Domestic Terrorism and Government Duration

-An Event History Analysis

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Abstract

There are now several studies investigating empirical relationships between that of terrorism, electoral preferences and electoral accountability. However, very little research has been done on the connections between terrorism and government duration. Most of the latter studies also seems to have too much of a narrow focus on that of international, not domestic terrorism.

In this thesis the main focus is on that of domestic terrorism and government duration. The research question is therefore as following: Does domestic terrorism affect government duration? The question is assessed by quantitative hypothesis tests based upon new empirical data on domestic terrorism, government duration and control variables. Observations are governments of Western European parliamentary democracies for the time period 1964-2005. The data used to test the hypotheses are handled by event history analysis. More specifically the event history models used are the semi-parametric Cox and Cox shared frailty models.

Empirical findings indicate -in line with the previous research that mostly focuses upon international terrorism- that domestic terrorism decreases government duration. These findings are also robust across different models, sample sizes, and domestic terrorism data. The second hypothesis, predicting increased government duration following domestic terrorism, receives no support. Nevertheless, one finding of the thesis runs contrary to that of an important previous study. While the previous study found evidence for the hypothesis that terrorism has a stronger negative effect on the duration of left-wing governments than that of right-wing governments, empirical tests in this thesis indicate the opposite: domestic terrorism has a stronger negative effect on the duration of right-wing as compared to those governments that are not right-wing. However, this finding is not as robust as those of hypothesis one.

Findings contribute to increased confidence in: (1) the decreased duration hypothesis (2) that domestic terrorism, not only international, decreases government duration and (3) that government ideology should be considered an important mediator variable. Despite of findings researchers still need to be cautious: a few studies are not sufficient for establishing an approximate truth. Additional research is therefore needed to improve confidence further.

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1.0 Introduction

Political Scientists have for some time been questioning whether terrorism is efficient at achieving the political goals set out by terrorists. Pape (2003, 2005) seems to believe so, when explaining why there seemingly has been an increase in frequency of terrorist activity around the globe. The latter he claims, is due to the effectiveness of terrorism – that terrorism works (Pape 2003, 2005). Even though there does not seem to be full agreement upon whether this is true or false (Abrahams 2006) there are now available studies bringing evidence that terrorism can affect spheres like those of the economy (Fielding 2003, Blomberg, Hess & Orphanides 2004), electoral preferences (Merolla & Zachmeister 2009, Davis & Silver 2004, Kibris 2011, Berrebi & Klor 2008, Siqueira & Sandler 2007), electoral accountability (Gassebner, Jong & Mierau 2008, Bali 2007, Lago & Montero 2006, Montalvo 2011, Michavila 2005) and lastly, government duration (Gassebner, Jong & Mierau 2011, Williams, Kock & Smith 2012).

The attention of this master's thesis is towards the topic covered by the last of the previous studies: it concerns itself with empirical relationships between terrorism and government duration. The research question is therefore the following: *Does domestic terrorism affect government duration?* As can be seen, the focus is specifically on domestic terrorism. Also, with government, the research question refers to governments of Western European parliamentary democracies during the period 1964-2005. Why the focus is on domestic terrorism and parliamentary systems of Western Europe is explained throughout the thesis.

The research question is assessed by quantitative hypothesis tests based upon event history analysis. Event history analysis is the mainstream tool in government duration research: it models time until event and can handle domestic terrorist variables with values that vary with time, as those utilized here. It also has the important ability to elegantly model central theories -that must be taken into account when assessing effects of domestic terrorism on government duration- that government duration, according to the political science literature, rests upon.

The introductory chapter is organized as follows. First, it is going to be explained why exactly this particular research question was chosen for empirical investigation. There are mainly two reasons for this: (1) the research question has relevance for society: (2) empirical links between domestic terrorism and government duration are relatively understudied. The chapter then ends by giving an overview on how the thesis is structured. We begin with the former.

1.1 Relevance of the Research Question

1.1.1 Societal Relevance

The question of whether domestic terrorism affects the duration of governments has societal relevance. If it is true that domestic terrorism have the ability to influence government duration, it touches upon one of the most central features of democracy, elections. Also, since it is the case in parliamentary democracies that governments, in theory, can be brought down at any day, not only during general elections, such political systems are likely to be even more vulnerable to terrorism. As theorized in this thesis, terrorism has the ability to create public opinion shocks affecting (1) incumbent governments' re-election prospects, altering incentives regarding whether (2) parties of coalition governments stay in the coalition, and whether (3) members of parliament use votes of no confidence, (4) whether the prime minister resigns. If the latter is true, as empirical tests conducted in this thesis indicate, domestic terrorism is a form of violence with capabilities of affecting likelihoods that governments change, or are completely removed from political office at any given moment in time.

The above issues seem even more crucial when examining the literature investigating empirical relationships between terrorism and regime types. In her review article on terrorism and democracy, Chenoweth (2013) lists scholarly studies finding evidence, that democracies are (or at least were) the most "common targets of terrorism" (p. 357).[1] Even though there is no agreement upon the theoretical explanation for this, and whether it actually is the case (Chenoweth 2013), the studies nevertheless give good arguments for why the research question is so important: *if* democracies are the ones most exposed to terrorism, and the latter has the ability to affect processes determining the duration of democratic governments, it becomes vital to achieve more knowledge about this connection. Knowledge about the relationship is not only important for the sake of knowledge itself, but also as means so as to create awareness of, and implementation of various measures, making parliamentary democratic political systems less vulnerable to these specific consequences of terrorism.

Lastly, it must be made clear that one should not exaggerate the implication of our empirical findings. One study in the field of political science is not sufficient for establishing truth. The author does nevertheless hold the conviction that the thesis represents a worthy contribution to the area, and that it perhaps moves us one step closer to establishing something of an approximate truth. The scientific contribution of this thesis is next up for discussion.

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[1] For an excellent overview of studies examining links between terrorism and democracy see Chenoweth (2013).

1.1.2 Research Contribution

As already stated, there are several studies investigating links between terrorism, electoral preferences and accountability. Few studies however, examine connections between terrorism and government duration. The only studies are those of Gassebner, Jong & Mierau (2011) and Williams, Kock & Smith (2012). Even though these are explained in more detail later, they must here be given a few words as well. The former study is quantitative, and investigates relationships between terrorism and government duration, globally, for different regime types, not only democracies. Findings are that terrorism decreases duration. The second is also quantitative, and was published some months into the writing of the thesis. It is mostly confined to governments of Western European parliamentary democracies. It supports similar conclusions as Gassebner, Jong & Mierau (2011): terrorism decreases government duration.

The author is grateful to producers of the latter studies. However, that there only are two quantitative studies available means that more research must be done to increase confidence in findings further. The studies are also quite different. Just one focuses upon parliamentary democracies only. Secondly, the first study, as typical for much mainstream terrorism research, do not make distinctions between domestic and international terrorism, while the second, even though not only focusing upon international terrorism, devotes main focus to it.

The thesis contributes to the area of research in several ways. First, it strengthens confidence in previous findings. By using new data on independent, dependent and control variables, it reaches the conclusion that domestic terrorism decreases government duration. These data has never before, at least as the author is aware of, been used in such empirical analysis. What is also important is that hypothesis two, predicting domestic terrorism to increase duration, is, as with previous research, not supported by data. Secondly, by focusing on domestic terrorism, it is avoided what Engene (2007) describes as "blindness to internal terrorism" (p. 110). Previous studies mostly focus upon international terrorism. Here however, attention is exclusively on domestic terrorism. Hence, findings are important because they show that theoretical expectations regarding terrorism and government duration also can be transported to domestic terrorism. Only Williams, Kock & Smith (2012) gave some evidence for this.

One finding of this thesis nevertheless goes contrary to previous research. While Williams, Kock & Smith (2012) finds that terrorism has stronger negative impacts on duration of left-wing governments, compared to right-wing governments, our data supports the opposite: domestic terrorism has stronger negative impacts on duration of right-wing governments,

compared with governments that are not right-wing. This indicates that government ideology, despite of different results than Williams, Kock & Smith (2012), should be considered as an important mediator variable, when assessing research questions like that of this thesis.

1.1.3 Organization of Thesis

The first chapter presents and defends theoretical definitions underlying key independent and dependent variables: domestic terrorism and government duration. It also lays down the theoretical framework underlying controls and statistical models. Throughout it will be seen that there is close connections between theory and modelling. Previous research examining links between terrorism, electoral preferences and accountability as well as government duration, is then presented. Next the central theoretical framework is established, and based upon this, hypotheses are deduced. The first central hypothesis predicts decreased government duration following domestic terrorism: the second predicts increased government duration.

Chapter three presents method and models handling data used to test hypotheses. It is first argued why a quantitative approach was chosen, before the method is then presented: event history analysis. Some basic logic of it and why it was chosen is explained. Event history analysis has abilities to handle typical properties of duration data, and is good at modelling theoretical foundations that government duration are based upon. The chapter also presents the specific event history models utilized in this thesis: Cox and Cox shared frailty models. Model choice does as well rest upon theoretical considerations. It is based upon assumptions about the nature of duration-dependence, theorized to underlie the duration of governments.

Chapter four explains why the analysis is confined to governments of Western European parliamentary democracies. It also presents data sources and measurements, that domestic terrorism and government duration variables are derived from. Validity of the measures is also discussed, and arguments are given for why other relevant data sources were not chosen.

The fifth chapter presents and discuss findings. Hypotheses are tested across different data, models and sample sizes, to assess robustness. Chapter six discusses how findings stand in relation to previous research, and why the increased duration hypothesis was not supported. Internal and external validity are also reflected upon, before some last words containing suggestions for future research follows. To arrive at the latter did require us to go through several stages. The first was to build a conceptual apparatus and theoretical base underpinning models and empirical analysis. The attention is therefore now turned towards the latter.

2.0 Theoretical Framework

The first part of the chapter begins by explaining the theoretical definition of the concept underlying the key independent variable in the thesis: domestic terrorism. The chapter then proceeds to deal with theoretical concepts underlying the dependent variable, government duration. To obtain empirical quantities of government duration, it is necessary with meaningful theoretical definitions of when governments begin and end. This part therefore devotes energy to presenting and defending theoretical definitions underlying them. Literature on the causes and determinants of government duration are then presented. Even though the latter chapter might seem quite broad in its scope, it is very important because: (1) it lays down theoretical foundations for control variables, that must be taken into account when investigating relationships between domestic terrorism and government duration: (2) it establishes much of the foundation for both method and statistical models used in this thesis.

When this is finished, it is in the chapter continued by reviewing previous research examining relationships between terrorism, electoral preferences, accountability and government duration. This is followed by an examination of theoretical connections between terrorism and government duration. First, two differing theories, from which one can derive contradictory hypotheses about effects of terrorism on government duration are presented. The theories are then evaluated so to make clear that both form valid grounds for deriving hypotheses relevant for illuminating the research question. In the end, the theoretical framework is further expanded upon, before then lastly hypotheses to be tested against empirical data are deduced.

2.1 Definition: Domestic Terrorism

2.1.1 Definition of the Thesis

Terrorism is here defined as "the violence carried out by political underground organizations" (Sanchez-Cuenca & Calle 2009, p. 45). The definition views the concept in the actor-sense, as opposed to the action sense of terrorism (Sanchez-Cuenca & Calle 2009). In other words, the definition of this thesis views the use of political violence as terrorism, only if perpetrated by a specific set of actors: political underground organizations. It will be shown that this particular definition of terrorism, shares several central definitional attributes found in various definitions of terrorism, while it excludes certain others. It shares with other definitions, that it views terrorism as a form of violence that is carried out by non-state entities (although limited to underground organizations), with the aim of achieving some political goal. It is very important to mention that the definition refers to domestic, not international terrorism. Why

this choice has been made, as well as the difference between domestic and international terrorism, is explained later. The content of this definition is going to be defended, when reviewing some of the most central definitional characteristics of the concept terrorism. Arguments are also presented, defending what some would call a shortcoming of the definition utilized in this thesis: its exclusion of definitional attributes, emphasising terrorism as a form of violence where the immediate victims are not goals themselves but rather means, message generators, to a larger audience through which they hope to attain political goals, and, terrorism as violence with the intent of spreading fear in some defined population. Criteria defining terrorism as violence aiming for civilians are also excluded from the definition of the thesis. Before going into all of this, some introductory comments are in place, about some challenges plaguing the terrorism concept. This is important because one must have in mind that terrorism is a slippery concept hard to define. Hence, to avoid conceptual flaws, the researcher should be careful when choosing definitions of terrorism.

2.1.2 The Problematic Nature of the Concept Terrorism

There is neither consensus, academically nor legally, on how to define terrorism (Schmid 2011). Some researchers have even questioned if there are any reasons to assume that there will be agreement upon a definition among scholars in the foreseeable future (Laqueur 1986, p.53, Cooper 2001, p. 881-882). Many of these difficulties can be traced back to the nature of the terrorism concept itself. According to Bruce Hoffman, a highly recognized expert in the field of terrorism, terrorism is hard to define since it is easily charged with political and emotional content (Hoffman 1998), and "because the meaning of the term has changed so frequently over the past two hundred years" (Hoffman 2006, p. 3). The latter problem is reflected in the writings of another expert on terrorism, Walter Laqueur. Laqueur (1986) states that "there is no such thing as terrorism pure and unadulterated, specific and unchanging, comparable to a chemical element: rather, there are a great many terrorisms" (p. 88). It is no wonder then that Schmid -a pioneering terrorism researcher- devotes over a hundred pages to the task of finding a definition of terrorism, that could be broadly accepted (Schmid 1984).

Despite these difficulties, there seem at least to be agreements among scholars upon some characteristics. As Hoffman (2006) put it: "If we cannot define terrorism, then we can at least usefully distinguish it from other types of violence and identify the characteristics that make terrorism the distinct phenomenon of political violence that it is" (p. 34). The attention is now turned towards explaining and defending characteristics of the terrorism definition used here.

2.1.3 Characteristics Included in the Definition

Violence and Force

Even though there is not complete agreement about whether terrorism always has to involve violence or threat of violence (McCormick 2003, p. 474), it seems, judging by scholarly literature, that this characteristic is quite uncontroversial. In his study of over a hundred definitions, Laqueur (1999) reached the conclusion that "perhaps the only characteristic generally agreed upon is that terrorism always involves violence or the threat of violence" (p. 6). This argument is supported by the survey of the 109 definitions of terrorism, found in Schmid & Jongman (2005). The survey shows that "violence/force" and "threats" have a frequency of 83.5% and 47%, as definitional characteristics, in definitions examined (p. 5).

Based upon the scholarly literature, it would be hard to exclude the aspect of violence from definitions of terrorism. Leaving it out would have the consequence of stripping the concept of content to such a degree, that it would lead to a break with most previous theorizing done in the area. Anyways, even though it's a good starting point to acknowledge that violence is a vital attribute of the concept terrorism, it still only moves us a little forward. Violence can mean everything from an ordinary fight at the local bar to wars between states and suicide bombings. If terrorism is to be considered an own distinct form of violence, with differing causal determinants on political phenomena, it has to contain other definitional attributes as well. The political aspect of terrorism to be evaluated next is a very good place to continue.

Terrorism as a Political Concept

It is common to define terrorism as violence aiming for some political goal. According to LaFree & Dugan (2007), almost all definitions of terrorism rely more or less on the motive of attackers (p. 188). These motives vary, but are usually associated with political goals (Perry 2004). Hoffman (2006) claims that understanding terrorism as a political concept "is absolutely paramount to understanding its aims, motivations and purposes and is critical in distinguishing it from other types of violence" (p. 2). These political goals could be changing the regime, people in power, social or economic policies (Ganor 2002, p. 294). It has nevertheless been questioned by scholars whether the term "political" is broad enough to cover aims that could be said to be religious, economic, ideological or social in nature (Ganor 2002). Ganor (2002) holds to the idea that "the concept of political aim is sufficiently broad to include these goals as well" (p. 294). The latter notion is supported by Duyvesteyn (2004, p. 449). The author claims that political, ideological, and religious themes strongly overlap

thereby making it hard, if not impossible to distinguish them from each other. Since "political aims" seems sufficient, it is not deemed important to include other goals into the definition. This also makes the definition "as short and exhaustive as possible" (Ganor 2002, p. 294).

It is here contended that the political dimension, as emphasized by the definition utilized by the thesis, is an important distinguishable feature of terrorism. To not consider it so would be to leave out a core element, which many scholars through much theorizing have concluded is vital for making terrorism a distinct form of violence. Even though it is still debated whether terrorism exclusively should be considered a political act (McCormick 2003, p. 474), it must be remembered that most definitional elements of terrorism are more or less contested in the scholarly community. To consider terrorism as a form of politically motivated violence is however, not very controversial: Schmid & Jongman (2005, p. 5) find that "political" as a definitional element occur with a 65% frequency in the 109 definitions they analysed. Vallis et al. (2006), also examining definitions of terrorism, find that one of the most common characteristics is some form of political motive. In the end, even though the political dimension is far from the most contested characteristic of terrorism, there are those that are more controversial. The chapter now moves on to discuss one of these: should politically motivated violence be considered terrorism no matter what actor it is being perpetrated by?

Actors: State vs. Subnational Groups

Another criterion which has been used to distinguish terrorism from other types of violence is to put emphasis on what kind of actor that committed the violence. There does not seem to be much agreement upon, whether terrorism is a concept that should exclusively be applied to political violence committed by subnational entities, as opposed to the state. This lack of consensus was prevalent a few decades ago, and is reflected in the survey of Schmid & Jongman (2005) which tells that "Group, movement, organization as perpetrator" only had frequency of 14% in the definitions examined (p. 6). As is seen from the definition of the thesis, terrorism is exclusively reserved for the violence conducted by a specific set of subnational groups: political underground organizations, implying that the state is excluded. There are theoretical reasons for excluding the state from definitions of terrorism, or at least make distinctions where state terrorism is treated as a different form of terrorism. According to Hoffman (2006), for some incidence to be defined as terrorism it must be perpetrated by some non-state entity. Even though it can be argued that states apply force in ways which fit some central elements contained in definitions of terrorism, it can still be argued that this

force is dissimilar to that conducted by subnational groups. As Hoffman (2006) claims: "even while national armed forces have been responsible for far more death and destruction than terrorists might ever aspire to bring about: there nonetheless is a fundamental qualitative difference between the two types of violence" (p. 26). Hoffman (2006) defends this, by claiming that states do have to follow certain rules of war –as codified in The Hague and Geneva conventions- when using force. Hoffman (2006) then contends that "terrorist tactics and targets over the past quarter-century reveal that terrorists have violated all these rules" (p. 27). This argument does not have anything to do with the moral justification and brutality of the violence, nor does it claim that states always follow rules of war laid down by various international institutions: it's about making a conceptual distinction. Hoffman admits that states on several occasions have been found guilty of violating rules of war, but when this occurs the term "war crime", not terrorism, should rather be applied (Hoffman 2006, p. 28).

Walter Laqueur is also a proponent of making distinctions between terrorism and state violence. His argument is different from that of Hoffman, it is Weberian of nature. Laqueur (2003) contends that not treating state violence and terrorism distinctively "ignores the fact that the very existence of a state is based on its monopoly of power. If it were different, states would not have the right, nor be in a position, to maintain that minimum of order on which all civilized life rests" (p. 237). This argument has however been criticized. Stohl (2006) claims that it doesn't really matter whether the state has a monopoly on violence, because it does not from this logically follow that actions of the state cannot be viewed as terroristic (p. 4-5).

It is in this thesis agreed with Laqueur and Hoffman that political violence conducted by states and subnational groups should be treated distinctively. It is not however, taken any stance about whether terrorism is a concept that only should refer to politically motivated violence conducted by subnational groups. To acknowledge that states also can be considered terrorist actors does not mean that a conceptual distinction cannot be made. It is possible to make a distinction, where terrorism refers to the political violence of subnational groups, and state terrorism refers to the political violence of states.[2] The main point is that they should be distinguished in some way or another because even though they might share certain characteristics, they differ on others. As Sanchez-Cuenca & Calle (2009) put it: the technology of so-called state terrorism (massive arrests, internment, mass executions, etc.) is very different from that of non-state terrorism" (p. 34). To not make a distinction (by lumping

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[2] There exists several studies on state terrorism, including Stohl & Lopez (1984, 1988a) and Stohl (2006).

together both forms of violence and apply the same concept to them), risks making terrorism a theoretically incoherent concept, with the consequence of obscuring what Goertz (2006) defines as the "causal powers" contained in the concept. In the case of mixing up the two forms of violence, the latter means that it would be very hard to theorize about what effects terrorism could be expected to exert on political phenomena, including that of government duration. As Sambanis (2008, p. 176) claims, it seems improbable that violence carried out by different actors (states, subnational groups, individuals) should assert same effects on dependent variables. Hence, the concept would not be very useful for causal analysis (Sanchez-Cuenca & Calle 2009, p. 176). A distinction is therefore necessary. Whether state violence should be considered state terrorism or mere repression is however, in the opinion of the author, an open question that does not matter in this context. Here it is only focused upon the terrorism of subnational groups, limited to that of political underground organizations.

Subnational Groups: Political Underground Organizations

Following the definition of Sanchez-Cuenca & Calle (2009), acts of violence are considered terrorism if perpetrated by political underground organizations. Political underground organizations are organizations "unable to take control of territory because the state is powerful enough to avoid losing control within its borders (Sanchez-Cuenca & Calle 2009, p. 34). Hence, organizations are defined as being terrorists by comparing their strength to the state: "Terrorist groups are different from other insurgencies because of the extreme asymmetry of power between them and the state" (Cuenca & Calle 2009, p. 34). The asymmetry forces it to operate underground and become a political underground organization.

This way of defining organizations as terrorist has an important advantage: it crystallizes boundaries between terrorism and other forms of violence. The distinction made between terrorist organizations and guerrillas, is a good example of this. In weaker states insurgents become guerrillas while in stronger states they evolve into terrorist groups (Sanchez-Cuenca & Calle 2009, p. 32). In weaker states, insurgents can more seriously challenge the state by controlling some state territory: the insurgents then become guerrillas (Sanchez-Cuenca & Calle 2009). When the state is strong however, it is much more difficult for insurgents to control some state territory: hence, insurgent groups evolve into terrorist organizations (Sanchez-Cuenca & Calle 2009). The definition also views terrorism and communal violence, as distinct forms of violence. Whereas incidences of communal violence are more scattered and unsystematic (Wilkinson 2004), terrorist political underground organizations pose a

"long-term organized challenge against the state" (Sanchez-Cuenca & Calle 2009, p. 35). When it comes to causal powers, using a definition which is specific about what kind of actors it defines as being able to be terrorists, has the advantage of making the concept more amenable for causal analysis. The violence of terrorist organizations and guerrillas should not be assumed to exert similar effects on phenomena: their means of violence are not the same. The different environments terrorist and guerrillas exist in (strong, weak state) create differing options on what violence to use to achieve the political goals. As Sanchez-Cuenca & Calle (2009) put it: "Terrorist groups are unable to militarily defeat their rival" (p. 35). The latter does again explain the use of tactics like car bombs, kidnappings etc. (Sanchez-Cuenca & Calle 2011, p. 50). On the other hand, guerrillas face different options because the state is weak. One of these options includes using military power (although limited) in its fight against the state (Sanchez-Cuenca & Calle 2011). To conclude, the definition seems to rest upon a coherent theory of terrorism. This allows for the conceptualization of terrorism as a more distinct form of violence, while also making theorizing about its causal effects easier.

