freedom ( $t-1$ )	-0.213 (0.39)	-0.052 (0.09)	0.114 (0.20)	-0.084 (0.15)	-0.904 (1.52)	-1.002 (1.60)	-0.887 (1.43)	-0.973 (1.59)
Left Party ( $t-1$ )	0.077 (0.49)	-0.188 (1.06)	0.042 (0.26)	0.009 (0.05)	0.012 (0.06)	0.031 (0.14)	0.045 (0.21)	-0.015 (0.07)
Law and Order ( $t-1$ )	-1.098 (1.43)	-0.694 (0.86)	-0.657 (0.84)	-0.874 (1.12)	-1.407 (1.68)*	-1.926 (2.12)**	-1.401 (1.62)	-1.431 (1.66)*

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Table 5 (contd.)

Population ( $t-1$ )	0.977 (5.91)***	0.651 (3.52)***	0.898 (5.45)***	0.751 (4.32)***	1.207 (6.78)***	1.114 (5.78)***	1.209 (6.39)***	1.007 (4.70)***
Polarization	2.041 (3.37)***	2.292 (2.92)***	1.631 (2.67)***	2.912 (4.01)***	2.352 (4.34)***	2.423 (4.16)***	2.243 (4.18)***	2.783 (4.13)***
Cold War	0.651 (3.73)***	0.360 (2.08)**	0.496 (2.80)***	0.387 (2.23)**	0.475 (2.25)**	0.229 (1.07)	0.305 (1.50)	0.287 (1.41)
Prob. Wald Chi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mean VIF	1.44	1.34	1.57	1.41	1.44	1.34	1.57	1.41
Observations	277	266	277	257	277	266	277	257

Notes: The dependent variable is *Domestic Terrorist Attacks* in models 1 to 4, and *Victims of Domestic Terrorist Attacks* in models 5 to 8. The numbers in brackets are absolute z-values. (\*), (\*\*), (\*\*\*) indicate significance at 10%, 5% and 1% levels, respectively. *Mean VIF* indicates the mean Variance Inflation Factor (VIF) to test for multicollinearity. VIF below 5 indicate no sign for multicollinearity.