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S.S.D: SPS/12 - Sociologia giuridica, della devianza e mutamento sociale; SPS/04 - Scienza politica; SECS-S/05 - Statistica sociale.

VIOLENT CULTURES AND LIMITED STATEHOOD: HOW TRENDS IN WARFARE AND TERRORISM INFLUENCE HOMICIDE TRENDS

Tesi di Dottorato di: **Alexander Kamprad**
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VIOLENT CULTURES AND LIMITED STATEHOOD: HOW TRENDS IN WARFARE AND TERRORISM INFLUENCE HOMICIDE TRENDS

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Abstract

Based on the cross-national analyses of the effects of collective violence (warfare and terrorism) on homicide rates, my Ph.D. research contributes to the opening of criminological homicide studies towards an integrated perspective on violence. The main original finding is that both terrorism and various forms of warfare (e.g. ethnic, civil and international wars) are robustly and positively associated with homicide. These findings are based on the calculation of a series of fixed-effects models on a panel that incorporates more than 100 countries over more than 20 years since 1990. The results lend tentative support to the so-called 'legitimation of violence' and 'legitimation-habituation' hypotheses that have been formulated in regard to the cross-national effects of nation-wars on homicide rates, and to the effects of terror attacks and prolonged states of belligerence on homicide rates in Israel, respectively. Both hypotheses suggest that collective violence bears a positive causal effect on homicide, but the topic has been largely neglected in criminological research since the original formulation of the hypotheses more than 30 years ago. This study concludes that a causal influence of collective violence on homicide is likely, but cannot conclusively be proven within the confines of a cross-national research design. From a theoretical perspective, relevant criminological frameworks should be enriched with two distinct concepts from political science which allow to situate the hypotheses within a larger framework of 'culture of violence' and 'governance in areas of limited statehood'.

Riassunto

Sulla base delle analisi transnazionali degli effetti della violenza collettiva (guerra e terrorismo) sui tassi di omicidi, la mia ricerca di dottorato contribuisce all' apertura di studi criminologici sull' omicidio verso una prospettiva integrata sulla violenza. La principale scoperta originale è che sia il terrorismo che le varie forme di guerra (ad esempio guerre etniche, civili e internazionali) sono associate in modo forte e positivo all' omicidio. Queste conclusioni si basano sul calcolo di una serie di modelli ad effetti fissi su un panel che comprende più di 100 paesi in oltre 20 anni dal 1990. I risultati danno un sostegno provvisorio alle ipotesi di "legittimazione della violenza" e "legittimazione-abituazione" formulate per quanto riguarda gli effetti transnazionali delle guerre nazionali sui tassi di omicidi, e gli effetti degli attentati terroristici e dei prolungati stati di belligeranza sui tassi di omicidi in Israele, rispettivamente. Entrambe le ipotesi suggeriscono che la violenza collettiva abbia un effetto causale positivo sull' omicidio, ma il tema è stato ampiamente trascurato nella ricerca criminologica fin dalla formulazione originale delle ipotesi più di 30 anni fa. Questo studio conclude che l'influenza causale della violenza collettiva sull'omicidio è probabile, ma non può essere dimostrata in modo definitivo entro i confini di un disegno di ricerca transnazionale. Da un punto di vista teorico, i quadri criminologici rilevanti dovrebbero essere arricchiti da due concetti distinti della scienza politica che permettono di collocare le ipotesi in un quadro più ampio di "cultura della violenza" e di "governance in aree di limitata statualità".

Acknowledgements

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List of Acronyms

ANC	African National Congress
CSP	Center for Systemic Peace
ETA	Euskadi Ta Askatasuna
EU	European Union
FDN	Fuerza Democrática Nicaragüense
FMLN	Frente Farabundo Martí para la Liberación Nacional
FPR	Front patriotique rwandais
FRUD	Front for the Restoration of Unity and Democracy
FSLN	Frente Sandinista de Liberación Nacional
GAM	General Aggression Model
GDP	Gross Domestic Product
GTD	Global Terrorism Database
ICD	International Classification of Diseases
IFP	Inkatha Freedom Party
INSCR	Integrated Network for Societal Conflict Research
IR	International Relations
IRA	Irish Republican Army
MEPV	Major Episodes of Political Violence
MKO	Mujahedin-e Khalq Organization
NATO	North Atlantic Treaty Organization
NPA	New People's Army
OC	Organized Crime
OECD	Organization for Economic Cooperation and Development
OLS	Ordinary Least Squares
OSCE	Organization for Security and Cooperation in Europe
PRIO	Peace Research Institute Oslo
SE	Standard Error
START	National Consortium for the Study of Terrorism and Responses to Terrorism
UMD	University of Maryland
UN	United Nations
UN DESA	United Nations Department of Economic and Social Affairs
UNHCR	United Nations High Commissioner for Human Rights
UNODC	United Nations Office on Drugs and Crime
WDI	World Development Indicators
WHO	World Health Organization

*"Oh dear, I never realized what a terrible lot
of explaining one has to do in a murder!"*
Agatha Christie, Spider's Web (by character Clarissa Hailsham-Brown) (1954)

Introduction

Nearly half a million people fell victim to homicide in 2012, accounting for a rate of 6.2 per 100.000.[1] As compared to industrialized parts of the world, many transitional and developing countries experience severely elevated rates. Homicide in those countries often relates to varying forms of collective violence. This marks an important difference from regions with comparatively low homicide rates. Latin America is the region most affected by homicide, followed by Africa. Central America and Southern Africa are the most affected sub-regions. National rates reach up to 90,4 (Honduras, highest in the world). Rates above 20 are thereby classified as "high" (UNODC 2013, 12).

Many countries look at staggering scenarios of violence and insecurity that are driven by a complex interplay of interpersonal violence, warfare, organized crime/terrorism and security interventions. In regard to rising homicide rates in Northern Africa, Southern Asia and Eastern Africa, for example, the global homicide study notes that they are most likely "a result of political violence which may in turn foster lethal violence related to criminal activities" (ibid., 13). In policy documents, but also in the scientific literature, such statements on links between different forms of violence are frequently made. However, little empirical knowledge is available as to whether this link does indeed exist, and if so, how strong it is.

A variety of countries give good examples of settings where crime and conflict are hard to distinguish. On a global scale, this is by no means an exceptional phenomenon. It poses a severe challenge, however, firstly to the people affected by violence and secondly to policy makers and researchers alike. International organizations increasingly point to the link between insecurity and socioeconomic development (ibid., 25). Widespread crime and criminal violence, as compared to traditional concepts of conflict, are thereby more and more recognized

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[1] Unless declared otherwise, numbers here and hereafter are from UNODC's Global Study on Homicide 2013

as highly destabilizing factors. This regards the role of crime during conflict, crime as conflict and the significant harm crime produces without being labeled as conflict.[2]

From a researcher's point of view, several aspects of this are challenging. As a rather practical problem, widespread impunity and lack of professional policing have resulted in generally distorted official accounts and statistics, even more so during times of conflict. This complicates empirical research in the field. Equally challenging, however, is that the ambiguity of crime and conflict in transitional and devlopmental contexts bears a conceptual and disciplinary problem. Traditionally, criminology deals with the study of "normal" crime. For a long time, also international criminology has only been international in the sense that it compared "normal" crime between countries. This links to a discursive divide that is somewhat constitutive to criminology, namely between internal security on one side and external and national security on the other.[3]

From a Durkheimian perspective, crime is "normal" and as such poses no threat to the state (see Durkheim 2013, 97 ff.; also see Dentler and Erikson 1959; Borch 2014, 48).[4] On the contrary, while crime needs to be managed, it may also be productive in contributing to processes that foster societal advancement. An enemy of the state, on the other hand, triggers the notion of a breakdown of public order (see Vittinghoff 1936).[5] He makes for a conflict party that puts the very existence of the state in jeopardy. This is not "normal" but "exceptional" and comes with a distinct legal order: the state of exception (Cf. Huysmans 2008; Aradau and Munster 2009). Hence, the heavier the crime or the more external its roots, the more it becomes a matter of national security in discursive terms.

This certainly holds true for terrorism. It was not until the attacks of September 11th that criminology caught on widely to the subject. Prior to that, domestic terrorism was almost exclusively a matter of political science, and international terrorism a matter of international relations and security studies (See Rosenfeld 2004; Hamm 2007). This was even more so the

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[2] The significant reduction of "all forms of violence and related death rates everywhere" has meanwhile made it to the UN's sustainable development goals (SDG 16) -- https://www.un.org/sustainabledevelopment/peace-justice/, accessed 23/11/2016

[3] On the blurring of the divide see Bigo (2001)

[4] While Durkheim emphasized the 'societal' normality of crime, Borch points to the "shift away from homo criminalis" related to the emergence of Rational Choice Criminology in the 1970s, esp. Gary Becker's work (G. S. Becker 1968). Also see Hulsman (1986) on the normality of crime.

[5] Vittinghoff describes the historical origins of the 'enemy of the state' by example of demnatio memoriae in Ancient Rome – in German)

case for warfare which is a traditional domain of international relations. With the increasing development of an international criminal law since the 1990s, however, matters of warfare have also evolved as a criminological topic.

In any case, both terrorism and warfare are rather still at the sidelines of the criminological discourse. Organized crime, to the contrary, is a more traditional field of criminology. The criminological focus in studying organized crime, however, has rarely been on violence. For many years, organized crime was partly negated and partly considered as "normal", especially in the form of white-collar crime and gangs.[6] Where crime escalated to a degree as to threatening the state with wide-spread violence, it grew out of reach of mainstream criminology to turn into a subject for legal studies and sociology (Osorio 2012, 3).[7] Correspondingly, when looking into the legal history of some jurisdictions (e.g. Germany and Austria), it becomes apparent that offenses relating to organized crime descend from crimes of association that were introduced in the 19th century. They did not criminalize criminal organizations in a narrow sense but secret associations that were considered threatening to the state for being "subversive". Provisions on both, terrorism and organized crime, developed out of such crimes of association. Eventually, the "discovery" of organized crime as a transnational security threat, with the milestone of the adoption of the UN Convention on Transnational Organized Crime (2000), reinforced criminological interest on the subject. It also put organized crime on the agenda of IR/Security Studies which yielded somewhat contested concepts such as narcoterrorism and criminal insurgency—or more generally the crime-terror continuum (Makarenko 2004; Makarenko 2012).[8]

The confrontation of the aforementioned discursive divide between internal and external security on one hand, and the ambiguity of crime and conflict in transitional and developing contexts on the other, has thus produced loose ends. These are especially apparent when turning to the comparative analysis of levels and patterns of homicide in different world regions. While homicide rates are highest in Latin American and African countries, the criminological study of homicide has largely concentrated on Western countries in the past. Similarly, violence in developing countries has caught the interest of political and security scientists. In the tradition

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[6] This relates to the Chicago School of Criminology, esp. Sutherland (1940) on white collar crime and A. K. Cohen (1956) on gangs.

[7] "Research on organized crime offers limited explanations to understanding large-scale organized crime violence as it considers overt criminal violence as an empirical anomaly"

[8] Meanwhile the crime-terror continuum appears to have devolved into merely a "nexus"

of international relations, however, the focus is mostly on large-scale violence while everyday violence is typically disregarded. This has led to a scattered theoretical framework. As for the criminological study of homicide, it falls short in explaining homicide where it occurs the most. And as for collective violence, it disregards a significant portion of violence that may appear to be "general" but shows more intensity than many officially declared conflicts.

A key aspect in filling this conceptual gap may be to explore the aforementioned loose ends and to further contribute to the opening of criminological thought to transitional and developing contexts. This means to aim for an integrated theoretical framework that goes beyond traditional criminological research interests—an on-going process which relates to international political processes and has been termed "Blue Criminology" (Redo 2012).[9] Besides a strong stream of neo-conservative thinking in international relations, it is noteworthy that such an approach necessarily addresses questions that—far under the radar of policy relevance—were previously covered by somewhat marginalized streams in criminology, i.e. critical, radical or post-colonial criminology. And linking back to Blue Criminology, it touches upon fundamental questions of development, (security) governance and the rule of law that are dealt with in political science.[10]

As for the study of homicide, a contribution can be made by trying to bridge the conceptual gap between homicide and conflict-related killings, or rather violence in interpersonal versus violence in collective settings. This research attempts to do so by examining the links between homicide trends and different forms of collective violence, i.e. warfare and terrorism. How have homicide, warfare and terrorism trends developed over the past decades? Are these trends linked, and if so: How strong is this link, and how can it be explained—Are warfare and terrorism criminogenic? Major attention in addressing these questions shall be given to the implications that findings may bear on the clustering of violence in certain developing countries and world regions. The aim is not to add further to the conceptual blurring of crime and conflict. To the contrary, the main added value that criminology may offer as an essentially interdisciplinary science is to incorporate perspectives on violence from various disciplines— and strive for new approaches to the study of criminal violence that better capture the

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[9] Redo coined the term in relation to the idea that over the past century the UN has [successfully] pushed for the world to counter crime globally

[10] To be complete, also psychology and non-criminological sociology of violence shall be mentioned.

differences between the industrialized world and many areas in transitional and developing countries.

This dissertation attempts to do so by providing an empirical analysis of the effects that terrorism and warfare may have on homicide rates. First, the theoretical background and the research questions are outlined in chapters I and II. Chapter III presents the hypotheses and describes the methods applied in this study, namely econometric panel analysis. Data has been drawn from a variety of sources, including the Global Terrorism Database (counts of terror attacks and victims), the Center for Systemic Peace (warfare and major violence magnitude scores), as well as Clio Infra, the WHO, and UNODC (homicide rates). The results from the analyses are presented in chapter IV to VI. Each chapter deals with a specific aspect that is relevant to the dissertation. This includes the development of homicide rates over the past decades and the influence that socioeconomic variables have on homicide trends (Chapter IV); terrorism trends during the past decades, and the effect that terror attacks have on homicide rates (Chapter V); and an overview of warfare and major violence other than warfare during the past decades, and how warfare affects homicide trends (Chapter VI).

The main findings from the dissertation lend support to a positive link between terrorism, warfare, and homicide rates. These findings are discussed in light of their theoretical implications and their policy relevance in Chapter VII.

CHAPTER I.   Theoretical background

CHAPTER I provides theoretical background from criminology and several of its neighboring disciplines for the subject matter of this dissertation (a presumed link between collective and interpersonal violence). Organized in several subchapters, the main theme of this chapter is to explore why research on violence is dispersed over various disciplines, and how this has affected the criminological research agenda. With a view to an integrative framework on violence, theories and findings from criminology, psychology, political science, and peace and conflicts studies are discussed.

I.1.   Definitions of crime and criminology

As described in the introduction, the ambiguity of crime and conflict in transitional and developing contexts bears a conceptual and disciplinary challenge. A good part of this challenge links to the very definitions of crime in criminology and how these definitions have shaped the criminological research agenda.

Sutherland defined criminology as the "body of knowledge regarding crime and delinquency as social phenomena." Within its scope are included "the processes of making laws, breaking laws, and reacting to the breaking of laws" (Sutherland, Cressey, and Luckenbill 1992, 3). Following Sutherland's definition of criminology, any definition of crime depends on the making of laws and thus the existence of a state as a central authority which defines crime by law. This motif has been present since the very beginnings of criminology. Beccaria (2009, 3), widely regarded as the founding father of criminology, defines law as the "conditions under which men, naturally independent, united themselves in society". Punishment thereby originates as a reaction to the breaking of law. The right to punish is vested in the sovereign, "founded upon the necessity of defending the public liberty […] from the usurpation of individuals".

Varying definitions of crime

Henry and Lanier (1998, 611) identify six traditions in defining crime: legal, moral consensus, rule-relativism, political conflict, power and social harm. Beccaria's understanding can be subsumed under a legal definition. Also Sutherland's definition resorts to law as the cardinal point in defining the scope of criminology. Processes of making laws, however, and reacting

to the breaking of laws, leave room to address questions beyond legal definitions of crime. This may be the case, for example, when comparing differences in legally defined crimes between jurisdictions, or when asking why certain harmful behavior may generally not be deemed criminal, hence never made it through the process of lawmaking.

A natural dimension is added to the legal definition by the moral consensus tradition which is generally considered to be universally applicable. While laws may vary between countries, certain acts are universally considered to be crimes. Henry and Lanier (1998, 612) attribute this to "a shared vision of the seriousness of some acts, regardless of whether these have been defined as crimes in law".

Rule-relativist, conflict, power and social harm approaches share the core idea that "what is defined as crime in law is historically, temporarily and culturally relative" (Henry and Lanier 1998, 612). Conflict theorists, for example, see this relativity as an expression of power discourses. Contemporary definitions of crime are thereby to be understood as the outcome of state capture by privileged groups.

As Henry and Lanier (1998, 612) point out, social harm has evolved as the main theme in critical criminology to expand legal definitions of crime. Recalling Sutherland's processes of lawmaking and reacting to the breaking of laws, social harm can be thought of as a projection plane on which the relationship between power discourses on the one hand and legal definitions and selective law enforcement on the other become visible. Defining crime based on social harm thus helps to expose "the ways in which law conceals serious harmful behavior, either by constructing less serious administrative categories, as first revealed by Sutherland (1949)—or by excluding certain harms from the criminal realm, e.g. imperialism, racism, sexism, poverty, and other denials of human rights" (Henry and Lanier 1998, 612).

Henry and Lanier (1998, 609) concede that the above described traditions in defining crime (and criminology) each have their merit, but point to a lack of an integrated definition of crime. They identify only three attempts to provide a holistic definition of crime: Hagan's pyramid of crime, the left-realists' square of crime, and the constitutive approach to crime. Henry and Lanier (1998) deem these integrative attempts to be insufficient, however, and offer their prism of crime—an extended version of Hagan's pyramid—as a remedy. Without going too much into detail, it can be said that this attempt seeks to reconcile legal definitions of crimes with the hidden crimes of the powerful.

Criminology, war, and genocide

As it appears, the strive for an integrated definition of crime has resulted in the creation of increasingly complex geometrical figures. This can be understood as a sign of complexity of the matter (ibid., 623). Ironically, while theoretical attempts in criminology at finding an integrative definition of crime appear to keep fighting with the same intricacies as before (see e.g. Brisman 2016), this debate has been somewhat outpaced by changes in legal definitions that have occurred over the past decades, and that have increasingly been discussed outside of critical criminology.

The main "critical" critique of prevailing legal definitions of crime has mostly been their blindness towards a set of harms that are thought to be constitutive to contemporary configurations of power. As mentioned above, these include, for example "imperialism, racism, sexism, poverty, and other denials of human rights" (Henry and Lanier 1998, 612). Looking at the ways in which criminal law has evolved over the past decades, it becomes apparent that reactions to many of these harms have meanwhile been codified into criminal law—or, to the extent that they were caused by law, abolished or diminished. This trend may not have been universal, but it surely regards large parts of the Western world. As for racism and sexism, for example, one may think of changes in the legislation regarding "hate crimes" and "sex crimes". In a sense, similar changes have happened to "imperialism", or at least warfare as a main instrument of traditional imperialism. Ruggiero (2005, 239) goes as far as to say that "a sociological-criminological analysis of war may today lead to its unconditional criminalization." This points to an extended criminological definition of crime. However, also when examining the legal sphere, it becomes evident that wars are subject to a legal framework that increasingly incorporates aspects of criminalization.