Domestic Terrorism

The definition of terrorism that is used in this thesis refers to domestic, not international terrorism. Domestic terrorism is when terrorist incidences occur inside the same country as from which the terrorists themselves originate, the nationality of victims does not matter (Engene 2007, p. 111-112). International terrorism on the other hand, refers to when terrorists commit their operations outside of national boundaries, or if terrorists with different nationalities act together (Sanchez-Cuenca & Calle 2009, p. 36). By focusing on domestic terrorism, often neglected compared to international terrorism (Chenoweth 2010a, p. 17), it is in this thesis avoided what Engene (2007) describes as "blindness to internal terrorism" (p. 110), which according to Sanchez-Cuenca & Calle (2009) is "unfortunate" (p. 32). This non-proportional attention is strange when considering the fact that "domestic events outnumber transnational terrorist events about eight to one" (Sandler and Enders 2008, p. 21).

Also, confining ourselves to domestic terrorism comes with a potential advantage. It is here taken the stance that we are better off by using a concept not lumping together domestic and international terrorism: not mixing them up results in a theoretically cleaner concept. When we are to assess this choice we can start by asking the following question: are domestic and international terrorism sufficiently different for their causal effects on government duration to differ? Answers should be supplied by either (1) theoretical reasoning or (2) empirical facts.

Theoretical reasoning

There is little guidance found in the literature, Sanchez-Cuenca & Calle (2009) do however offer some. For them the international domestic distinction is not useful. They do not see how it allows researchers to deduce hypotheses expecting international and domestic terrorism to have differing effects on dependent variables. In the case of government duration however, it is possible to argue that the distinction actually matters. It is possible to imagine that voters and parliamentarians respond differently to domestic and international terrorism. The former is often connected to the political cleavages, history and culture of their respective countries. Even though it is hard to know how this could affect causal powers of the concept, it should still make researchers question how appropriate it is to treat the two terrorisms similarly.

Empirical Facts

In the study of Williams, Kock & Smith (2012), to be explained in detail later, evidence is found that international terrorism decreases government duration. Even though the main focus of the authors is on international terrorism, they also conduct robustness tests using domestic terrorism data. They find domestic terrorism to also decrease duration. There is however, studies indicating that effects of the two terrorisms differ on other phenomena. Enders, Sandler & Gaibulloev (2011) claims that the "study of the impact of terrorism on economic growth necessitates a distinction between domestic and transnational terrorist events" (p. 320). Even though the former study is the most relevant here, it is here still taken the choice to not mix up the terrorisms. Despite that the former study indicates otherwise, one must remember that this is only one study, meaning that the question is not yet empirically settled. We therefore went for the safe option to avoid a *potential* mistake, of mixing up terrorisms exerting differing effects on government duration. This also makes focus more concentrated.[3]

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[3] Another option is to run separate tests to see if effect differs between the terrorisms. It was decided however, to keep the focus as narrow and concentrated as possible and to extend previous knowledge on the topic. None of the previous studies investigating this (or related) issues have given its main focus to domestic terrorism.

2.1.4 Characteristics Excluded from the Definition

Fear, Victims as Means

Several scholars view terrorism as a form of violence used for spreading fear in some population. Many also view it as violence where the immediate victims are not necessarily the targets themselves, but means, message generators, to affect some larger observing audience (victim-target differentiation) (Schmid & Jongman 2005). Definitions emphasising the latter criteria usually adheres to the action sense of the terrorism concept, meaning that terrorism "is a type of violence that can be carried out by very different actors" (Sanchez-Cuenca & Calle 2009, p. 33). It is the method and goal that matters. In the definitions examined by Schmid & Jongman (2005, p. 5), fear/terror and victim-target differentiation had frequencies of 51% and 37.5%. Works emphasizing these definitional characteristics are found among others Krueger (2007), Hoffman (2006), Rosendorff & Sandler (2005) as well as Schmid & Jongman (2005).[4]

Some of these authors would claim that these attributes sets terrorism apart as a distinct form of political violence. According to Schmid & Jongman (2005), leaving them out would be the same as "abandoning the core concept of terror" (p. 19). It is not very difficult to recognize the importance of the latter points, especially about the fear inducing component of terrorism. The word terror does after all come from the Latin noun "terrorem" meaning "great fear, dread" which is derived from the verb "terrere" that means to "fill with fear, frighten" (Online Etymology Dictionary 2012). This view of terrorism has nevertheless been criticised. In the first criticism, questions are raised about whether the two properties actually are unique for terrorism. Firstly, regarding violence as means to generate fear, Sanchez-Cuenca & Calle (2009) claim that "selective violence in general, whether terrorist or not, is based on the mechanism of fear: Violence is a means to generate compliance" (p. 33). According to Sanchez-Cuenca & Calle (2009, p. 33), Kalyvas (2006) witness of this: the author shows that fear is induced by different kinds of violence during civil wars. Secondly, the so called victim-target differentiation does not really seem to be very specific to terrorism either. Sanchez-Cuenca & Calle (2009) claim, that the victim-target differentiation is present in "many instances of warfare behaviour that are not usually regarded as terrorism" (p. 33).

Lastly, a different kind of criticism has been directed against action based definitions. Even if we assume that its typical properties (including the two discussed) are exclusive for terrorism, the problem of operationalization arises. Sanchez-Cuenca & Calle (2011, p. 50) assert that

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[4] The definition of Schmid & Jongman is a good example of this. For this, see Schmid & Jongman (2005, p.28).

action based accounts of terrorism are impractical when coding cases in comparative work. It is of course usually very hard to match one's theoretical and operational definition perfectly. But when the theoretical definition heavily relies on criteria that are very difficult to measure, serious problems of validity occur. To conclude, it's permissible with definitions excluding fear and victim-target characteristics. This is not to say they are worthless, but that they come with problems like most other definitions. This makes room for reasonable doubt, here considered sufficient to justify using a different definition not emphasising these dimensions.

Civilians as Targets

Another definitional criterion of terrorism excluded from the thesis, portrays terrorism as violence aiming at civilians. According to Sanchez-Cuenca & Calle (2009), this is "one of the most widely shared false beliefs about terrorism" (p. 34). Sanchez-Cuenca & Calle (2009) contend that aiming for civilians often is true with international, but not domestic terrorism. They claim their data to support this conclusion (Sanchez-Cuenca & Calle 2009, p. 34).

2.1.5 Structure of the Definition

In the thesis we want to be explicit about the structure of the terrorism definition. The definition follows the essentialist view of concepts, meaning that some observation is defined as terrorism *if and only if n* characteristics are present (Goertz 2006). For some observation to be defined as terrorism, it has to contain all of the characteristics of the definition simultaneously (hence, *if and only if n*). This is perhaps a little naive. Several scholars believe that terrorism rather is a family resemblance concept, which might contain some clear cases but anyways has unclear boundaries (Khatchadourian 1998, Rodin 2004). These are problems that should be known of even though they seem very difficult to deal with. Dealing with them however, is much more of a philosophical task that falls far outside the scope of this thesis.

2.2 Definition: Government Duration and Termination

2.2.1 Government Duration

Government duration refers to "a simple observable quantity- a straightforward empirical record of the elapsed time between the formation of a government and its termination" (Laver 2003, p. 24). Government durability on the other hand, refers to models seeking to generalize about how long governments would have lasted in different circumstances, given certain values on independent variables (Laver 2003, p. 24). Needless to say the concepts are dependent upon each other: models of government durability can only make estimates justifying statements like "other things being equal, Government X is likely to last longer than Government Y" (Laver 2003, p. 24) if supplied with empirical inputs containing information on observed duration of governments. To obtain meaningful empirical observed government durations is not that straightforward however. Government duration can only be measured if being based upon meaningful theoretical definitions of when governments begin and end.

Before moving some words are in place to avoid confusions. In the remainder of the thesis the term government is used synonymously with cabinet. Hence, concepts like government duration, government termination etc. refers to cabinet termination, cabinet duration, etc.

2.2.2 Defining the Beginning and End of Governments: Definitional Difficulties

Since the first systematic studies on government duration originating in the 70s, political scientists have had limited success answering many of the field`s questions (Laver 2003). One reason for this is due to the problem of defining what marks the beginning and end of governments. Laver (2003) points out that the latter is surprisingly difficult, especially if researchers want to engage in comparative empirical research. This problem has several sources and according to Laver (2003), it "arises in large part because every sovereign state has different constitutional conventions that determine both what it takes to put a government in office and what it takes to remove one" (p. 25). The problem is also further confounded by the fact that states electing its own governments have constitutional requirements for regular elections (Laver 2003, p. 25). The exact definition is therefore not a given (Laver 2003, p. 26). Laver (2003) reflects upon the latter point when stating that "it depends upon substantive choices made by the researcher that may well have a significant effect on the results. And these choices will inevitably be conditioned on the theoretical concerns of the analyst" (p. 26).

2.2.3 Defining the Beginning and End of Governments: Definition of the Thesis

The previously mentioned statement of Laver, that definitions of government termination is not a given but conditioned on theoretical concerns of analysts, is important to have in mind when testing hypotheses about effects of domestic terrorism on government duration. The essential question one should ask is what change of government can, by theory, be expected to occur following domestic terrorism. Certain parts of the mainstream definition of government termination fits expectations of this thesis` theoretical framework quite well, others do not. Changes of government considered not to fit -meaning they are terminations that cannot be expected to occur following domestic terrorist incidences- are in the thesis treated differently.

A good place to start the search is to evaluate definitional criteria formulated by Browne Frendreis & Gleiber (1984, 1986). Three of the most commonly used criteria of this definition consider a government terminated if any of the following occur: (1) the prime minister changes (2) the partisan composition of the government changes and (3) there is an election (Laver 2003, p. 26). These definitional criteria are used by among others Warwick (1994), Strom (1985), Damgaard (2008), Saalfeld (2008) and King et al. (1990). The definition covers the beginning and end of governments. When one of the above occurs the old government is terminated while a new is formed. In reality however, events signalling beginning and end of governments are usually marked by government resignations votes of confidence and so on.

The latter are in this thesis however, considered operational criteria for the theoretical definition discussed later in the chapter regarding measurements. In the thesis criterion (1) and (2) of the mainstream definition are used while (3) is excluded. Another criterion commonly used -not of the mainstream definition- is also excluded: "a change in the parties that support the cabinet without participating in it" (Lijphart 1984, p. 266).[5] The rationales for using the two definitional criteria, while excluding the others, are now going to be presented.

2.2.4 Characteristics Included in the Definition

Change of Partisan Composition of Government and/or Prime Minister

The theoretical definition used in the thesis considers a government terminated if either (1) the partisan composition of government changes (2) the prime minister changes. Both criteria are alone sufficient. This means that the definition not only defines incidences as government

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[5] This criterion has been used by scholars like De Swaan (1973), Warwick (1979), Taylor and Herman (1971).

terminations if both (1) and (2) occur at the same time, but also in incidences when only one of these, no matter which one, occurs. The first criterion, change of partisan composition of government, represents the concept of government termination in a theoretically meaningful manner. Changes in the partisan composition represent substantial changes since it is likely to have implications for the bargaining environment as well as policy creation. As Lijphart (1984) notes: "There is no disagreement on the first criterion of a change in the parties composing the cabinet: "all of the important studies on cabinet durability use it" (p. 267).

Secondly, it marks a change of government that can be expected to occur after some terrorist incidence. As explained later, one of the theories from which hypotheses of the thesis are deduced, contains expectations that domestic terrorism could alter the partisan composition of government in various ways. The main logic of this theory is that domestic terrorist incidences make voters and members of parliament more inclined to remove governments from office, as well as making it more likely that parties opt out of coalition governments.

There are however some problems with the partisan composition criterion. Firstly, Lijphart (1984) advises to not only use this definitional criterion of government termination. He claims that it results in very long government duration. Secondly, the criterion is so broad that it covers changes in partisan composition, not relevant to the theoretical framework of the thesis. The latter means that there are certain changes in the partisan composition of government, which in the opinion of the author, according to the theoretical framework, cannot be expected to occur following domestic terrorism. This is discussed later in the thesis.

In line with definitional criterion (2), a government is considered terminated if the prime minister changes. Lijphart (1984) claim there is a temptation "to regard a cabinet under a new prime minister as a new cabinet" since the latter usually are "named after the prime ministers that preside over them" (p. 268). Intuitively this change also makes sense if seen in relation to terrorist incidences. The prime minister, which is the first among equals, might feel pressure to resign after domestic terrorist incidences. However, criterion (2) does not come completely without problems. As is discussed in the next part under "technical terminations", there is a problem with this criterion in incidences where the prime minister changes due to factors not relevant to the theory of the thesis: instances in which the PM changes due to his/her death.

2.2.5 Characteristics Excluded from the Definition

Change in support parties

Lastly, there is the criterion considering government terminations as occurring when there is a change in support parties. Support parties are referred to as parties in parliament which supports, but do not participate in government. This means to count parties which formally do not have the status of a cabinet member, as a member of the cabinet (Lijphart 1984). Lijphart (1984) claims that "to interpret any change in support parties as the end of a cabinet" makes "good theoretical sense" (p. 268). This criterion also makes sense if seen in relation to the theory of the thesis. Terrorist incidences causing public opinion shocks (negative or positive) could reasonably be theorized to make support parties to either grant or pull away support from the sitting government. This criterion is excluded on practical, not theoretical grounds. It is hard to identify support parties, especially when there is no explicit support agreement (Lijphart 1984, p. 268). The latter can be said to imply tacit and implicit support which again often reflects an intermittent, not consistent, support agreement (Lijphart 1984, p. 268).

Regularly Scheduled Elections

According to this criterion, a government is considered terminated if an election occurs (Laver 2003). The occurrence of an election is a sufficient condition, it doesn't matter who wins the election. In other words: (1) party x_1 and x_2 are in government office: (2) an election occurs where party x_1 and x_2 are re-elected: (3) the latter imply no change in the composition of the government: (4) in line with the election criterion, incidences like this are still being recorded as government terminations. This is counterintuitive, but there is some theoretical reasoning behind it. Elections, no matter how they turn out for the parties in possession of government power, serve to alter the bargaining environment (Laver 2003, Grofman & Roozendaal 1997). The latter means that an election alters the political environment in which the government operates. Some parties of government are weakened, other strengthened. Partisan compositions of parliaments can sometimes change substantially after elections.

Warwick (1994) disagrees with the view that elections not changing the government represent true cases of government terminations. He nevertheless contends that they represent a "disruption sufficiently serious to make it difficult to view the government as continuing on the same basis as before" (Warwick 1994, p. 27). In other words, they are treated as instances of "artificial terminations" as opposed to real terminations. Instances of technical/artificial terminations have usually been censored in event history analyses of government duration.

It is here not necessary however, to discuss censoring of elections not changing the government, since the criterion is excluded. The author finds it counterintuitive. Also, as (Jäckle 2008) claim: "The counting of two distinct governments resulting from this definition may be misleading and researchers might prefer to count it as just one government" (p. 22). For terminations to occur, there has to be some change of PM and/or partisan composition.

Technical Terminations

There are incidences of government terminations that conform to both definitional criteria (1) and (2) but which are still of no relevance in this thesis. Hence, these terminations are considered technical, meaning that even though governments experiencing these are not excluded, must be treated differently. Technical terminations are dealt with by *censoring,* a technique available for event history analysis, the main method of the thesis. The handling of technical terminations by censoring is not an invention of the thesis, censoring for this purpose can be said to have been developed by King et al. (1990). What censoring is, and how it deals with technical terminations, is however not of any concern here, this is explained in the methods chapter. This part only explains what the thesis means by a technical termination, and why it is considered problematic for the definition of government termination it utilizes.

A government termination is in this thesis considered technical if changes of government occur that conforms both to definitional criteria (1) and (2), but which still are of no theoretical interest. In other words, theoretical expectations derived from the theories of the thesis do not predict these changes to occur, hence, they are of no theoretical interest. The first regards when there is a change of prime minister due to his or her death. As Dodd (1976, p. 121) points out: "a change in prime minister, through death for example, really does not constitute necessarily a meaningful change in cabinets if there is no other ministerial change". Laver (2003) also claims that there are problems with defining it as instances of government termination, when prime ministers resigns of either ill health or old age and is "replaced in an orderly way by another notable from the same party, while nothing else changes" (p. 25).

In the context of this thesis terminations due to death of the PM are uninteresting because they represent theoretically irrelevant changes of government. As an example, the main theory does not predict reduced government duration following domestic terrorism because it expects domestic terrorism to increase the likelihood that the prime minister dies. Hypothetically a prime minister can be killed by domestic terrorism but this change is not relevant. However,

what is of relevance is when the prime minister changes due to reasons emphasised by the theoretical framework: change of prime minister due to heightened political pressure making it more likely that he/she resigns. The same problem applies to instances in which there is a government termination conforming to criterion (1), change of the partisan composition of government. As mentioned earlier, this criterion is so broad that it covers changes of the partisan composition that, according to theory used in the thesis, is not expected to occur following domestic terrorism. A change of partisan composition can mean many different things: all parties of the government are replaced, one party is replaced, one party is added etc. All except one of these changes conform to theoretical expectations laid down later in the thesis: when the partisan composition changes because a new party is added to government.

Lastly, there are instances where governments change because of some "other constitutional requirement" (Damgaard 2008, p. 305). Constitutional requirements can mean various things not worth discussing here. The point is that terminations due to constitutional requirements are not relevant to the theoretical framework of the thesis, and are therefore censored.

2.2.6 Structure of the Definition

To avoid confusion we are explicit about the structure of the definition used. The concept of government termination does here follow a family resemblance structure, meaning that it follows the *if m of n* characteristics rule (Goertz 2006). In the context of the thesis m=1 and n=2. This implies that a termination is defined as occurring if at least one of the two characteristics is present, no matter which one. A weakness of this definition is that it treats different types of government terminations similarly. Thinking data structure, the latter implies that the two definitional criteria are both given a value of 1. This could be problematic since it is possible that domestic terrorism is more/less likely to cause government termination of type (1) than (2). It is here in this thesis not denied the possibility that domestic terrorism could have differing effects on the differing types of government terminations. Despite of this however, it is here contended that there is a lack of theoretical argument justifying deduction of hypotheses containing expectations about differing causal effects. To inductively explore such possibilities could be interesting, but it is not done here. The assumption underlying the definition is therefore that the two types of terminations are homogenous (hence, both = 1).

2.2.7 What makes Governments Durable? Opposing Schools

Scholars were previously divided into two camps that differed in their perspectives on how to study the duration of governments (Warwick 1994). This difference was epistemological. In the first camp, were scholars adhering to the attributes approach of government duration. In the second, there were the events theorists (Grofman & Roozendaal (1997). The attributes theorists contended that variation in government duration could be explained by factors that were "deterministically" related to the duration of governments. According to this view, government duration represented a phenomenon amenable to causal analysis (Laver 2003).

Events theorists had the opposite view. The duration of governments were mainly not a function of independent variables reflecting structural attributes, they were rather a function of randomly occurring unpredictable events triggering government collapse (Grofman & Roozendaal (1997, p. 421). The process of government termination and duration was therefore stochastic. With time however, it became clear that both views had to be reconciled: the structural attributes theorists failed to model the stochastic process of cabinet dissolution, while events theorists did not take into account the structural attributes approach. A recipe for reconciliation was however offered by King et al. (1990). They proposed the methodological framework of event history analysis. This technique - the method used in the thesis- has the ability of taking both perspectives into consideration (Warwick 1994). It is now the dominant view among scholars doing quantitative research on government duration (Laver 2003).

In the thesis, theoretical views of both the attributes and events theorists are incorporated. Incorporating them is necessary since both rests upon plausible theoretical arguments, as well as evidence. If not both are considered, the theoretical framework would only be more incomplete with the consequence that relevant controls (both variables and stochastic processes) are not accounted for. The latter would seriously risk threatening trustworthiness of inferences drawn, regarding the effects of domestic terrorism on government duration.

This section does therefore now proceed with presenting theory and evidence of attributes and events approaches, concerning the various causes and determinants of government duration. It is started by presenting variables found inside the attributes approach, which are hypothesized to affect government duration. After the latter the events theorist perspective is presented.

2.2.8 Determinants of Government Duration: Attributes Approach

Features of Government

According to attributes theorists there are several factors that can explain government duration. The first set of attributes, resides in the government itself. Taylor & Herman (1971) and Sanders & Herman (1977) find evidence that majority governments are more durable than minority governments. Support for this hypothesis is very strong: "Every empirical study of the matter has found that majority governments last longer" (Laver 2003, p. 29). The explanation is logical: majority are less likely than minority governments to be defeated in parliament (King et al. 1990). Secondly, Taylor & Herman (1971) find evidence that one-party governments are more durable than coalition governments. An explanation is that as the number of parties of government increases, it gets more difficult for parties of government to reach agreement, which increases likelihoods of government collapse (Warwick 1994, p. 35).

Thirdly, Dodd (1974) use the distinction made by Riker (1962) to make a theory about minimum winning coalitions - coalitions having enough seats in parliament to maintain a majority but no more-, oversized coalitions -coalitions having more seats than necessary for maintaining parliamentary majority- and undersized coalitions -coalitions with insufficient seats to maintain parliamentary majority- (Grofman & Roozendaal 1997, p. 430). Dodd (1974) find support for the hypothesis that minimal winning are more durable than non-minimal winning coalitions. According to Grofman & Roozendaal (1997), "virtually all subsequent studies using cross national data supports the finding that minimal winning coalitions are more durable" (p. 430). An explanation is the following: oversized cabinets contain parties whose seats are not necessary for other parties of cabinet to maintain majority and hence, the party "may be allowed to leave the cabinet thus precipitating what is technically a cabinet breakdown". In minimal winning cabinets, "every party in the cabinet may appear to have an equally compelling threat" (Grofman & Roozendaal 1997, p. 431).

Lastly, it is claimed that ideologically connected governments are more durable than those governments that are not. It is harder for ideologically diverse coalition governments to agree on policy. There does not however, seem to be full agreement upon these hypotheses. Browne Frendreis & Gleiber (1986) claims, after reviewing the literature on government duration in the 70s, that ideological factors exert a weak impact, "if any at all" (p. 630). Newer research studies do however find empirical evidence that ideologically diverse governments face higher risks of termination, implying that they are less durable (Warwick 1994, 1992c).

Features of parliament

A fractionalized parliament, indicated by the degree to which a party system is dominated by one or a few parties, has been shown to reduce the duration of governments (Grofman & Roozendaal 1997, 428-429). In their study King et al. (1990) finds evidence for the hypothesis that fractionalized parliaments reduces government duration. A proposed theoretical mechanism is the following: "the greater the number of parties, the greater the number of potentially viable cabinets" (Grofman & Roozendaal 1997, p. 429). For Warwick (1994) the effective number of parties in parliament reflects a complex bargaining environment. It's important to note that the fractionalization hypothesis usually refers to the number of political parties residing in the lower chamber of parliament. Survival of governments almost never depends upon the formal approval of the upper chamber (Druckman & Thies 2002, p. 760).[6]

Ideological polarization of parliament matters too. Findings show that as ideological polarization of parliament increases, likelihoods of experiencing government termination goes up (King et al. 1990, Warwick 1992c). The explanation is that it is more difficult to form durable governments in systems where the parties of parliament are ideologically diverse.

Institutional factors: investiture

Institutional factors are as well theorized to affect the duration of governments. It is hypothesized that positive parliamentarianism has a negative effect on government duration. Positive parliamentarianism refers to parliamentary systems in which new governments have to win votes of investiture -by relative or absolute majorities- in parliament before they can enter office. King et al. (1990, p. 857) contend that investiture votes are legal requirements working as hurdles that governments must overcome. King et al. (1990) test the hypothesis that investiture requirements decrease government duration: it's supported by their data.

Economic factors

Macroeconomic factors like inflation as well as unemployment are said to be determinants of government duration (Saalfeld 2008). The explanation is simple: governments are held responsible for the management of the economy by voters. According to Warwick (1994), economic information is analysed by parliamentarians too. Warwick (1994, 1992b) finds

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[6] It should be noted however, that Druckman & Thies (2002) find evidence that bicameral are more prone than unicameral systems of experiencing government terminations. This is due to non-formal factors. These findings do not however, seem as robust as findings supporting the other hypotheses just reviewed.

evidence that inflation and unemployment increases the probability of termination (meaning reduced government duration), for governments of Western European parliamentary democracies. It must be mentioned that there is evidence that the public is myopic regarding the state of the economy (Bartels 2008, p. 98-126). This implies that we should expect correlations between economic conditions prevailing at that same time as when governments experience terminations. Hence, inflation and unemployment rates at months previous to the month of termination are here not considered relevant due to the argument of a myopic public.

Number of formation attempts

It is not agreement upon whether the number of government formation attempts should be expected to decrease or increase the duration of governments. According to King et al. (1990), decreased duration should be expected because it indicates a complex bargaining environment. King et al. (1990) find evidence supporting the latter view. According to Strom et al. (1988), the relationship should however be expected to be positive. Governments that do take a long time to form might be better constructed, and therefore more likely to be durable.[7]

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[7] There are also other factors, not accounted for here, that have been theorized to affect government duration. The ability of the PM in some countries to dissolve parliament and call for early general elections might lead to shorter lived governments (Grofman & Roozendaal, p. 437). However, "the limited variance in this variable does not permit a test of this hypothesis" (Grofman & Roozendaal 1997, p. 437). It is also theorized that electoral volatility affects duration. It refers to the electoral turnover in elections (Laver 2003, p. 26). According to King et al. (1990) high volatility reflects a complex bargaining environment expected to reduce duration. This factor does nevertheless lack statistical significance in previous studies (Grofman & Roozendaal 1997, p. 429). Axelrod (1970) developed a theory containing the hypothesis that minimal connected winning governments (governments that are both minimally winning and ideologically cohesive) to be more durable than other governments. He found support for this hypothesis (for Italy). This hypothesis was again tested by Laver (1974), cross-nationally, along with other measures of ideological diversity. The hypothesis did then not receive strong support.

2.2.9 Determinants of Government Duration: Events Approach

The events school of government duration was developed through the research of Brown, Frendreis & Gleiber (1984, 1986) and Brown, Frendreis & Mashoba (1986). This approach was as a reaction to the structural attributes theorist which, according to Frendreis, Gleiber & Browne (1986), without one exception had not managed to explain more than 20-30 % of the variation in the duration of governments (p. 620). Research of the events theorists was based upon the central assumption that the world consisted of randomly occurring government toppling events like political scandals, sudden economic crises, international conflicts and deaths of central political leaders (Laver 2003, p. 28). To quote Warwick & Easton (1992):

"A cabinet that is inherently strong may fall very soon after its formation because of the sudden and unexpected death of its leader: alternatively, an inherently collapse prone cabinet might endure much longer than expected because nothing occurs in the social, economic, political, or international environments to induce its downfall" (p. 123-124).

Since these events were totally random in nature Brown, Frendreis & Gleiber (1984, 1986) and Frendreis, Gleiber & Browne (1986) reasoned that the probability of government collapse would be constant (probability of terminations is the same at any point in time during the lifetime of governments). To test the latter argument Brown, Frendreis & Gleiber (1986) deduced the hypothesis that the empirical distribution of government dissolutions would resemble a Poisson distribution.[8] Brown, Frendreis & Gleiber (1986) tests this hypothesis on 12 parliamentary democracies: it receives support in only four of the countries. Even though latter findings gave only limited support to the events hypothesis it was important. It demonstrated the view that random events also matter for government survival. Since the distribution of government terminations only followed the Poisson distribution in 1/3 of the cases, it became harder to ignore the importance of causal attributes. This implied that independent variables measuring these various attributes had to be infused into the analysis.

As has already been mentioned, King et al. (1990) unified the events and structural attributes approaches through the introduction of event history analysis. Event history analysis managed to reconcile the views because of its ability to treat the duration of governments as a function of both independent variables (attributes approach) and a stochastic time constant process (events theorists). Even though most scholars since then agree with the unified model, there is

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[8] Expected distribution of government duration when the probability of termination does not vary with time.

disagreement upon what is the nature of the underlying stochastic process (Alt & King 1994, p. 193). According to Laver (2003) the "popular intuition" is that governments become "tired" and more vulnerable with time, "in the sense of being more accident prone and hence more likely to collapse when faced with a given event" (p. 32). The evidence is however contradictory. Warwick (1992a, 1994) and Warwick & Easton (1992) find evidence of increasing hazard rates, "the rate at which governments end at duration t, given that they have survived until t" (Alt & King 1994, p. 191), indicating that governments are more likely to collapse as they age. On the other hand, Alt & King (1994) and King et al (1990) find evidence and propose models in line with views of event theorists: time constant hazards.

Researchers investigating government survival needs to be careful when assuming form of the underlying stochastic process, when specifying event history models. Since there are theoretical arguments and evidence contradicting each other regarding its nature, it is in this thesis taken an agnostic view on the matter. By agnostic it is meant the following: when assessing effects of domestic terrorism on government duration, the underlying stochastic process is taken into account, but it is not, because of theoretical uncertainty and contradictory evidence, assumed that it conforms to any specific form. As shown later in the methods chapter this can be done by using the semi-parametric Cox proportional hazards model.

Lastly, if duration of governments is determined by "deterministic" and stochastic factors, how are they affected by that of theoretical interest in the thesis, domestic terrorism? As to be seen next there are literature containing empirical research as well as theory that can guide us in right directions. The relevant literature is now to be reviewed, before theoretical relationships between terrorism and government duration are examined so hypotheses can be derived. This is an essential step towards the goal of testing hypotheses against the data.

2.3 Previous Research

2.3.1 Terrorism, Electoral Preferences and Accountability

Political scientists have been questioning whether terrorism is efficient at achieving various political goals set out by terrorists. Pape (2003, 2005) seems to agree with this claim when he tries to explain why there has been an increase in the frequency of terrorist activity around the globe. The latter he claims is due to the effectiveness of terrorism, that terrorism works (Pape 2003, 2005). Even though the latter statement is controversial (Abrahams 2006) there are now studies finding evidence for hypotheses predicting terrorism to affect electoral preferences and electoral accountability, spheres directly related to government duration. The studies vary in their methodologies. Some are quantitative while others have a more qualitative focus.

Terrorism and Electoral Preferences

Research show that terrorism can affect ways individuals evaluate performances of political leaders. Merolla & Zachmeister (2009) find evidence from three experiments that, "in times of terrorist threat (compared to good times), individuals weight leadership more heavily in the voting booth" (p. 575). Davis & Silver (2004) find evidence that perceived threats of terrorism affected voting decisions in the US 2004 Presidential election. Studies have as well been extended to cover countries like Turkey and Israel. Kibris (2011) use security forces terror casualties at the district level as a measure of exposure to terrorism, and observes that it affects people's electoral choices. The results show "that Turkish voters are highly sensitive to terrorism and that they blame the government for their losses" (Kibris 2011, p. 220). Moreover findings indicate that "Exposure to terrorism leads to an increase in the vote share of the right wing parties" (Kibris 2011, p. 220). Berrebi & Klor (2008) reach similar conclusions when assessing effects of terrorism on the electoral preferences of the Israeli electorate. They find that the "occurrence of a terror attack in a given locality within three months of the elections causes an increase of 1.35 percentage point on that locality's support for the right bloc of political parties out of the two blocs vote" (Berrebi & Klor 2008, p. 279).

The literature also covers how terrorists could exploit strategic actions of voters. Siqueira & Sandler (2007) use game theory to demonstrate how a representative voter has incentives to vote for a policy maker exploiting counterterrorism measures of other countries. Voters are assumed to be rational, and expect governments of other countries to grant counterterrorism measures that voters in the other country also could benefit from (Siqueira and Sandler 2007).

Terrorism and electoral Accountability

There is one quantitative and a few qualitative studies investigating relationships between terrorism and that of electoral accountability. On the quantitative side, there is the study of Gassebner, Jong & Mierau (2008) which finds evidence of a statistically significant positive effect on the probability that the incumbent government is replaced in elections when experiencing terrorist incidences. They run their tests on more than 800 elections in 115 different countries. The results also demonstrate that "the magnitude of the effect increases with the severity of the terrorist attack" (Gassebner, Jong & Mierau 2008, p. 126). On the qualitative side many studies devotes energy to the question of whether the terrorist Madrid bombing influenced Spain's 2004 national elections (Bali 2007, Lago & Montero 2006, Montalvo 2011, Michavila 2005). Bali (2007) finds that the Madrid bombs going off before the election "had a substantial effect on the Spanish electorate" (p. 685). It contributed to electoral upset which defied most predictions where PSOE ousted PP from power (Bali 2007).

It is important to mention that it was not only the attack itself that led to the electoral upset, but the way PP handled the situation by erroneously blaming ETA for being the perpetrators (Bali 2007). Montalvo (2011) does as well find evidence in support for the hypothesis that the terrorist attacks in Madrid managed to change Spaniards electoral preferences. He demonstrates this by using an experimental method, where a control group of individuals who cast their vote before the terrorist attacks, are compared with those who cast their vote after it occurred (Montalvo 2011). Lago & Montero (2006) does as well investigate whether the attacks changed the voting preferences of Spaniards, and to what extent they can explain the electoral victory of PSOE. The findings show similarities with (but are not the exact same) as those of Bali (2007).They claim that the data show evidence that it was not the attack per se that caused the upset, but the way the attacks led to a critical focus by the voters on several of the sitting governments policies, including the governments support for the war in Iraq "and the manipulation by the government when informing the public about the responsibility for the attacks between the March 11 and March 14" (Lago & Montero 2006, p. 34). Michavila (2005) find evidence that the attacks had a "decisive impact on the elections" (p. 31). He concludes by saying that regardless of the fact that the impact of the attacks was relatively small they were a "determining factor that changed the final result Michavila" (2005, p. 31).

2.3.2 Terrorism and Government Duration

The studies reviewed just previously were focused upon empirical connections between electoral preferences and electoral outcomes. In parliamentary regimes however, governments can be changed through several other means than that of elections. Gassebner, Jong & Mierau (2011) extends their investigation from only investigating relationships between terrorism and electoral accountability, to that of terrorism and government duration, the main focus in this thesis. Gassebner, Jong & Mierau (2011) does so by using a dataset containing more than 2400 cabinets in 150 countries, in the period 1970- 2002. Gassebner, Jong & Mierau (2011) find that "terrorism, on average, shortens cabinet duration" (p. 1253). These findings could be said to be in line with those of Gassebner, Jong & Mierau (2008), with the difference that the former demonstrate that terrorism also can cause cabinets to fall through other mechanisms than that of elections. Caution is warranted however when it comes to the latter study. Even though the author of the thesis is grateful for its important work, it does face certain shortcomings related to the data they use, how they use them, and the regimes they include.

Firstly, the authors mix up democratic, autocratic, presidential and parliamentary regimes. Even though it is an interesting finding, that these regimes on average experience shorter duration when experiencing terrorism, the following must be mentioned: it is hard to argue that causal pathways activated by terrorist incidence, leading to decreased duration, are the same for all these regimes. Even though *if* it is true, that terrorism can bring governments of differing regime types down, it is likely that it happens through differing mechanisms. Even though if we "know" that terrorism can bring governments of these regimes down, there are reasons to question theoretical explanations for *how* this happen: there might be different explanations for each regime type. There are also problems with the data used and how they are used. Firstly, their terrorism variables are based on GTD data (Global terrorism database), that do not distinguish between domestic and international terrorism (LaFree & Dugan 2007). The latter could be problematic. International and domestic terrorism could exert differing effects. Secondly, the authors run the analysis for 1970- 2002 and uses GTD data for the entire period. This is problematic when considering that GTD data for the two periods 1970-1997 and 1998-2011 are based upon different coding rules (LaFree & Dugan 2007). Lastly, their analysis utilizes country years "which presents problems for inference given that we do not know when terror events occurred during the year and whether sudden changes in other factors like the economy affected cabinet duration" (Williams, Kock & Smith 2012, p. 3).

The second study on terrorism and cabinet duration is that of Williams, Kock & Smith (2012). Event history models are used on duration data for 18 parliamentary democracies (14 Western European plus Israel, Japan, Canada and Australia), for the late 60s to 2003. They find that international terrorism decreases government duration. They also run robustness tests with domestic terrorism data gathered from TWEED which brings them similar results. Effects do however vary between governments of different ideology. Their central finding is that "right-oriented governments are able to keep their hold on power more than left-wing governments when confronted with transnational terrorism" (Williams, Kock & Smith 2012, p. 1).

This study is quite good. Firstly, it does not mix up international and domestic terrorism (they run separate tests), while the analysis is confined to parliamentary democracies. Their main international terrorism data source is ITERATE (even though using GTD data too), which is based upon consistent coding (Sheehan 2011). The author does anyways disagree on their use of event history model. They use a Weibull model, which among *others,* assumes that the form of the baseline is that of monotonically rising hazard rates (the likelihood of government termination increases with time). As was argued in part 2.2.9, there are theoretical arguments both for and against the use of models estimating such forms.[9] When the main interest is effects of terrorism on government duration it seems better to not impose strong assumptions about the baseline. These are anyways matters to be discussed further in the methods section.

2.3.3 In Which Direction Does Previous Research Point?

What conclusions can be drawn from the latter research? Firstly, it shows that there is a rich literature available exploring and finding evidence for several hypothesised relationships between terrorism and political phenomena which are related to government duration. Secondly, it indicates that data seems to support similar conclusions regarding the relationship between terrorism and government duration, there is a pattern of consistency in the findings: empirical evidence of the studies indicates that terrorism shortens the duration of governments. These however, are "only" evidence. Political science should also be able provide theoretical explanations for why observed empirical relationships between phenomena occur. It is in the thesis now moved on to establish a theoretical framework, from which hypotheses can be derived, that through empirical tests, can help us illuminate the research question regarding effects of domestic terrorism on the duration of governments.

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[9] To quote Beck (1998): "Even though the Weibull is more flexible than the exponential duration model, it still makes strong assumptions about durations" (p. 201).

2.4 Theoretical Relationship

2.4.1 Theories: Opposing Expectations

A-priori it is not clear whether the occurrence of terrorist incidences should be expected to increase or decrease the duration of governments. This is due to there being two different theoretical frameworks, from which one can derive hypotheses containing contradictory expectations, regarding the effects of terrorism on government duration. The theories are now first going to be presented, before an evaluation follows, arguing that both theories form valid grounds for formulating hypotheses, relevant for assessing the research question of the thesis.

Theory Predicting Terrorism to Decrease Government Duration

From the first theoretical framework, used by Gassebner, Jong & Mierau (2011) in their study on terrorism and duration, it can be derived a set of hypotheses containing expectations that terrorism decreases government duration. This framework is a combination of two theories. The first can, according to Gassebner, Jong & Mierau (2011), be traced back to the works of Ferejohn (1986) and Barro (1973). The latter focuses upon on how the electorate holds incumbent leaders responsible for the provision of public goods. The basic logic of this theory is straightforward: if those holding government office provide some amount of public goods, the electorate perceives them as competent thereby shifting public opinion in favour of incumbents which then again face a better chance of getting re-elected. However, if incumbents fail at this, they are viewed incompetent, public opinion turns against them, and they are less likely to get re-elected (Ferejohn 1986, Barro 1973, Gassebner, Jong & Mierau 2008, 2011).[10] To make this theoretical framework applicable for the investigation of how terrorism affect government duration, Gassebner, Jong & Mierau (2007, 2008, 2011) makes the assumption that national security is a public good. Gassebner, Jong & Mierau (2007, 2008, 2011) then reasons, based on an argument from Holmes (2001), that the occurrence of terrorism could likely shift public opinion against the sitting government, because it reflects that the sitting government is incompetent at providing the public good of national security.

In Gassebner, Jong & Mierau (2007), this theoretical framework is also constructed so as to make it able to account for effects of terrorism on duration of governments in parliamentary systems, where governments not only are replaced through that of elections. They do so by

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[10] According to Lewis-Beck & Paldam (2000),"vote and popularity functions are basically similar" (p. 114). Many models attempting to predict electoral outcomes do their forecasting by using popularity functions (Lewis-Beck, Nadeau & Belanger 2004).

using a game theoretical approach developed by Lupia & Strøm (1995). According to Lupia & Strøm (1995), so called critical events considered external to the cabinet, can create a shock in public opinion, that alters the incentives of political parties that are members of a coalition government, to stay in that government. According to Gassebner, Jong & Mierau (2011), terrorist incidences can be considered such events since they affect public opinion (Downes-Le Guin & Hoffmann 1993). In line with the theory, the public opinions shocks are expected to have the following consequence: "If a coalition member perceives the marginal costs of remaining in the coalition to be higher than the marginal benefits, it is optimal to end coalition participation" (Gassbner, Jong & Mierau 2007, p. 4-5). When the latter occurs, there are according to Gassebner, Jong & Mierau (2007) several scenarios that are possible: the renegotiation by former coalition partners to form a new coalition, new elections etc. (p. 5).

Critical events external to the legislature, like terrorist incidences, may therefore be expected to cause changes in the composition of cabinets. The mechanism is simple: if the government is conceived by the public as incompetent, as a result of their failure to prevent terrorism, member parties of a coalition cabinet do not want to be associated with this cabinet because it is unpopular. The costs of staying in the coalition could thereby hamper their own possibilities of future electoral gain. Two other possibilities through which cabinet terminations could occur have by the thesis been added to the theoretical framework: (1) governments becoming unpopular after terrorist attacks are more likely to be brought down by parliament by votes of no confidence. The rationale behind it is that parliamentarians either view the government as incompetent, and therefore reasons that a new government that is better at providing national security is needed, and/or they follow public opinion not favouring the government, hence, they become more inclined to join opposition forces in parliament wanting to remove the government. (2) Increased likelihood that PM resigns. Failure of government at preventing terrorism puts pressure on the PM to resign because he/she is the "first among equals".

Theory Predicting Terrorism to Increase Government Duration

On the other hand, it could be argued that "rally around the flag theory", allows for the formulation of hypotheses which, contrary to the previously discussed theoretical framework, predicts domestic terrorism to increase government duration. "Rally Theory" was constructed by Mueller in "Presidential Popularity from Truman to Johnson" (Mueller 1970) and Mueller (1973). Simply explained the theory predicts the popularity of US Presidents to increase following certain types of international crises that triggers a so called rally effect (Callaghan

& Virtanen 1993, Oneal & Bryan 1995). More specifically, a rally is according to the theory expected to occur if an event containing all of the following properties occur: the event is (1) international (2) involves the United States and particularly the President directly (3) specific, dramatic, and sharply focused (Mueller 1970, p. 21). There are two separate theoretical camps that differ in what they emphasis as the most prevalent casual mechanisms underlying the phenomenon (Hetherington & Nelson 2003). The patriotism school of thought holds that ordinary Americans during times of international crisis rallies to the president which is a symbol in times of crisis, symbolizing national unity and Power (Hetherington & Nelson 2003, p. 37). The opinion school on the other hand, contends that rallies occur because "opposition opinion leaders," in times of crisis, do not criticise the President as harshly as they otherwise would do, but rather make cautiously supportive statements of his conducts. This leaves journalists with little information to report which is not supportive of the President (Hetherington & Nelson 2003, p. 37-38). The theory is based upon ideas from social identity theory. Its essence can be said to be that "Group membership is a matter of collective self-construal- "we" and "us" versus "them" (Hogg 2006, p. 115). The theory asserts that external threats against one's own group, increase in-group solidarity and support for individuals leading the group by increasing the salience of a hated group (Willer 2004).

At first, rally theory does not seem suited as a theoretical framework for assessing the research question. It seems to focus on boosts in approval of presidents, as opposed to governments in parliamentary democracies, examined in this thesis. Also, it does not mention explicitly whether terrorist incidences should be considered being potential rally events. The latter notions are however, not the case. Firstly, even though rally theory originally was concerned with US Presidents, the theory has been extended to explain popularity boosts of leaders in parliamentary systems like Great Britain (Lai & Reiter 2005) and Israel (Arian & Olzaeker 1999). Secondly, terrorist incidences can be considered potential rally events: they fit the necessary definitional criteria. Chowanietz (2010) contends that "the implications of terrorism for the national interest suggest a priori that this form of political violence offers fertile ground for rallies" (p. 678). Firstly, terrorist incidences can be considered international events: they receive substantial international media coverage (Weimann & Winn 1994). Also, terrorist attacks can be said to be specific, dramatic and sharply focused. It is dramatic – "often more so than faraway military crises or opaque diplomatic disputes-" (Chowanietz 2010, p. 678) because it is usually sudden, and can cause destruction, chaos and at its worst death. Finally they are also considered as specific and sharply focused (Chowanietz 2010).

2.4.2 Evaluating the Theories

In the thesis, both theoretical frameworks are considered as providing fertile grounds for the formulation of hypotheses that are relevant for assessing the research question: (1) theoretical logic underlying both frameworks allows for deduction of hypotheses containing expectations about effects of terrorism on government duration. (2) Although previous studies do not find empirical support for increased government duration, following terrorism, the evidence are here considered as not providing strong enough justifications for excluding rally theory.

Both Theories Allows for the Deduction of Relevant Hypotheses

Although the framework used in the Gassebner (and co-authors) studies is more explicit about what it intends to explain, it can be argued that rally theory, focusing upon popularity ratings, also is applicable for investigating relationships between terrorism and government duration. One must have in mind that the framework of Gassebner contends that it is public opinion shocks that terminate governments. For them terrorism can be expected to decrease duration, since the theory expects public opinion shocks that turn against the government. Hence, the change in public opinion is the mechanism that must be activated for terminations to occur. Since rally theory deals exclusively with public opinion mechanisms, it follows logically that it could have something to say about relationships between domestic terrorism and duration.

The difference is that rally theory predicts terrorism to cause positive public opinion shocks, affecting government duration positively. A positive public opinion shock can be expected to: (1) enhance government re-election prospects (2) if combined with the approach of Lupia & Strøm (1995), make members of the coalition government perceive marginal benefits of staying in the coalition as higher than marginal costs: a positive public opinion shock creates incentives to remain in the coalition since it is popular which again could be good for future electoral gain. (3) A positive public opinion shock can be theorized to make parliamentarians less inclined of making votes of no-confidence towards the government. Parliamentarians look better in the view of the public if not in opposition to a government which, after some domestic terrorist incidence, is favored by public opinion. (4) It can be theorized that likelihoods of resignation by the prime minister decreases. The "first among equals" gets popular after the attacks: the prime minister can be hypothesized to be the rallying point.[11]

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[11] PM Jens Stoltenberg experienced this in the aftermath of the 22th July 2011 terrorist attacks. George W. Bush (even though no PM) as well: his approval ratings skyrocketed after 9/11. These are extreme cases though.

Insufficient Evidence for Excluding Potential Implications of Rally Theory

Evidence from previous research studies indicates that terrorism decreases government/cabinet duration. Some would perhaps claim that these studies provide good enough reasons for not considering rally theory: available empirical evidence from previous studies indicate that rallies, here theorized to increase government duration, are not the case.

Here in this thesis it is nevertheless claimed that empirical justifications for excluding rally theory is not strong enough. Firstly, Madrid bombings before the Spanish general elections in 2004 represent an incidence of international, not domestic terrorism. As discussed, one should be open for the possibility that the two terrorisms exert differing impacts on government duration. Secondly, it only represents one case. That evidence is not found for the rally hypothesis in one case does not provide sufficient grounds for not considering the theory.[12]

On the quantitative front there are only two studies -Gassebner, Jong & Mierau (2011), containing some flaws, and Williams, Kock & Smith (2012)- attempting to determine the effect of terrorism on government duration. The first mixes up international and domestic terrorism the second focuses mainly on international terrorism. Two studies cannot be considered sufficient for refuting theory: theory tests should be replicated and tested with both new cases and data to see if they hold ground. Hence, two quantitative studies, using different data and cases, cannot make the researcher completely confident that terrorism do not increase government popularity ratings and therefore increase the duration of governments.[13]

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[12] Whether or not one case suffices for falsifying theories depends upon the notion of causality adhered to by researchers. King, Keohane & Verba (1994) operates with a probabilistic mode of causation. According to this view one case is not sufficient for falsifying theories. There is however another notion of causality, deterministic, which qualitative researchers often operates with. This view is more open for the possibility of allowing the testing of theories by using single cases. For more on this see: Collier, Brady & Seawright (2004, p. 145-153).