International laws of war have evolved since the 19th century. Especially the Hague and the Geneva conventions ought to be mentioned in this regard. Based on these international covenants, a limited number of cases were tried after the First World War in the Leipzig Trials. Though forced by the victorious factions, these trials took place under German jurisdiction and resulted in only mild convictions of a few low- and mid-level officers. This changed in the aftermaths of the Second World War when criminal liability for specific crimes of or during wars was established in the form of the Nuremberg principles. According to these principles, those who commit crimes against peace, war crimes, and crimes against humanity are individually punishable by international law, regardless of whether their acts constitute crimes

in their own jurisdictions (Komarow 1980). The Nuremberg trials strongly shaped the supranational criminal jurisdiction that was later established by the Rome Statute. Crimes triable at the International Criminal Court are genocide, crimes against humanity, war crimes, and crimes of aggression.

Within criminology, such crimes have been termed differently. Jäger (1988), for example, spoke of macro criminality which applies mostly to different forms of war-related crimes and extreme atrocities such as genocide. The subject, like other "crimes of the powerful" (Pearce 1976), evolved from different disciplines including critical criminology and wider circles of socio-legal debate but never really reached the criminological mainstream (Smeulers and Haveman 2008, 7:4). Considering the disciplinary boundaries of criminology, this may be rather understandable as far as traditional warfare is regarded. Genocide, on the other hand, has been infamously termed "the crime of crimes" (Schabas 2000). Yet Laufer (1999, 71) wondered why criminology had neglected any consideration thereof and spoke of the forgotten criminology of genocide. Offering an explanation for the absence of criminological theories of genocide, he points to the "common place argument" that genocide, as "a political act reflecting the will of sovereignty" (much like war), falls well outside the boundary of criminology (ibid., 73).

Pointing to a striking resemblance between theories of genocide and core concepts of criminology, Day and Vandiver (2000, 43) claimed that "criminology, by largely ignoring the crime of genocide, has missed opportunities to both contribute to the field of genocide studies and to improve the specification of its own ideas". The subtitle of their study was somewhat programmatic: "Notes on what might have been and what still could be". Criminological studies and conceptual advancements on genocide have since been published (Hagan, Rymond-Richmond, and Parker 2005; Matsueda 2009), and also a new criminology of war has evolved. According to Ruggiero (2005, 248), this new criminology deals with "war as criminogenic" as well as with war crimes—or rather "crimes in war" and state crimes that take the form of war crimes. As far as war crimes are regarded, Smeulers and Haveman (2008), for example, have called for the formation of a supranational criminology.

Macro-crimes

Concerning crimes of the powerful (Pearce 1976) other than war crimes, a wider criminological debate has spun over the term state crime. This includes, but is not limited to violent crimes. On violent state crimes, Kramer (1994, 171) noted that whilst discussing the theme "Violent

Crime and Its Victims" at the American Society of Criminology's annual meeting in 1993, "yet amidst the hundreds of papers it [the meeting] produced, only a handful addressed state violence and its countless victims". He argues that "despite its neglect by the mainstream, state violence is an important criminological concern that is essential to any meaningful discussion of crime control" (ibid.). In a similar vein, Rothe and Friedrichs (2006, 147) state that despite the increasing transnational scope of criminology, governmental crimes receive significantly less attention than, for example, terrorism and organized crime, and also less attention than transnational policing and development-related issues of 'ordinary' crime.

Going beyond violent crime in a narrow sense, the concept of state crime was expanded and paired with an integrated concept of "state-corporate crimes" (Kramer, Michalowski, and Kauzlarich 2002). The origin of this concept, however, links to the debate on white-collar and corporate crimes rather than state crimes. The state component refers to organizational crimes committed by or within state-corporate structures rather than violent crimes committed by states or state officials. Sutherland's (1940) work on white-collar crime paved the way for this debate which was later taken up by critical criminologist (e.g. Pearce 1976). Lynch, McGurrin, and Fenwick (2004, 389), however, argue that white-collar criminology has become somewhat of a "disappearing act" in that it is "commonplace for most criminologists to assume that corporate and white-collar crime received adequate attention" in the past. One could argue that this has changed over the past years. Indeed, there has been a marked increase in criminological literature on white-collar crimes which was boosted, for example, by the introduction of corruption and money-laundering to the circle of transnational security threats.[11]

International, transnational, and global criminology

The identification of transnational security threats, and their resumption into the criminological research agenda, is not limited to the topic of corruption, but needs to be interpreted as part of a broader process. Recognizing the "crimes of the powerful" is probably the most programmatic aspect of critical criminology, but is increasingly reaching the criminological mainstream. This relates to both economic crimes and violent crimes. Phenomena of interest are thereby shared between international relations and criminology. Discussing a transnational outlook for comparative criminology, Sheptycki and Wardak (2012) referred to a catalogue of

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[11] See e.g. UNODC's Action against Corruption and Economic Crime;
https://www.unodc.org/unodc/en/corruption/, accessed on 12/08/2016

new categories of transnational crime which has been created through the adoption of many international conventions—in addition to drug trafficking as previously "practically the only criminological topic that was explicitly transnational in focus" (ibid., 12). Bowling (2011, 1) describes transnational criminology as "a rapidly developing field that sets out specifically to understand crime and justice beyond national boundaries". While comparative criminology seeks to provide "a remedy for theoretical short-sightedness" by comparing and contrasting experiences from different parts of the world, as Bowling puts it, transnational criminology is concerned with the analysis of linkages between places. Both comparative and transnational criminology converge under the purpose of global criminology: "to bring together transnational and comparative research from all regions of the world to build a globally inclusive and cosmopolitan discipline" (ibid.; cf. Smandych and Larsen 2007; Friedrichs 2007).

Notwithstanding their interest in linkages between places, critical criminological contributions may be attributed to global rather than transnational criminology. Aradau and Munster (2009, 967), for example, point out that international relations and criminology share a wide array of vocabulary, but complain that theoretical concepts have been less mobile. What distinguishes contemporary contributions in mainstream and critical criminology in the field of global criminology may be less a matter of subject but of self-perception. Sutherland already complained that many criminologists have turned from a "research-oriented, knowledge-building enterprise" to a "crime-fighting enterprise which attempts to 'do something' about crime" (Sutherland, Cressey, and Luckenbill 1992, 20). Similarly, when it comes to transnational security threats, mainstream criminologists may be more concerned with measurement and dissemination of their findings within the emerging field of "transnational" or "global security governance" (cf. Johnston 2006; Kirchner and Sperling 2007). Critical criminologists, in contrast, framed their distress with global security governance into exceptionalist theories about the merger of crime fighting and warfare, in particular under the paradigm of the 'war against terror' (cf. Aradau and Munster 2009).

As far as exceptionalist policies are concerned, Aradau and Munster (2009) put forward Carl Schmitt's (2008) theory of exception which has been widely debated in international relations. They contend that contemporary themes in criminology, i.e. "the deployment of risk management in the late modern governance of crime and danger can be reformulated from this perspective" (Aradau and Munster 2009, 687). It shall suffice to say that Schmitt's accounts of politics and the exception of war have little to do with traditional concepts of crime. But according to Aradau and Munster, they become meaningful for criminology at the point where

domestic and international security concerns merge. As Bigo puts it, "the distinction between the spheres of police and army is apparently being challenged by, it is said, the existence of transversal threats, by the end of bipolar relations, by the existence of transnational phenomena, and by globalization." This process, by which internal and external threats are blended, ultimately leads to the adoption of concepts of war within the field of crime fighting, but also a logic of policing within warfare. Aradau and Munster (2009, 698) exemplify this on the war on terror. It is here where Schmitt's theory becomes applicable in that "the exception has trickled down to the more mundane technologies and strategies analyzed by criminology scholars" (ibid.).

I.2.   Criminology of homicide and violence

While the future demarcations of global and transnational criminology remain to be determined, the origins of comparative criminology date back to the 19th century and link to the study of homicide. Homicide research originated from the investigation of differences in crime rates in Europe by "pioneers such as Guerry (1833), Fletcher (1849), and Quetelet (1847)" (McCall et al. 2012, 137). The explanation of differential patterns of homicide among geographical entities/populations has been a main matter of concern since early on.

The study of homicide thus has a long tradition, but has played only a minor role in criminological theory. In an attempt to create and test general criminological theory, murder was studied as a general indicator of crime, but rarely to develop homicide-specific theories. This is because all main criminological theories consider factors leading to violent crimes to be no different from factors leading to crime in general (Mcgloin et al. 2011, 768). The matter also touches upon fundamental ideas about crime that date back to the positivist school of criminology in the 19th century. Garofalo (1885) defined certain crimes, among them murder, to be "natural". As *mala in se*, 'evils' in themselves, they "are almost universally accepted to be crimes in civilizations of equal or approximately equal development" (Ferrari 1920, 308). And indeed, in being regarded as universal and not created by statute, they make for an ideal means of comparison between different countries and legal traditions.

Theories on homicide

A notable exception in representing a dedicated theory of criminal homicide and violence is Wolfgang's subculture of violence (Wolfgang, Ferracuti, and Mannheim 1967). Wolfgang tried

to explain elevated homicide rates among African Americans by drawing on subcultural theory (Cohen 1956). Wolfgang's work has since played an important role in shaping an integrated agenda for the study of homicides (Block and Block 1991). Apart from the subcultural approach which has not continued to be very prominent among homicide researchers (Albrecht 2003, 620), a variety of other criminological explanations for the differential occurrence of homicides have been used.

Since the mid-1990s, homicide rates in the Western world have generally declined (cf. Marshall and Summers 2012). Linking to long-term decreases in violence, this decline has been attributed to an ongoing civilizing process (as suggested by Norbert (Elias 1982)]—cf. Spierenburg, 2012, p. 35; also see Pinker, 2011). Apart from this, criminological explanations of homicide are typically characterized by a specific set of social structural perspectives, with national or local entities as the units of analysis (cf. Nivette 2011; Kivivuori, Savolainen, and Danielsson 2012). Many studies, for example, dealt with the effects of poverty on homicide (cf. Bailey 1984), either in absolute or relative terms (cf. Messner 1982, 1983), and can be attributed to strain and anomie theory. Also the institutional anomie theory has been applied to homicide and violent crimes (cf. Savolainen 2000; Messner, Thome, and Rosenfeld 2008). Other commonly adopted concepts in cross-national homicide research address, for example, the link between homicide and urbanism, the population structure, or the social and cultural heterogeneity of the countries concerned (Trent and Pridemore 2012). Usually focusing on subnational units of analysis, any of these aspects are also relevant in regard to social disorganization theory that has emerged from the Chicago school to explain elevated crime rates in specific urban neighborhoods that exhibit, for example, population heterogeneity, poverty, and residential instability (Kivivuori, Savolainen, and Danielsson 2012, 98). Social disorganization theory has also been applied to cross-national research (Nivette 2011, 104), most frequently to "to lesser-developed countries experiencing rapid social change" (Fiala and LaFree 1988).

Challenges in homicide studies

Despite the ample pool of criminological theories that have been applied to the study of homicide, Trent and Pridemore (2012, p. 133) conclude based on an extensive review of empirical literature on cross-national homicide that "studies largely fail to lead to any definite generalizations on the strength of key theoretical perspectives or even individual variables"— apart from an already well-established link between economic inequality and homicide.

Exacerbated by the use of "questionable measures meant to represent key theoretical constructs", Trent and Pridemore (ibid.) identify "the lack of consistency in the operationalization of key theoretical constructs" as a serious limitation of contemporary cross-national homicide research. As Dicristina (2004) exemplified on the example of "Durkheim's theory of the relationship between societal development and homicide", this inconsistency may be embedded in a general confusion about key theoretical concepts of homicide. Dicristina identified serious misrepresentations and distortion of Durkheim's theory in the empirical literature.

<div align="center">Global homicide studies?</div>

As has been discussed, following the tradition of the Durkheimian-modernization perspective, research homicide is mostly concerned with structural covariates at the population level (Nivette 2011, 104). The vast majority of studies in the field are being carried out in the United States (McCall et al. 2012, 137). Apart from the beginnings of modern criminology in the 19th century in Europe, studies on homicide have not developed an equally strong tradition in other parts of the world. Nevertheless, as Nivette (2011, 104) points out, cross-national research on the matter has increased significantly over the past years. An integrated European approach has taken shape more clearly. Liem and Pridemore (2011), for example, presented a comprehensive "Handbook of European Homicide Research". Also the UNODC's global homicide reports need to be mentioned here (since 2013).

Until today, the growing international interest in the field has not yet led to major theoretical advances nor to a significant broadening of the traditional scope of homicide studies (Trent and Pridemore 2012, 133). Even though all criminological theory ultimately originated in Europe, contemporary criminological research is strongly influenced by a North American research agenda. This can be attributed to the traditional dominance of American criminology which developed at the beginning of the 20th century (Kivivuori, Savolainen, and Danielsson 2012, 106). Indeed, nowadays North American criminology is known to have a strong influence on European criminology (Haen-Marshall 2001) and Western criminology in turn has a strong influence on what may be termed international criminology. As with criminology in general, this is also obvious when referring to the specific field of homicide studies. Because they differ from the described ideal of "global criminology" (Bowling 2011, 1), models created in Western contexts are at a disadvantage in that they potentially fall short in addressing homicides where they occur the most, namely in Latin American and African countries. But as discussed, also

as far the explanation of homicide in Western contexts is regarded, many questions remain unanswered (Trent and Pridemore 2012).

From a global perspective, UNODC's studies on homicide have established a strong link between development and criminal violence. With a view to the UN's post-2015 development agenda, for example it is stated that "the connection between violence, security and development, within the broader context of the rule of law, is an important factor to be considered" (UNODC 2013, 11). Apart from that, the UNODC report makes strong reference to OC and gang violence as main drivers of homicide rates (ibid., 42). Also, the ambiguous nature of conflict (ibid., 77) and situational factors such as the availability of guns are mentioned (ibid., 78). These are important descriptions of pressing social problems that point to the need for a refined approach in studying and dealing with those problems, both policy- and research-wise. For the moment, however, answers from criminology remain arguably vague. Aside from the severe problems in obtaining reliable data, the actual challenge in dealing with homicides in African and Latin American countries may be the need to move towards a more refined model that disintegrates 'poverty' into a set of transitional and developing factors. Apart from poverty in absolute and relative terms among victims and perpetrators, these factors are in fact governance dysfunctions that do not only regard the legitimacy of societal and state reactions in addressing crime (cf. Nivette 2013; Agbiboa 2013; Sabet 2013), but in many cases the absence of governance in a modern sense. Such an approach does not imply the abandonment of established frameworks in studying homicide, i.e. the Durkheimian-modernization perspective. However, it may be beneficial, to broaden the scope of the analysis to phenomena of violence other than homicide in narrow sense.

The absence of modern statehood in many developing countries links to the existence of alternate governance modes in "areas of limited statehood" (Risse 2013)—and also in many cases to forms of collective violence and conflict. Over the past decades, it has not been of major concern to criminology how deeply conflict may influence crime (cf. Redo 2012, 55). The topic has actually been largely neglected. There is, however, an abated stream in criminology that at the time dealt with the effects of nation-wars on crime (D. Archer and Gartner 1976). As discussed, this topic is now re-emerging through links to various development discourses, i.e. crime and development, transnational crime, and war crimes. So far, however, findings such as presented in UNODC's Global Homicide reports have neither established nor prominently addressed a link between homicide and conflict—nor addressed

the theoretical implications surrounding the difficulty of distinguishing warfare, political violence, and other forms of collective violence in various parts of the world.

I.3. Criminology and terrorism

The majority of victims of violence are killed in interpersonal and criminal settings, not by terrorism (or war) (cf. WHO 2010, 4). However, terrorism is a heavily political issue, owing to its high visibility and the intentional targeting of the political and socioeconomic order of societies. Possibly because the discussion is situated outside the traditional scope of criminology, criminological contributions on terrorism remain relatively limited and vague. Traditionally, criminology has had little to say about terrorism, but criminological interest in the topic has grown significantly after September 11th (cf. Mythen and Walklate 2006; LaFree, Dugan, and Miller 2014, 1). As Rosenfeld pointed out in 2004, there is no criminological theory of terrorism—apart from "Black's [2004] explanation of terrorism as a form of self-help" (Rosenfeld 2004, 19). Other applications of criminological theories to terrorism, e.g strain (Agnew 2010) and social disorganization (Akyuz and Armstrong 2011; Fahey and LaFree 2015), have since been presented. Analytical efforts are not limited to macro-level approaches, however, but include, for example, demographic explanations (gender and age, employment and education, marital status and parenthood, and military service) as well as rational choice models, socialization and group-level dynamics that may lead to the decision to engage in terrorism (radicalization of terrorists, recruitment into terrorist groups) (LaFree and Ackerman 2009). Mirroring the discussion on desistance from crime, also the question of how terrorism ends has been addressed (LaFree and Miller 2008).

It is contestable, to which degree factors that influence homicide are equally decisive in explaining terror attacks. For example, concerning economic factors, enough evidence has accumulated according to Krueger and Malečková (2003, 142) to conclude that terrorism and political violence are "apparently unrelated, or even positively related to individuals' income and education". Caruso and Schneider (2011, 548), on the other hand, find that the "classical economic argument of opportunity cost can be confirmed; i.e. the larger the set of economic opportunities for an individual, the lower the likelihood or the willingness for her/him to be involved in terrorist activities."

Criminological research on terrorism is now evolving rather rapidly (Freilich and LaFree 2015; LaFree and Freilich 2016). However, not long ago, LaFree (2009, 441) referred to the lack of

empirically-based criminological research on terrorism as a troubling irony. This is somewhat changing now, as criminology may be preparing to engage in its third war (after crime and drugs), as the author puts it (ibid.). But as measured by the need for an integrated and comprehensive understanding of violence, the current state of criminological research on terrorism still exhibits important theoretical gaps. Among other things, these regard the demarcations of different categories of violence, i.e. individual and collective—but also the question of how the categories link to each other, and which role terrorism may play in this. Precisely in order to address the aforementioned aspects, a special issue of the Homicide Studies journal is currently under way ("The Intersection between Homicide, Terrorism and Violent Extremism") and scheduled for publication in February 2018.[12]

I.4.   Violence in psychology and public health

Definitions of violence depend heavily on the context in which they are studied. Criminology is mostly concerned with criminal violence between individuals while international relations are mostly concerned with collective violence. As previously discussed, this disciplinary divide limits the scope when it comes to the study of homicide outside the Western world.

A more integrative approach arises from violence as a subject of public health (cf. Rosenberg, O'Carroll, and Powell 1992). This links to research on violence in behavioral studies which can be attributed to psychology. In its global status report on violence prevention, the WHO defines violence as "the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation" (WHO 2014, 84). The definition was elaborated by a WHO working group in 1996 (Krug et al. 2002, 1084), the same year in which the World Health Assembly declared that violence is a leading and global problem of public health.[13] Besides outlining violence as a matter of public health, the definition provided by the WHO bears important implications. These regard the

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[12] Homicide Studies – Call for manuscripts --Special Issue: The Intersection between Homicide, Terrorism and Violent Extremism (February 2018 issue), http://journals.sagepub.com/pb-assets/cmscontent/HSX/HSX_CFP_AUG2016.pdf, accessed 02/05/2017
[13] See World Health Assembly Declaration 49.25 "Prevention of violence: a public health priority", Geneva 20-25./05/1996

inclusion of self-inflicted violence (besides interpersonal and collective violence), threatened use of physical force or power, and the inclusion of non-physical forms of violence.