[13] It is important to mention that instances where the partisan composition of governments change, because new parties are added to governments, is in the thesis *not* considered as terminations of theoretical interest. It does not seem very logical to derive expectations from the previous presented theoretical framework, predicting increased likelihood that parties are added to governments following domestic terrorist incidences. Instances where governments change due to the adding of parties are therefore here treated as terminations of no theoretical interest. These terminations, as mentioned, are dealt with by censoring.

2.4.3 Expansion of the Theoretical Framework

Before formulating hypotheses, that later are to be tested against the empirical data, two theoretical arguments are presented. The first, states that domestic terrorism could affect government survival differently for governments that are and are not right-wing. The second, states that effects of domestic terrorism on government duration are conditioned on a time lag between the incidence (terrorism) and its hypothesized effect (government termination).

Government ideology

Williams, Kock & Smith (2012) find evidence that "right-oriented governments are able to keep their hold on power more than left-wing governments when confronted with transnational terrorism" (p. 1). Their explanation is that right-wing governments are perceived by voters and parties as being better at providing national security than alternative left-leaning governments (Williams, Kock & Smith 2012, p. 5-6). The implication is that when right-wing governments are confronted with terrorism, they are less likely to be replaced. Alternative governments leaning more to the left are perceived as not being able to solve the national security threat as well as the right-wing government (Williams, Kock & Smith 2012, p. 5-6). On the other hand, when left leaning governments are faced with terrorism, they "may attract criticism from the parties on the right about weakness in national security and may create an impetus to put a more hawkish government in power" (Williams, Kock & Smith 2012, p. 15).

This reasoning can also be put in relation with some of the research presented earlier indicating that exposure to terrorism increases the vote share of right-wing parties (Kibris 2011, Berrebi & Klor 2008). Latter arguments, point in directions that effects of domestic terrorism on duration vary between governments that are and are not right-wing. These arguments could therefore indicate that: (1) right-wing governments are more likely to experience increased duration following domestic terrorism whereas other governments are likely to experience decreased duration: (2) domestic terrorism decreases duration for both types of governments, but the causal effect is not as strong for right-wing governments.

Even though the latter theoretical expectations are plausible, we still need to open our eyes for possibilities that effects could be the opposite: that right-wing is more vulnerable than governments that are not right-wing, when experiencing terrorism. There are two reasons for this. The first reason, regards how some research, according to Williams, Kock & Smith (2012, p. 6), suggests that political parties with conservative ideologies seems to be more keen

on prioritizing national defence than those parties leaning more to the left (Eichenberg 1989, Klingemann, Hofferbert & Budge 1994). This indicates that national security is a more important part of the right-wing political agenda compared with the agenda of parties leaning more to the left. If this is the case then right-wing/conservative governments could be expected to be harder punished by voters and other parties of parliament, if failing to protect the nation against terrorism. This could be the case because it can be theorized that there are greater expectations by voters and parties towards right-wing governments, compared with parties more to the left, that they will provide the public good of national security. Hence, if the nation is struck by domestic terrorism, this is an indicator that the right-wing government did not manage to implement the national security policies it so highly promised to prioritize.

The second reason regards available empirical evidence. As we know, the empirical evidence of Williams, Kock & Smith (2012) supports the hypothesis that right-wing governments are less vulnerable of terminating when experiencing terrorism, than governments leaning to the left. This is however, only one empirical study that uses different definitions and data than done here in this thesis. Needless to say, only one study, even though quite good, should not completely streamline our thinking in the direction of only the same theoretical expectations.

To conclude the latter reasoning: there are arguments indicating that domestic terrorism could exert differing impacts on government survival for governments that are and are not right-wing. *How* this effect is supposed to vary however, is neither theoretically clear, nor empirically settled. In this thesis, the view is therefore taken that domestic terrorism could affect the duration of governments of different political ideologies differently, but that the ways in which these effects differ is an open question deserving further empirical scrutiny.

Time Lag

When assessing effects of domestic terrorism on the duration of governments, one must take into consideration theoretical arguments suggesting that effects of the former do not have instantaneous impacts on the latter. If some government is removed from office in say December, while some domestic terrorist incidence occur in November the same year, one must consider the possibility that the termination that occurred in December was caused by the terrorist incidence in November. The theoretical logic of this argument goes as follows: (1) it is plausible that domestic terrorism occurring in some previous month could influence government re-election prospects in some later month. National security issues regarding

terrorist incidences that occurred in some previous month can clearly be used by the opposition as well as the media to make the sitting government look bad, and hence, affect its chances of being re-elected at some later point in time. (2) After domestic terrorist incidences, member parties of incumbent government coalitions, as well as parliamentarians of parties not in the coalition, take time to analyse how domestic terrorism affected public opinion before making choices on whether it is beneficial to stay in or be associated with that government.

Even though it is sensible to argue that there is a time lag, it does anyways seem hard to provide clear theoretical arguments giving directions for *when* the effect of domestic terrorism should be expected to assert itself. This likely depends upon context. Hence, assessing the time lag argument should be done by experimenting with data to see what works. Lack of clear theoretical guidance, on how to specify the lag, is anyways not sufficient for not taking the argument into account. It is therefore more reasonable to hypothesise there being lags than there not being time lags. Thinking data structure, to assume no lag is akin to assuming that the effect (government termination) occurs at the same time as the cause (domestic terrorist incidence). From a basic cause and effect perspective the latter seems very much illogical.[14]

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[14] It is important to remember that the theoretical framework of the thesis suffers like most theories, from the fact that is a theory, namely a simplified account of reality. Evidence from the study of Bali (2007) indicates that the effect of the international terrorist attacks on the Spanish general elections cannot be fully understood without also considering mediating factors. It show that the timing of the attacks served to prime certain issues on the media`s agenda that the Aznar administration was vulnerable to: the administration's foreign policies of supporting the war in Iraq and its handling of the situation in the aftermath of the attacks, where it erroneously blamed the ETA of being the perpetrators (Bali 2007). In the words of Bali (2007) the "Spaniards' dissatisfaction with the government's foreign policy of support of the war in Iraq and the government's handling of the Madrid attack seem to have been decisive to the upset" (p. 670). As was seen earlier as well, Lago & Montero (2006) also found evidence pointing in similar directions. Even though this is a case of international, not domestic terrorism it could still point in directions of interactions that likely also mediate/condition empirical relationships between domestic terrorism and government duration. Even though these studies only demonstrate that mediating mechanisms were at play after the Spain Madrid bombings, similar mechanisms are probably also present in other cases as well: social reality rarely consist simple cause and effect relationships between two variables. An ideal study investigating the relationship would attempt accounting for mechanisms like these. In this thesis however, covering government durations in 17 Western European parliamentary democracies, for the 1964-2005 period, the task of accounting for such mechanisms would be too demanding. It would require a painstaking investigation of many cases to look for the mechanisms. Secondly, even if assuming that the relevant data are available, it would require a method making it possible to point out more or less whether a public in the aftermath of some domestic terrorist attack views government's handling of the situation positive or not. These limitations are not really of any great concern here: in this thesis it is only aimed for revealing general patterns between the phenomena of interest. Better understandings of causal complexities are probably better achieved by using some more qualitatively orientated methods approach. The author is also aware that there very likely are other causal complexities as well that could serve to mediate the relationships between domestic terrorism and government duration. The way terrorist incidence occurs, in what context etc. A discussion of various potential interactions would however serve no purpose: these are very difficult to deal with in the first place.

2.4.4 Deduction of Hypotheses

From the theoretical framework three hypotheses are deduced:

H₁ Domestic terrorism decreases government duration

H1 is derived from the theory expecting domestic terrorism to make governments look incompetent in the eyes of the public at providing the public good of national security. Being viewed incompetent is again theorized to reduce popularity ratings of governments. Reduced popularity ratings are again, as has been discussed, expected to: (1) decrease government re-election prospects: (2) in cases of coalitions, making it more likely that parties opt out of the government: (3) increased pressure on the PM to resign and (4) increased probability that governments are brought down by parliament through votes of no confidence. To avoid confusion it must be made clear that the above four paths are theorized to lead to terminations as defined by criteria (1) and (2): change in the partisan composition of government and/or PM. It will be seen in the empirical analysis that H1 receives support from empirical data.

Hypothesis two goes as follows:

H₂ Domestic terrorism increases government duration

This hypothesis is deduced from rally theory predicting increased popularity ratings due to domestic terrorism triggering a rally around the political leadership. This is again, as discussed, expected to: (1) increase re-election prospects of governments: (2) in cases of coalitions, making it less likely that parties opt out of the government: (3) less pressure on the PM to resign and (4) decreased probability that governments are brought down through votes of no confidence. It is seen in the later analysis that H2 is not supported by empirical data.

The third hypothesis regards government ideology:

H₃ Effects of domestic terrorism on government duration varies between governments that are and are not right-wing

While H1 and H2 assume effects of domestic terrorism on duration to be the same for all governments, H3 expects effects of domestic terrorism on duration to differ, depending upon

government ideology. This is an open hypothesis in the sense that it covers many different empirical findings. This hypothesis is supported by data (even though findings are not as robust as with H1). Findings indicate that right-wing governments are more failure prone than governments that are not right-wing, when being faced with domestic terrorism.

Lastly, hypotheses expect that effects of domestic terrorism on government termination are exerted in some later month than in which the terrorist incidence occur. Since we are theory blind regarding how to specify the time lag, all that can be done is to experiment with data. Several different lags were experimented with and one showed up being the most fruitful empirically: a lag of one month. Some might dislike the "because it works empirically argument" on grounds that it is not theoretically feasible. The response to this is the following: if researchers were not allowed to experiment with data, when there is no clear theory to guide them, then political science would not be able to progress very far. Also, a lag of one month does not, in the opinion of the author, seem unreasonable, intuitively speaking.

2.4.5 Summary

The chapter started by defining domestic terrorism as "violence carried out by political underground organizations". The choice of using this definition was defended. Concepts underlying the dependent variable, government duration, were laid out. To obtain empirical quantities of durations a meaningful definition of government termination is needed. Meaningful does here mean terminations due to changes in the PM and/or partisan composition of government expected to occur following domestic terrorism. Theoretical perspectives providing explanations for the causes of government duration were then presented to establish theory underlying control variables, method and models to be presented next. Both the attributes and events theorist approaches were incorporated into the framework.

Next research was presented investigating relationships between terrorism and government duration. The main theories were then presented. The first considers national security a public good and predicts decreased duration following domestic terrorism. The second expects increased duration due to a unifying response. The framework was further expanded upon: it was theorized that domestic terrorism exerts differing effects on duration of governments that are and are not right-wing and that effects of domestic terrorism are conditioned upon time lags. Hypotheses were then deduced. Before these can be tested against data a few steps remain: the first is to present method and models handling empirical data used to test them.

3.0 Methods

This chapter presents and defends the method and statistical models handling the data by which hypotheses are tested. It is started by explaining why a quantitative approach has been selected over a qualitative at assessing the research question. Following this is a presentation of the specific form of quantitative method utilized in the thesis, event history analysis. In the next part it is explained why event history analysis is appropriate for dealing with the research question at hand. An important point of the latter two parts, especially the second, is to demonstrate that main rationales for using event history analysis are theoretical. When these issues have been dealt with the attention is turned towards the specific event history models utilized in the thesis, the Cox proportional hazards model as well as a useful extension of it, Cox proportional hazards shared frailty model. The main reasons for using these models are theoretical as well. In the end some model specific issues are discussed: whether to employ continuous or discrete time models and how to handle problems of tied event occurrences.

3.1 Introducing Event History Analysis

3.1.1 Why a Quantitative Approach?

The goal in this thesis is to illuminate the research question by testing hypotheses containing expectations about the effects of domestic terrorism on government duration. To test causal hypotheses requires us to make causal inferences (King, Keohane & Verba 1994, p. 100) and quantitative are more efficient than qualitative methods at doing this (King, Keohane & Verba 1994, p. 75-100). The second reason regards magnitude of data. Data used here contain information on over 200 governments through a time span of several hundred months (1964-2005), stretching across space covering 17 Western European democracies. This implies large N containing much information that quantitative methods has the ability to draw parsimonious inferences from (King, Keohane & Verba 1994). The tradeoff by using a quantitative approach is increased risk of abstracting away causal complexities that perhaps could better be understood if using some qualitative method (Ragin 1987, Gerring 2007). As shown earlier, in-depth studies of Madrid bombings in 2004 gave information about mechanisms linking bombings to the downfall of the government. The causal process was shown to be more complex than that postulated by theories of the thesis: several variables interacted. The sacrifice is still not as great as some think. Abilities of quantitative methods at handling causal complexity are underrated. Quantitative methods comprise different techniques where some are better than others at dealing with certain kinds of causal complexities. Event history analysis is a set of techniques dealing with complexities related to the time dimension.

3.1.2 Event History Analysis

Event history analysis goes under differing names like survival analysis, duration analysis, reliability analysis, failure-time etc. (Box-Steffensmeier & Jones 2004, p. 2). In medical research as an example the name survival analysis is used. Many studies inside medicine are concerned with analyzing longitudinal records of subjects to observe the duration for which these subjects survive until death (Box-Steffensmeier & Jones 2004, p. 7). As an example, survival analysis is useful when analyzing effects of medical treatment on the length subjects survive (Beck 1998, p. 192). The idea of applying survival analysis to political science data would perhaps for some sound strange. Political science does after all seem far removed from issues related to the effects of drug treatments on the survival duration of subjects. Those not familiar with survival analysis, will however, during the next pages, realize that these are useful techniques as well when applied to government duration data. To avoid confusion it is noted that for the remainder of the thesis the name event history analysis is being used.

Explaining transitions

At its most basic level event history analysis regards the statistical examination of longitudinal data collected on a set of observations (Box-Steffensmeier & Jones 2004, p. 1).

In event history analysis the statistical examination of these data are concerned with accounting for why units make transitions from one state to another state (Singer & Willett 2003). Examples of making transitions between states are that of going from being alive to being dead (medicine), from being married to not being married (sociology), and for a government to be in office to that of not being in office (Political Science). In the language of event history analysis the time interval for which a unit stays in a given state is termed a *spell* (Bennett 1999). Regarding government duration data the spell is the duration for which some government stays in office, the spell is broken when the government goes from being in office to that of not being in office. Transitions between states are marked by the occurrence of some *event* (Box-Steffensmeier & Jones 2004, p. 7). When it comes to governments, the event depends on what definition of government termination that is being used. Hence, in this thesis the event is when the prime minister and/or partisan composition of government changes.

Time to event dimension: Modeling the dynamics of social phenomena

That event history analysis models transitions between states is not alone what makes it intriguing. What is most intriguing is that it also models the *duration* of time that units spend in some state up until the transition (Box-Steffensmeier & Jones 2004, p. 8). The latter is akin

to recording the time that some unit goes through before experiencing the event of interest. When it comes to the data of the thesis the event history is the duration that any given government stays in office before experiencing the event of government termination. The recording of data containing information on event histories is useful since it allows social phenomena to be modeled more dynamically than if time until event dimensions are ignored. At the general level, advantages of dynamic modeling are obvious: it can give researchers a better understanding of social phenomena which are dynamic, not static of nature, much so because of the time dimensions (Pierson 2004). More concretely the theoretical substance added by the time to event dimension is that (1) it allows for the investigation of *when* in time units are more or less likely to experience the event and (2) it can take into account that duration spent in one state affects the probability of making transitions to other states, duration dependence (Box-Steffensmeier & Jones 1997, p. 1414). In the thesis (1) is not being explored, (2) however, is taken into account, meaning that duration dependence is accounted for when assessing the effects of domestic terrorism on that of government duration.

Units at risk

To further develop our intuition about event history analysis it is useful to think of it as a method that has an "an implicit interest in risk" (Box-Steffensmeier & Jones 2004, p. 3). This way of thinking implies that the units, when entering the analysis, become at *risk* of experiencing the event. Units at risk comprise the so called *risk set* of event history analysis (Allison 1984). In this thesis the risk set comprises all governments because all governments are at risk of experiencing the event of government termination. It is important to note that when the event of interest is government termination, a unit is only at risk up until the time it finally experiences a termination (assuming it does), thereby implying a single spell design. A single spell design is appropriate for the purpose of this thesis since its units can only experience the event once: if a government experience the event of government termination then this government cannot experience the event of government termination again, it is terminated. Units in single spell studies like that of the thesis, exits the risk set when they experience the event (Blossfeld, Hamerle & Mayer 1989) since they are no longer at risk and thereby not eligible for experiencing the event, in the language of medicine they are "dead".[15]

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[15] Multiple spell designs on the other hand refer to studies in which units are eligible for experiencing the event more than once. As an example, states can experience the onset of war more than once.

Hazard rate

To better understand event history analysis it is useful to introduce its dependent variable, the hazard rate. The hazard rate can be defined as the probability that at any given point in time the event of interest will occur given that it has not yet occurred (Golub 2008, p. 531).[16] When time units of the analysis have been specified as months, then the hazard rate in the case of government termination becomes: the probability of government termination at any month *m* given that the government has survived until *m.* The "given that it has not yet occurred and survived part" means given that the unit has survived/endured until some point in time, hence, the hazard rate is a *conditional* probability. The property of the hazard rate of reflecting conditional probabilities is a major strength: it means that both the occurrence and timing of events are controlled for (Allison 1984, p. 16). It should not be difficult to see the close relation between hazard rates and government duration: the higher probability at any point in time for a government of experiencing a termination, the shorter expected duration times. The hazard rate is a function of (1) independent variables and (2) a baseline hazard function. Both components allow modeling of dynamic processes affecting the duration of government.

(1) Political scientists using event history analysis are often interested in examining how independent variables affect the hazard rate. Political scientists could be interested in investigating how variables reflecting the institutional environment, government attribute etc., influence the probability of government termination. The latter type of variables do not capture the dynamics of governments survival, these variables are time constant meaning that they have values which do not vary with time (Box-Steffensmeier & Jones 1997). Event history analysis also has the ability however, of incorporating variables measuring effects being more dynamic in their nature. It allows for utilizing variables whose values vary with time, so called time varying covariates (Box-Steffensmeier & Jones 1997). Examples of time varying covariates/variables theorized to affect probabilities of experiencing government terminations is the covariate of main interest in the thesis, domestic terrorist incidences.

(2) The baseline hazard can be defined as the hazard rate when the values of all independent variables = 0 (Box-Steffensmeier & Jones 2004). It captures underlying stochastic processes that can be interpreted as being duration dependence effects. Regarding government

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[16] Technically the hazard rate is not a probability: it can have values greater than one. It is nevertheless common among researcher to refer to it as probability (Golub 2008, p. 531). The thesis gets back to this later when explaining interpretation of coefficients. The hazard rate will throughout the thesis be referred to as a probability.

terminations, the baseline hazard represents some assumed underlying probability distribution of termination rates. Hence, the baseline "captures the effect of time on the hazard" (Campolieti 2000, p. 685). This is intuitive, at least when the event of interest is government termination. As showed in the previous theory section, there are theoretical arguments as well as evidence indicating that governments are more likely to terminate as they age, "suggestive of an unraveling of the reins of power" (Warwick 1994, p. 94), or that governments are less likely to terminate with time, "indicating a process of consolidation of power" (Warwick 1994, p. 94). The baseline hazard do not however, necessarily have to reflect time dependence, this depends on how researchers specify it. As mentioned in the theory part, events theorists contended that governments were just as likely to fall at any point in time. Governments are brought down by events: events are just as likely to occur at any given day: hence, it is just as likely that governments terminate at any given day (time independence).[17]

The baseline hazard is flexible, it can be specified to account for all kinds of underlying stochastic processes, not only those recently mentioned: it can take on an infinite variety of shapes (Golub 2008, p. 531). How to specify the baseline hazard is mainly a substantive, not technical issue (Box-Steffensmeier & Jones 2004). Researchers should therefore choose forms supported by empirical evidence/theory. Lastly, event history models in which the researcher assumes form for the baseline hazard are termed *parametric*. As will be seen later, parametric models are not used in the thesis since there is lack of theoretical guidance as well as contradictory evidence regarding the form of the baseline hazard. With semi-parametric models however, it is not necessary to assume form for it even though duration dependence is accounted for. We return to this type of model (Cox model) later in the methods chapter.

3.1.3 Underlying Concepts of Event History Analysis

Four central concepts underlying event history analysis is the hazard rate (already introduced), as well as the survival and probability density functions (Singer & Willett 2003). The concepts are mathematically intertwined. Information on one suffices for deriving information about the others (Box-Steffensmeier & Jones 2004). A detailed description of all equations is here not given. A presentation showing some intuitive links between concepts should suffice.

A good place to start is with the probability density function $f(t)$. It states the probability of event occurrence at some point in time *t*. For the remainder of this part, *t* is considered

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[17] The probability of terminations is not affected by the duration that the government has stayed in its spell.

synonymous with months since months are the time units in the thesis. $f(t)$ state the probability that governments experience the event of termination at some time t. Another way of saying it, is that $f(t)$ give the probability of termination at specific points in time, t_1 t_2 t_3 etc. hence $f(t)$ for cabinet $_c$ becomes $P(T_c = t)$. From $f(t)$ we can derive the cumulative distribution function $F(t)$ stating the probability that a government experiences termination before some time t hence $F(t) = P(T_c < t)$. Example, if we are interested in knowing the probability of termination occurring before say t_{10} -$P(T_c < 10)$- then the $F(t)$ function states the probability of government termination occurring inside the range t_1 up until the point in time closest to $t_{10.}$ $F(t)$ bring us over to the survival function $S(t)$, which can be expressed as:

$$S(t) = P(T \geq t)$$

The survival function $S(t)$ described above states the probability P of *not* experiencing the event before some time t. $S(t)$ is hence the probability that some cabinet is going to "survive" (not experience termination) to (_) or past ($>$) some point t in time. It is not very difficult to understand the link between $S(t)$ and $F(t)$: if you know $F(t)$, the probability of experiencing the event of cabinet termination before say t_{10}, then it makes sense that you also can estimate the probability of *not* experiencing cabinet termination before t_{10} and hence estimate $S(t)$:

$$S(t) = 1 - F(t) = P(T \geq t)$$

The equation shows how the survival function $S(t)$ is derived from the cumulative distribution function $F(t)$: assume you know $F(t)$, the probability that some cabinet terminate before t_{10} ($T_c < 10$), to be .4 %. From the latter you can derive the probability that a cabinet do not experience the event before $t_{10,}$ $S(t)$, which is the probability of surviving to and beyond t_{10} $P(T \geq 10)$. $S(t)$ is hence derived by 1-.4 = .6%. $S(t)$ is then just 1- $F(t)$. This brings us to the hazard rate $h(t)$ that has already introduced: the probability of termination at any month m given that the government has survived until m. $h(t)$ is derived by dividing $f(t)$ on S(t):

$$h(t) = \frac{f(t)}{S(t)}$$

Now as some intuition behind event history analysis has been explained it should be easier to understand the issues next up for discussion: why event history analysis is utilized when testing hypotheses concerning effects of domestic terrorism on government duration.

3.2 Why Event History Analysis?

3.2.1 Defending its Use on Government Duration Data

Event history analysis is a useful method when examining the effects of domestic terrorism on government duration in a quantitative manner. Most of the arguments that are going to be presented are here in this thesis considered to be theoretical of nature even though some might perhaps consider them technical. Boundaries delineating theoretical from technical arguments are blurred indicating a close fit between substance (theory) and technique (modeling).