The latter point, the inclusion of non-physical forms of violence (beyond threatened use of physical force), is not instantly apparent, but results from the use of the term "power" in addition to "physical force". The intention of this is to "broaden the nature of a violent act and expand the conventional understanding of violence to include those acts that result from power relationships, including threats and intimidation" (Krug, Dahlberg, et al. 2002, 5). The WHO definition is not predominantly scientific but can be described as "catch-all" and implicit of a programmatic agenda. From a research perspective, and more specifically a criminological perspective, this bears several problems. Such a broad definition of violence overlooks that phenomena as diverse as suicide and, for example, deprivation caused by threats of non-physical uses of power, may share some of their causes but are in fact very different things. The varied facets of defining violence in broad and narrow terms remain to be discussed. It can be highlighted, however, that even though it arose from a public health context, the definition applied by the WHO is at odds with definitions commonly applied in behavioral sciences and psychology.

Evolutionary and interactionist theories of violence/aggression

Following McCall and Shields (2008, 2), "evolutionary" and "interactionist" theories of violence can be distinguished. Evolutionary theories focus on "how various patterns of interpersonal violence might have increased the fitness of offspring over the long haul of evolutionary time". Violence can thus be understood as a survival strategy, and—to the degree that it may have lost its functionality in modern times (under conditions of modern statehood)—an evolutionary relict. Predictions based on evolutionary theory are for example low incidences of violence between family members, higher rates of violence between males in the context of competition, and lower rates of violence between females and their descendants than between males and their descendants (ibid.).

The more distinct approach in psychological research on violence can be attributed to interactionist approaches. Their primary subject is, however, aggression, not violence. Clarifying the relationship between violence and aggression, Anderson and Bushman (2002, 28) define aggression as "any behavior directed toward another individual that is carried out with the proximate (immediate) intent to cause harm. In addition, the perpetrator must believe that the behavior will harm the target, and that the target is motivated to avoid the behavior."

Violence, on the other hand, "is aggression that has extreme harm as its goal (e.g., death). All violence is aggression, but many instances of aggression are not violent." (ibid., 29) Deviating from Anderson and Bushman's (2002, 28) definition, McCall and Shields (2008, 2) define aggression as a state of arousal, and violence as "the physical attack of one person by another in the context of aggressive behavior".

Several theories of aggression have been presented over the past decades. In an attempt to provide a "comprehensive and integrative social-cognitive framework", Anderson and Bushman (2002; also see Nathan, Anderson, and Bushman 2011) presented the general aggression model (GAM). The model explains aggressive episodes as the outcome of personal, situational and environmental factors (traits, affects, stimuli) open to a feedback loop that "can influence future cycles of aggression" (ibid., 246). Though the general aggression model shows characteristics of a micro theory, its name indicates a claim to be generally applicable. The authors highlight that the general aggression model "offers a useful framework for understanding how aggression between groups begins and why it persists". This is achieved by applying characteristics of individuals to groups. Persistent exchanges of violent behavior are thereby attributed to a feedback loop which may result in a violence escalation cycle (Anderson and Carnagey 2004, 181; cited in Nathan, Anderson, and Bushman 2011, 249). Arguing from an evolutionary perspective, Daly and Wilson (1997, 62) contest that the transfer of individual characteristics to groups and collectives is appropriate. They suggest that "such theorizing constitutes a weak metaphor, at best."

In the first WHO report on violence (Krug, Dahlberg, et al. 2002), collective violence was defined as "the instrumental use of violence by people who identify themselves as members of a group—whether this group is transitory or has a more permanent identity—against another group or set of individuals" (Zwi 2002, 215). Durrant (2011, 429) adopted this definition and highlighted 'social substitutability' as the key feature of collective violence: "Members of one group direct violence against others, not as specific individuals per se, but because they are members of another group."

Collective violence

According to Durrant (2011, 430), four main evolutionary understandings of collective violence can be exemplified. (1.) The 'imbalance of power' hypothesis (Wrangham 1999) holds that collective violence results from two factors: "intergroup hostility, and large power asymmetries between rival parties" (ibid., 3; cited in Durrant 2011, 430). (2.) Van der Dennen

(1995), instead, explains collective violence as the product of a "facultative male-coalitional reproductive strategy". In this manner reproductive success could be advanced through "better accesses to territory and resources and increased reproductive opportunities via access to women" (Durrant 2011, 430). (3.) The male warrior hypothesis (Van Vugt 2009) shares similar assumptions and holds that the coalitionary psychologies of men and women evolved in considerably different ways: "Males should have more competitive intergroup experiences, show more in-group loyalty in times of intergroup conflict, and show stronger political support for warfare" (Durrant 2011, 430). (4.) Finally, the parochial altruism hypothesis (ibid.; Choi and Bowles 2007) suggests that this combination of intergroup competition and in-group loyalty coevolved in a process of between-group competition. From this perspective, collective violence and altruism are intricately linked.

These four theories present different but overlapping hypothesis on how collective violence, or rather a human disposition to engage in collective violence, may have emerged from evolutionary processes. Collective violence would thus be "hard-wired into the human species" (Roscoe 2007, 485). It is widely accepted that violence in general is hard-wired into humans (ibid., 492). However, as far as collective violence is concerned (Durrant 2011, 431) this notion has been contested. According to Ferguson (2012; cited in Durrant 2011, 431), for example, there are "no specific adaptations for war […]; rather, wars are waged when they are in the rational interest of individuals (especially leaders) and groups and such interests tend to coincide with particular types of social arrangement." This points to an interactionist perspective on collective violence. In a similar vein, Roscoe (2007, 492) argues that collective violence is both a result from and a selector for human intelligence and merely a behavioral byproduct. As such it emerged as a "feature of the interactional landscape" once that "psychological and cultural 'technologies' capable of surmounting emotional impediments" had developed (ibid.).

I.5.   Violence in political science and international relations

The original interest of political science in violence, and collective violence for that matter, differs from both criminological and psychological approaches to violence. As previously discussed, Beccaria (2009, 3) defines law as the "conditions under which men, naturally independent, united themselves in society". This understanding can be attributed to social contract theory, specifically Hobbes' theory of the state presented in "Leviathan" (Hobbes

2006). Hobbes' work has been heavily influential in framing the legitimacy of modern statehood. A hypothetical account of a state of nature thereby builds the starting point: "It cannot be deny'd but that the naturall state of men, before they entr'd into Society, was a meer War, and that not simply, but a War of all men, against all men" (Hobbes 2004, 2:9). From this perspective, violence is normal rather than exceptional and not illegitimate *per se*. It is only with the formation of the state that violence gains an internal and an external dimension. Internal violence becomes illegitimate if exercised by the individual. And to the extent that force is necessary to contain illegitimate violence, internal violence becomes legitimate if exercised by the sovereign. This is how the state of nature is abandoned internally and shifts to the external dimension to be handled by sovereigns. The criminalization of internal violence is thus essential in defining legitimate violence as expressed by national police force. Furthermore, also the formation of an external force is based on internal legitimation, but in the absence of an international sovereign the use of external force remains subject to an international state of nature.

Internal and external violence

Arguing from beyond the hypothetical premise of social contract theory, the building of a police force is not necessarily driven by a reaction to illegitimate violence. Thinking of legitimate and illegitimate violence as communicating vessels, both in building police and military forces, illegitimate violence is rather sublimed and functionalized to a presumed common interest. Historically, this takes the form of a state-making process in which concessions to the citizens outweighed the internal use of violence: "When ordinary people resisted vigorously [to economic extraction], authorities made concessions: guarantees of rights, representative institutions, courts of appeal. Those concessions, in their turn, constrained the later paths of war making and state making" (Tilly et al. 1985, 183).

Based on contemporary understandings, the legitimate use of violence derives almost exclusively from the state (except for self-defense and defense of another in an emergency situation). Internally, this takes the form of policing and externally the form of warfare. While matters of internal violence demerged into lawmaking and reacting to law-breaking (Sutherland, Cressey, and Luckenbill 1992, 3), as previously described, external violence i.e. warfare has long continued to evolve as a dynamic aspect of international politics—and hence as a separate policy field as much as a distinct sub-discipline of political science, namely international relations. Tilly (1985, 184) attributes the asynchronous juridification of internal

(state making) and external violence (war making) to the different degrees in which they interfere with the populace: "To the extent that war making went on with relatively little extraction, protection, and state making, for example, military forces ended up playing a larger and more autonomous part in national politics." Modern European history is characterized by countless successions of wars in different configurations. External sovereignty, meaning the mutual respect of territorial integrity and the non-interference in domestic affairs, was formally introduced in the Westphalian treaties of 1648. Still, politics throughout the 19th century were much of a cats-and-mouse game of engaging in smaller wars and avoiding major wars by establishing a balance of power. In that regard, Bismarck's infamous policy of alliances, for example, has been termed as the game with the five bowls (cf. Hildebrand 2008). What distinguishes the developments during the 19th century from preceding times was the increasing emergence of an international system, beginning with the Congress of Vienna after the Napoleonic wars. But the European balance of power was never egalitarian, since problems between the major players were frequently settled at the cost of weaker third parties—be it smaller European nations or, following the Berlin Congress and the third wave of European colonialism, the entire African continent. Needless to say, the European balance of power was also fragile enough to morph into the totalitarian wars of the 20th century.

Key theories in international relations

In many regards, the question of war and peace can be understood as the key research problem in international relations. These days the policy fields negotiated in international fora are of course manifold. But they are the outcome of an international system which is based on the renunciation of war. Analogous to the overcoming of the state of nature between individuals, the international system shows increasing signs of sovereignty shifts from the national to intergovernmental and supranational levels. The major schools of thought within international relations can be distinguished by their criteria on how, if at all, they theorize on these shifts (cf. Robert Jackson and Sørensen 2016, 29): (1.) The oldest school of thought in international relations is Realism and it has emphasized the preeminent importance of nation states as units of analysis, framed by an anarchic international system. (2.) Liberalism gained prominence after the end of the Cold War. The basic assumption in Liberalism is that within a globally interdependent economic order liberal democracies project their ideal into the international realm and are then followed by other nations. While the focus remains on the nation state, this process results in an emergent order which has been termed democratic peace, but does not include sovereignty shifts. Realism and liberalism both rest on the idea that sovereignty is

vested in a state or nation (or nation-state) (Thomson 1995, 214). From a realist perspective, war and peace are the outcome of strategic policy options between states. Liberalism instead accounts for what could be termed an international civilizing process in an interdependent world. (3.) The idea that sovereignty is merely vested in national states has been contested by functionalist and neo-functionalist views on the process of European integration. A shift of power to supranational bodies is hereby modeled as a political spillover in the form of a "self-reinforcing process of institution-building"—largely a "web of unintended consequences" in which governments are "spun by their own previous commitment" (Moravcsik 1993, 475). From this perspective, the European Union seems much like an accident. (4.) This has been contested by a liberal intergovernmentalist approach (ibid.) which views European integration as the outcome of a willful pooling and delegating of sovereignty by nation states (ibid., 507). (5.) While both the functionalist and the liberal intergovernmentalist approaches are oriented towards the explanation of European integration, constructivist approaches attempt to grasp broader sovereignty shifts and break through the paradigm of national sovereignty (Hopf 1998; Thomson 1995; Barkin and Cronin 1994). As Goldsmith (2000, 965) puts it, "the constructivist critique has focused particular attention on the concept of national sovereignty. Constructivists emphasize the extent to which operative concepts of sovereignty rest on intersubjective belief." The constructivist contention can be summarized as understanding sovereignty not as an inherent quality but as an attribute produced by performative and ascriptive discourses. This does not mean, of course, that state sovereignty is in decline (Thomson 1995, 230), but it provides a framework in which sovereignty shifts do not pose a theoretical problem.

Governance and sovereignty

As apparent, much of the debate in international relations is based on a normative rather than an empirical definition of sovereignty, and is focused on external sovereignty rather than internal sovereignty. Posed with the problem of a sort of world order in absence of a world government, Rosenau and Czempiel (1992) took a rather pragmatic approach and termed what they called governance without government. By distinguishing an analytic and a normative perspective (ibid., 9) they contrasted their concept with the long prevailing idea of anarchy in international system. In summary, governance without government can be described as a system of national and international state- and non-state actors that govern themselves in the absence of a central authority. With specific focus on the European Union, this concept eventually evolved further to become what is termed "multilevel governance". Multilevel governance describes an empirical reality in which authority has been dispersed over several

layers from local to supranational governance. However, it provides just as much of a framework to analyze how under such circumstances authority is reconfigured, and "whether and how these developments challenge Westphalian statehood" (Hooghe and Marks 2003, 234).

The multi-level governance discourse bears a strong focus on developments in the Western world, with states as the central unit of analysis, while developments in transitional and developing countries have long been described in terms of governance weaknesses to the extreme of failing and failed states. But, as Risse puts it, "from a global as well as a historical perspective [...], the modern nation-state is the exception rather than the rule" (Risse 2013, 2). Applying the concept of multilevel governance to transitional and developing countries, Risse therefore introduced the concept of "areas of limited statehood" which he defines, among other things, as "those parts of the country [...] in which the legitimate monopoly over the means of violence is lacking" (ibid., 4). The corresponding definition of statehood which he offers is that of a functioning "monopoly over the means of violence or the ability to make and enforce central political decisions" (ibid.).

Security governance

It is here that an intrinsic link between internal and external, or rather "domestic" and "Westphalian" sovereignty (Krasner 1999, 9), becomes graspable. The lack of domestic sovereignty in areas of limited statehood becomes subject to global security governance to the extent that it is perceived as a threat to the international community. Recalling Bigo's account of the Möbius ribbon of internal and external security, the link between the two realms takes the form of a "common list of threats [...] drawn up in different arenas of the Western world: NATO, OSCE, G8, EU, Schengen, and in each national state with the mediation of interministerial structures concerning defense, foreign affairs, justice, interior, and social ministries" (Bigo 2001, 94). This list includes "terrorists and the countries that support them, organized crime and drug trafficking, corruption and mafiosi, the risk of urban riots of an ethnic nature and their implications for international politics with the immigration countries, and so forth" (ibid.). Corresponding to this blending of internal and external security, the traditional lines of sovereignty, or rather the territorial delimitation of sovereignty, are challenged. Citing "the end of the territory" (Badie 1995), Bigo marks this "the end of the clear limits of [Westphalian] sovereignty and law enforcement [domestic sovereignty]".

Areas of limited statehood appear as zero-sum constellations in which state weaknesses result in a scattering of sovereignty to international, sub-national and transnational actors of different shapes. As far as Western states are regarded, however, multi-level governance is not commonly associated with weak statehood—even if the end of national sovereignty is often evoked by nationalists in regard to the process of European integration. According to Zacher (1992, 67), the emergence of supranational actors is rather the result of a cost-benefit ratio of war, and, as Holsti (1992, 31) remarks, linked to the persistence of statehood: "Part of the explanation for the survival of states resides in the norms of the society of states, and in the institutions of governance they create to sustain statehood and reduce the incidence of war." Governance therefore varies between pre-state and post-state multilevel governance—with areas of limited statehood on the one side, and multilevel governance in the Western world on the other. While Western states have remained strong, sovereignty shifts and the blurring of the lines between the internal and the external has produced obvious cases to which the traditional notion of statehood does no longer apply. This includes, for example, Kosovo, Afghanistan and other countries that have experienced prolonged peacekeeping and reconstruction missions by international organizations. Other areas of limited statehood characterize entire states (e.g. Syria, Yemen, South Sudan) that formally retain their external sovereignty but are not governed uniformly; or states that may have stable governments but see portions of their territory factually governed by warlords, insurgents or criminal organizations (e.g. Mexico, Nigeria).

I.6.   Violence in peace and conflict studies

Despite changes in the international system and sovereignty shifts to the supranational level, it can hardly be argued that the world has become predominantly peaceful. While the emergence and intricacies of international governance are discussed in the wider field of international relations, part of the debate on war and how to achieve peace has demerged into the disciplines of peace and conflict studies. The foundation of the discipline is commonly attributed to Johan Galtung, a Norwegian sociologist. Galtung's (1969) work builds on a broad definition of violence that shares many aspects with critical criminological and, oriented towards achieving peace, peacemaking criminology (McEvoy 2003). Galtung defines violence as "the cause of the difference between the potential and the actual, between what could have been and what is" (ibid., 168; cited in Schinkel 2010, 34). As a contribution to the field of peace research, the reason to provide such an extended definition was to define peace as more than the absence of

violence. This is because if peace were only defined as the absence of violence "then too little is rejected when peace is held up as an ideal. Highly unacceptable social orders would still be compatible with peace" (ibid.). It should be noted that such an extended definition naturally includes narrower definitions, i.e. a definition of physical violence: "Under physical violence human beings are hurt somatically, to the point of killing" (Galtung 1969, 169). All directed at limiting the human potential, Galtung further distinguished between negative and positive violence (rewards and punishment), threatened and realized, manifest and latent, and intended and unintended violence. The most important distinction he highlights, however, is between direct and structural violence. Direct violence relies on a violent actor while structural violence "shows up as unequal power and consequently as unequal life chances" (ibid., 171). Structural violence is built into the socioeconomic (world) order and manifests itself as an uneven distribution of resources or, to put it simply, as social injustice. The idealistic origin of peace studies, vested in a broad definition of violence, has been formative to the discipline's self-conception and theoretically distinguishes it from security studies. In practice, however, peace studies are also focused on physical violence, notwithstanding that structural violence may be a single important factor in explaining conflict and collective violence.

"New" wars

In the wider sphere of conflict studies, the research focus lies on the dynamics of modern conflict, i.e. how conflicts between and within countries evolve, spread and wear out. Given the hybrid nature and geographical clustering of contemporary conflicts, there is a strong focus on civil conflicts and on Africa. Under the impression of the violent disintegration of Yugoslavia, Kaldor (1999) introduced the term "new wars" which has become somewhat paradigmatic of contemporary understandings of conflict. In reviewing Kaldor's work, Shaw (2000, 172) describes that "the new globalized war economy is demobilizing and parasitic: The new type of warfare is a predatory social condition (Kaldor, 1999). It damages the economies of neighboring regions as well as the zone of warfare itself, spreading refugees, identity-based politics and illegal trade. It creates bad neighborhoods in the world economy and society".

Working on the effects of civil wars on crime in neighboring countries, Carreras (2012) identified three negative externalities of civil wars. These can be grouped into sociopolitical instability caused by large inflows of refugees, economic externalities, and rather direct spread of conflict in the form of civil war diffusion. Sociopolitical instability may be caused by differences in ethnic, religious, tribal or political associations within the refugee population as

compared to the host society, thus "upsetting the balance of power" (McColl 1993, 175, cited in Carreras 2012, 838). In this context, refugees may be viewed as a "serious threat to the entire state" and controlled and contained by military and police forces. This may take the form of contagious ethnic conflict (Lake and Rothchild 1996, 19). McColl (1993, 175) points to increases in crime due to the presence of refugees. He does not address, however, whether and why such increases may occur, but highlights that they are "attributed to the presence of refugees and thus create or are used to justify the need for a police or military response". Furthermore, negative externalities caused by the influx of refugees link to socioeconomic problems and struggle over resources and jobs that may cause resent among the native population (Weiner 1992, 114, cited in Carreras 2012, 838). Besides that, civil wars may reduce the economic activity between conflict and neighboring countries. Eventually, such conflicts may also diffuse and spread rather directly to neighboring countries. This may especially be the case if ethnic conflict lines in neighboring countries pre-exist and are similar to those in neighboring conflict zones.

More broadly speaking, ethnic conflict may also be sparked by processes of ethnic dissimilation (Kuran 1998, 35), that is to say a "demonstration effect that leads potential rebels [in neighboring countries] to update their evaluations of the efficacy of armed upheaval" (Kuran 1998, cited in Carreras 2012, 839). Caused by ethnic alliances between neighboring countries and combatant parties to the civil conflict, the diffusion of civil wars may also take the form of inter-state conflict. Neighboring countries may directly interfere in the civil war or provide operating bases to combatants. Another mode in which civil wars may spark inter-state conflict is by marking the affected country as weak and being an easy target, thus attracting predatory states to intervene or to revive previous conflicts (Lake and Rothchild 1998, 31). The phenomenon has also been studied under the term conflict transformation (Carment 1994, 567; Carment, James, and Taydas 2009) and points to modes of conflict diffusion other than along ethnic lines. As Lake and Rothchild (1998, 31) describe, conflict diffusion and escalation are "real and can result in devastating ethnic conflicts not only for the groups involved but potentially for other states as well". They are still poorly understood, however, and insights remain at a rudimentary level (ibid.). According to Lake and Rothchild, the most important question in dealing with conflict diffusion is to understand how and why groups learn from conflicts abroad.

I.7.   Differing concepts of violence

The foregoing discussion has revealed that each discipline concerned with the study of violence applies distinct concepts that mirror both their research interests as well as their disciplinary boundaries. This has led to definitions of varying extent and scope. Criminology operates mostly with legal definitions of violence, and homicide for that matter. Psychological approaches on the other hand aim at a general explanation of violence. Another distinction needs to be made between individual and collective violence. International relations are mostly concerned with collective violence, especially war and conflict. Psychological literature, in contrast, is mostly concerned with models of individual behavior that are, however, open to integrate violent dynamics between individuals. These can serve as building blocks in the elaboration of group-based and collective models of violence as exemplified by the general aggression model.

Matters of collective violence were also discussed from an evolutionary perspective. The main concern here was whether a human predisposition for collective violence has emerged from evolution, or if it is a behavioral by-product of human intelligence. The lines between evolutionary and interactional approaches are somewhat divided. This divide is central to the "nature vs. nurture debate" which has its roots in the beginnings of modern behavioral sciences incl. criminology in the 19th century (Ferguson and Beaver 2009, 286). While the issue remains to be solved, it did not impede the formulation of a common definition of violence. Behavioral definitions of violence are straight-forward and empirically grounded. They depart from an individual perspective and are scalable according to their outcome and the number of people involved. Homicide is thus defined as an extreme form of individual violence, and warfare as an extreme form of collective violence.

An ontological perspective on violence

Schinkel (2010, 33) describes such definitions as "stipulative". This is because they sum up the empirical features of what he calls the members of the class of acts called violence. He considers them viable for most empirical research. Schinkel exemplifies, however, a critique of empirical definitions of violence on the example of Riches. Riches (1986, 8) defines violence as "an act of physical hurt deemed legitimate by the performer and illegitimate by (some) witnesses". Rather than singling out acts of violence, Schinkel holds that violence is fluid, i.e. "a process which consists of actions that recursively follow each other and that cannot be wholly singled out without losing the identity ('violence') of the process as a whole." (ibid.) In

any case, as noted in the Oxford Handbook of Criminology, many researchers of violence may apply definitions implicitly rather than explicitly: "The conceptual issue of 'what acts count as violence' does not cause too many difficulties for criminologists in practice because they usually ignore it" (Maguire, Morgan, and Reiner 1997, 859; cited in Schinkel 2010, 34).

As discussed, narrow definitions of violence, i.e. physical violence, can be contrasted with broad definitions of violence such as presented by Galtung (1969). In contrast, the WHO provided a broad definition. In discussing criminological concepts of violence, Schinkel (2010, 38) favors a broad definition. It is apparent, however, as he concedes (ibid., 44), that the same criticism applied to narrow definitions can equally be applied to broad definitions—or just any empirical definition.

Broad definitions of violence run the danger of resulting in a hodgepodge of unfavorable aspects of the social and economic order, or life in general. Insights to be derived from that may ultimately be very simplistic: "A very intense social life always does a sort of violence to the organism, as well as to the individual consciousness which interferes with its normal functioning" (Durkheim 1915, 227, cited in Schinkel 2010, 53). Schinkel goes even a step further in claiming that "a sort of violence" would not be limited to intense social life but "endemic to all social life" and a necessary condition of the normal functioning of a person (ibid.). Considering the WHO definition (Krug, Dahlberg, et al. 2002, 6) that conceptually comprises threats against oneself ("suicidal thoughts"), one may even strike the "social". What remains is nothing but the violence of being alive—which, of course, cannot be programmatic in a research agenda on violence. What Schinkel (2010, 40) highlights as a strong point of Galtung's extended definition of violence, namely that it is rather "unbound to the presence of a violent subject", is certainly at odds with any classical definition of crime in criminology. Any breaking of the law and subsequent reaction, hence the application of a criminal label, relies not only on the identification of a criminal act but necessarily a criminal subject. The labeling of criminal behavior is a necessary condition of criminology. Extending the perspective on violent crimes by researching its association with other forms of violence can thus not mean to abandon criminological definitions. Nevertheless, given the wide-ranging implications of different perspectives on violence, any theoretical framework that examines the links between homicide, warfare and terrorism should familiarize itself with concepts from neighboring disciplines.

CHAPTER II.   The effects of warfare and terrorism on crime

Following the discussion of the relevant theoretical background for the subject matter at hand, CHAPTER II seeks to discuss preexisting research on the links between warfare, terrorism, and homicide. Organized in several subchapters, major lines of thought and the most relevant theoretical frameworks and findings from previous literature in the field are presented. The chapter concludes with a description of the main research problem, and the formulation of the research questions that guide this dissertation.

II.1. Early works on the effects of warfare on crime

The discussion of the varying concepts of violence and crime has shown that a distinction between war and (violent) crime is deeply rooted in the understanding of modern statehood and as such constitutive to criminology. The relative absence of war in the West, paired with the development of criminology as an essentially Western and predominantly domestic science, has left war outside the classical research interest of criminology. However, this has not always been the case. In fact, many researchers and thinkers have worked on the question if and how warfare and (violent) crime may relate to each other. These works span over several centuries (D. Archer and Gartner 1976, 937). Corresponding to the quality standards of their times, many are speculative rather than scientific. Concerns about methodological validity have of coursed evolved with the development of social sciences. Interest in the topic has meanwhile been driven by the occurrence of major wars in the Western world, especially the World Wars and the Vietnam war.

Crime and the World Wars

Under the impression of the Second World War, Evjen (1942, 136) complained that "today we hear and read a great deal about the effect of war on delinquency and crime in the United States, but most of these generalizations are nothing more than popular notions without the support of reliable research and statistical data". Citing Herbert Mannheim's work on the effects of the Second World War on crime in England, Evjen argues that "each war has its own characteristics in so far as crime-producing factors are concerned"—and that "any generalizations about the criminological implications of war are likely misleading" (ibid.; cf. Mannheim 1941, 128). Mannheim did not share Evjen's strong point of view. He showed concern, however, that due

to "the criminological implications of totalitarian warfare, traditional conceptions [about the effects of war on crime] will have to be either considerably modified or entirely abandoned."

He points out that "the most important social factors in the causation of crime are family and home, education and leisure-time occupation, work and economic situation. To these may be added any special temptations occasioned by a temporary weakening of social control" (ibid.). From Mannheim's perspective, the effects of war on crime are merely indirect and mediated by the effects that war may have on the given social causes of crime. This includes increased unemployment at the beginning of a transition phase towards a war economy, notable decreases in unemployment followed by increased employment of women, and a general increases in wages. The main cause Mannheim identifies, however, is the "breaking-up of family ties" due to large-scale population movements of different types. Men are drawn to military service and may be out of the country while women, children and elderlies remain home. Other relevant population movements that occur are for example the evacuation of children to the countryside, and the relocation of the civilian population to shelters. Mannheim also highlights associated effects of an economic nature. With fathers and brothers gone to war, and working mothers, increases in juvenile delinquency could be accounted for by the weakening of parental control and exacerbated by the disruption of public life, e.g. the closing of schools. Furthermore, war produces specific opportunities to commit crimes, e.g. due to limited control during blackouts (ibid., 132), or in the form of looting of premises that remain unprotected after having been damaged or abandoned (ibid. 134). In discussing blackouts, Mannheim also makes reference to crimes that are specific to war situations, e.g. turning on the lights during night-time bombing attacks. As demonstrated, Mannheim considers different ways in which crime might affect war rates. None of these take a direct form. Rather, they are mediated through the economic and social effects of warfare.

II.2. The 'legitimation of violence'/'legitimation-habituation' framework

Several decades after Mannheim's (1941) work was published, Archer and Gartner (1976) presented a comprehensive study of on the effects of warfare on homicide rates—it remains the most recent comprehensive criminological study presented on the subject. Based on an extensive literature review, Archer and Gartner identify seven theoretical frameworks that had previously been used to explain the effects of war on crime. As stated above, most of these frameworks arose from speculation rather than scientific inquiry. The only framework Archer

and Gartner deemed to be consistent with their results is 'legitimation of violence': "The central concept of this explanation is that some members of a warring society are influenced by the model of officially approved wartime killing and destruction. During a war, a society reverses its customary prohibitions against killing and instead honors acts of violence which would be regarded as murderous in peacetime." (ibid., 943) Their findings are based on a comparative crime data file that contains time-series rates of various offenses for 110 nations between 1900 and 1970. These served as the dependent variables. An independent variable was formed based on a dataset of wars that occurred between 1816 and 1965, provided by Singer and Small (1972). Archer and Gartner's analysis comprised two parts, the comparison of post- and pre-war homicide rates (fixed periods of 5 years) for combatant and non-combatant nations, and the effects of two different war characteristics (proportion of men killed and victoriousness) on the magnitude of changes in homicide rates for combatant nations. The analyses were conducted for World Wars and a set of 25 nation-wars. Archer and Gartner's findings are that increases in homicide rates are more likely for combatant nations than for non-combatant nations, and higher for countries that suffered greater losses and were victorious. Their findings about effects on other measurements of crime remained inconclusive. Among the seven theoretical frameworks they discussed, the authors conclude that only the 'legitimation of violence' framework was consistent with their findings (Archer and Gartner 1976, 958). They consider most of the other models to be disproven, some untestable, and one, namely the violent veteran model, at least partially in line with their results. Accordingly, homicides committed by returning veterans may contribute to increases in post-homicide rates, but the model does not provide a sufficient explanation for such increases. Besides identifying support for the 'legitimation of violence' model, they caution, however, that alternate explanations may yet remain unseen. They also speculated on several ways in which the process of 'legitimation of violence' may take effect, i.e. and official sanctioning of violence by the state that may spill over to the civilian population through changes in representations of violence in the media and entertainment, among other things.

From legitimation to habituation

Building on Archer and Gartner's work (1976), Landau and Pfeffermann (1988) studied the effects of security-related stressors (i.e. warfare and terrorism) on crime on the example of Israel. Their aim was to test two competing hypotheses, namely the 'legitimation-habituation' hypothesis and the cohesion hypothesis: (1.) Aside from 'legitimation of violence' (cf. D. Archer and Gartner 1976), the 'legitimation-habituation' hypothesis rests on Ross' (1985) work

who identified a positive link between external and internal conflict and violence and attributed this to processes of habituation and generalization. (2.) The cohesion hypothesis, on the other hand, predicts decreases in criminal violence during wartime and relates to the works of Coser (1956) and Simmel (1955). Archer and Gartner (1976, 942) had discussed the same effect under the term "social solidarity model" but found no evidence in its support.

Unlike Archer and Gartner's (1976) study which focused on lagged effects of war on crime, Landau and Pfeffermann were concerned with the effects of stress factors relating to prolonged or even permanent states of belligerence and their effects on crime (ibid., 492). Their period of observation was from 1967 to 1982. Monthly data of security-related casualties and incidents served as independent variables, both attempted and completed robberies and homicides were the dependent variables.[14] The authors found that the number of casualties from warfare/terrorism had a significant positive effect on the number of homicides, but no significant effect on robberies (Landau and Pfeffermann 1988, 500). Neither did testing for the counts of security-related incidents, yield significant results. Positive effects were also measured for relative changes in the number of the unemployed on the number of robberies, and on inflation rates on both homicides and robberies. Homicide which they deemed to be the/a "purer" violent crime, was thus affected positively by a combination of security-related and economic stressors. Landau and Pfeffermann further highlighted that "not just the existence of security-related tension, but rather the occurrence of security-related loss of, or injury to, human life" actually affected the number of homicides. Concurring with Archer and Gartner (1976), they concluded that there was strong support for the 'legitimation-habituation' hypothesis, while they refuted the cohesion hypothesis: "What we have shown here is that in the long run, violence resulting from conflicts with out-groups ('enemies') is generalized also toward in-group members in society. In other words, there is a gradual, consistent and continuous process of erosion of basic social norms regarding violence within society" (Landau and Pfeffermann 1988, 500).

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[14] They controlled for inflation level, unemployment, total population and police force personnel as control variables

II.3. Other contributions

Drawing on the example of the U.S., Lester and Yang (1991) studied the relationship between war and homicide rates. Their period of observation lasted from 1933 to 1986. They operationalized war "using the size of the military as a proportion of the total population" (ibid., 1097). Homicide rates were available for both white and non-white males and females. The unemployment rate was used as a control variable. Based on a multiple regression, findings were "that the military participation ratio was negatively and significantly associated with the homicide rates of nonwhite males and non-white females but not with the other groups". A significant relationship between unemployment and homicide rates was not found. The authors deemed their findings to be inconclusive, but suggested that "an increased size in the military forces removes from the society many of those who might murder". The effect of this may be visible only among the nonwhite population because homicide is predominantly an intra-racial phenomenon and the homicide rate is lower for the white than for the nonwhite population. As an alternative explanation, they point to the social solidarity model which was also identified by Archer and Gartner (1976, 941) and equals the cohesion model that was considered by Landau and Pfeffermann (1988).

As mentioned before, Landau and Pfeffermann (1988) drew not only on the 'legitimation of violence' framework presented by Archer and Gartner (1976), but also on Ross' (1985) work on the relationship between external and internal conflict and violence. According to Ross, empirical findings presented by other researchers lend support to a positive link between internal and external violence (LeVine and Campbell 1972; Collins 1974; Sipes 1975; cited in Ross 1985, 550). The theoretical argument about this link is based on a rather brief reference to the behavioral processes of generalization and habituation (Ross 1985, 549). Ross also points to Wilkenfeld's (1968, 66) work who found that the relationship between internal and external conflict may vary according to different types of political systems (autocracy/democracy). Ross' own work rests on a quantitative analysis of ethnographic reports from 90 pre-industrial societies. He also identifies a positive link between internal and external violence.

Socialization of violence

Based on the quantification of ethnographic records of 186 non-industrial societies and subsequent regression analysis, Ember and Ember (1994) proposed a long-term effect of wars on homicide rates which were not covered by the work of Archer and Gartner (1976), namely the socialization of aggression as a consequence of war: "People will want their sons to be

aggressive when they have a lot of war and they need to produce courageous warriors." They theorize that parents do not want to produce criminals, of course, but that "homicide and assault are inadvertent (unintended) consequences of more war: Once you learn to kill an enemy, you may find it easier to hurt or kill".

The question of increasing homicide rates was also covered in a study on the long-term public health effects of civil wars, conducted by Ghobarah, Huth, and Russett (2003). Based on WHO mortality data, they found "some evidence […] that civil wars increase the risk of death and disability through the breakdown of norms and practices of social order, with possible increases in homicide" (ibid., 200), amongst other things.

Conducting a study on genocide as a risk factor for individual susceptibility to committing homicide, Rubanzana et al. (2015) found that "having a first-degree relative who had been convicted of genocide crimes was a significant predictor for homicide perpetration". Their findings were based on logistical regressions on a set of 150 homicide offenders in Rwanda. They stress that the exact nature of the effect is unclear, but point to violence exposure, family disruption and posttraumatic stress disorder as possible explanatory factors.

Crime and civil war

As previously mentioned in section I.6, Carreras (2012) studied the effects of civil war on crime in neighboring countries. He posits that some "theoretical accounts [of criminology] may be useful in understanding the link between civil violence and criminality in neighboring states" and that "many of the negative externalities of civil war […] can be theoretically linked to the causes of crime" (ibid., 839). In order to explain crime increases caused by civil violence in neighboring countries, Carreras identified four meaningful strands of criminology (1.) Social disorganization caused by influx of refugees: The Chicago School's social disorganization theory, with special reference to the Concentric Zone Model first described by Robert Burgess (in Park, Burgess and McKenzie 1925) and further developed by McKay and Shaw (1942) accounts for high-crime areas adjacent to cities' central business districts. Carreras links the influx of refugees into certain areas to an "anomistic context [where] accepted social rules may break down and both the refugees and the population of the host country are more likely to indulge in criminal behavior" (Carreras 2012, 839). (2.) Strain caused by economic deterioration: Strain theory is a second stream of criminology that Carreras considers relevant in explaining crime increases in countries that neighbor civil war countries. Strain Theory posits that declines in socially accepted means to achieve socially accepted goals put strain on

individuals and may cause them to resort to crime to obtain their goals. Poverty and economic hardship can be seen as main causes of strain and criminality. The negative economic externalities of civil war can thus be considered to produce strain. (3.) Criminogenic socio-demographic characteristics of refugees (young male syndrome [cf. Wilson and Daly 1985]) linking to the age and gender distribution of crime: The insight that crime rates are disproportionately high among young cohorts and decrease with age can be considered one of the "brute facts of criminology" as Hirschi and Gottfredson (1983, 552) put it. The same may be said about the gender distribution in most crimes which shows that the involvement of males in crime is disproportionately high (ibid., 556). Citing the UNHCR, Carreras (2012, 840) links age and gender distribution to findings about the demographic characteristics of refugees which show that "young adults are overrepresented in refugee flows" (Carreras 2012, 840, citing UNHCR 2006). He concludes that the arrival of young male refugees with few or no resources may produce a rise in crime rates simply because they have the socio-demographic characteristics […] linked to higher propensity to indulge in crime". (4.) Weakening of police capabilities (deterrent effect) caused by economic deterioration. Carreras links this to the rational choice approach. He argues that the negative economic externalities of civil war hamper control and the police capabilities of neighboring states which lowers the deterrent effect and results in crime increases.