3.2.2 Dynamic Modeling

The main theoretical rationale for using event history analysis when investigating the effect of domestic terrorism on government duration stems from an almost beautiful overlap between how event history models can be structured and the structure of processes determining the duration of governments. To understand the latter the reader must remember the following which already has been discussed in the thesis: there are theoretical arguments as well as empirical evidence indicating that the duration of governments is a function of independent variables as well as underlying stochastic processes (duration dependence and events).

Event history analysis can model dynamics stemming from both these sources. Dynamics of time varying covariates can be incorporated in the independent variable term of the equation and the stochastic processes through the baseline hazard term of the equation. As mentioned in the theory section, independent variables used to explain variation in government duration do not only consist of time constant covariates reflecting aspects of the institutional environment. Government duration is also explained by variables containing values which vary with time, an example of such time varying covariate is domestic terrorist incidences.

Anyways, the overlap between theory and modeling is so clear that it can accurately be expressed through the equation reflecting the specific event history model used in this thesis:

$$\lambda(t) = \exp\left(\beta' x(t)\right) \lambda_0(t)$$

The equation adds nothing new to the argument previously presented, it rather summarize it more precisely: the probability that some government terminate at any point in time, given that it has lasted up until this point in time, $\lambda(t)$, is a function of independent variables associated with parameters which values are allowed to vary with time (domestic terrorism),

$(\beta'x(t))$, as well as a baseline hazard which is the hazard rate $\lambda(t)$ when the values of all independent variables are zero, hence λ_0. The λ_0 part of the equation can be specified so as to take into account stochastic processes reflecting various forms of duration dependence (conforming to theory or evidence).[18] λ_0 is allowed to vary with time, hence $\lambda_0(t)$. The equation therefore demonstrate the ability of event history analysis to model the theoretical structure that explanations of government duration according to the literature are based upon.

To better appreciate the fit between theory and event history analysis modelling it is useful to consider other regression methods which logic does not conform as elegantly to theory. Just take the following ordinary least squares (OLS) regression equation as an example:

$$Y = X\beta + e$$

In the above OLS regression equation Y explicitly represents government duration values. These values are a function of independent variables associated with parameters $X\beta$ and some error term e. There are three problems with this approach and two are directly related to what has been discussed so far. Firstly, one can see that the model does not allow for the incorporation of duration dependence as specified by the $\lambda_0(t)$ part of the event history analysis equation. In the above equation the $\lambda_0(t)$ part is replaced by e and e as well as Y is in ordinary OLS regression assumed to follow a normal distribution (Guo 2010). The normality assumption is not plausible however, when it comes to government duration data. As we know, theoretical arguments and evidence indicate that duration values of governments vary with time: hence, they likely follow non-normal distributions. Y and e in the above OLS equation, can in event history analysis be specified so as to allow for non-normal distributions reflecting underlying stochastic processes hinted at by theory and/or empirical evidence.

Secondly, the $X\beta$ part of the equation do not come with a (t) part as in event history analysis where $(\beta'x(t))$. This implies problems for OLS regression of incorporating dynamics underlying the phenomenon of government duration stemming from independent variables which values vary with time. Government duration models excluding the (t) component go against theory and evidence. It's important to note that the (t) part of event history analysis does not represent the time aspect similarly as in time series analysis: in time series different

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[18] Or time independence as reflected by the events approach.

cases represent values of the same dependent and independent variables at different times, time variation in event history analysis takes place within single cases (Warwick, p. 12-13).

A third problem with applying OLS regression to government duration data is that it can predict "governments with negative durations" given certain plausible values on independent variables (Laver, p. 29) indicating that governments could collapse before having started to exist. This is of course illogical. Lastly, the author wants to make clear that the latter arguments are not meant as a general criticism of OLS regression (even though some might think so). All that is said is that government duration data likely contain properties (non-normal distributions etc.) that seem to be *easier* to handle when using event history analysis.

3.2.3 Censoring

An advantage of event history analysis over many other conventional regression methods is its ability to *censor* certain types of data (Box-Steffensmeier & Jones 2004). According to Box-Steffensmeier & Jones (2004) "censoring occurs whenever an observation's full event history is unobserved. Thus, we may fail to observe the termination or the onset of a spell" (p. 16). As Singer & Willett (2003) notes, some units are never going to experience the event, others will experience the event, but not during the period of time that the study covers.

There are basically two different forms of censoring, left and right censoring. Here it is only dealt with the latter because it is the type of censoring relevant for the data of the thesis.[19] Right censoring usually occurs when (1) studies are designed to follow units for some prespecified length of time, say $t_1 - t_{10}$. If the subject does not experience the event during t_{1-} t_{10} it is right censored (Cleves et al. 2010, p. 30-31): (2) if units exit the risk set because experiencing events of no theoretical interest to the specific study (Yamaguchi 1991, p. 4).

Government duration data of the thesis contain both (1) governments that did not experience a termination during the time span of the study (1964-2005), and (2) governments experiencing terminations due to factors irrelevant to the theory of the thesis: terminations due to death of prime minister, constitutional requirements or the adding of new parties to government (technical terminations). Governments of type (1) and (2) as well as those experiencing the event of interest would during the study display event histories like those illustrated below.

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[19] The most common form of censoring confronted by researchers is right censoring (Singer & Willett 2003)..
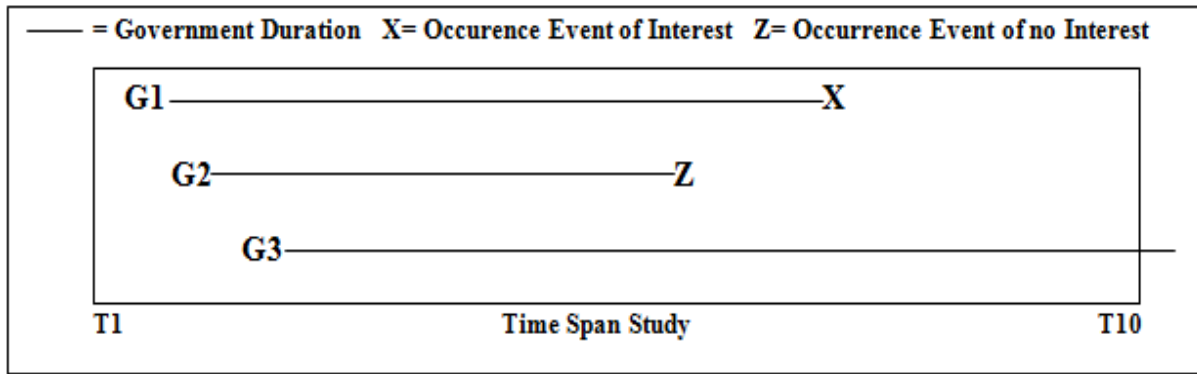
Figure 1: Visuals Illustrating Event Histories of Three Governments

Above illustrations reflects an event history study that covers the time period T1-T10 (in the study of the thesis T1 would be the first month in the year 1964, T10 the last month in the year 2005) following three governments G1, G2 and G3. G1 is the ideal unit. As can be seen, its full event history is observed meaning that we know when it entered the analysis as well as when it terminated due to an event of theoretical interest: one or more parties are removed from office, change of PM. G2 on the other hand is not an ideal unit, its full *potential* event history is not observed. It was terminated due to factors not of any theoretical concern to the study (PM dies, extra party added, constitutional requirement). The best thing for the study would have been if this uninteresting termination had not occurred since this would have given the possibility of observing the full time to event of interest for G2. G3 is not an ideal unit either. G3 was not observed experiencing the event of interest during the time of the study meaning that it "lived" past T10 (in the thesis past 2005) from which it is no longer observed. The study only observes governments with event histories occurring inside T1-T10.

Some might reason that because G2 and G3 did not experience the event of interest, they do not contain useful information and should therefore be excluded from the study. Exclusion is problematic because it biases the analysis (Singer & Willett 2003). With censoring the underlying premise is that governments that were not observed to experience the event of interest also contain important information, information on survival. The basic intuition is as follows: assume you follow 5 governments (G1-G5). Then assume that three of the governments in this sample (G1-G3) experienced some terrorist incidence at T5. Then again assume that G1-G3 experienced short duration times $t=10$ months before terminating. Assume again that the remaining two governments G4 and G5 also experienced some terrorist incidence at T5 but that their full event histories were not observed. G4 was observed to last

for 25 months but did not experience the event during the time span of the study, while G5 lasted 20 months before terminating due to non-theoretical factors like death of the PM.

To exclude G4 and G5 from the analysis is problematic. Even though they did not experience a real termination during their duration, they still contain information on observations that could indicate that terrorist attacks prolong the life of governments (assuming proper control variables are in place). Excluding these would leave the study only with those observations containing information indicating domestic terrorism to shorten the life of governments (G1-G3). Because information is excluded bias is infused and hence, inferences regarding the empirical relationships between domestic terrorism and government duration are threatened.

Censoring helps get around this problem by using information on survival from the survival function $S(t)$, not $f(t)$ (Singer & Willett 2003). As an example, instead of excluding the observation, or "telling" data that the government terminated at the point in time when the PM died (this goes for other technical terminations as well), say t_{10}, you tell data that the government was no longer observed after t_{10}. In other words, you assume that the government did not terminate, you only "lost sight of it". Since you lost it you can only go for the second best option which is to deduce some probability estimate from $S(t)$ giving us a likelihood of how much longer this government would have endured, given that the technical termination had not taken place, before experiencing a termination of theoretical interest. It means estimating a probability that duration time of the government "would have equaled or exceeded the observed duration" (Warwick & Easton 1992, p. 128). The same goes for governments that did not terminate during the time span of the study. Instead of excluding these governments we censor them, allowing us to use information on their survival times.

3.3 Modelling

3.3.1 Cox Proportional Hazards Model

In this thesis a Cox proportional hazards model is utilized. The Cox PH model is a semi-parametric event history model that parameterizes covariates but not the baseline hazard rate (Box-Steffensmeier & Jones 2004, p. 49). Another way of saying it is that the model assesses effects of independent variables on hazard rates without imposing any specific assumption about the underlying probability distribution of time until event (Box-Steffensmeier & Zorn 2001, p. 974). More formally this is akin to not parameterizing the $\lambda_0(t)$ term of equation $\lambda(t) = \exp(\beta' x(t)) \lambda_0(t)$. In this context it means that the model does not make assumptions about the form of the stochastic process -duration dependence- hypothesised to underlie termination rates of governments. The Cox model also differs from parametric models in that it is based upon partial likelihood (PL) as opposed to maximum likelihood functions (Box-Steffensmeier & Jones 2004). The intuition behind its basic underlying ideas (when models contain time varying covariates) has been elegantly expressed by Warwick (1992b): "the PL technique compares, for the case that terminated at *T,* its X-value at that time with the X-values at the same point in the duration of all surviving cases" (p. 876).

The Cox model is based upon the assumption of proportional hazards meaning that effects of covariates "is to shift the hazard by a factor of proportionality" and that this proportional effect is not allowed to vary with time (Box-Steffensmeier &. Zorn 2001, p. 973). In other words, the effect of a unit increase in covariates is assumed to exert the same effects on hazard rates at time t_1 t_2 t_3 etc. The assumption of time constant effects lays explicitly in the definition of the hazard rate. Since the hazard rate is the conditional probability of experiencing events *at any t point in time* it assumes that a unit increase in covariates exerts the same effects on hazards independent of whether increases occurs at t_1 t_2.[20] Violations of the PH assumption can result in biased estimates, incorrect standard errors, and faulty inferences about impacts of covariates (Box-Steffensmeier & Zorn 2001, p. 972). The assumption is strict. Terrorism can be theorized to exert differing effects on probabilities of termination at different time points. Various tests assessing the assumption are run for models of the thesis: some violations occur but findings still stand. The next part should anyways suffice to show that the main assumption underlying parametric models is at least as strict.

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[20] The assumption of effects being time constant must not be confused with the baseline hazard which, as has been discussed, can be adjusted so as being allowed to vary with time. Remember that the baseline hazard is the conditional probability of termination when values of all independent variables =0. The PH assumption on the other hand refers to time constancy when covariates contain values above 0: x=1, 2, 3, etc.

3.3.2 Defending the Use of the Cox Proportional Hazards Model

The Cox model is a good choice for the task at hand. Firstly, we are in this thesis exclusively interested in the effects of domestic terrorism on government duration. Secondly, it is neither interesting nor wise to assume form for the baseline hazard. It is not wise because of two reasons: (1) as discussed many times, evidence and theory are not clear on the nature of the underlying stochastic process, this provides us with insufficient grounds for imposing assumptions about its form: (2) the shape that is specified affects estimated coefficients, implying that assuming the wrong form (which is likely with government duration data since lack of theory and evidence), "can impart enormous bias to the results" (Golub 2008, p. 534).

Secondly, duration dependence is not necessarily interesting in itself. It can be considered as being statistical nuisance which in social science applications, Box-Steffensmeier & Jones (2004) views as "a function of the posited model and not a particularly interesting feature of social processes given that the researcher has specified the survival time as a function of theoretically relevant covariates."(p. 193).[21] The most reasonable choice when investigating effects of domestic terrorism on government duration therefore seems to be that of choosing some model that controls for "duration dependence", whatever its nature, without having to specify form for the baseline. The Cox model can do this, hence, the Cox model is chosen.[22]

3.3.3 Extending the Cox Model: Incorporating Random Effects

To account for unobserved heterogeneity, "the case that some observations are simply more failure-prone, or "frail" than other" and that the causes of this frailty is unobserved (Box-Steffensmeier & Jones 2004, p. 198) this study also utilizes the Cox shared frailty model, an event history random effects model. More specifically the shared frailty model assumes that governments of some country say Italy, all shares a similar frailty term. The fact that governments G1, G2 exists inside the political system of Italy makes them more "frail" (vulnerable, inclined to experience termination) due to what Box-Steffensmeier & Jones

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[21] Beck (1998) is worth quoting about this issue:

"But as with serially correlated errors, duration dependence cannot be considered a satisfactory explanation of an event history. To simply say that hazards rise over time is no more an explanation of a phenomenon than saying that large errors follow large errors. Thus, if we find duration dependence we must seek models which provide a substantive explanation of this dependence" (p. 207).

[22] One criticism directed against semi-parametric models is that it uses less information: this could have the consequence of reducing precision of estimates and thereby cause efficiency losses (Golub 2008, p. 540). This is however, according to according to Golub (2008), not a sufficient reason for utilizing parametric models.

(2004) frames as "unmeasured risk factors" (p. 142). Unmeasured risk factors can here be understood as referring to factors affecting government duration/hazard rates that covariates of the model have not taken into account, because they are unknown to the researcher. These factors, although unknown, are assumed to exist at the level of the different countries. These unmeasured factors are again assumed to vary *between* the countries but they are shared by governments inside countries. Governments of Belgium share a set of similar unmeasured risk factors specific for Belgian governments: governments of Greece share a set of unmeasured risk factors specific to governments of Greece etc. A more elegant way of saying this is that shared frailty terms takes into account "within group correlation" (Cleves et al. 2010, p. 156). The group is here the country while subjects are governments residing within the countries.

The justification for using the Cox shared frailty model was arrived at by the following reasoning: (1) it is implausible to assume that models of the thesis, even though guided by theory and previous empirical research, have specified all relevant covariates for explaining termination rates: (2) some of these factors -although unknown- might be specific for systems of each country: some systems are unstable (Italy), while others are not (UK), and to assume that variables/covariates of the models can explain all these differences is naive. (3) The Cox shared frailty term model can account for this by allowing hazard rates of governments to vary between countries. (4) Hence, it is therefore justified to use Cox shared frailty models.

More formally, going from the Cox PH model to Cox PH frailty model implies moving from

This
$$\lambda(t) = \exp\big(\beta' x(t)\big) \lambda_0(t)$$

To this equation:
$$\lambda(t) = \alpha_i \exp\big(\beta' x(t)\big) \lambda_0(t)$$

In the second equation a frailty term α added that is allowed to vary between countries i hence α_i. Lastly it should be mentioned that this equation reflects a multilevel Cox model. The hazard rates of governments are not only modeled as being influenced by covariates and underlying stochastic processes, hazard rates of governments is also allowed to vary between countries which can be said to be a unit existing on some theoretically defined higher level.

3.3.4 Model Specific Issues: Continuous Time and Ties

When choosing an event history model dealing with government duration data two issues should be discussed: (1) whether the event history model should be specified so as to reflect continuous or discrete time processes (2) how to deal with ties in government duration data.

Continuous and Discrete time

Continuous time processes can be thought of as processes in which transitions from one state to another can occur at any point in time while discrete time processes are processes in which transitions occur at fixed times. Whether or not a process can undergo a transition at any or fixed points in time depends on substantial workings of the process. As an example, if we were interested in investigating how terrorism affects probabilities of government termination at scheduled elections then a discrete approach would be reasonable, scheduled elections occur at fixed points in time. In the thesis it becomes natural to adopt a continuous time approach since it is focused upon terminations that can occur at any point in time. Governments not only fall in elections, they can be brought down by parliament at any day.[23]

Ties: Coterminous event occurrences

Ties refer to situations where data contain instances of "coterminous event occurrences".[24] In other words you have units experiencing the event of interest at equal duration times. This is problematic because the partial likelihood function underlying the Cox model has problems with this (Box-Steffensmeier & Jones 2004, p. 53).[25] There are few ties in these government duration data however. The Breslow method for handling ties is used to reduce problems.

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[23] It should be mentioned that even though a continuous time model is used time units of months do not conform to perfectly continuous time. A time scale conforming closer to perfectly continuous time would measure its time units in weeks, days, hours, minutes etc. In theory you can regress like this for infinity: a time unit can always be divided into a tinier time unit making it impossible to define exact event time. Needless to say small time units like hours, minutes and seconds are substantially meaningless when doing research on government duration: If measurements record that a one unit increase in covariates decreases duration with 1 hour, so what? Using days or weeks makes more sense, days have been used by among others Somer-Topcu & Williams (2008). Months do however seem to represent time units that are both substantially meaningful, -months matter!- as well as that data requirements are lessened than if defining time units as weeks or days.

[24] The probability of ties increases the further you move away from perfectly continuous time: if time units are infinitely close to a continuous time scale the probability of having simultaneous event times is infinitely small.

[25] One of the reasons for this can be explained in an intuitive manner: Partial likelihood calculations is based upon the ordering of event times when it compares values of covariates for a unit at the time it experiences an event with values of covariates at the same point in the duration of the surviving cases. Ties therefore cause troubles because it makes it difficult to order the cases necessary for facilitating this comparison.

3.3.5 Interpreting Coefficients of Cox Regression: Hazard Ratios

When assessing the effects of domestic terrorism on government duration, hazard ratios are used.[26] Hazard ratios are outputs of Cox regression giving information on how domestic terrorism, at any month, affects the likelihood of governments of experiencing government terminations, all other variables of the model held constant. Hence, hazard ratios give information on how increases in covariate values cause changes in hazard rates. Before going into interpretation it is necessary to clarify some issues to avoid potential misinterpretations.

Avoiding Misinterpretations

Throughout the thesis, the hazard rate has been defined as the probability that some government terminate at any month, given the government lasted up until this month. Even though this definition is common, caution is warranted. Hazard ratios that are used when measuring effects of covariates on hazard rates can easily be misinterpreted. Firstly, hazard ratios do not represent absolute probabilities. Assuming we are working with a dichotomous covariate, hazard ratios of Cox regression do *not* tell us that a one unit increase in this covariate increase the probability of government termination, at any month, with x percentage points. They nevertheless allow for statements of the following kind: governments experiencing major domestic terrorist attacks are twice as likely of experiencing termination, at any month, *compared* with governments not experiencing them. Hence, hazard ratios allow for *comparative*, not *absolute*, statements about hazards (Singer & Willett 2003, p. 528). This is important to understand because it should make use cautious when interpreting magnitude of covariate effects on hazards. Because units with an x value on some covariate are three times as likely of experiencing events as units with 0 on the same covariate, it does not necessarily follow that the former units are likely of having events.[27] Lastly, the hazard ratio is not a probability in the sense that it ranges from 0-1. It does tell us however, how many more or less times likely it is that governments with an x value on covariate experiences terminations, at any month, compared with governments not having the covariate value.

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[26] The other alternative would have been to use raw coefficients. Using exponentiated coefficients (Hazard ratios) as opposed to raw coefficients represents no substantial difference (Cleves et al. 2010, p. 132). Hazard ratios have been chosen because the author finds them easier to interpret.

[27] Because people driving above the speed limit are five times as likely of car crash as drivers maintaining it this does not mean that the absolute probability of crashing is high for drivers not maintaining the speed limit: if we know the probability of car crash to be 0.1% for drivers maintaining the limit and that those not maintaining it are five times as likely to crash then we know the probability of crash for the latter drivers to be "only" 0.5 %.

Hazard Ratios: Interpretation

Let's start with dichotomous covariates. Hazard ratios of 1.0 mean that there is no difference in the risk of termination, at any month, for governments with 1 and 0 on a covariate. If the hazard ratio for the covariate 1= coalition government 0=single party government is 1.0, then there is no difference in the risk of experiencing terminations for coalition and single party governments. This implies equal expected government durations for coalition and single party governments (ceteris paribus). Hazard ratios above 1.0 indicate increased risk of having terminations, at any month, for governments with 1 on the covariate compared with those having 0 on it. A hazard ratio of 1.5 for the covariate 1= coalition government 0=single party government implies that a one unit increase in the covariate -going from single party to coalition government- increases hazard rates with 50%: coalition governments are more at risk of terminating than single party governments. It's simpler to understand hazard ratios when interpreting hazard ratios that are high. Hazard ratios of 2.0 and 3.0 would indicate that coalition governments are twice or three times as likely of terminating at any month, compared with single party governments. Increased hazard rates imply decreased duration: the higher risk of having termination at any month, the shorter expected government duration.

Hazard ratios below 1.0 mean that governments with 1 on the covariate are less likely to experience terminations than governments with 0 on the covariate. A hazard ratio of 0.50 for the covariate 1=majority government 0=minority government implies that going from minority to majority government is associated with a 50% reduction in hazard rates, or: majority governments face half the risk of minority governments of experiencing terminations. Majority are therefore expected to be more durable than minority governments. Interpretation of continuous covariates is similar. Let's exemplify with a monthly domestic terrorist killings covariate. A hazard ratio of 1.0 means that a one unit increase -one killing- does not increase hazards. If it is above 1 say 1.03 it means that one terrorist killing increase hazard rates of governments with 3%, at any month. Two and three killings can be interpreted as increasing hazards rates of 6 and 9%, implying increased risk of termination as the number of monthly killings increase, hence reduced duration. Hazard ratios below 1.0 indicate the opposite. Hazard ratios of 0.98 means that a one unit increase in the covariate reduces hazards by 2%, at any month: risks of termination decrease as domestic terrorist killings increase.

3.3.6 Summary

This chapter presented the method and models handling data used to test hypotheses. Event history analysis not only models whether government terminations occur, but also the history/duration that governments experiences up until termination. The dependent variable of event history analysis is the hazard rate, the probability of government termination at any month *m* given that the government survived until *m*. The hazard rate is directly related to government duration: the higher probability governments have, at any month, of terminating, the lower expected duration, or, the lower the probability, the higher expected duration.

Event history analysis is useful when assessing the research question because it specifies government duration/hazard rates as a function of (1) covariates emphasized by attributes theorist, and more importantly, covariates like domestic terrorism containing values that vary with time (2) a baseline hazard reflecting stochastic processes indicated by events theorists, or other forms of duration dependence (ageing of government etc.). Since however, there is contradictory theory and evidence regarding the nature of the stochastic process, a model only accounting for these processes, whatever their natures, is needed. The Cox proportional hazards model does this. It does not impose parametric forms on the baseline hazard. Censoring is also a rationale. Some governments (1) do not terminate during the time span of the study (2) terminate, but due to reasons of no theoretical interest. Instead of excluding these observations censoring allows for using information on their survival times. Lastly the Cox model was extended to include shared frailty terms. Terms taking into account unobserved heterogeneity, unmeasured factors shared by government inside countries. Governments A B C of country Z shares a frailty term T, government D E F of country Y shares a frailty term B.