Carreras' analysis is based on UN data of crime trends and conflict and refugee data compiled by Salehyan and Gleditsch (2006) (based on the Uppsala/PRIO conflict dataset and UNHCR datasets on refugees). Homicide and robbery were used as dependent variables, "civil war in neighbor" and "number of refugees" as the independent variables. GDP per capita, ethnic frictionalization, population density, percentage of the young within a population (UN World Population Database), and level of democracy (Marshall Monty, Keith, and Robert 2009) served as control variables. Carreras (2012, 847) found that refugee inflows from bordering war-torn countries resulted in an increased homicide and robbery rate. When controlling for refugee inflows, he found no significant increases in the short term, but significant increases after one and two years, indicating that negative economic effects produce gradual increases. He concludes that "civil wars that produce many refugees may lead to diffusion of violence but not necessarily through a spillover of conflict. Rather the violence may be diffused because criminality is likely to increase in neighboring countries." (ibid., 849)

A culture of violence

Drawing on Ember and Ember's (1994) findings (see above) and also mentioning Wolfgang, Ferracuti, and Mannheim's (1967) work on subculture of violence, Steenkamp (2005; 2014) sought to conceptualize varying definitions of 'culture of violence' in order to account for violence as a cultural outcome of war and other forms of collective violence. In this regard, she highlights the common features of varying definitions of 'culture of violence' and points to similarities and difference between subcultures and cultures of violence (Steenkamp 2014, 126): (1.) Both cultures and subcultures of violence stress non-material factors such as the sharing of norms, values, beliefs and attitudes towards violence in society. Cultures of violence are different from violent subcultures, however, in that (2.) they derive from war, but are stripped of any political context. As such, they become widespread and accepted means in everyday interaction among civilians. Steenkamp does not claim that collective violence is the only explanatory factor for cultures of violence, but states that "war lends legitimacy and widespread exposure to violence and these would certainly contribute to a social habituation to violence" (Steenkamp 2005, 265). As apparent, Steenkamp's idea of 'culture of violence' is not ad odds with the 'legitimation of violence' arguments made by Archer and Gartner (1976) and Landau and Pfeffermann (1988). It provides an interesting attempt to shed some theoretical light on the processes that lead to cultures of violence, and provides an integrative framework to account for contributing factors at different levels, i.e. international, state and individual level.

II.4. The effects of terrorism on homicide

Unlike the effects of warfare on homicide which have been addressed more widely in criminology in the past (cf. D. Archer and Gartner 1976), only a few authors have addressed the links between terrorism and homicide. As discussed, Landau and Pfeffermann (1988) studied the effects of security-related stressors in relation to the 'legitimation-habituation' hypothesis. This included terrorism, however, at this point the authors did not offer a clear distinction between terrorism and other forms of collective violence (e.g. warfare). Following up on his earlier work, Landau (2003) later on specified the concept of 'legitimation-habituation' with explicit reference to terrorism. He also strove to develop an integrated framework of 'legitimation-habituation' and social support systems as relevant factors that may possibly be influencing homicide rates negatively. As discussed above, the latter argument

links to the social cohesion hypothesis (Coser 1956; Simmel 1955) which Landau and Pfeffermann (1988, 490) had initially used as a counter-hypothesis to the 'legitimation-habituation' model without finding evidence in its support. Social cohesion implies that "outside pressures and threats serve to unify and strengthen the community and to reduce internal conflict, including in-group violence" (Landau 2003, 139). Also Archer and Gartner (1976, 942), who had discussed the effect under the term 'social solidarity model', did not find evidence in its support. Unlike his earlier work (Landau and Pfeffermann 1988), Landau's later work (2003) was not based on rigorous empirical tests.

September 11th

Pridemore, Chamlin, and Trahan (2008), eventually, took up social cohesion as one of two hypotheses in testing the effects of the Oklahoma bombing (1995) and the September 11th attacks (2001) on the homicide rates in the U.S. As opposed to Archer and Gartner (1976), Landau and Pfeffermann (1988), and Landau (2003), Pridemore, Chamlin, and Trahan's (2008) hypothesis about a positive link between terrorism and homicide was based on the social disorganization framework and made no reference to legitimation/habituation. In any case, the authors found no association whatsoever between the terror attacks on the homicide rate, concluding that neither the social cohesion nor the social disorganization framework could be applied here. Salib (2003) studied the relationship of the September 11th attacks on the homicide rates in England and Wales. He also found no association.

In Israel, the effects of terrorism have also been followed up on empirically with regard to violent behavior among adolescents (e.g. Even-Chen and Itzhaky 2007). Also in this case, no explicit reference to the 'legitimation-habituation' of violence was made. Eventually, in a cross-national analysis of 174 countries, the 'legitimation-habituation' model was applied to predict terrorism by the "general levels of legitimate and illegitimate violence within a society" (Mullins and Young 2010, 19). Much in line with Steenkamp's (2005) remarks, the authors put 'legitimation-habituation' in the context of cultures of violence (Mullins and Young 2010, 4). They conclude that there are "strong associations between the general level of violence within a society and that society's later experiences of terror events" (ibid., 19). It has to be noted here that the direction of the link between terrorism and homicide is effectively reversed. Rather than assuming that terror attacks may lead to increases in homicide rates, the authors used homicide as an indicator of a 'culture of violence' that would predict terror attacks.

Contagions of violence and the media

Among criminological sets of theory, the idea that terrorism may have a direct effect on (violent) crime rates relates most closely to what Berkowitz and Macaulay (1971) have termed the criminal contagion of violence (cf. Nacos 2010). Berkowitz and Macaulay's study departs from a sequence of accounts that suggest a link between high-profile murders and subsequent raises in homicide rates, e.g. Gabriel de Tarde's (2012; cited in Berkowitz and Macaulay 1971, 238) assertion of suggestive-imitative assaults as the result of news reports about the Jack the Ripper murders in London. Based on statistical and graphic analyses of 40 U.S. cities, Berkowitz and Macaulay found that, among other crimes, president Kennedy's assassination was followed by an increase in violent crimes. Though not commonly referred to as an act of terrorism, Kennedy's assassination makes for an interesting case. It resembles a dominant technique of "first wave" terrorism, namely the assassination of a prominent political figure (Rapoport 2002, 3).

LaFree and Ackerman (2009, 347) note that terror attacks are "often carefully choreographed to attract the attention of electronic media and the international press". They put such efforts to grab attention in the context of battles over legitimacy that take place in the media landscape—and for that matter, form part of a discourse of power (cf. Blain 2016; Richard Jackson 2009). The visibility of terror attacks in the media has not yet been assessed in regard to their potential influence on violent crime rates in general. Its potential role in feeding into terrorism, however, by means of copycat attacks and facilitating radicalization and recruitment, has been discussed rather controversially in regard to the contagion hypothesis. Nacos (2010), for examples, considers the notion of mass-mediated contagion of terrorism commonsensical, but points out that "contagion theories have been forwarded and rejected with respect to terrorism for several decades". According to her, support may mostly be based on anecdotal accounts. The scientific debate, on the other hand, has yielded somewhat inconsistent results over the years. This regards both the existence of a contagion effect as well as its strength and its links to some of the processes that Archer and Gartner speculated to be mediating the effect of 'legitimation of violence' on homicide. This taps into a wider field of psychological studies of violence and aggression—namely on the effects of the media on violence (Freedman 2002); but also how "violence begets violence" (Widom 1989; Averdijk et al. 2016); or rather how violence may be contagious. The former has been researched for warfare (Østby 2016) and political violence (Qouta et al. 2008), and Brosius and Weimann (1991) have presented a study on the contagiousness of mass-mediated terrorism .

Brosius and Weimann's work focused on television and newspapers, but content and form of mass-mediatization have unquestionably changed since their work has been published. This bears important implications for studies on the effects of terrorism on homicide. The contemporary third generation of Jihadi terrorism, for example, consists of elusive networks, backed up by a grand strategy with the precise aim to spread violence. As "the soft underbelly of the West", Europe has thereby been identified as a preferable target (Kepel 2015; Lacey 2008). Indeed, as opposed to the second generation, many third generation jihadists appear to be lone wolfs—all in all amateur or "low-cost" terrorist, often with small-time criminal pasts that underwent a sort of express radicalization. This profile shares interesting similarities with other perpetrators of "highly expressive targeted violence"[15], i.e. school shooters and other perpetrators of *amok* (cf. Bannenberg et al. 2013; Leuschner 2013), and also incorporates similarities in terms of *modi operandi* which may be referred to as "ceremonial violence" (Fast 2008; cited in Leuschner 2013, 30).

The strategy pursued in contemporary jihadism has been outlined by Abu Musab al-Suri in the so-called Islamic Jihad Manifesto. This strategy shares interesting cross-connections with a work that has been central to the very beginnings of modern terrorism in 19th century's Russia, Sergey Nechayev's Catechism of a Revolutionary. As Combs (2015, 26) describes by the example of Nechayev, both works provide interesting insights into the political and strategic foundations of movements that advocate "both the theory and practice of pervasive terror-violence". It becomes apparent that terrorist acts, besides constituting acts of extreme violence, take the form of politically targeted discursive acts that only function on the sounding board of mass-mediatization. This may be a key aspect regarding the potential positive effects that terrorism may bear on homicide.

II.5. Research problem and research questions

As could be shown, the criminological analysis of links between homicide, warfare and terrorism is complicated by a conceptual and disciplinary divide that frames instances of violence as being either below or above the threshold of conflict/warfare. While international relations traditionally deal with the latter, criminology is typically only concerned with criminal

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[15] See Project TARGET --"Case Analyses of Highly Expressive Targeted Violence", funded by the German Ministry of Education and Research -- https://www.target-projekt.de/index.php, consulted 15/01/2017

violence. However, the conceptual divide is now blurring. Especially when dealing with violence in transitional and developing contexts, it has become fashionable to speak of new wars (Kaldor 1999, 2013; Smith 2008). This typological diffusion has put, for example, organized crime on the agenda of conflict studies. Similarly, criminologists need to keep widening their perspectives in researching homicide vis-à-vis other types of violence. This holds especially true when applying an international comparative perspective beyond the Western world. In many countries, conflict and criminal violence, or collective and interpersonal violence for that matter, are hard to distinguish. This links to the debate on areas of limited statehood (Risse 2013). It is indeed noteworthy that groups of different kinds may not only engage in collective violence. As "illicit sovereigns" (Rossi 2014), they also emerge as non-state actors that provide governance. Ernst (2015) refers to this as "criminal governance". Also terrorists may engage in various forms of governance (cf. Osumah 2013). For that matter, they do not employ criminal violence, but political violence as an instrument of collective violence below the threshold of war. And then, of course, there is warfare which typically marks the collapse of sovereign power which in consequence bears wide-ranging implications for the social and economic order in a given territory.

As discussed, previous research on the effects of collective violence on crime arose in a specific context that links to an issue-attention cycle (Downs 1972). This cycle corresponded largely to the occurrence of major wars with European and American involvement. As a result, criminological interest in the relationship of war and homicide peaked between the World Wars, after the Second World War, and again in light of the Vietnam War. Since then, the topic has widely disappeared from criminology, but is reemerging in the context of a transnational and global research agenda.

Conflicting criminological hypotheses on the effects of collective violence on homicide have been formulated since the beginnings of the 20th century (cf. D. Archer and Gartner 1987, 924). Based on the empirical establishment of a positive link, the 'legitimation of violence'/'legitimation-habituation' hypothesis (D. Archer and Gartner 1976; Landau and Pfeffermann 1988; Landau 2003; Mullins and Young 2010) has evolved as the most salient framework. Nonetheless, similar concepts have evolved, in other disciplines—notably in anthropology and conflict studies (cf. Ember and Ember 1994; Apter and Arthur 1997; Cohen 1998), or in the form of the concept of culture of violence in political science (Steenkamp 2005). Yet, as for criminology, the absence of nation-wars with major Western involvement has left theories at an outdated level. Perceptions of war-making have changed dramatically

and moved away from their focus on nation-wars, while the links between terrorism and homicide have never been rigorously addressed outside the context of Israel to begin with. Since then, criminological theory and methods, e.g. in the field of terrorism and homicide studies, have evolved. This stresses important concerns about the present validity of previous findings on the relationship between collective violence and homicide.

In response to the research problem, the present study seeks to answer the following questions by means of econometric panel analysis: **Are varying instances of collective violence, i.e. warfare, terrorism and other forms of major violence, positively associated with criminal violence? – And if so, how can this be explained?** In answering the research question, the following shall be achieved:

- Generating empirical findings on the links between different forms of collective violence and homicide that are in line with contemporary methodological standards;
- Contributing to the theoretical framework on how links between collective violence and homicide can be interpreted, i.e. advancing the debate about 'legitimation of violence', 'legitimation-habituation', and cultures of violence;
- Widening the scope of contemporary criminological explanations of homicide vis-à-vis other forms of violence;
- Contributing to a global perspective in criminology;

The research question is based on the wider theoretical framework that has been outlined in the chapters above. As displayed in Figure II-1, this incorporates collective violence (warfare, terrorism, and other forms) as the explanatory factor of interest, and criminal violence as the outcome. Furthermore, a number of intervening factors, i.e. socioeconomic effects that influence both collective and criminal violence, are included. Calculations are conducted using econometric methods for panel analysis. To the extent possible, omitted variables are thereby accounted for methodologically by considering fixed group and time effects.

Figure II-1 Scheme of the research question
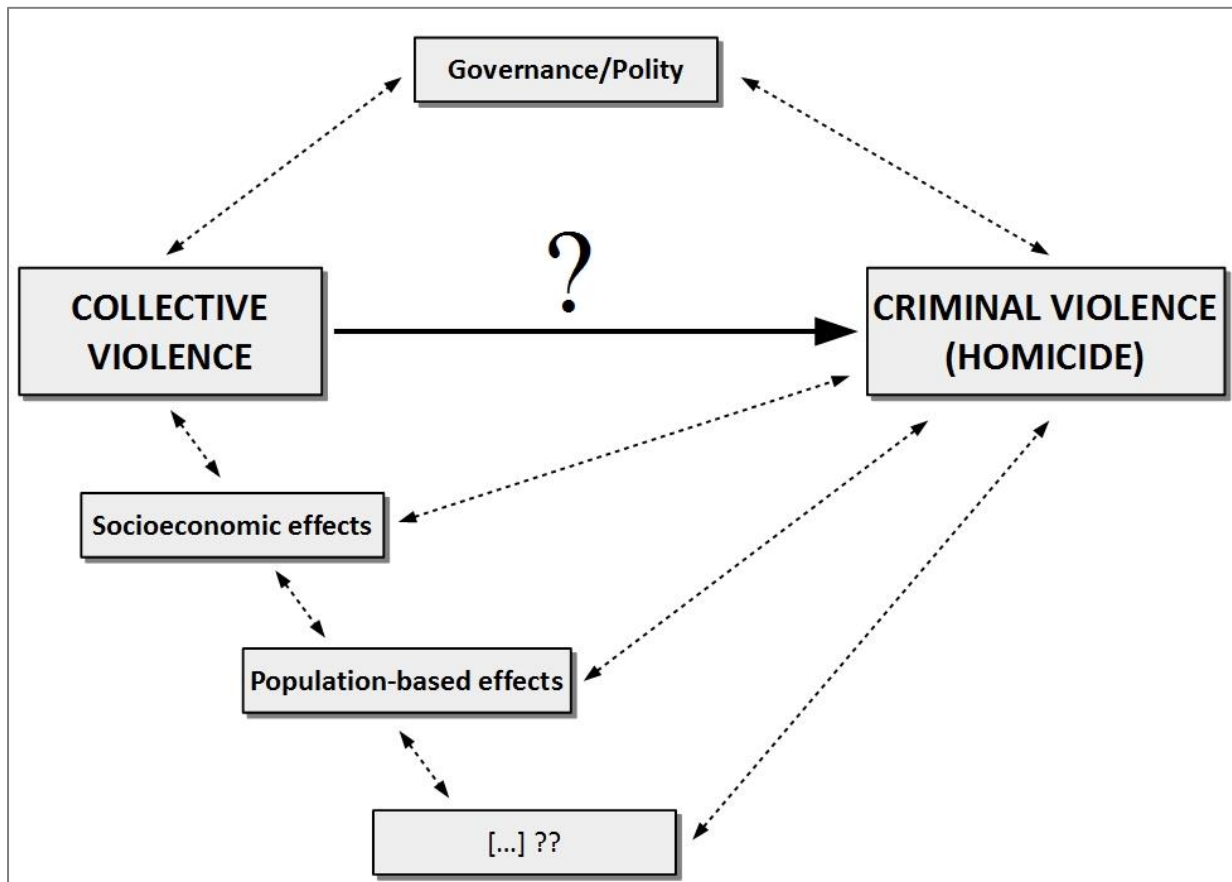
CHAPTER III.   Methods

Corresponding to the formulation of the main research questions, this chapter provides an overview of the methods that have been applied for the purpose of this study. This includes a presentation of the hypotheses, the definition and operationalization of key concepts, the sampling and compilation of data, as well as the strategy and techniques that were adopted in conducting the analyses.

III.1. Hypotheses

The aim of this study is to assess if and to what extent different forms of collective violence—in particular warfare and terrorism—influence homicide trends. The main assumption is that varying instances of collective violence increase criminal violence positively and that this effect is not mediated by socio-structural factors that are commonly employed to explain violence. This builds on the 'legitimation of violence'/'legitimation-habituation' framework put forward by Archer and Gartner (1976) and Landau and Pfeffermann (1988)/Landau (2003). The main hypothesis has been defined accordingly:

- **(h_1)** Collective violence affects criminal violence positively.

The main hypothesis (h_1) is countered with an competing hypothesis (h_2) that builds on the social cohesion model. The assumption is that warfare and terrorism may cause declines in homicide rates rather than increases (Archer and Gartner 1976; Landau and Pfeffermann 1988; Salib 2003; Pridemore, Chamlin, and Trahan 2008):

- **(h_2)** Collective violence affects criminal violence negatively.

Apart from addressing the direct effects of collective violence on homicide, it will also be assessed if part of the effect of collective violence on homicide may be indirect, i.e. mediated by economic or population-based variables:

- **(h_3)** Collective violence bears an indirect effect on criminal violence that is mediated through socioeconomic impact.

In addressing the research question and testing the hypotheses, attention shall be given as to if and why the results differ between world regions, and how the findings can be interpreted in regard to escalations of violence in transitional and developing countries, or rather areas of

limited statehood. All hypotheses will be tested independently for warfare, terrorism, and other forms of major violence.

III.2. Definitions

In order to test the hypothesis presented above, the concept of violence incl. collective and criminal violence needs to be specified and operationalized (Maxfield and Babbie 2009, 86). For the purpose of this research, violence shall be defined based on a 'narrow' understanding of violence, meaning 'physical violence'. Stripping the definition provided by the WHO of its broader connotations, one can speak of physical violence as "the intentional use of physical force or power, against another person, or against a group or community that results in injury or death".

Criminal violence shall be defined accordingly as any act of physical violence which can be legally defined as criminal in a given jurisdiction. In order to define collective violence, the definition of the WHO will be followed. Collective violence shall thus be understood as "the instrumental use of [physical] violence by people who identify themselves as members of a group – whether this group is transitory or has a more permanent identity – against another group or set of individuals" (Zwi 2002, 215). It shall be highlighted here that the violent act relates to group memberships of both the perpetrator and victim. Following Durrant (2011, 429), 'social substitutability' is to be understood as the key feature of collective violence: "Members of one group direct violence against others, not as specific individuals per se, but because they are members of another group" (ibid.). This definition is not limited to, but shall include instances of warfare incl. ethnic and civil war, political violence incl. terrorism, and major episodes of criminal violence.