Theory, hypotheses, methods and models have now been explained. To allow the models of testing these hypotheses they must however be given empirical inputs. The next step towards testing hypotheses is therefore to lay out the cases which data covers, what sources and what kind of data that are used, why these are used, and how data are transformed into independent and dependent variables/covariates allowing us to measure effects of domestic terrorism on government duration. The next step is hence the last step towards assessing the hypotheses.

4.0 Cases, Data and Measurements

This section starts by presenting arguments for why the hypotheses are tested on governments in parliamentary regimes, and why these are drawn only from Western European democracies in the years 1964-2005. The countries of the analysis are the following: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden and the United Kingdom. When this is done, we move on to examine the empirical data underlying the independent and dependent variables, as well as their respective sources. The chapter ends by showing how the domestic terrorism as well as dependent and control variables have been operationalized/measured.

4.1 Cases

4.1.1 Parliamentary Democracies

The units of the analysis comprise parliamentary governments of Western Europe for the years 1964-2005.[28] There are several reasons for testing the hypotheses on governments of parliamentary systems only. The first is because governments in these systems can lose office at any point in time, through various mechanisms, not only elections. Even though the theoretical framework of the thesis is applicable to Presidential systems as well, it would have been confined to hypotheses containing expectations about how domestic terrorism affects the chance of Presidents being re-elected. Since elections are the sole way that Presidents can lose office and elections occur at fixed points in time, less variation in the dependent variable can be expected.[29] By including parliamentary regimes only, it is also possible to examine whether a domestic terrorist incidence at some point *t* in time, which is not close to some election in time, can have more immediate effects on the probability of government termination. How domestic terrorism affects the probability of governments being ousted from office through elections is interesting. Despite this however, it is important to remember that elections clearly do not represent the only mechanism of government termination that deserves scrutiny, when doing research on the causes and determinants of government duration. In many instances governments of parliamentary regimes are not terminated through

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[28] It happens occasionally however, that the recording of government duration for certain countries do not start in months in some later year than 1964. This is the case even with some of the countries that were democratic for the entire period the study comprises. Hence, there are a few governments that are excluded which experienced parts of their lifetimes/duration inside months of the years for which the study stretches, 1964-2005. For more on this see appendix point 1.

[29] Presidents can also lose office in cases of impeachment and declaration of mental incapacity, this does not however happen very often.

elections, the analysis by Cheibub (2002b) of 21 parliamentary democratic regimes in the period 1946-1996 demonstrate this quite important point in an empirical fashion:

"*My data show that 56% of the prime ministers observed between 1946 and 1996 changed without an election taking place: that 38% of the changes in the party controlling the premiership also occurred without elections taking place: that 46% of the changes in the partisan composition of the government took place without elections: and that 24% of the changes in the largest party in the government occurred, again, with no elections.*" (p. 293)

Lastly an important issue must be discussed. Governments in four of the 17 countries included in the analysis of the thesis are, or have at least been, semi-presidential during parts of the time the study comprises. France and Finland has been semi-presidential for the entire period, Portugal 1976- present.[30] That not all regimes of the analysis are purely parliamentary can clearly be defended. A hallmark of semi-presidential systems is a government responsible to parliament (Shugart 2005, p. 331), meaning that domestic terrorism can be theorized to bring the government down through the same mechanisms as with regimes that are purely parliamentary. In this study it is therefore reasoned that it works fine to include both systems that are semi-presidential and purely parliamentary. The hypothesis that terrorism could cause presidents of semi-presidential regimes to lose office is not investigated however. This hypothesis seems especially plausible in semi-presidential systems containing a powerful president, which according to (Duverger 1980, p.170) is the case in France. The issue is not going to be discussed any further: it is rather something for future studies to consider.[31]

4.1.2 Western European Countries

There are mainly three reasons for drawing the sample units from the Western European countries. The first, regards how the selection of relatively similar cases increases the prospects of making causal inferences in a more rigid manner, the second variation on independent and dependent variables, while the third concerns availability of relevant data.

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[30] Austria, Ireland and Iceland are political systems containing Presidents as well. These countries are however usually not considered semi-presidential because real power lays in parliament. The presidents of these systems merely functions as figureheads (Duverger 1980, p. 167).

[31] Switzerland is excluded because it is not considered being either parliamentary or semi-presidential (Stepan & Skach 1993, p. 3).

Similar Cases, Causal Inference

The first reason, that regards causal inference, is derived from the reasoning that cases that are similar on as many characteristics as possible, serves to hold constant several variables that could affect your dependent variable (Przeworski & Teune 1970, p. 32). The consequence of this "control scheme" is reasoned to be increased prospects of making causal inferences more rigidly. Needless to say, even though the Western European countries of this study are not completely similar, they are arguably more similar to each other on many indicators (political culture and regime, economic wellbeing etc.) than they are to other none Western European countries. Most of these countries have also been democratic for the entire 1964-2005 time period. Spain, Portugal and Greece are the exceptions. The study therefore only includes governments of these countries from the period after they turned into democratic regimes.

Variation on Independent and Dependent Variables

The second reason regards variation on independent and dependent variables. Descriptive statistics presented in the next two parts, demonstrate that there is rich amount of domestic terrorist incidences (measured in killings, this is explained later) distributed among the governments of Western Europe for the period 1964-2005. Governments of some countries have been exposed to much domestic terrorism, others less, some none. In the thesis, the governments of the sample are also drawn from countries in which there has been no domestic terrorism. This is contrary to the Williams, Kock & Smith (2012) study on international terrorism and government duration. In the latter study those parliamentary regimes that did not experience international terrorist incidences were excluded. In the opinion of the author of this thesis, this is akin to wasting information. Information on the duration of governments, in countries experiencing domestic terrorism, can be used to compare information on governments in countries not experiencing it, to see whether government durations differ. Lastly, there is much variation in the dependent variable as well. In the dataset –we get back to this later- there are 227 governments with varying duration times eligible for analysis.

Data Availability

The last reason regards availability of data necessary for testing the hypotheses. Data on government duration, domestic terrorism and control variables are available for the Western European countries. A detailed description of these data, as well as why they were chosen over alternative data, is soon to be discussed. Before this however, it is to be explained why it has in this thesis been chosen to confine the analysis to the period of time 1964-2005.

4.1.3 The Time Period: 1964-2005

Main reasons for confining observations to governments of Western European parliamentary systems, experiencing their duration during the period 1964-2005, are threefold: (1) some of the Western European countries experienced much domestic terrorism during parts of this time span, especially in the 70s and 80s: (2) domestic terrorism, government duration and control variable data are available for this period of time. (3) Even though this is not an argument for why the 1964-2005 period was chosen per se, it is should be mentioned that an analysis covering lifespans of government from such distant time points should be able to make generalizations of empirical tests more powerful. Effects of domestic terrorism on government duration are valid across larger segments of time, space matters so does time.

4.2 Data

4.2.1 Domestic Terrorism Data

Data on domestic terrorism are gathered from the domestic terrorist victims (DTV) project. These domestic terrorism data have never before been used when assessing effects of domestic terrorism on that of government duration (at least to the knowledge of author).

The DTV data covers fatalities caused by domestic terrorism in Western Europe during the period of time 1965-2005 (Sanchez-Cuenca & Calle 2011, p. 49).[32] Hence, the unit of observation is killings caused by domestic terrorism (Sanchez-Cuenca & Calle 2011). Domestic terrorist incidences causing no fatalities are therefore not included in these data.

Creators report funding from the Spanish Ministry of Science (Sanchez-Cuenca & Calle 2011, p. 57) not some military, police or intelligence organization which, if true, likely reduces risk of bias. Killings of military, police, paramilitaries, politicians, public officials, entrepreneurs and other civilians are recorded (Sanchez-Cuenca & Calle 2011, p. 54). DTV registers a higher number of domestic terrorist killings than any other dataset (Sanchez-Cuenca & Calle 2011). Its main value is its "accuracy and detail" (Sanchez-Cuenca & Calle 2011, p. 49).

In total the DTV dataset contains information on 4,747 fatalities due to domestic terrorism which are divided among government of the various countries in the following manner:

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[32] Since the study of this thesis lasts for 1964-2005 and DTV domestic terrorism data only stretches from 1965-2005 it means that there is no terrorism data for months in the year 1964. See appendix point 2.

Table 1: Domestic Terrorist Killings for Governments of the Countries. 1965-2005 (DTV) [33]

Government	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	Total
Austria	0	0	0	0	0	4	0	0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4
Belgium	0	0	0	0	0	0	0	0	0	0	0	0	1	0	31	1	0	0	2	0	0	–	–	–	–	–	–	–	–	–	–	–	–	35
Denmark	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
France	0	0	0	7	7	3	20	0	26	20	14	6	1	5	11	17	14	2	0	0	–	–	–	–	–	–	–	–	–	–	–	–	–	153
Finland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	–	–	–	–	–	–	–	–	–	–	–	0
Germany	0	8	33	0	14	1	66	31	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	154
Greece	4	0	10	0	1	4	3	6	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	29
Iceland	0	0	0	0	0	0	0	0	0	0	0	0	0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Ireland	7	38	10	6	0	1	10	3	1	0	3	2	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	82
Italy	0	0	18	1	5	0	11	1	25	16	2	59	1	26	99	15	33	1	21	0	0	1	0	0	0	1	0	0	1	0	0	3	0	340
Luxembourg	0	0	0	0	0	0	0	0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0
Netherlands	0	0	0	0	0	0	2	0	0	3	2	0	0	0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	7
Norway	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Portugal	1	6	3	7	5	0	1	0	0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	23
Spain	345	72	422	96	7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	942
Sweden	2	0	0	0	0	0	1	1	0	5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	9
UK	3	693	502	373	847	363	186	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2967

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[33] These statistics do not reflect the total number of killings for the period 1965-2005: it reflects the total number of killings that occurred during the lifetime/duration of governments covered by the study for the time period. Hence, Table 1 includes 4.747 as opposed to the total 4,955 killings recorded by original data. See Appendix point 3.

As seen from Table 1 above, governments of certain countries have been exposed to much domestic terrorist killings (UK, Spain, Italy, Germany, France, and Ireland), others some (Belgium, Portugal, Greece, Sweden, Netherlands) and very little or none (Austria, Norway, Finland, Iceland, Luxembourg, Denmark). Spain and the UK are in a league of their own with a total of 942 and 2967 recorded domestic terrorist killings distributed among its various governments. Most of the killings in the UK are due to "The Troubles" in Northern Ireland.[34]

There are mainly three reasons for using DTV data when testing the hypotheses: (1) it can be theorized that it is more likely for domestic terrorist incidences killing people, to exert effects on government duration, compared with those domestic terrorist incidences that do not kill. (2) The validity of DTV data is high. DTV data matches neatly with the theoretical definition of domestic terrorism utilized in the thesis since both are constructed by the same people. (3) DTV data seems more relevant for testing hypotheses of the thesis, than those data available from other sources on domestic terrorism, like that of TWEED and GTD datasets.

Killings, Causal Effects

The fact that the unit of observation in DTV data is the killing, not incidence, allows for the investigation of effects of deadly domestic terrorism on the dependent variable. The advantage of focusing upon deadly terrorism is that it allows for the construction of terrorist variables based upon incidences that perhaps most plausibly can be theorized to affect government duration. It is here reasoned that the clearest signal of incompetence by the government at providing national security, is when domestic terrorist incidences imposes upon society the ultimate cost: loss of human life. This can also be said to be the case if the causal arrow is theorized to move in the other direction. Domestic terrorist incidences that kill people are more likely than incidences that do not kill, to signal severity of the terrorist threat and therefore making rallies more likely. This however, is not to say that domestic terrorist incidences that do not claim life cannot be theorized to affect duration. Incidences injuring people and/or causing damage to physical property (buildings and other infrastructure) could also be hypothesised to exert effects. Domestic terrorist incidences causing the latter are however not included due to the following reasons: (1) it is hard to find good figures and

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[34] When it comes to the Northern Ireland killings the question arises whether these can be theorized to influence government duration in the UK in the same manner that killings in other countries can be expected to affect their own governments' ability to stay in office. Even though Northern Ireland is and has been a part of the UK it is room for doubt about whether these killings should be expected to exert the same effects as say if a bomb goes off killing people in some English city. In the thesis it is nevertheless theorized that killings in Northern Ireland affect government duration in the UK. Why this is the case see appendix point 4.

create measures of the physical damage caused by domestic terrorist incidences. (2) Even though incidences causing injuries could be hypothesised to exert effects they are, in the opinion of the author, according to theory less likely to do so. Even though they reflect costs imposed on society by domestic terrorism that could trigger either a positive or negative public opinion shock, they do not reflect the highest cost which undoubtedly is human life.

Validity

There is a match between DTV data and the theoretical definition of domestic terrorism used in the thesis since both are constructed by Luis de la Calle and Ignacio Sánchez-Cuenca. The operational definition of terrorism underlying the DTV data is the following: "terrorist groups are those armed political groups that operate underground" (Sanchez-Cuenca & Calle 2011, p. 50). The definition also refers to domestic terrorism that according to the Engene definition, presented in the theory section, is defined in terms of the nationality of the terrorists: "if they have the nationality of the country in which they attack, this is considered domestic terrorism, regardless of the nationality of the victims" (Sanchez-Cuenca & Calle 2011, p. 50). The operational definition is therefore almost the same as the theoretical presented earlier. This match between theory and empirical data should reduce problems of validity regarding measurements of the concept that the domestic terrorist killings covariates are derived from.

More relevant than other sources

There are two other sources containing available data on domestic terrorism, the TWEED dataset (Engene 2007) and the Global Terrorism Database (GTD) (LaFree & Dugan 2007). Even though the original GTD data mixes up domestic and international terrorism they can be decomposed into separate variables (Enders, Sandler & Gaibulloev 2011). The choice to not use GTD data was simple. Firstly, GTD data only cover the period 1998 until the present, which have the consequences of: (1) drastically reducing the number of units. A consequence of using GTD data when testing the hypotheses on governments drawn from the Western European countries would have been that only governments in the period 1998 until present had been included.[35] This is a bad option not only because N is reduced, but also because there has been very little domestic terrorism during this time period. (2) A possible solution to (1) would be to test hypotheses also on governments from non-Western European countries

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[35] GTD data actually covers the period 1970-2011. Data for the two time periods 1970-1997 and 1998-2011 are however based upon different sources and coding rules (LaFree & Dugan 2007). Researchers should therefore not treat data for these two time periods as the same.

(GTD data have a global reach). The problem with this however, is that it implies including governments into the sample that come from countries that are very different to each other.[36]

To justify why DTV has been prioritized over TWEED data is more difficult. TWEED data covers domestic terrorism in 18 Western European countries for the period 1950 through 2004 (Engene 2007, p. 109). First, it must be noted that TWEED data is not excluded in this thesis, they are used to cross validate findings of DTV data to make hypothesis tests more robust. The main reason that DTV data are given main focus (theoretical framework are built around them) is because in the DTV dataset the unit of observation is the terrorist killing as opposed to in TWEED data were it is the incidence. It is of course possible with TWEED data to filter out those incidences causing no fatalities (which is done in the thesis). It is nevertheless reasoned that: (1) it is better to put main focus on data which when coded, were exclusively focused on killings: (2) in the opinion of the author, DTV data is built upon a more rigorous theory of domestic terrorism: (3) DTV data is based upon local sources in each of the various countries which should make data more accurate (Sanchez-Cuenca & Calle 2011, p. 49).

4.2.2 Government Duration Data

Data on government duration as well as control variables are all gathered from the European Representative Democracy Data archive (ERDDA) (Bergman, Andersson & Ersson 2012). None of the few previous studies on terrorism and duration have utilized these data for their dependent variables. It contains data on governments for 29 European democracies for 1945-2010. Hence, it covers data for all governments for countries of this study. For the period of time covered in this thesis (1964-2005), the data contain information on 308 governments.[37]

In this thesis however, the number is down to 232 governments. The reason for this decrease is not because any government has been excluded. It is the case because ERDDA data have been modified so as to fit the theoretical definition of the thesis. One of three definitional criteria underlying the ERDDA definition of government termination is that governments are considered terminated if an election occurs, *even* if the election does not change the partisan composition or the PM. However, as was seen in the theory chapter, it was in this thesis chosen to exclude the election criterion altogether. This was done because the author of the

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[36] Another reason for not using GTD data is due to scepticism by the author regarding decomposition of data. It is hard to believe that data that originally was coded in a manner not emphasising distinctions between domestic and international terrorism could, through the procedures proposed by Enders, Sandler & Gaibulloev (2011), result in domestic terrorist indicators as pure as if coding originally was intended to make distinctions.

[37] This is the case when governments that experienced parts of their duration in some year before 1964 and ended in some year into the time span of the study were excluded.

thesis found it counterintuitive, while Jäckle (2008) claimed that it was possibly misleading and that researchers might have a preference for not using it. Hence, in all instances in which ERDDA data record government terminations, just because an election occurs that neither changes the PM nor partisan composition, data has in the thesis been modified so to not record terminations. If a government is by ERDDA data considered terminated at some point in time, say t_5, only because an election occurred, that did not change the PM nor partisan composition, the data in the thesis keeps on recording the duration until either a change of partisan composition and/or prime minister occurs, as opposed to recording a termination at t_5. The latter have the consequence of reducing the number of governments. What in original ERDDA data are counted as several distinct governments is here treated as one government.[38]

Table 2 on the next page displays duration for all governments of countries when making the data modification. It consists 232 governments, 227 of these are eligible for analysis. 5 of the 232 governments were dropped due to missing data. In essence this means that only five governments of the sample relevant for testing the hypotheses are dropped, this can hardly be considered any serious loss of data. It can be seen that governments in some countries, on average, experienced very short duration times (Italy) while governments of other countries (like the United Kingdom and Spain) experienced much longer survival times. Unstable political systems like Italy have had a total of 33 governments while the UK only has seven

It is also very important to note that Table 2 does not include caretaker governments which have been excluded from the analysis. To mix ordinary governments with caretaker governments would have been a mistake. The very low duration of these governments is likely not due to independent variables of interest. It is probably due to them being caretaker governments, governments intended from the start to stay in office for a short period of time.

Lastly, 180 of 227 governments experienced government terminations that were of theoretical interest in this thesis. The remaining 47 governments did either (1) not experience a government termination during the time span of this study (2) terminated due to factors of no theoretical interest to the thesis: death of the prime minister, adding of extra political parties to the coalition, constitutional requirements.[39] All of the latter 47 governments were censored.

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[38] The disadvantage of excluding the election criterion is that as the number of observations decreases power of statistical tests are diminished. 227 governments should nevertheless be considered sufficient.

[39] Data on terminations due to constitutional requirements are gathered from the Comparative Parliamentary Democracy Data Archive. That data not come from ERDDA is not problematic. See appendix point 6.

Table 2: Duration of Governments in the Various Countries (In Months)

Government	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
Austria	19	48	157	38	6	121	34	71	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Austria	–	–	19	–
Belgium	8	26	54	13	3	34	2	17	3	10	4	6	7	6	73	41	3	88	47	1	30	–	–	–	–	–	–	–	Belgium	–	–	8	–
Denmark	41	44	13	15	14	43	15	36	69	31	26	21	28	60	50	–	–	–	–	–	–	–	–	–	–	–	–	–	Denmark	–	–	41	–
France	12	38	9	14	28	20	38	2	38	21	27	37	12	12	27	26	60	23	15	8	–	–	–	–	–	–	–	–	France	–	–	12	–
Finland	19	23	25	9	8	6	34	11	9	9	13	33	11	47	41	8	39	10	86	11	3	31	–	–	–	–	–	–	Finland	–	–	19	–
Germany	34	56	101	2	97	3	93	84	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Germany	–	–	34	–
Greece	31	18	93	4	6	43	28	99	22	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Greece	–	–	31	–
Iceland	12	36	47	14	3	39	48	15	13	20	49	114	16	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Iceland	–	–	12	–
Ireland	76	52	30	19	9	9	51	28	32	10	23	31	103	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Ireland	–	–	76	–
Italy	6	8	7	5	18	1	13	9	8	15	3	31	1	8	6	8	15	5	36	1	9	14	21	13	11	10	8	30	15	5	14	47	9
Luxembourg	52	64	61	60	127	54	59	18	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Luxembourg	–	–	52	–
Netherlands	19	4	49	13	4	47	42	9	5	79	55	94	4	32	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Netherlands	–	–	19	–
Norway	66	20	12	28	61	8	21	36	41	13	72	12	30	19	48	3	–	–	–	–	–	–	–	–	–	–	–	–	Norway	–	–	–	–
Portugal	25	13	24	26	120	78	28	8	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Portugal	–	–	25	–
Spain	44	21	160	95	21	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Spain	–	–	44	–
Sweden	84	25	12	20	17	42	67	36	18	118	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Sweden	–	–	84	–
UK	69	45	26	38	139	79	104	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	UK	–	–	–	–

There are two reasons for using duration data coming from ERDDA as opposed to other sources: (1) it is based upon a definition of government termination similar to that used in this thesis (2) it also contains relevant data on all the governments for the time period 1964-2005.

Validity

The concept of government termination underlying ERDDA data is based upon the definition of Browne Frendreis & Gleiber (1984, 1986). This definition -as discussed in the theory section- considers observations as incidences of government termination if either (1) the prime minister changes (2) the partisan composition of government changes or (3) election occurs. As has been made clear, the election criterion is not used by this study and ERDDA data have been modified so as to take account of this. This implies that we are left with data based on criteria (1) and (2), the exact same as those underlying the definition of government termination utilized in the thesis. A consequence of this should be a rather nice fit between the definition underlying the ERDDA data and that of the thesis, meaning increased validity.

Data Coverage

Two other datasets containing government duration data were also considered. The first was created by Warwick (Jäckle 2008, p. 3-4). It contains 1546 variables for governments in 16 Western European countries. It starts with the first postwar election and stretches up until the end of 1989 (Jäckle 2008, p. 3-4). This dataset would have represented an attractive option if it had only been updated to cover a longer time period. The fact that it has not been updated like ERDDA, to cover terminations in the period after the year 1989, serves as the main reason that it was not chosen. The other dataset is that of Woldendorp, Keman and Budge (Jäckle 2008). It includes data on governments in more countries, but not years, compared with ERDDA. The dataset starts recording duration after the Second World War and ends in 1998 (Jäckle 2008, p. 18). There are mainly two reasons why ERDDA were chosen over Woldendorp data: (1) Woldendorp data do not cover as long a time period. (2) That Woldendorp data contain information on governments in more countries is not that relevant, many of these extra countries should not be mixed up with those in Western Europe anyways.

This section has made it clear that the focus on parliamentary governments, the selection of countries, time period and data sources, rests upon legitimate arguments. Soon results from hypothesis tests are presented. Before this it is however necessary to give some descriptions of how independent, dependent and control variables have been measured/operationalized.

4.3 Measurements

4.3.1 Domestic Terrorism

From DTV data domestic terrorism variables have been constructed. The first variable contains the number of people killed due to domestic terrorism, at any month, during the different governments.[40] It ranges between 0 and infinity, and is coded 0 in all months when no killings occurred, and some other value, depending upon the number of killings, when killings occurred. This variable tests hypothesis one, *Domestic terrorism decreases government duration* and hypothesis two, *Domestic terrorism increases government duration.*

To test hypothesis three, *Effects of domestic terrorism on government duration vary between governments that are and are not right-wing* an interaction term have been created by multiplying the domestic terrorist killings covariate with a dummy variable coded 1 if the government is right-wing (more precisely conservative) 0 all other governments. Following the advice of Brambor, Clark & Golder (2006, p. 66) all constitute terms are included together with the interaction (the variables which the interaction term comprises of) in the models that tests hypothesis three. Data on the ideology of the government are gathered from ERDDA. Lastly all terrorist variables are lagged by one month.[41] As discussed in the theory section, there are no theoretical arguments guiding us in the direction of any particular lag structure something which forces us to experiment with data. Only those terrorist killings observations that were lagged by one month revealed results considered to be of interest to this thesis.

4.3.2 Government Duration

Government duration are measured by the hazard rate, the probability that governments terminate at any month, given they lasted up until this month. Increased hazard rates, means increased likelihood of government termination, therefore lower expected duration. Decreased hazard rates, means decreased likelihood of termination, therefore higher expected duration.

To obtain hazard rates however, it is necessary with data on government duration that again necessitates definitions of when they begin and end. The theoretical definition of government

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[40] In many incidences it is the case that governments that are terminated in a given a month are replaced by a new government in that same month. When this is the case it is important to make sure that domestic terrorist killings occurring in that same month are contributed to the right governments. Luckily DTV and ERDDA data contain information on the exact date of the killings as well as when the government is terminated and replaced, meaning that all monthly killings should be contributed to right governments.

[41] Regarding lags it must be noted that with some domestic terrorist killings the effect is specified to exert itself in that same month as it occurs. Why this is the case see appendix point 5.

termination used in the thesis is by ERDDA operationalized as the date of the formal resignation of governments. ERDDA does again operationalize the latter as when either (1) the government resigns and the head of state accepts this resignation, (2) votes of no confidence and (3) the date of resignation including changes in the partisan composition that have not been recorded in the national tradition. The operational definition should suffice to capture most changes in the partisan composition and prime minister. It must be noted however, that the date of resignation not necessarily is the same date as when the partisan composition and/or PM changes. Resignations do nevertheless signal that these changes sooner or later are going to occur, depending upon when the next government is in place.

ERDDA considers a new government to be in place at the date when either (1) the new government is inaugurated by head of state (2) investiture vote (3) incidences where there is a change of government not acknowledged by national tradition. Strictly speaking the latter imply that it is at the inauguration date the change in partisan composition or PM takes place. However, it does not always make sense to use the inauguration date as the date of termination. Assume terrorist killings occur at t_1, the government resigns at t_1 but the government does not change before t_3. In this situation it is meaningless to use t_3 as the date of termination. If t_3 had been used as termination date we could draw the faulty inference that killings did not contribute to the termination at t_3, since killings occurred at t_1. Using t_1, the date of resignation, as termination date makes sense: the government resigned at t_1 because killings occurred at t_1, the resignation at t_1 then lead to the change of government at t_3.

Operationalizations give us starting and ending points of governments and therefore empirical quantities of their duration. In the dataset there exists multiple observational records coded 1,2,3 etc. for each government, all depending upon the duration of the government. In all months where governments did not terminate, the dependent variable records 0, in months when they did terminate, a value of 1 is given. Censored governments are coded 0 all months.

4.3.3 Control Variables
Theory and previous empirical research guide us in the direction of variables that must be controlled for when assessing the effects of domestic terrorism on that of government duration. Operationalizations of these variables now follow. All of them are taken from the ERDDA codebook available from the projects website (Bergman, Andersson & Ersson 2012).

Features of Governments

The first control registers whether or not the sitting government controls a majority of seats in parliament. As shown during the theory section, majority governments are expected to be more durable than minority governments. It is a dummy coded 1 if majority government, 0 if minority government. The variable is expected to decrease hazard rates, which again imply higher expected government duration for majority compared to minority governments. The second variable controls for whether or not governments are coalition governments. This is a dummy where 1= coalition government 0= single party government. As pointed out earlier, previous research shows that coalition governments are less durable than single party governments. This variable is therefore expected to increase hazard rates, which again imply lower expected duration for coalition governments as compared to single party governments.

Minimal winning coalitions are on average expected to be more durable than non-minimal winning coalitions. This is controlled for by a dummy where 1= minimal winning coalition, 0= non-minimal winning coalition. It is expected to decrease hazard rates. Research has also found ideologically connected governments to be more durable than non-ideologically connected governments. This is a dummy coded 1 if the government is connected, 0 if not. The number of government formation attempts is hypothesised to *either* decrease or increase hazard rates. Since it is hard to measure the number of formation attempts, the variable reflecting it is measured by the number of days elapsed between termination of the previous and entry of the next government: the number of days it takes to form a new government.

Features of Parliament

Increased fractionalization of parliament is supposed to decrease government duration. It is here measured by the effective, not absolute, number of parliamentary parties. This is done because the latter can be a misleading measure of fractionalization. On some occasions, parties of parliaments do not command enough seats to be considered parties with sufficient bargaining power for fractionalizing parliament. There could be 10 parties where eight share only a few seats, while majority of seats are divided among remaining parties. Ideological polarization has also been shown to affect duration. This is a metric variable measuring ideological distance between parties of parliament: it's expected to increase hazards.[42]

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[42] One must be critical of the polarization measure since it is based upon information on ideological distance between parties from party manifesto data. Validity of these data has been questioned (Benoit & Laver 2007).

Institutional factors: investiture requirements

Governments in countries with investiture requirements are, ceteris paribus, expected to face higher likelihoods of experiencing government termination than governments of countries where such investiture requirements are not present. Investiture requirements are measured by a dummy variable that is coded 1 if such requirements are present, 0 if they are not present.

The Economy: Inflation and Unemployment

Lastly, empirical evidence from previous studies also indicates that economic variables like inflation and unemployment affect the duration of governments. Increases in unemployment and inflation rates are therefore expected to increase hazard rates. Inflation and unemployment variables are measured by their values at the month when governments of the sample experienced their terminations. The underlying assumption of the measure is thereby that inflation and unemployment rates in previous months before the termination do not matter, because as discussed earlier, the public is myopic about the state of the economy.

4.3.4 Summary

Observations are governments of 17 Western European parliamentary democracies for the period 1964-2005. Being confined to Western Europe has the advantage of making causal analysis easier. Cases similar on many characteristics are supposed to hold more variables constant. The reason for focusing upon parliamentary systems is because governments of these regimes can terminate at any month, not only elections. Domestic terrorism data are gathered from DTV (and TWEED to cross validate findings) because: (1) the operational definition is close to the theoretical definition and the latter is the definition used in the thesis (2) contains data for all governments of the countries covered by this study and (3) the unit of observation is the killing. It is theorized that killings are more likely (compared to non-lethal terrorism) of signaling government incompetence at providing national security, or that terrorists pose a serious threat making rallies more likely. Data on government duration are gathered from ERDDA that follows a similar definition of termination to that of the thesis.

The last step of explaining data, cases and measurements is now finished. This therefore gives us the necessary empirical inputs for our models allowing us to test the various hypotheses that were formulated in the theory section. We are now ready for the empirical analysis.

5.0 Analysis and Discussion

Results from hypothesis tests are presented here. In the first two parts, H1 and H2 are tested by using both DTV and TWEED data. The data are assessed by three different models: (1) Cox proportional hazards model (2) Cox proportional hazards model with robust standard errors and (3) Cox proportional hazards shared frailty model. The results of these tests are the following: hypothesis one is supported in all models with both types of data while hypothesis two receives no support at all. To further assess the robustness of these findings, the models are run over again with the exception that governments of the UK and Italy are excluded from the sample. This sample adjustment only serves to weaken (but far from demolish) support for hypothesis one when Italy is excluded. When new tests are run however, where Italy is not excluded, but controlled for by a dummy, H1 is strongly supported. H2 is again not supported. Tests indicate that serious violations of the proportional hazards assumption do not occur.

In the third part of the analysis hypothesis three is tested. Support is given for the hypothesis, meaning that effects of domestic terrorism on government duration vary between governments that are and are not right-wing. Data tell that right-wing governments are more vulnerable when confronted with domestic terrorism, than governments that are not right-wing. Findings are not very robust however: they are supported in two out of six models.

After all of the hypotheses have been tested the analysis finishes by checking whether or not the relationship between domestic terrorism and hazard rates follows some other non-linear function than that postulated by theory. A few theoretical arguments/intuitions are presented, indicating that the relationship between variables could follow functional forms that quadratic terms have the ability to capture. This is by no means an extensive test of several different functional relationships between the two covariates. It only focuses upon functional forms between covariates that quadratic terms have the ability to capture. The reason for focusing upon the quadratic term is because it can capture relationships between covariates that can be more meaningfully interpreted in light of theory, compared to other more complex relationships between variables that such term do not capture. However, it will be seen in the upcoming empirical tests that data do not seem to conform to any such functional forms.

5.1 Hypothesis Tests

5.1.1 Testing Hypotheses One and Two

Table 3 on the next page displays results when testing H1 and H2 on the full sample. Model 1-3 use DTV data while 4-6 use TWEED data. The domestic terrorist covariate "monthly killings" is statistically significant at the 1% level in all six models. Hazard ratios vary between 1.032-1.038. Differences in hazard ratios between models using DTV and TWEED data are small. In the two shared frailty models they are the same, while in ordinary Cox models effects of one killing on hazards is estimated to be 0.2% larger for TWEED data.

A hazard ratio of 1.036 (DTV) means that a one unit increase in the terrorist covariate (one killing) increases hazard rates by 3.6% at any month. This means that risks of experiencing government termination increases as the number of fatalities due to domestic terrorism increases, and that this effect is expected to be the same, no matter when in time killings occur: one killing imply that hazard rates are increased with 3.6% at m_1 m_2 etc., two killings 7.2% at m_1 m_2 etc. In other words, models tell that domestic terrorist killings reduce government duration. Hence, findings support H1 *Domestic terrorism decreases government duration,* not H2 *Domestic terrorism increases government duration.* Findings therefore support expectations of the theory defining national security as a public good, not rally theory.

Model specification and diagnostics looks fine. Firstly, many controls are statistically significant and their effects go in the hypothesised directions as laid out in the theory section. Even though control variables are not of main theoretical interest here, it is very important that they are given some words. They touch directly upon model specification that must be assessed properly if we are to be confident in findings of domestic terrorism covariates.[43]

The coalition government covariate is statistically significant at the 1% level in all models. Hazard ratios indicate that coalition governments are more than twice as likely as single party governments of experiencing terminations at any month (hazard ratios varies between 2,01-2.44). Even though this is in line with both previous research and theory, the effect seems very strong. Size of effects does seem plausible however, when considering the definition of government termination used in the thesis. When a termination according to the definition also occurs when one party is removed from the government it is reasonable to expect coalition governments to be much more failure prone than single party governments. This type of government termination can only occur for coalitions, not single party governments.

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[43] Controls are only displayed and commented upon here. In models of later tables controls are included but not displayed. In models showed in later tables none of the controls changed substantially from those of Table 3.

Table 3: Testing Hypotheses 1-2. All Governments Included

Models	Cox PH (1)	Rob. Std. Err. (2)	Shared Frailty (3)	Cox PH (4)	Rob. Std. Err. (5)	Shared Frailty (6)
DTV						
Monthly Killings	1.036***(.01)	1.036*** (.006)	1.032*** (.01)			
TWEED						
Monthly Killings				1.038***(.01)	1.038*** (.006)	1.032*** (.01)
Controls						
Majority Government	.85 (.17)	.85 (.17)	.71 (.17)	.88 (.17)	.87 (.17)	.71 (.17)
Coalition Government	2.44*** (.58)	2.44*** (.61)	2.03*** (.54)	2.37*** (.56)	2.37*** (.59)	2.01*** (.54)
Ideological Connected Government	1.06 (.20)	1.06 (.18)	.96 (.21)	1.06 (.20)	1.06 (.18)	.96 (.21)
Minimal Winning Coalition	.53*** (.10)	.53*** (.10)	.69* (.15)	.52*** (.10)	.52 (.09)***	.69* (.15)
Fractionalization Parliament	1.16** (.07)	1.16** (.08)	1.13 (.09)	1.16** (.07)	1.16 (.08)**	1.13 (.09)
Ideological Polarization Parliament	1.00 (.009)	1.00 (.008)	1.00 (.01)	1.00 (.009)	1.00 (.008)	1.00 (.01)
Numb. Days. Government Formation	.997 (.002)	.997 (.002)	.995 (.002)*	.997 (.002)	.997 (.002)	.995* (.002)
Investiture	1.37* (.25)	1.37* (.25)	1.33 (.35)	1.36* (.25)	1.36* (.25)	1.33 (.34)
Inflation	1.018***(.006)	1.018** (.008)	1.022*** (.008)	1.018***(.006)	1.018** (.008)	1.022*** (.008)
Unemployment	.99 (.02)	.99 (.02)	.98 (.02)	.99 (.02)	.99 (.02)	.98 (.02)
Shared Frailty Term (Theta)			.15*** (.11)			.15*** (.11)
Units and Model Diagnostics						
Number of Governments	227	227	227	227	227	227
Number of Terminations	180	180	180	180	180	180
Censored Governments	47	47	47	47	47	47
LL	-779.35		-776.59	-779.71		-777.08
LL (Pseudo)		-779.35			-779.71	
Global PH test (ProbChi)	.328	.299	.118	.297	.265	.110
Linktest (hatsq)	.498	.498	.481	.433	.433	.424

Significance: p=<0.10* p=<0.05** p=< 0.01***   Hazard Ratios Reported.   Standard Errors in Parentheses

The minimal winning coalition covariate is significant in all models (significance levels varies however) and indicate that these governments are less at risk of terminating than non-minimal winning coalitions. The reductions in hazard rates for minimal winning coalitions are at the most 48% (model 4 and 5). Certain controls are statistically significant in some (fractionalization parliament, days to form government, investiture) and all models (inflation rate). Effects of all latter covariates go in directions hypothesised by theory. The unemployment measure is not significant in any model, this goes against previous research.

Covariates reflecting ideological connectedness and polarization of government and parliament respectively are not significant in any model. One must have in mind however, that these variables are disputed (at least in older research). Just recall statements of Browne Frendreis & Gleiber (1986) after reviewing literature on government duration in the 70s: they reached the conclusion that ideological factors exert weak impacts, "if any at all" (p. 630).

A few words are also in place about the majority government covariate. Even though its hazard ratios, as expected by theory and previous research, indicate lessened likelihood of experiencing termination for majority compared to minority governments, it is not statistically significant. This seems quite odd when considering the overwhelming empirical support of previous research studies for the hypothesis that majority governments are less failure prone and therefore more durable than minority governments. This can still be explained however.

Pre-analysis tests showed a correlation of .485 between majority government and minimal winning coalition covariates. Even though this is a strong correlation they were both included into models since correlations did not surpass any threshold of multicollinearity. To make sure however, that this does not substantially affect terrorism covariates, the minimal winning coalition covariate was removed. When this was done the majority government covariate became significant at 5 and 10% levels (depending upon the model) and displayed hazard ratios varying between .70-.60. Majority governments are hence, in accordance with theory and previous research, according to our data, less likely of terminating at any month, compared to minority governments (hazard rates are reduced by 30-40%). More importantly, terrorism covariates only changed slightly. Hazard ratios display an increased effect of 0.2-0.3% for one killing while significance levels remained the same as before. One last thing is worth mentioning about controls. When the minimal winning coalition covariate is removed, effects of the coalition government covariate -even though still significant while effects go in same directions as before - are mitigated: hazard ratios are displayed to lay around 1.80. This is not surprising when considering the correlation of .560 between the two latter covariates.

To use models containing shared frailty terms also seems to have been a good choice. Shared frailty terms of models three and six are significant at 1% indicating correlation between governments inside countries. Hence, it contributes to the models, this can also be seen from the LL function (Log Likelihood): it increases (becomes less negative and closer to zero) when shared frailty terms are added. Model fit is therefore better with shared frailty terms.

When it comes to the various indicators of model diagnostics things also seem to be good. At the bottom of Table 3 there is the link test, a powerful test of model specification (Cleves et al. 2010, p. 203). The link test also tests for proportional hazards (Cleves et al. 2010, p. 203-204) although not directly. In the link test, the squared predictor (_hatsq) is *not* expected to be statistically significant if the models have been correctly specified (Institute for Digital Research and Education, UCLA 2013).[44] As seen, p-values of link tests for all of the models in Table 3 are far from being statistically significant something which indicates that the proportional hazards assumption is supported and that the models are not misspecified.

Since however, passing one test does not necessarily support proportional hazards (Cleves et al. 2010, p. 203) others tests are run too. The global test based upon Schoenfeld residuals, also found at the bottom of Table 3, tests directly for proportional hazards (Cleves et al. 2010, p. 206). The global test indicates (for the models as a whole) no violations of the proportional hazards assumption even though being almost significant at the 10% level in model 3 and 6.

For individual covariates, not the model as a whole, there seem to be no serious violations either. According to Schoenfeld residuals there is one covariate violating the PH assumption, not a terrorism covariate. The offending covariate was interacted with different functions of time to see how results displayed above were affected, no substantial changes did occur.

To conclude: hypothesis one is supported by the data while hypothesis two is not. Findings also seem very robust across models and data. None of the models does either seem to be misspecified (as defined by the link test) or violating the proportional hazards assumption. Data handled by these models therefore support expectations of public goods, not rally theory.

When testing hypotheses it is however important to assess their robustness. Even though hypothesis one received support from different domestic terrorism data and models, it would be wise to assess their robustness even further. There are many ways of doing the latter. One is to make adjustments to the sample to see whether or not results are substantially affected.

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[44] _Hat on other hand is significant, which is good. This is the case with all models presented during the analysis section. _Hat is however not displayed in any of the tables.

5.1.2 Testing Hypotheses One and Two: Sample Adjustments

In this part all governments of the UK and Italy are excluded from the sample. These countries are excluded because they are considered being special cases. The UK is excluded because it contains most of the domestic terrorist killings of the entire sample, Italy because it is very unstable politically while containing many terrorist killings. It is important to certify that these two cases are not disproportionately driving results presented in Table 3 above.

Excluding the UK

Models 1-6 in Table 4 below tests H1 and H2 with DTV and TWEED data on the sample where the UK is excluded. Models 1-3 contain the terrorist covariate derived from DTV data, models 4-6 contain the terrorist covariate based upon TWEED data. After excluding governments of the UK, we find that there is no substantial diversion from the patterns of the full model presented in Table 3 above. In models 1-2 in Table 4, the monthly terrorist killings covariate is significant at the 1% level while displaying almost the same hazard ratios as before (1.035): killings increase hazard rates of 3.5% at any given month. The effect is lower however, according to the shared frailty model (model 3), the terrorist covariate is significant at the 5% level and the hazard ratio indicates that one killing increase hazards with 2.9%.

These findings are also validated in models 4-6, which utilizing TWEED data. In all except the shared frailty model the terrorist killings covariate is significant at the 1% level while displaying similar hazard ratios as before (1.036). Global PH and Link tests are not significant for any model. Individual tests based upon Schoenfeld residuals are not significant either. These seemingly healthy models therefore grant H1 the same support as when running the tests on the full sample. It also still remains the case that hypothesis two is not supported.

Excluding Italy

The results of models 7-12, Table 4, wherein Italian governments are removed from the sample, are weaker. Models 7-9 test hypothesis one and two with DTV data, while models 10-12 use TWEED data. Firstly, it is the case that the terrorist killings covariate of models 7 and 10 are no longer statistically significant, indicating no support for hypotheses one or two. This result stands in contrast to those based upon the full sample. Recall that models 7 and 10 have the same specification, but differ only in that model 7 uses DTV data and model 10 uses TWEED data. Model 8 and model 11 are also identical specifications. The covariate of model 8 (DTV data), is also only significant at the 10% level while model 11 utilizing TWEED data is significant at the 5% level. Models 9 and 12, which are the models that have clustered

Models	(1) Cox PH	(2) Rob.Std.Err.	(3) Shar.Frail	(4) Cox PH	(5) Rob. Std.Err.	(6) Shar.Frail	(7) Cox PH	(8) Rob.Std.Err.	(9) Clustered	(10) Cox PH	(11) Rob.Std.Err.	(12) Clustered
DTV												
Monthly Killings	1.035***(.01)	1.035***(.006)	1.029**(.01)				1.036 (.02)	1.036* (.02)	1.036***(.01)			
TWEED												
Monthly Killings				1.036***(.01)	1.036***(.005)	1.029**(.01)				1.057 (.04)	1.057**(.02)	1.057***(.02)
Model Diagnostics												
Numb. Govern.	220	220	220	220	220	220	194	194	194	194	194	194
Numb. Termination.	175	175	175	175	175	175	151	151	151	151	151	151
Cens.Govern.	45	45	45	45	45	45	43	43	43	43	43	43
LL	-755.65		-753.21	-755.94		-753.41	-630.20			-630.27		
LL (Pseudo)		-755.65			-755.94			-630.20	-630.20		-630.27	-630.27
Glob. PH.	.407	.402	0.189	.405	.401	.185	.430	.389	.402	.449	.411	.485
Linktest	.529	.529	.592	.571	.571	.590	.425	.425	.425	.371	.371	.371

Significance: p=<0.10* p=<0.05** p=< 0.01*** Hazard Ratios Reported. Standard Errors in Parentheses

robust standard errors, are significant at the 1% level.[45] There is also a difference in effects of terrorist covariates on hazards of governments depending upon whether it is based upon DTV or TWEED data. The effect is according to DTV models a 3.6% increase in hazards for one killing, at any month, compared to TWEED covariates reporting a 5.7% increase in hazards.

Examining results more closely, let us make clear that the terrorist covariate of model 9, according to Schoenfeld residuals, violates the PH assumption. When this is adjusted by interacting it with time, it is no longer statistically significant, while its effect is washed out: the hazard ratio becomes 1.0009 implying that even model 9 does not support H1. Hence, we can state in sum, that of those models using DTV data only model 8 give support for H1, and the killings covariate of even this model is only significant at the 10% level. With TWEED data the support is stronger: two out of three models support H1. Support is still not as strong however, as when the models were run on the full sample or when the UK was excluded.

Results are therefore not as robust across different data and models when Italy is left out. This probably implies that Italy was an important contributor, driving previous results. The fact that this is the case does not necessarily imply that support for H1 is weak. The data can rather be interpreted as indicating that terrorist killings in Italy, to some degree or another, contributed to the high number of terminations it has experienced. If the latter is the case, one should however, still question the degree to which the effect predicted by H1 can be generalized to governments of other countries of the sample. Despite this it is still important to have in mind the following: even when governments of Italy are excluded, hypothesis one still receives sufficient support from data so as to make it seem unreasonable to discard H1.

To pursue this question further additional models are run wherein Italy is not excluded but controlled for by a dummy variable. This is done to maximise the amount of information, given that some important information was lost when Italy was excluded. Table 5 below contains same models as Table 4 with the exception that Italy is controlled for by a dummy. Table 5 portrays a different picture than those models of Table 4 just previously discussed.

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[45] Clustered robust standard errors were used as a replacement for the shared frailty model since Stata did not manage to run the latter when Italy was excluded. These standard errors do not model in group correlation as the frailty model even though it is supposed to correct for it (Cleves et al. 2010).

Table 5: Testing Hypotheses 1-2. Dummy Variable Italy

Models	Cox PH (1)	Rob.Std.Err. (2)	Clustered (3)	Cox PH (4)	Rob. Std. Err. (5)	Clustered (6)
DTV						
Monthly Killings	1.026**(.01)	1.026***(.006)	1.026***(.006)			
Italy	3.59***(1.06)	3.59***(.99)	3.59***(.85)			
TWEED						
Monthly Killings				1.027**(.01)	1.027***(.006)	1.027***(.006)
Italy				3.62***(1.07)	3.62***(1.0003)	3.62***(.86)
Controls						
Units and Model Diagnostics						
Number Governments	227	227	227	227	227	227
Number Terminations	180	180	180	180	180	180
Censored Governments	47	47	47	47	47	47
LL	-770.55			-770.79		
LL (Pseudo)		-770.55	-770.55		-770.79	-770.79
Global PH test (ProbChi)	.610	.664	.846	.601	.641	.855
Linktest (hatsq)	.317	.317	.317	.297	.297	.297

Significance: p=<0.10* p=<0.05** p=< 0.01*** Hazard Ratios Reported. Standard Errors in Parentheses

When Italy is controlled for, the domestic terrorist killings covariate is statistically significant at the 1% level in four out of six models. It is significant at the 5% level in the two models that are not specified with clustered or ordinary robust standard errors. Effects of the terrorist covariate on hazards do also only slightly differ between DTV and TWEED data: 0.1%. It is important to note however, that effects of terrorist killings on hazards have diminished substantially when controlling for Italy. Effects of one terrorist killing on hazards is reduced by almost 1% compared to most models of previous tables (the exception is TWEED terrorism data models that were run on the sample were Italy was excluded from the analysis).