Eventually, since it is one of the goals of this study to interpret the findings on the effects of collective violence on homicide in the context of escalations of violence in transitional and developing countries, "areas of limited statehood" shall be defined as a central aspect of the theoretical framework. Following Risse (2013, 4), areas of limited statehood shall be understood as countries or "those parts of the country […] in which the legitimate monopoly over the means of violence is lacking"—as opposed to areas in which the "monopoly over the means of violence or the ability to make and enforce central political decisions" is intact and vested in the state.

The following indicators and measurements are used to operationalize the concepts of criminal and collective violence:

- Criminal violence – Number of criminal homicides as calculated in national and international homicide statistics; deaths from violent assaults as calculated in mortality statistics;

- Collective violence – Acts of war, civil war, political violence, terrorism, and organized criminal violence as identified from public sources;

The underlying definitions of the corresponding indicators of violence rely on a variety data sources that have been consulted for the purpose of this research (see Table III-1 below). As for homicide, this refers to definitions as constituted by national legal frameworks that vary from country to country (Smit, Jong, and Bijleveld 2012, 7). Lethal assault, on the other hand, refers to medical definitions of deaths caused by "injuries inflicted by another person with intent to injure or kill, by any means". These injuries are further grouped into a variety of codes provided by the WHO's International Classification of Diseases (ICD) (ibid., 8).

Unlike homicide the definition of collective violence is a somewhat less straight-forward matter. In fact, part of the difficulty in assessing the effects of collective violence on criminal violence relates to such problems of definition (cf. Kaldor 1999, 2007, 2013; also see Smith 2008). As for warfare and violence, the overarching definition of major episodes of political violence (MEPV) provided by the Center of Systemic Peace is adopted: "the systematic and sustained use of lethal violence by organized groups that result in at least 500 directly-related deaths over the course of the episode" (Marshall 2016, 2). War is thereby distinguished from violence by carrying a "stronger institutional, or institutionalized, component" while the attributes civil, ethic and international are assigned on the basis of varying social and political factors relating to the conflict.

Defining terrorism is also a complex endeavor (Dechesne 2012, 217; Schmid 2011). For the purpose of this study, the definition of terrorism as "the threatened or actual use of illegal force and violence by a non-state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation" (START 2015, 9) is adopted. This definition is also applied by the Global Terrorism Database.

III.3. Sampling

In order to test the hypotheses, data was gathered from a variety of sources and compiled in an integrated database. The data contains information on homicide, terrorism, warfare and major violence. Included are also a set of economic and population-based indicators as well as data on autocracy/democracy that serve as control variables for the purpose of this study.

Table III-1 Data sources

Type	Description	Source	Availability
Homicide rates	6619 entries of annual national homicide rates for 194 countries (1800 – 2010), aggregated from national and international statistical sources	CLIO-INFRA (Dutch inter-university data project)/ International Institute of Social History (Amsterdam)	https://www.clio-infra.eu/Indicators/HomicideRates.html
Homicide rates	1991 entries of homicide counts and rates for 219 countries and territories (2000-2014)	United Nations Office on Drugs and Crime (UNODC)	https://data.unodc.org
Homicide rates (lethal assault)	2537 entries of homicide rates for 59 countries (1950-2008)	World Health Organization (WHO) – Mortality database	http://www.who.int/healthinfo/mortality_data/en/
Terrorism	More than 156,772 events of terror attacks between 1970 and 2016 identified from open sources, 203 countries	START/University of Maryland – Global Terrorism Database (GTD) – Open sources	https://www.start.umd.edu/gtd/
Population sizes and compositions	14,982 entries (incl. missing values) of population sizes for 227 countries and territories (1950-2015); 15,906 entries of population compositions (males below 30) for 241 countries, territories and world regions (1950-2015)	UN Department for Economic and Social Affairs, Population Division	https://esa.un.org/unpd/wpp/Download/Standard/Population/

Warfare and major violence	9,046 entries of magnitude scores for different types of major episodes of political violence (MEPV) for 178 countries (1946-2012)	Center for Systemic Peace (CSP)/ Integrated Network for Societal Conflict Research (INSCR) – Major Episodes of Political Violence (MEPV)	http://www.systemicpeace.org/inscrdata.html
Socioeconomic indicators	15,084 entries (incl. missing values) on 107 socioeconomic variables for 264 countries, territories and world regions (1960-2016)	Worldbank – World Development Indicators	http://data.worldbank.org/data-catalog/world-development-indicators
GINI coefficients	9,098 entries (incl. missing values) on GINI coefficients in 190 countries (1950-2012)	Worldbank – 'All the Ginis'	http://data.worldbank.org/data-catalog/all-the-ginis
Autocracy/Democracy	17,059 entries of polity scores ranging from -10 (autocracy) to +10 (democracy) for 193 countries (1800-2015)	Center for Systemic Peace (CSP)/ Integrated Network for Societal Conflict Research (INSCR) – Polity IV Annual Time-Series	http://www.systemicpeace.org/inscrdata.html

III.3.1. Homicide data

First, data on homicide was drawn from Clio-Infra (CI). Clio-Infra is a data repository project hosted at the International Institute of Social History (IISH) in Amsterdam. The dataset on homicide ("World Countries Homicide rate dataset ") contains a total of 6619 observations which include historical entries dating back as far as until the year 1800. The coverage of the dataset is global, meaning all states currently belonging to the international system are accounted for if data on them was available. The data is structured as rates per 100,000 inhabitants per year and country. The data stems from national and international statistical sources, incl. publications and repositories from a wide range of countries, the World Health Organization (WHO) and the United Nations (UNODC).

In order to update and complement the Clio-Infra dataset with more recent sources, additional data from UNODC and WHO has been consulted. As for the UNODC data, this regarded 1991

observations for 219 countries between 2000 and 2014. The WHO data, on the other hand, was available for 59 countries between 1950 and 2008 and totaled 2,537 observations.

As Kanis et al. (2017) caution, homicide data provided by the WHO and UNODC for several African and Asian countries are in fact imputed based on socioeconomic indicators, and can, as such, not be used for regression analyses in which socioeconomic indicators are used as independent variables. Such observations were excluded from the analysis. This regarded, in fact, very few country-years, because the number of complete observations for the countries concerned was very low to begin with.

III.3.2. Warfare and major violence data

Data on warfare and major violence was obtained from the Major Episodes of Political Violence (MEPV) annual full dataset (1946-2012) which is maintained by the Integrated Network for Societal Conflict Research (INSCR)/Center of Systemic Peace (CSP).[16] The dataset contains panel data on independence (only warfare), interstate, ethnic, and civil violence and warfare for all countries whose total population exceed 500,000 inhabitants during the last year of observation (178 countries as of 2015). The data is expressed as magnitude scores ranging from 0 to 10 for each of 7 different types of warfare and violence. These scores are to be considered "consistent and comparable across categories and cases, that is, approximating a ratio scale" (Marshall 2016, 2) which is the highest level of measurement in statistics. All data is produced by using information from open sources.

III.3.3. Terrorism data

Data on terrorism was drawn from the Global Terrorism Database (GTD). The database is maintained by the National Consortium for the Study of Terrorism and Responses to Terrorism (START) at the University of Maryland. It contains a total of 156,772 events of terror attacks that occurred in 203 countries between 1970 and 2016. Each event is broken down into 137 variables that include, for example, information ranging from categorical descriptions of perpetrators, targets and choice of weapons via logistical aspects to counts of victims and perpetrators killed during the attacks. All data is generated from open sources.

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[16] CSP – Data, http://www.systemicpeace.org/inscrdata.html, accessed on 07/09/2016

III.3.4. Socioeconomic, population-based and polity (autocracy/democracy) data

Besides the dependent and independent variables of interest, additional data had to be collected. This included information on the total population size for each country and each year of the observation period. This and annual data on the age and gender composition of the populations was obtained from the UN Department of Economic and Social Affairs (DESA)/Population Division.[17] The data was available for 227 countries and 65 years, making for 14,982 observations.

Further indicators that were to serve as control variables were retrieved from the World Development Indicators (WDI), provided by the World Bank. These indicators are available on a plethora of economic and social themes and are compiled from a variety of recognized international sources. Variables retained for the purpose of this research included the GDP per capita (USD in purchasing power parity), the annual growth rate of the GDP per capita as well as the share of international trade (%) as measured by the combined imports and exports divided by the GDP. Besides these economic measures, data from the WDIs included the percentage of urban population and the percentage of female labor force. Also, data on the Gini coefficient was contained in the WDIs and employed for the purpose of this research. This data was augmented with information from the 'All the Ginis' dataset that was compiled by Milanovic (2014) on behalf of the World Bank.

Eventually, data on governance, namely a score on autocracy (-10)/democracy (+10), was obtained from the Polity IV project on political regime characteristics and transitions which is, again, hosted by the Center for Systemic Peace (CSP). This data contained 17,059 observations available for 193 countries and 215 years.

III.3.5. Data limitations and structure of final dataset

A main problem with the data was that many variables exhibited vast numbers of missing values. While compiling the data into an integrated dataset, only those country-years were retained for which data on the dependent variable (homicide rate) from any of the three above mentioned sources (Clio-Infra, UNODC, WHO) was available. The time span stretched from to 1950 to 2014. Only countries pertaining to the international system were considered, while dependent or semi-independent countries were excluded. Also, countries with a population of

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[17] https://esa.un.org/unpd/wpp/Download/Standard/Population/

less than 500,000 were ousted, as their homicide rates tend to be rather erratic and hardly comparable in form of trends. Subsequently, data on the independent variables of interest and control variables were added by matching the country-years for the homicide data. As shown in Table III-3, the merging led to a dataset with varying numbers of observations as per variables, countries and years.

Table III-2 Number of available observations for the homicide rate and all independent variables

Variable	Observations	Years	Countries
Homicide rate	4406	65 (1950-2014)	169
GDP per capita (USD, PPP)	2516	25 (1990-2014)	166
GDP growth (%)	3671	54 (1961-2014)	167
Trade (%)	3713	55 (1960-2014)	166
GINI coefficient	1866	65 (1950-2014)	133
Polity index	3968	65 (1950-2014)	157
Female labor force (%)	2574	25 (1990-2014)	168
Urban population (%)	4089	55 (1960-2014)	169
Young male population (%)	4406	65 (1950-2014)	169
Terrorism mortality rate	3244	44 (1970-2014)	161
MEPV (Warfare and other political violence)	3815	63 (1950-2012)	155

The final database thus took the structure of an unbalanced panel, meaning that data was not consistently available for all countries over the same period. The missing values potentiated each other. This means that country-years for which data on all of the variables to be contained in the analyses was available, made eventually for a comparatively small portion of the whole dataset. As shown in Table III-3, the calculation of full models as presented in this study (see below) led to the exclusion of many countries and effected some world regions more than others.

Table III-3 Number of complete observations for calculating the effects of terrorism, major violence and control variables on homicide rates

Region	Models with control variables only			Terrorism models			MEPV models		
	Obs.	Years	Countries	Obs.	Years	Countries	Obs.	Years	Countries
Africa	73	17 (1991-2012)	26	55	16 (1991-2012)	20	57	17 (1991-2012)	20
Americas	356	25 (1990-2014)	23	306	22 (1990-2013)	23	326	23 (1990-2012)	23
Asia	274	25 (1990-2014)	33	189	22 (1990-2013)	28	254	23 (1990-2012)	32
Europe	557	25 (1990-2014)	35	522	22 (1990-2013)	35	517	23 (1990-2012)	33
Oceania	17	13 (1990-2010)	3	16	12 (1990-2010)	3	17	13 (1990-2010)	3
Global	1278	25 (1990-2014)	121	1088	22 (1990-2013)	109	1171	23 (1990-2012)	111

III.4. Analytical strategy

As described, the data from the aforementioned sources was merged into an integrated database. The finalized database was subjected to a series of analyses. This included the exploration of global and regional trends in homicide, terrorism, warfare and major violence, as well as different sets of regression analyses to predict the effects of terrorism, warfare and major violence as well as the economic and population-based control variables on the homicide rate.

III.4.1. Treatment of variables

The database had a cross-sectional time series (panel) structure, meaning it contained observations for several individuals (countries) at different points in time (years). Most of the original data already followed a panel structure and simply had to be simply matched on the basis of country and year. However, this did not apply to the data from the Global Terrorism Database (GTD) that took the form of an event database. It had to be converted into a panel format. Initially, a total of 6 variables were computed and included in the final database. This comprised, per year and country, the counts of terror attacks, lethal terror attacks, international attacks, suicide attacks, victims killed, and terrorists killed. Besides the count data, these variables were also stored as dummy variables. Eventually, by drawing on the counts of victims and terrorists killed during terror attacks as well as the population data from UN DESA's Population Division, the terrorism mortality rate, meaning the number of deaths caused by terror attacks per 100,000 inhabitants, was calculated.

Given the uncertainties as to whether victims of terror attacks might already have been included in the given homicide rates, adjusted homicide rates were calculated in order as to avoid measuring a spurious relationship. This was achieved by detracting the terrorism mortality rate from the homicide rate. The adjusted homicide rate served as the dependent variable throughout all of the analyses presented in this study, except for the models that tested the relationship of the homicide rate with the control variables without adding the independent variables of interest (terrorism, warfare, major violence).

Both the homicide rate and the terrorism mortality rate exhibited a significant positive skew in their distributions, with particularly long tails to the right. A natural logarithmic transformation (Phillips and Greenberg 2008, 57) was performed to correct for the skew and to pull and smoothen the data. In the case of the terrorism mortality rate, a constant of 1.0 was added before applying the transformation method. This was necessary because the terrorism mortality rate contained frequent zero-values which cannot be transformed by a natural logarithm. It has to be noted that log-transformed variables imply a specific interpretation of the coefficients. In the case that both the dependent and independent variables had been transformed, the relationship takes the form of a log-log model. In econometrics such a relationship is referred to as "elastic" (Benoit 2011, 4). Unlike untransformed variables, the coefficients indicate percent-changes, not unit-changes. The value of the regression coefficients indicates percent-changes in the dependent variable (untransformed) while the independent variable (untransformed) consistently increases by 1 percent. If only the dependent variable is transformed, the coefficients of the untransformed independent variable need to be read as a *100 * coefficient* percent changes in the dependent variable while the independent variable changes by 1 unit.

III.4.2. Regression analyses

For the purpose of this study, most regression analyses were performed using fixed effects models. Fixed effects models are one of two major types of regression models used for panel analyses, the other one being the random effects model (Phillips and Greenberg 2008). The appropriateness of one of the other can be shown by conducting a Hausman test (Hausman and Taylor 1981) which was performed on all models an confirmed the appropriateness of a fixed-effects approach.

Panel models, i.e. fixed and random effects models, allow to account for unobserved heterogeneity in the observed units (countries). This is not possible when conducting general

multiple regression models, also referred to as pooled OLS (ordinary least squares) in a panel context. In the case of pooled OLS, individual differences in the units of observation are not accounted for. Given that such differences almost certainly occur in the data, the estimation becomes inconsistent as far as the error terms are correlated with the predictor variables, and become inefficient when terror terms are heteroscedastic and serially correlated. These problems can be accounted for by using models for panel data analysis. The formula that applies to both random and fixed effects models is displayed below. The placeholder i thereby represents the observed entities and t the period of observation. Y is the dependent variable (homicide rate), X stands for the k predictor variables (independent variable of interest plus control variables), β the corresponding regressor coefficients, α the unobserved fixed effects specific to each country and ϵ the error term.

$$\mathrm{E}\, Y_{it} = \beta_1 X_{1,it} + \cdots + \beta_k X_{k,it} + \alpha_i + \epsilon_{it}$$

Besides accounting for random or fixed effects specific to each individual country, also omitted effects specific to each year can be included in panel models. This makes for two-ways or time-fixed effects models that can be run in conjunction with both random or fixed effects models and read as displayed below. As becomes apparent, the placeholder λ has been added to the formula as a dummy that accounts for each year (t) under observation:

$$\mathrm{E}\, Y_{it} = \beta_1 X_{1,it} + \cdots + \beta_k X_{k,it} + \alpha_i + \lambda_t + \epsilon_{it}$$

In the case of the fixed effects model, the calculation is most commonly based on the use of the within estimator which makes also for the most commonly applied model in panel analysis. For each variable (X, Y_k) subject to the analyses, the corresponding mean value ($\bar{x}, \bar{y}$) is thereby detracted from each longitudinal observation (t) pertaining to the same cross-section (i). The corresponding formula is shown below. Time-invariant differences between the individuals are factored out before the calculation is subjected to a pooled OLS. This is also why fixed effects models do not provide an interpretable intercept term.

$$\mathrm{E}\, (Y_{it} - \bar{y}_i) = (X_{k,it} - \bar{x}_{k,i})\beta_k + (\epsilon_{it} - \bar{\epsilon}_i)$$

In the case of the within estimator, the model is fitted to the effects that variables exert over time within each individual. In order to estimate the effects that the variables exert in determining the time-invariant differences between the individuals, the between estimator has to be used. For that purpose, the mean values of all longitudinal observations pertaining to the

same cross-section are calculated before subjecting the estimation to a pooled OLS. This reads as follows:

$$\mathrm{E}\,\bar{y}_i = \alpha + \bar{x}_i\beta + \bar{\epsilon}_i$$

Models were run in various configurations, mainly with fixed effects (within estimator) with and without fixed time effects. Besides running the models with regular standard errors, all models have also been computed with heteroscedasticity-consistent standard errors following the White method (White 1980). Where appropriate, also models with random effects, the between estimator and pooled models are presented for comparative purposes.

All analyses were conducted using the open source programming language *R* and the adjoined integrated development environment *RStudio*. Panel models were run using the *plm* function from the *plm* package (Croissant, Millo, and others 2008). Robust standard errors were calculated using the *coeftest* (*lmtest* package) and *vcovHC* (*sandwich* package) functions.

III.4.3. Summaries of trends in homicide, terrorism, warfare and major violence

Apart from running regression analyses, trends in homicide, terrorism, warfare, and other episodes of major violence have been summarized by means of descriptive statistics, visual representations and discussion of relevant context. These analyses were conducted in order as to understand the structure of the datasets incl. its limitations, gain a disaggregated overview of relevant trends in violence, and hence provide the ground for an informed interpretation and discussion of findings from the statistical analyses. Figures were produced using the *ggplot2* package for data visualization in *R* (Wickham 2016). The regional clustering was performed following the regional scheme developed by the UN Department of Economic and Social Affairs Statistics Division.[18]

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[18] UN DESA – Standard country or area codes for statistical use (M49)/ Geographic regions,
https://unstats.un.org/unsd/methodology/m49/, accessed 09/08/2016

CHAPTER IV.   Homicide trends and their association with economic and population-based control variables

This chapter is divided into three sections. Firstly, the three different sources of homicide data that were consulted for the purpose of this study will be discussed, and the association between them will be examined. Secondly, an overview of global and regional homicide trends between 1950 and 2014 will be provided. Thirdly, associations between the homicide rate and the previously presented set of economic and population-based indicators will be tested in a series of regression models. These are the very indicators that serve as control variables for the models presented in the subsequent chapters on the effects of terrorism (CHAPTER V) as well as warfare and major violence on homicide (CHAPTER VI).

IV.1. Varying sources of homicide data

As described in the methodology, data on homicide has been gathered from three different sources. This data was available for varying time periods and a varying number of countries. As Figure IV-1 shows, the homicide data from Clio Infra, UNODC and WHO are strongly correlated. This indicated that the quality of the data was mutually comparable.