The Italy dummy variable is also, not surprisingly, statistically significant in all models, and display hazard ratios indicating that Italian governments are more than three and a half times as likely to terminate as governments of other countries. Hence, when Italy is controlled for but not excluded, hypothesis one is again strongly supported by empirical data. Needless to say, and as expected, hypothesis two is still not supported by the empirical data. The link, global, and tests for individual covariates show no serious violations of the PH assumption.

To sum up: when Italy is excluded or controlled for by a dummy variable, the results are changed in the following ways: (1) the *magnitude* of the effects diminish, but their *statistical significance* remains high when including the Italy dummy; (2) terrorist killings covariates lose statistical significance in several of the models when governments of Italy are excluded. However, despite these changes, support for hypothesis one still remains quite strong.

In the end, some words are in place about hypothesis two, which predicts increased duration for governments following domestic terrorist incidences due to some rally effect. It is surprising that it does not receive any support at all from empirical data. This could be because: (1) terrorist killings simply do not create rallies predicted to increase duration; (2) there is some mediator variable/covariate that has not been taken into account. One possible intermediate factor could be the following: perhaps the direction of effects varies between governments of differing ideologies. The next section of this chapter explores this angle.

5.1.3 Testing Hypothesis Three

In this section H3 is tested, which states the following: "*Effects of domestic terrorism on government duration varies between governments that are and are not right-wing.*

Models 1-3 in Table 6 below use DTV data when testing whether the effect of domestic terrorism on duration varies between governments that are and are not right-wing, while models 4-6 do the same but with killings covariates based upon TWEED data. The models

explore hypothesis three by creating a dummy variable which flags right-wing governments.[46] This dummy variable is specified alone as well as in an interaction with the domestic terrorist monthly killings covariate. Table 6 shows that the interaction term is statistically significant in both models specified with robust standard errors. It is only statistically significant however at the 10% level in model two using DTV data. The covariates do tell us the following: the domestic terrorism covariate which is *not* in the interaction term shows the effect of killings on hazard rates for governments in the reference group (coded 0), viz. governments that are *not* right-wing. On the other hand, the interaction term shows how the effects of killings on hazard rates *differ* between governments that are and are not right-wing.

Let's start with model two. The killings covariate shows that one killing increases hazards of governments that are not right-wing with 3.4% (at any month). To get the hazard ratio for governments being right-wing, we simply multiply the hazard ratio of the killings covariate with the hazard ratio of the interaction: 1.034*1.033=1.068. Hence, one killing increase hazard rates of governments that are right-wing with 6.8%. *One killing has twice the effect on hazards of right-wing compared to non-right-wing governments.* In model five (TWEED), the hazard ratio of the killings covariate tells that one killing increase hazards with 3.6% for governments that are not right-wing. The hazard ratio for right-wing governments is therefore 1.036*1.053= 1.09. Hence, in this model, one killing has even more than double the effect on hazards of governments that are right-wing as compared to non-right-wing governments.

The results give some (but limited) support for H3. H3 is supported in two out of six models: model two giving limited support, model five strong. Findings can be interpreted as meaning that terrorist killings decrease duration for both types of governments, but that the negative effect on duration is stronger for right-wing as compared to non-right-wing governments. This runs contrary to the research of Williams, Kock & Smith (2012). It must still be noted that the latter authors compare right and left-wing governments, as opposed to this study where right-wing are compared with non-right-wing governments (which includes both leftist and centrist governments). Lastly, it is again the case that, even when accounting for government ideology, there is no evidence that domestic terrorism increases government duration.[47]

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[46] Data on government ideology is gathered from ERDDA.

[47] Diagnostics looks fine in all except the last model. The global test indicates violation of the PH assumption. The offending covariate was identified and interacted with time: nothing changed substantially.

Table 6: Testing Hypothesis 3. All Governments Included

Models	Cox PH (1)	Rob.Std.Err. (2)	Shared Frailty (3)	Cox PH (4)	Rob. Std. Err. (5)	Shared Frailty (6)
DTV						
Monthly Killings	1.034***(.01)	1.034***(.006)	1.03**(.01)			
Monthly Killings*Government Dummy	1.033 (.03)	1.033* (.02)	1.048 (.03)			
Government Dummy	.68* (.15)	.68*(.13)	.70 (.16)			
TWEED						
Monthly Killings				1.036***(.01)	1.036***(.006)	1.03**(.01)
Monthly Killings*Government Dummy				1.053 (.05)	1.053*** (.02)	1.066 (.05)
Government Dummy				.70 (.15)	.70* (.13)	.72 (.17)
Controls						
Units and Model Diagnostics						
Number Governments	227	227	227	227	227	227
Number Terminations	180	180	180	180	180	180
Censored Governments	47	47	47	47	47	47
LL	-777.75		-775.06	-778.19		-775.70
LL (Pseudo)		-777.75			-778.19	
Global PH test (ProbChi)	.315	.324	.126	0.208	.251	.071
Linktest (hatsq)	.939	.939	.874	.670	.670	.710

Significance: p=<0.10* p=<0.05** p=< 0.01*** Hazard Ratios Reported. Standard Errors in Parentheses

5.1.4 Checking for Non-Linearity

An underlying assumption of the previous analyses has been that hazards are a linear function of terrorist killings. To assume that there is a linear relationship between the probability of government termination and terrorist killings makes sense theoretically: the more killings there are, the more the government has failed at providing national security. Despite the latter, it is important to recognize that even though linearity in this context is theoretically reasonable (in the sense that it is a functional form that can be expected to explain data well) it still postulates a relationship between covariates that is usually not the case with political processes: there could be other functional forms that can explain empirical data even better.

There are theoretical indications pointing in directions of other functional forms. The first is that hazards are a linear function of killings only up until a certain level of killings. When the number of killings increases, a point is reached where going from say 5 to 6 or 7 killings does not really make any difference (or that the effect of one additional killing is weaker) on the probability of termination. The intuition it is that voters and parties do not evaluate incidences that kill either five or six or seven people differently: they are all just perceived as being incidences indicating government failure at providing national security. It might also be the other way around: the number of killings reaches a level from where effects on hazards increase. Domestic terrorism increases hazards with x% for every killing up until a certain point (say, arbitrarily, five killings) before the effect on hazards gets larger for additional killings. A rationale behind this is that the more brutal terrorist incidences receive more media attention and therefore reach larger segments of the public, while those killing fewer people receive less attention. Of course, this speculation is based upon unrealistic assumptions, such as that there is some magic cutoff point in killings. To define the exact cutoff point is theoretically impossible. Despite this, latter arguments indicate that it could be that data display distributions expected to occur if such theoretical arguments have something to them.

One way of checking for non-linear trends like those above is to include a quadratic term into models and check whether or not it is significant. As can be seen from Table 7 below it is not significant, thereby giving no support for the above postulated non-linear relationships.[48]

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[48] Just because the quadratic term is not significant does not imply that hazards are a linear function of domestic terrorist killings. It could be other relationships between terrorist killings and hazards that the quadratic term does not have the properties to capture. It was however decided to focus upon the quadratic because the relationships it tests for can be derived by more plausible and intuitive theoretical arguments compared to more complex functions between covariates. More complex relationships are harder to interpret in light of theory and can sometimes, in the opinion of the author, seem almost meaningless.

Table 7: Testing for Non-Linearity Using Quadratic Term. All Governments Included

Models	Cox PH (1)	Rob.Std.Err (2)	Shared Frailty (3)	Cox PH (4)	Rob. Std. Err. (5)	Shared Frailty (6)
DTV						
Monthly Killings	1.050 (.03)	1.050* (.03)	1.073* (.04)			
Monthly Killings* Monthly Killings	.99 (.0004)	.99 (.0003)	.99 (.0004)			
TWEED						
Monthly Killings				1.096** (.05)	1.096** (.06)	1.11** (.05)
Monthly Killings* Monthly Killings				.99 (.0005)	.99 (.0006)	.99 (.0005)
Controls						
Units and Model Diagnostics						
Number Governments	227	227	227	227	227	227
Number Terminations	180	180	180	180	180	180
Censored Governments	47	47	47	47	47	47
LL	-779.27		-776.15	-779.05		-775.99
LL (Pseudo)		-779.27			-779.05	
Global PH test (ProbChi)	.428	.388	.170	.382	.329	.143
Linktest (hatsq)	.625	.625	.761	.630	.630	.549

Significance: p=<0.10* p=<0.05** p=< 0.01*** Hazard Ratios Reported. Standard Errors in Parentheses

5.1.5 Summary of Findings

The hypotheses were tested by various models using different domestic terrorism data. H1, expecting *decreased* government duration, received strong support when running the models on the full sample. H2, predicting *increased* duration, was not supported. When governments of Italy were excluded from the sample, H1 was still supported even though to a lesser degree than when running the tests on the entire sample. Nevertheless, when Italy was controlled for by using a dummy, H1 received strong support despite seeing its effects reduced in magnitude. H3, expecting the effects of killings to vary according to governmental ideology, also received support, but to a much lesser degree than H1. H3 was only supported in two out six models while one of the two only gave limited support. The effects of domestic terrorism, even though reducing duration for governments of different ideologies, were stronger for governments that are right-wing. Whether the hazard rate could conform to some non-linear function congruent with theoretical arguments was investigated as well. None of the quadratic terms were significant, indicating hazards to not be a function of such relationships. Now as hypothesis tests are finished we can finally move on to reflect upon these results.

6.0 Conclusion: The Larger Picture

A threefold discussion follows. First, we discuss how findings contribute to and stand in relation to previous research. Explanations are also offered for why neither this nor previous studies find support for the rally hypothesis, which predicts increased duration following terrorism. Then we go on to assess internal and external validity of findings. Lastly it is concluded by giving some suggestions on how to continue the research process in this area.

6.1 Results in Light of Previous Research

By focusing on domestic terrorism only, by using new data on domestic terrorism, government duration and control variables, we arrive at mostly the same conclusions as those of Williams, Kock & Smith (2012) and Gassebner, Jong & Mierau (2011). That the central findings of previous studies overlap with those of the thesis could be an indication that there actually is some real-world empirical relationship between terrorism and government duration: studies focusing upon domestic and international terrorism, studies mixing the two latter up, using different data, measurements and somewhat different models, all arrive at conclusions that government duration is negatively affected by terrorism. Findings of this thesis can now also make us even more confident that domestic terrorism decreases duration.

The exception however, concerns government ideology. Findings of H3 go in the opposite direction than that of Williams, Kock & Smith (2012): our tests indicate that right-wing governments are more vulnerable when faced with domestic terrorism compared to non-right-wing governments. Knowledge on how government ideology mediates effects of domestic terrorism on duration is therefore not as clear cut. There can be several reasons for this: (1) empirical tests done here utilize different data and measurements and (2) compare right-wing governments to non-right-wing governments, as opposed to Williams, Kock & Smith (2012), where right-wing are compared with left-wing governments. Since evidence is contradictory, more research should be conducted to assess this or similar hypotheses. It is important to note however, that despite different findings, government ideology should be considered as an important mediating variable when assessing effects of terrorism on government duration.

What is also interesting with this and previous studies are that hypotheses expecting increased government duration following terrorism are not supported. One explanation could be that rally theory is more suitable for explaining bursts in approval - here expected to increase duration - for Presidents, not parliamentary governments. In response to this it must be noted that there is, as stated in the theory section, research finding support for the hypothesis when

applied to parliamentary systems as well. Another explanation could be due to the size of the increase in approval ratings following terrorist incidences. Baker & Oneal (2001) claim that even though it is the case that approval ratings of Presidents sometimes increase after crises it is usually small (p. 661). Hence, it could be that bursts in approval ratings following domestic or international terrorism are too small to have impacts on the duration of governments.

A last potential explanation though of here can be found when questioning a fundamental assumption that the rally framework of this thesis is based upon: that terrorist attacks, international or domestic, are potential rally events. Originally, rallies are supposed to be triggered by international crises. The question arises whether terrorist incidences share the same properties as international crises. The author believes that answers depend upon context. 9/11 and the Utøya incidences in Norway can be considered cases of international crisis (Utøya because of its media coverage worldwide) triggering rallies. The latter are however, extreme incidences that cannot be defined as "representative" terrorism. The author believes however, that many terrorist incidences contain properties making them able to generate rallies. Underlying sociological/psychological assumptions seem plausible: threatened groups are supposed to be more inclined towards seeking leadership compared to groups not threatened, independent of whether terrorist incidences are considered international or not.

Lastly, results also contribute to knowledge of terrorism at a more general level. At the beginning of the thesis a stance was taken that it was best not to mix up international and domestic terrorism because of the risk that they were sufficiently different to exert differing effects on duration. The few previous studies, and now this one, dealing with terrorism and duration, indicate that this is not the case. This supports, but does not prove, the notion of Sanchez-Cuenca & Calle (2009), that the international domestic distinction is not always useful. This should not be misunderstood as meaning that the distinction is never useful: such a conclusion is premature. All said is that findings from this and previous studies indicate that the distinction does not seem useful when the dependent variable is government duration.

6.2 Internal Validity

Are inferences of this study based upon a research design allowing us to say that domestic terrorism decreases government duration? We cannot know for sure whether it decreases duration, but we are allowed to say that it seems to be so when approaching the research question from the angle it was approached in the thesis. When using the definitions, data,

measurements, controls and statistical models as here, outputs of the latter indicates there is an empirical relationship for the Western European governments in the period 1964-2005.

There is a saying, however: "junk in, junk out". The author does not believe that models presented in this thesis were fed junk. It is rather claimed that outputs are drawn from models based upon a good research design. When it comes to the conceptual apparatus, domestic terrorism and government termination definitions are constructed and used by leading experts. There is also an overlap between theoretical and operational definitions that measurements used to construct key covariates are based upon. That domestic terrorism data also were drawn from TWEED to cross validate findings helps as well. Small adjustments to measures can change results substantially. Despite differences, results were in general quite similar.[49]

What according to theory and research are perceived as central factors affecting government duration were included as controls. Data on control variables were gathered from sources built by experts. We should be cautious however about the controls. There probably exist other variables affecting government duration not yet identified by researchers. The latter are hard to deal with: if we don't know what these are we obviously cannot control for them. There could also be other interactions that were not accounted for. The author is nevertheless not aware of theories pointing to what they are. The choice of constraining the analysis to Western Europe should also increase our faith in the findings. This is supposed to function as a control scheme, making inferences between the various relevant covariates easier to draw.

The author believes as well that the choice of the statistical model was appropriate given the research question. Survival models are arguable optimally suited for handling these types of data and addressing this type of research question. It is the case however, that the assumption of proportional hazards coming with the Cox model seems a little unrealistic when it comes to government duration. Tests of it did however, surprisingly, not indicate serious violations.

6.3 External Validity

Can central theoretical expectations of the thesis be transferred to governments outside of Western Europe? Firstly, Williams, Kock & Smith (2012) did also include parliamentary regimes from outside Europe in their study. The countries they included were Japan, Canada, Australia and Israel. One of the empirical studies presented earlier also indicate that terrorism

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[49] That the results are similar for DTV and TWEED data is good news for domestic terrorism research. If terrorism is vague and hard to measure we would expect different coding and hence, datasets consisting different observations of domestic terrorist incidences. A consequence of switching from one source to another could then be very divergent results when conducting empirical analyses. Correlations between DTV and TWEED data (for those observations used here) show a coefficient of .860: not that far from perfect multicollinearity.

could affect government duration in Turkey. Kibris (2011) found that "that Turkish voters are highly sensitive to terrorism and that they blame the government for their losses" (p. 220).

Even though it might be challenging to run analyses like that of the thesis, on samples containing governments from countries not coming from Western Europe (because many are dissimilar), the same mechanism (terrorism-approval rating-decreased government duration) might be at work here as well, and latter studies could indicate they are. The question is whether institutions in parliamentary systems outside Western Europe create incentives for members of the coalition to opt out, parliamentarians to use their vote of no-confidence, and whether the sitting government and PM is held accountable by the public when faced with domestic terrorism. On paper these mechanisms should be in place in these systems as well.

The author uses the word "paper" because one must also be open for the possibility that other factors than institutions matter as well. The history, political culture and practices might be sufficiently different in some of these countries to make the mechanics of political systems different to the degree that main mechanisms postulated by theories of the thesis do not work, or work differently. It is not very easy to judge how general this theoretical framework is. It can be said however, that there are some studies indicating that it is possible. Further empirical tests and theoretical reasoning is therefore needed so to improve our knowledge.

6.4 Final Words: Suggestions for Future Research

Further empirical evidence was here found for the claim that terrorism reduces government duration.[50] A few studies are nevertheless not sufficient for establishing something of an approximate truth in the field of political science. Hence, more research is needed to increase faith in findings. The author proposes that it would be wise for future studies to focus upon the following problems: (1) replication of studies, as well as exploration of the question from new angles: (2) investigation of mechanisms by using quantitative and qualitative methods.

Replication, despite time consuming, is important. Even though this and previous studies find support for the decreased duration following terrorism hypothesis, confidence in the relationship must be increased further. Researchers should attempt to approach the question without preconceptions that it is true. Doing otherwise risks "data mining" research which can be inclined to confirm preconceptions. Hence, the question should also be examined from new angles: experimentation with different data, including new controls and interactions etc.

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[50] The author now uses the word terrorism, not domestic terrorism, because feeling more confident that the two can be treated similarly when the dependent variable is duration.

One of these angles towards the question, which is promising, would be to examine whether terrorism affect different types of government termination differently. As can be remembered, this study (and previous studies also), treats various types of government termination in the same manner: whether a government is replaced in an election, a party opt out, the PM resigns etc., are lumped together and given the same value. Researchers should therefore formulate theoretical arguments and derive hypotheses containing expectations that effects differ. Tools allowing researchers to test such hypotheses are already available. By censoring, event history models can be specified so as to conform to the competing risks approach proposed by Diermeier & Stevenson (1999), which seems being excellent for assessing such hypotheses.

Another thing that should be done (in the opinion of the author this is very important), is to question the fundamental assumption that the theoretical framework of this and previous studies are based upon: that terrorism affects government popularity. The terrorism-approval rating mechanism can be assessed by time series analysis. There is much research using time series to assess effects of variables on popularity ratings.[51] Such analyses could strengthen or weaken explanations. If terrorism is shown to decrease government popularity, explanations underlying the decreased duration hypothesis are strengthened; otherwise they are weakened.

Qualitative studies clearly also have important roles to play. By process tracing we can likely achieve a better understanding of events triggered by decreased/increased approval ratings (assuming the latter is true) following terrorism. Cases can be examined where there has been terrorist incidences followed by government terminations to see if processes postulated by theory actually occur. Researchers could examine the political discourse and statements of politicians in the aftermath of terrorist incidences to examine whether they raise criticisms or rally behind governments, whether or not the media put the government in a bad light and so on. This however, is work for future research that hopefully can help increase understandings of the empirical relationships between that of terrorism and government duration.

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[51] For a review of time series analyses investigating presidential approval see Gronke & Newman (2003). For explanations of time series models utilized on approval rating questions see Beck (1991).

Appendix

1. Not all governments in the period 1964-2005 are included. This is the case because it sometimes happen that governments begin office in some month in years previous to when this study starts, say 1960, 1961, etc. and ends its office at months in years after the starting point of the study. In other words some governments begin office in 1960, 1961, etc. and end office in 1965, 1966, etc. If this occurs, say that government X in country Z begins its office in 1963 and ends it in 1967 then government X is excluded from the study. The recording of government duration for country Z then begins at the month in the year which the new government replaces government X, in this hypothetical example some month *m* in the year 1967. Another solution to this would have been left truncation. It was not deemed necessary to add this complexity to the data. Very few governments are lost due to this procedure.

2. Since the study covers governments for the years 1964-2005 and DTV domestic terrorism data only stretches from 1965-2005 it means that there is no terrorism data for months in the year 1964. This not problematic however: only in three of the countries did recording of government duration start in the year 1964: Finland, Luxembourg and the UK. According to other sources Finland and Luxembourg did not experience any domestic terrorism in any month in 1964. The recording of government duration in the UK started in October 1964, meaning that DTV data only lacks for two months. The reason for starting the analysis in 1964 is due to synchronization between domestic terrorism and government duration data.

3. Table 1 do not reflect total number of killings in these countries for the period 1965-2005. It reflects the total number of killings that occurred during the lifetime of governments covered by the study for this time period. The reasons for the latter are twofold: (1) As discussed in point 1 of this appendix, the recording of government duration do for some countries begin at months in years later than that of the starting point of the study. The latter implies exclusion of those domestic terrorist killings occurring in countries at months in years before the recording of government duration for this country begins. (2) On some occasions it takes a month or more before a government that is terminated is replaced by a new one. If domestic terrorist killings occur during one of these months they are not recorded: they cannot be contributed to any government. The consequence is that data in the thesis contain 4,747 killings as opposed to 4,953 killings recorded in original data (when excluding Switzerland).

4. In this thesis it is theorized that killings in Northern Ireland affects government duration in the UK. There is some evidence about how fatalities during "The Troubles" affected British

public opinion. Hayes & McAllister (1996) find evidence in survey data that the majority of the British population favored British withdrawal from Northern Ireland while Dixon (2000, p. 109) claims that this can be explained by fatalities of professional British soldiers in Northern Ireland. This is not direct evidence. It still indicates how fatalities can affect public opinion issues that again could be hypothesised to affect the main through which the probability of government termination occurs: public opinion towards the government. There exists much evidence how fatalities of soldiers affects the approval rating of US Presidents (Mueller 1971, Gelpi, Feaver & Reifler 2006). Also, even though almost all killings recorded in Northern Ireland are not of British soldiers they can still be hypothesised to have the effect of putting the troubles on the agenda of the media and hence making other killings even more visible. This could signal to the British public that either their own government is incompetent (troops cannot stop domestic terrorist killings) or trigger some unifying response.

5. Regarding lagged effects, it must be noted that with some killings the effect is specified so as to exert itself in the same month as killings occurs. The reason is the following: in some instances killings occur in the same month - at some day before- that a government X1 is terminated. If these incidences had been lagged it would have had the consequence that effects of killings occurring under government X1 had been contributed to some other government X2 preceding it. It is not good theorizing to assume that killings occurring during government X1 are to affect government duration for the government preceding it. When this occurs the effect is specified to exert itself in that same month as when killings occur. Lastly, if killings occurred at both one month before and at the same month as when the government was replaced, killings occurring at month before the termination are lagged and added together with the killings occurring at the same month that the government was terminated.

6. Information on terminations due to constitutional requirements is gathered from the Comparative Parliamentary Democracy Data Archive (CPD). ERDDA data are merely an extension of CDP data. Even though there is not a 100% correspondence between them it should be a very close match. The main source of ERDDA data (for the 17 Western European Democracies) for the period 1945-1999 is CDP. Out of some strange reason however, the ERDDA dataset do not contain information on terminations due to constitutional requirements. Since CPD data only stretches up until the year 1999, this implies that terminations due to constitutional requirements occurring after the year 2000 are not included. This poses few, if any, problems due to the low likelihood that such terminations have occurred during this period of time.

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