Figure IV-1 Correlogram of homicide rates from Clio-Infra, UNODC and the WHO
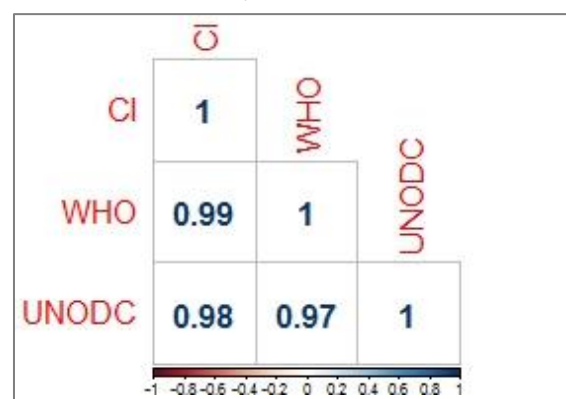
In comparing the three data sources, it is important to note that their collection is based on different methods. The dataset from Clio-Infra is itself a secondary source that was compiled from a variety of official crime statistics at national and international level, incl. data from UNODC and the WHO. As such, the reliability and comparability of the data, both between countries and over time, is impaired by differences in counting standards as well as varying legal definitions of homicide. In general, this problem also applied to the data from UNODC. It is mitigated, however, by the way in which data is collected by the UNODC. Rather than merely gathering statistics from national publications, the UNODC collection is based on a survey among national focal points for homicide statistics. Counting standards as well as differences in legal definitions are thereby addressed and, to the extent possible, accounted for.

Unlike the data from Clio Infra and UNODC, the data from WHO is not based on crime but on mortality statistics. Relevant mortality statistics were not provided by the police but by public health authorities. Health authorities do not apply legal definitions of homicide. Instead, their classification is based on medical definitions of causes of death that have been internationally agreed upon and codified in the International Classification of Diseases (ICD). In theory, this makes homicide data from the WHO more readily comparable between countries. In dealing with any of the three sources, however, it has to be remembered that the quality of the data ultimately depends on specific circumstances in any given country at different points in time. Beyond counting standards and legal definitions, the reliability and comparability of homicide data is also heavily influenced by other factors. These include, for example, the general ability of authorities to detect homicide and report it according to established standards of any kind.

In taking a closer look at how the datasets compare, Figure IV-2 shows that the density distributions for each of the three sources were similar in the sense that they exhibited a strong skew to the right. This was also apparent when comparing the mean and median values for each of the three data sources (Table IV-1).

Table IV-1 Summary statistics of homicide rates from different sources

Statistic	N	Mean	St. Dev.	Min	Median	Max
UNODC	1,555	7.943	12.459	0.100	3.100	93.200
Clio Infra	3,709	6.541	10.345	0.090	2.530	107.990
WHO	2,420	5.496	9.679	0.019	1.953	130.982

Figure IV-2 shows that among the world regions available for comparison, homicide rates were highest in the Americas. This pattern was apparent in all sources. Other world regions— Europe, Asia and Oceania—peaked lower than the Americas, but were similarly consistent around the same values for any of the various sources. Still, some discrepancies between the reported values became apparent when examining the scatterplots.

Figure IV-2 Scatterplot matrix of homicide data from Clio-Infra, UNODC and the WHO
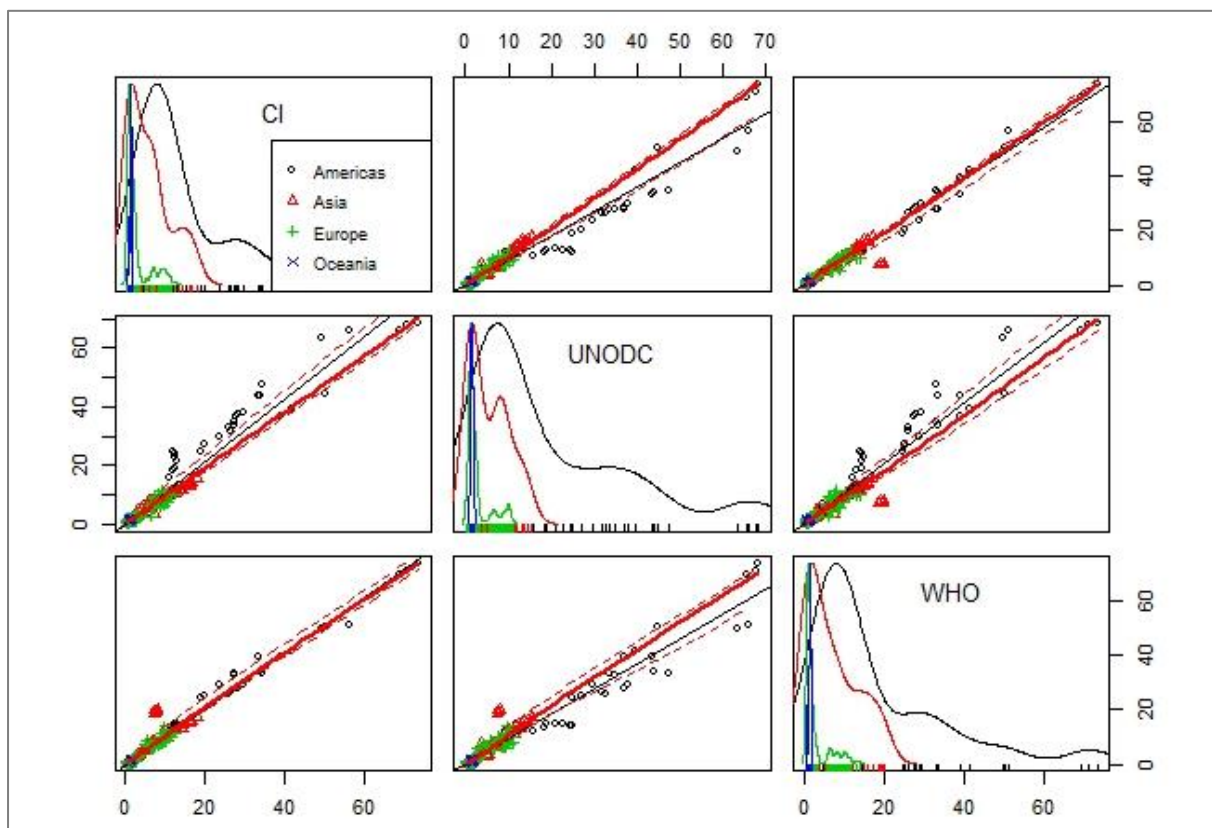
Comparing the values reported by each source, the scatterplots reveal that the values for the Americas reported by UNODC differed from the values reported by Clio Infra and the WHO. UNODC reported generally higher rates for the Americas which caused the corresponding regression line to diverge from a mere one-to-one projection of the values. Also in the case of Asia, the scatterplots revealed some differences between the reported values. There were several instances in which the WHO reported higher values than Clio Infra or UNODC. These observations regarded the homicide rates of the Philippines between 1998 and 2001. As compared to the differences between the reported values for the Americas, however, the inconsistent observations for Asia were relatively few, and they did not seem to have any manifest impact on the regression line.

The scatterplots did not reveal any major differences for observations on European and Oceanian countries. Observations regarding Africa, on the other hand, are notably absent from Figure IV-2. UNODC and Clio Infra report homicide rates for a number of African countries. However, not enough paired observations were available in order to consider Africa for the purpose of the scatterplot (Figure IV-2).

IV.2. Homicide trends

As described in the methods section (III.4.1), all three data sources (Clio Infra, UNODC, WHO) were combined to form the homicide rate variable that was subsequently subject of the analyses presented hereafter (cf. Marshall and Block 2004). Concerning the time of observation, the data collected was far from what may be considered complete, as Figure IV-3 shows. The number of countries with available data on homicide rates was comparatively low to begin with, but homicide rates became increasingly available over time. In the 1950s, for example, the availability of data on homicide was largely confined to the most developed world regions, i.e. North America, Western Europe and Australia (I. H. Marshall and Summers 2012, 42). Homicide data for Latin American and Asian countries became increasingly available throughout the following decades, while data for Africa and Oceanian countries other than Australia and New Zealand remained largely unavailable until the beginning of year 2000 when UNODC data became published.

Figure IV-3 Clustered homicide rate and availability of homicide data for different world regions (1950-2014)
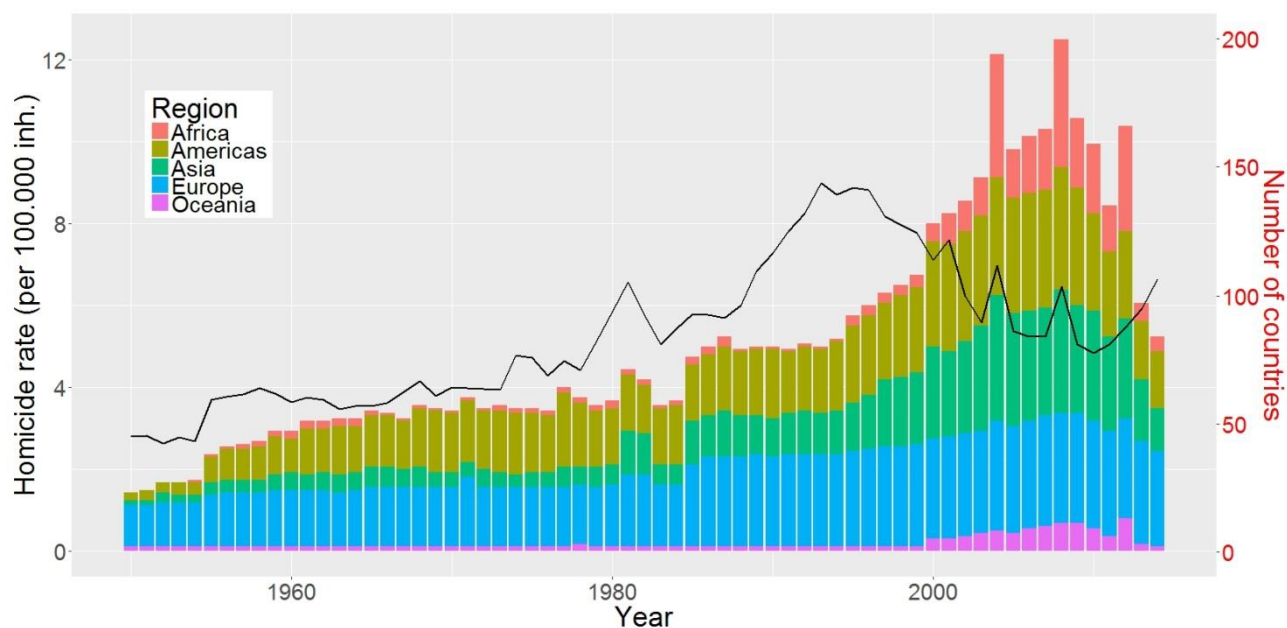
Elaboration by the author; Data sources: Clio-Infra, UNODC, WHO

It is frequently reported in the literature that homicide rates have declined over the past decades. This account is mostly based on the observation of homicide trends in Europe and the U.S (Weiss et al. 2016). It has to be noted that in this regard the varying availability of data bears a strong influence on what may be considered a global homicide trend. The reference population changed drastically when countries were added or removed from the calculation. And even if

the global homicide rate might have been in decline, this trend was based on very diverse and somewhat opposing developments in different countries and world regions (ibid.; UNODC 2013, 12), as Figure IV-4 shows.

Figure IV-4 Clustered homicide rates for different world regions (1950-2014)
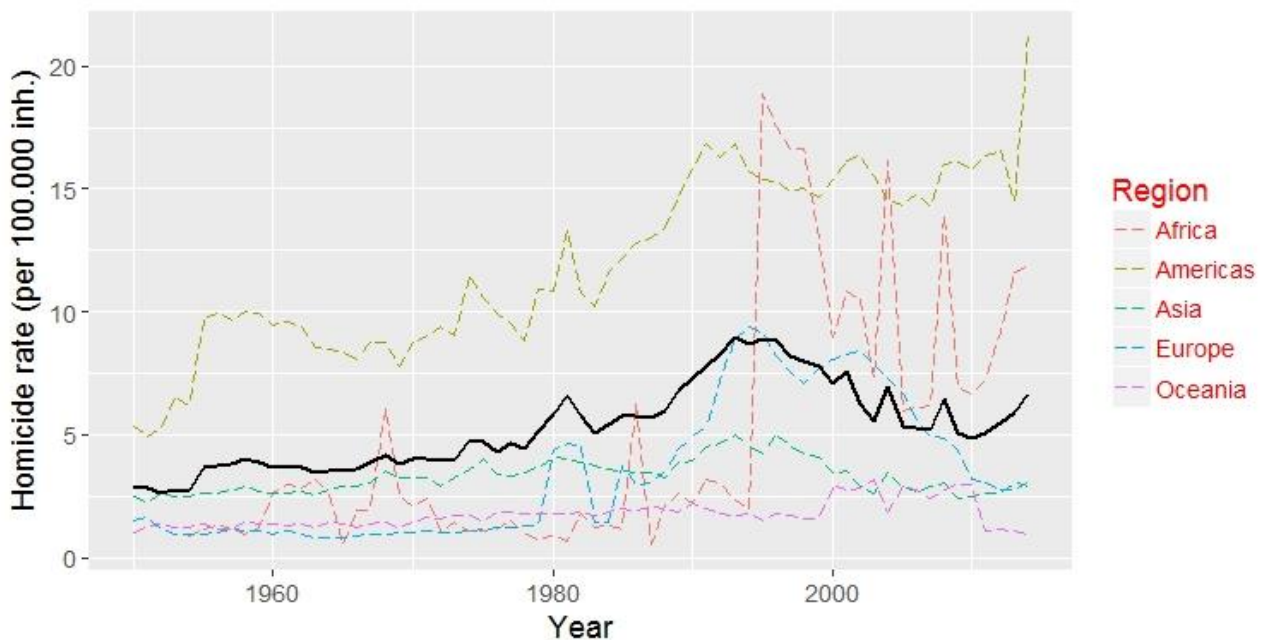
Elaboration by the author; Data sources: Clio-Infra, UNODC, WHO

Among the major world regions, the Americas exhibited the highest homicide rate, while Asia and Oceania showed particularly low rates. The number of countries included in any given year and region varied heavily, however. The regional homicide rates reported in Figure IV-4 are therefore not comparable over time.

Figure IV-5 Clustered homicide rate and availability of homicide data for OECD countries (1950-2014)
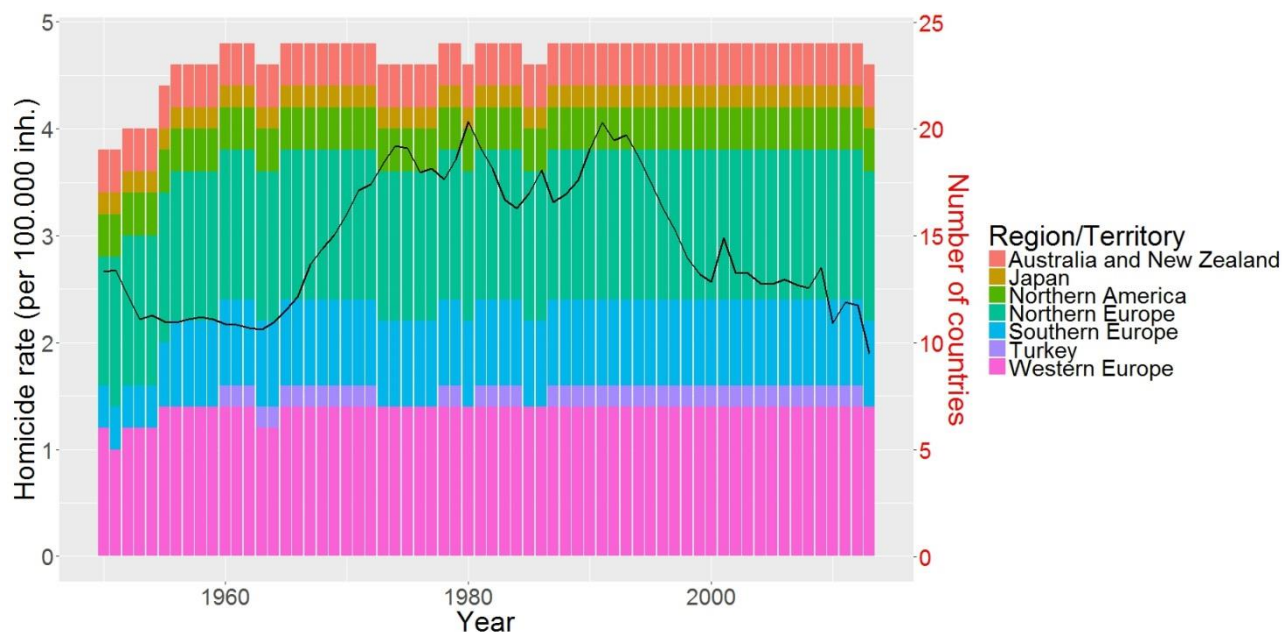
To gain a clearer idea of a global homicide trend, it was necessary to refer to those countries for which solid homicide data was available for the applicable timespan. Figure IV-5 shows that this is was the case, for example, for the original member states of the OECD.[19]

With the exception of Turkey, stable data on homicide rates was available for all original OECD countries since the second half of the 1950s. The homicide rate did indeed exhibit a general decline that set in at the beginning of the 1990s. The rate thereby decreased by up to 50%, a development which is widely discussed in criminology. Declines in the European homicide rates are more striking when applying a longer period of observation, meaning a historical perspective (Spierenburg 2012). These declines have been widely interpreted in the context of Norbert Elias' theory of the civilizing process (Kivivuori, Savolainen, and Danielsson 2012, 6; cf. Elias 1982). Looking instead at more recent developments, a disaggregation of homicide rates of selected OECD countries revealed that the overall decline was strongly influenced by changes in the United States (see Figure IV-6) (Blumstein and Rosenfeld 1997; LaFree 1999; Weiss et al. 2016). The homicide rate in the U.S. was significantly higher than in any other of the selected OECD countries—an account which held

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[19] Figure IV-5 considers all 24 OECD member states that had joined the organization before 1974. Further 11 Eastern European, American and Asians countries have joined the organization since 1994.

true throughout the whole period of observation and despite significant decreases in the American homicide rate since the beginning of the 1990s.

Figure IV-6 Homicide rates for selected OECD countries (1950-2014)
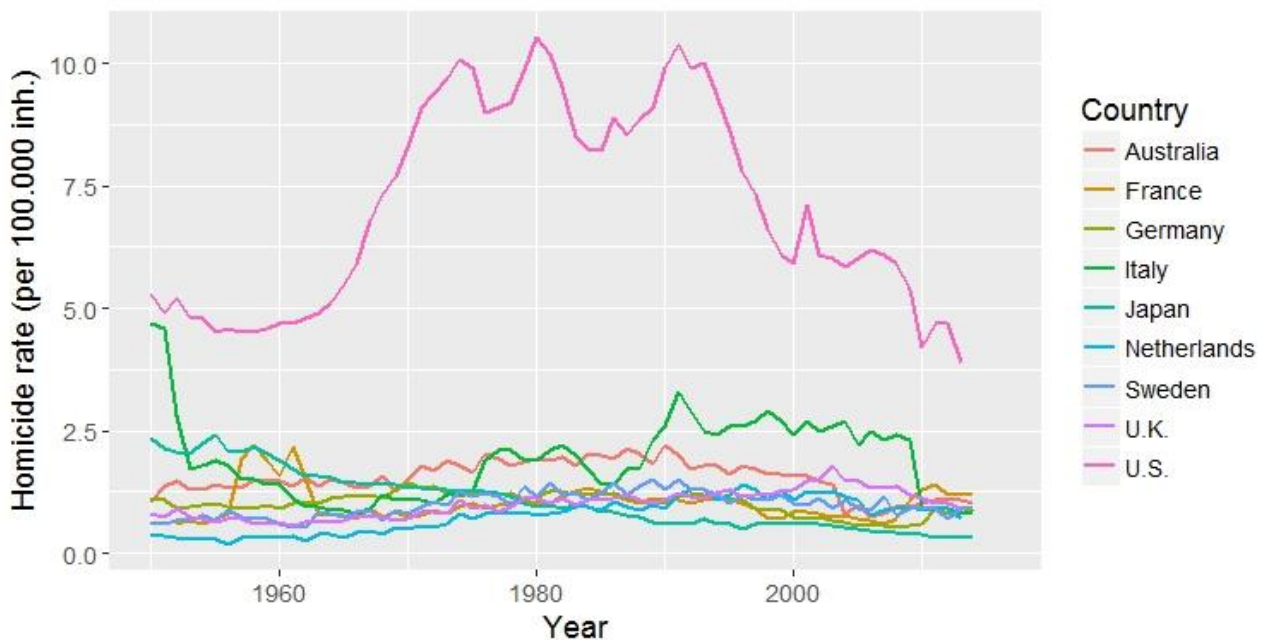
Elaboration by the author; Data sources: Clio-Infra, UNODC, WHO

Among the other selected OECD countries, Japan showed particularly low homicide rates following a stable decrease throughout more than 6 decades (Johnson 2008). Other OECD countries displayed a rather heterogeneous trend. Some countries exhibited decreases while others exhibited increases. The homicide rate in Italy, for example, seemed to be more variant in that regard than for other countries. Italy's homicide rate started out comparatively high at the beginning of the 1950s, aligned with other European countries thereafter and broke away again in the mid-70s. Throughout the 90s, Italy saw relatively high homicide levels, but aligned back with other selected OECD countries rather abruptly in 2010. The dynamics in Italy were interpreted with reference to (the disappearance of) homicides attributable to political motives in the 1990s as well as to mafia violence (Preti and Macciò 2012, 384).

Based on an international comparison, it became apparent that the clustered homicide rate for the selected OECD countries was significantly below the global average which is likely to lie somewhere around 6.0 (see, for example, the value for 2008 in Figure IV-3, also see UNODC 2013, 21).

IV.2.1. Homicide trends in Europe

Looking further into the European homicide rate, Figure IV-7 confirms that homicide data for Western and Northern Europe has been stably available throughout the second half of the 20th century. Data for Eastern European countries, on the other hand, had not been widely available until the late 1980s, a time which due to the tumbling of the Soviet Union and the eventual fall of the Eastern Bloc is to be considered a period of transition. Figure IV-7 also shows that data for Southern Europe becomes more widely available at roughly the same time as data for Eastern Europe. The availability increased throughout the course of the 1990s and early 2000s.

Figure IV-7 Clustered homicide rate for Europe and availability of homicide data for European subregions (1950-2014)
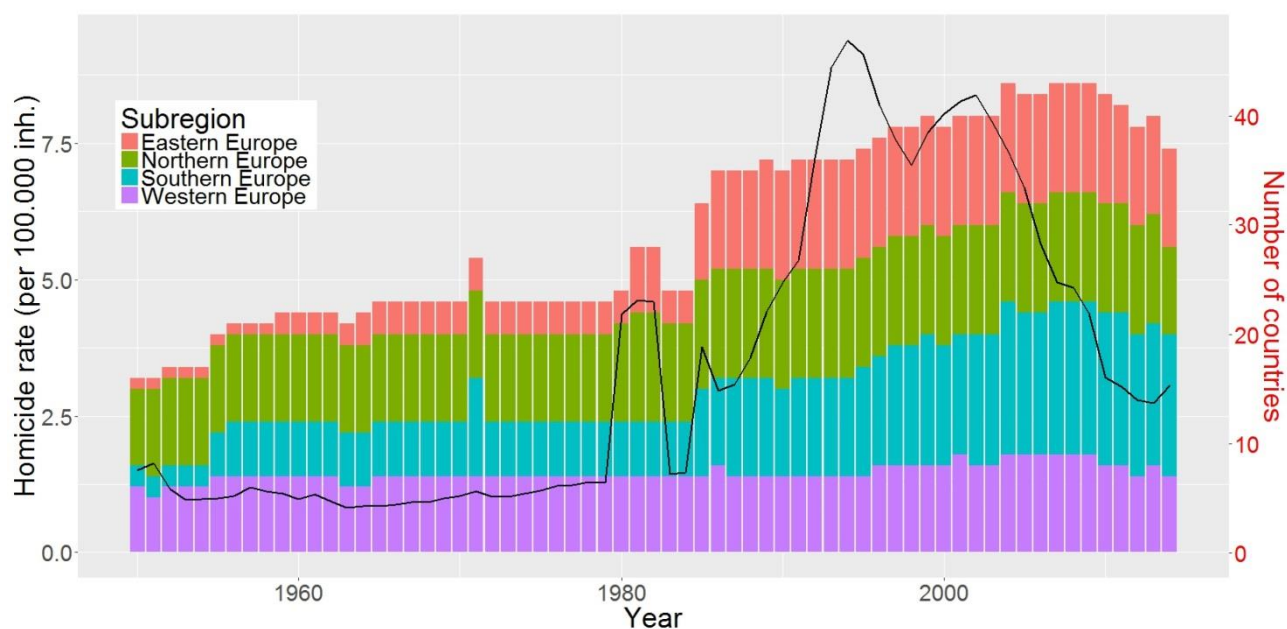
Elaboration by the author; Data sources: Clio-Infra, UNODC, WHO

An increase in availability of homicide data for Southern Europe was especially attributable to Southeastern European countries. Initially, this increase solely regarded Romania and Bulgaria, but eventually also the former Yugoslavian states that became independent over the course of the Yugoslav wars—beginning with Slovenia and Croatia in 1991, and ending with Kosovo in 2008, whose status as an independent state is still disputed (Ryngaert and Sobrie 2011, 497).

Figure IV-7 indicates a rise in the European homicide rate around the time when data for Eastern and Southern Europe became more widely available. Again, it needs to be remembered that these changes cannot be interpreted as trends. This is because the reference population changed with the omission and addition of further countries. While data for the Soviet Union

was not initially included in the dataset, the addition of Russia, the most populous European country, had indeed a strong effect on the clustered homicide rate for Europe. The connection becomes clearer in Figure IV-8. While the homicide rates for Western, Northern and Southern Europe remained comparably low and stable throughout the whole period of observation, the rate for Eastern Europe showed somewhat dynamic changes. Until the mid-1980s, this development is not interpretable in regional terms as it was based on the inclusion of a very low number of countries. However, this changed thereafter. As of 1985, the homicide rates for Eastern European countries also became increasingly available.

Figure IV-8 Clustered homicide rates for European subregions (1950-2014)
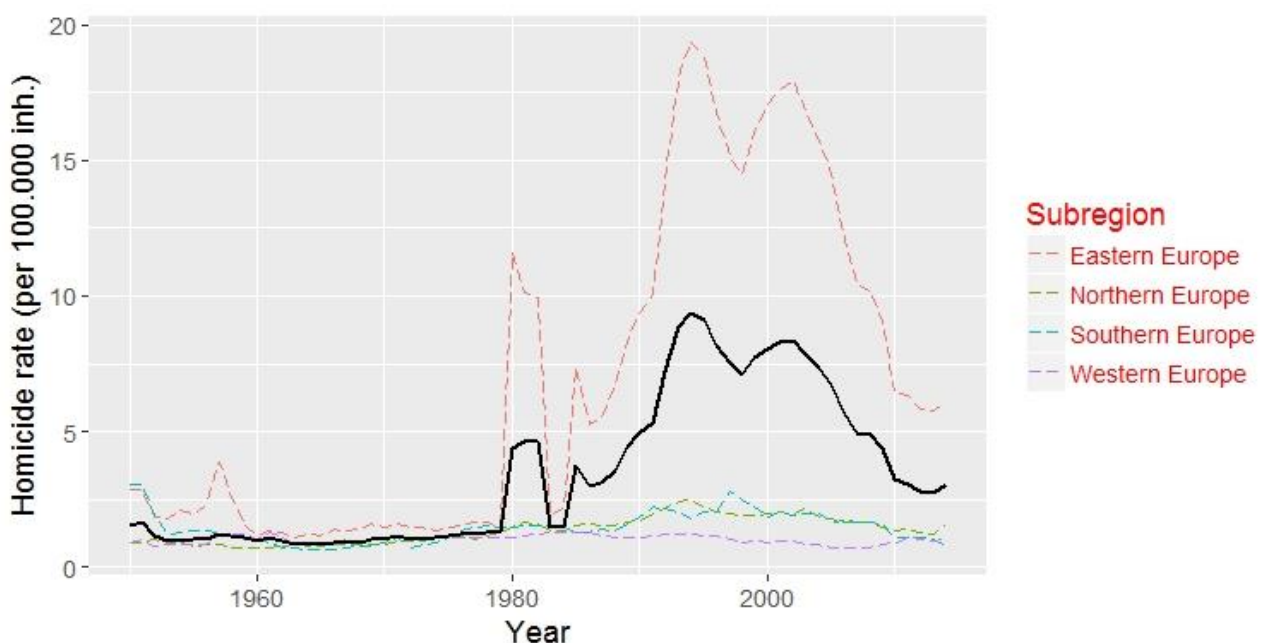
Elaboration by the author; Data sources: Clio-Infra, UNODC, WHO

Figure IV-8 indicates that Eastern European countries saw dramatic increases in their homicide rates at the beginning of the 1990s. The rate peaked at almost 20.0 in 1995, with a second peak in 2002, followed by a sharp and steady decline thereafter. It became equally apparent that the clustered homicide rate for the whole of Europe was strongly influenced by the development within Eastern Europe. However, also among themselves, Eastern European countries made for a rather heterogeneous group in terms of their homicide rates (I. H. Marshall and Summers 2012, 50).

Table IV-2 Top 5 of homicide rates in Europe (1950-2014)

Year	Country	Homicide rate
1997	Albania	40.10
1994	Russia	32.40
2002	Russia	30.97
1995	Russia	30.80
1993	Russia	30.40

In fact, the highest values, not only for Eastern Europe but all of Europe, were measured in Russia. Apart from Albania, they were also the highest rates measured for any European country during the period of observation, as Table IV-2 shows. Not only due to its high level, but also due to the fairly large Russian population, the homicide rate of Russia bore an especially strong influence on the clustered homicide rate. Russian homicide rates have meanwhile declined. It has been questioned, however, to what extent declines in official Russian homicide statistics reflect a true decline (Slade et al. 2015).

IV.2.2. Homicide trends in the Americas

Turning to the Americas, Figure IV-9 shows for how many countries per subregion data on homicide rates has been available. As in Europe, the availability of data generally increased over time, but exhibited a drop in more recent years. Data for the Caribbean was less stably available than for other American regions. Also in Figure IV-9, the regionally clustered homicide rate for the Americas was plotted in relation to the number of countries from each subregion for which data had been available. Again, changes in the depicted homicide rate cannot be interpreted as trends in the actual homicide rate as the reference population continuously changed while data became available for an increasing number of countries.

Figure IV-9 Clustered homicide rate for the Americas and availability of homicide data for American subregions (1950-2014)
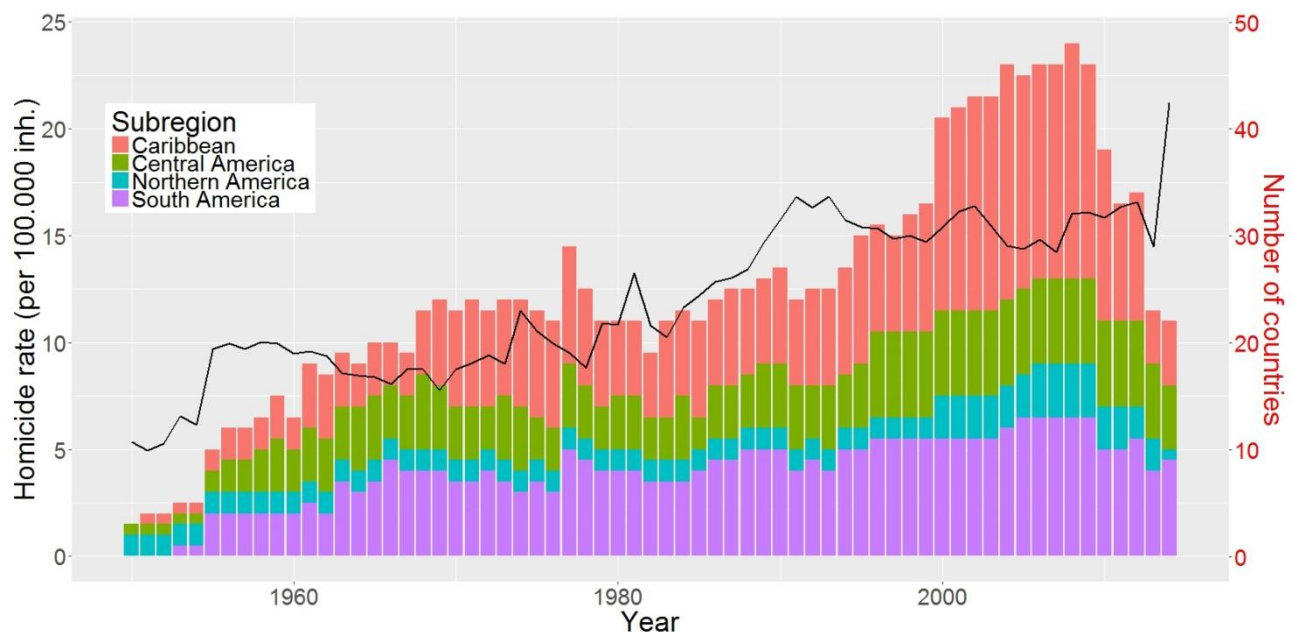
Elaboration by the author; Data sources: Clio-Infra, UNODC, WHO

What became apparent, however, was that the average homicide rate in the Americas has been consistently higher than in Europe or among OECD countries, and that it has not necessarily declined over the past years. The number of available countries decreased for the most recent years. The major spike in the homicide rate towards the last year, namely from 2013 to 2014, occurred because U.S. data for 2014 was not included in the dataset. The increase points to the impact of the U.S. on the regional homicide rate as the most populous American country—and to the overall lower level of the U.S. homicide rate in comparison with other American countries.

Figure IV-10 gives further indication that the regional development in the Americas was based on dynamic and somewhat opposing subregional trends. The homicide rate in Northern America has been in decline since the beginning of the 1990s (LaFree 1999; Weiss et al. 2016). Over the same time period, both Central American and the Caribbean states displayed a rather significant increase, while the homicide rate in South America remained stable at a comparatively high level. In fact all three regions were among the subregions with the highest homicide rates in the world (UNODC 2013, 22).

Figure IV-10 Clustered homicide rates for American subregions (1950-2014)
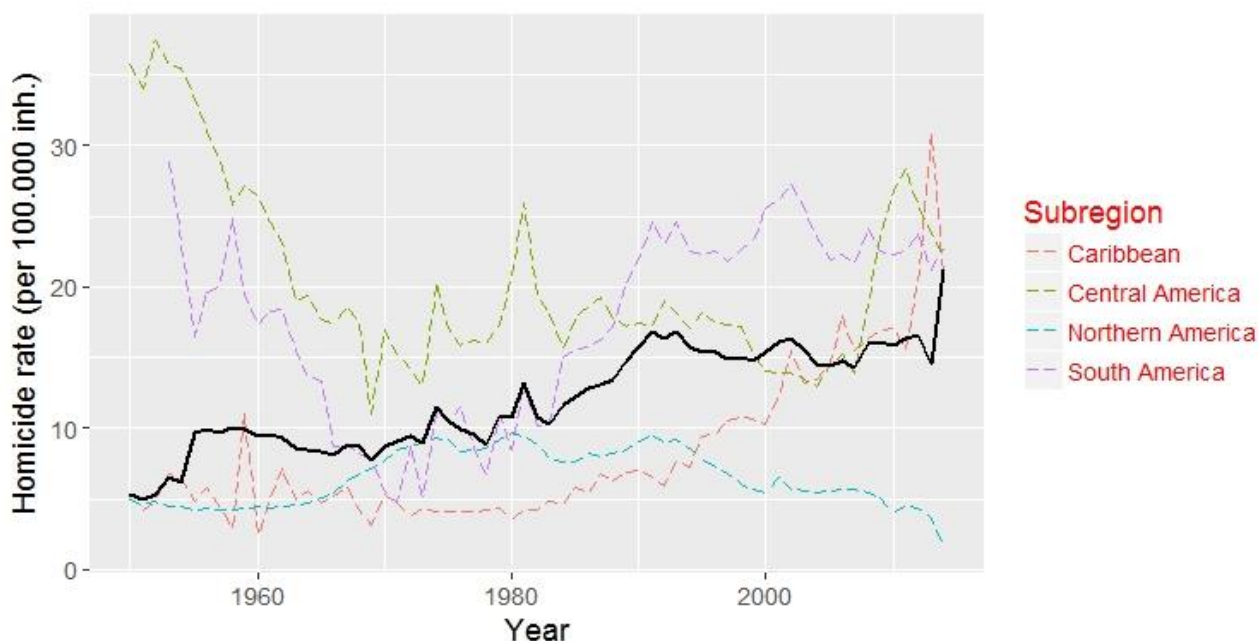
Elaboration by the author; Data sources: Clio-Infra, UNODC, WHO

Looking prior to the 1990s, it became apparent that Central and South America had previously seen elevation in their homicide rates. This was the case in the 1950s in both subregions, and at the beginning of the 1980s in Central America.

The depiction is not necessarily an expression of regional trends, but may possibly be strongly influenced by specific countries. Figure IV-11 shows disaggregated homicide rates for a number of selected countries in the Americas. Much like globally and in other world regions, homicide rates and trends in the Americas differed within as much as between subregions. Some Central American countries, for example Honduras, El Salvador and Guatemala, exhibited great variance in regard to their homicide rates—with exceptionally high homicide rates in selected years (UNODC 2013, 33). This is also confirmed in Table IV-3 which shows the Top 5 entries for homicide rates during the observation period. Other Central American countries, for example Mexico, Costa Rica and Panama, showed comparatively fewer variance and much lower rates.

Table IV-3 Top 5 homicide rates in the Americas (1950-2014)

Year	Country	Homicide rate
1981	Guatemala	107.99
2011	Honduras	93.20
2012	Honduras	92.70
1991	Colombia	89.50
1992	Colombia	88.53

Also the comparison between selected South American countries pointed to rather strong differences in regard to their homicide rates (Briceño-León, Villaveces, and Concha-Eastman 2008). Colombia's rate, for example, exhibited great variance and reached exceptionally high levels peaking in 1992. Chile's homicide rate, on the other hand, was a lot lower and comparably stable throughout the whole period of observation.

Figure IV-11 Homicide rates for selected American countries (1950-2014)
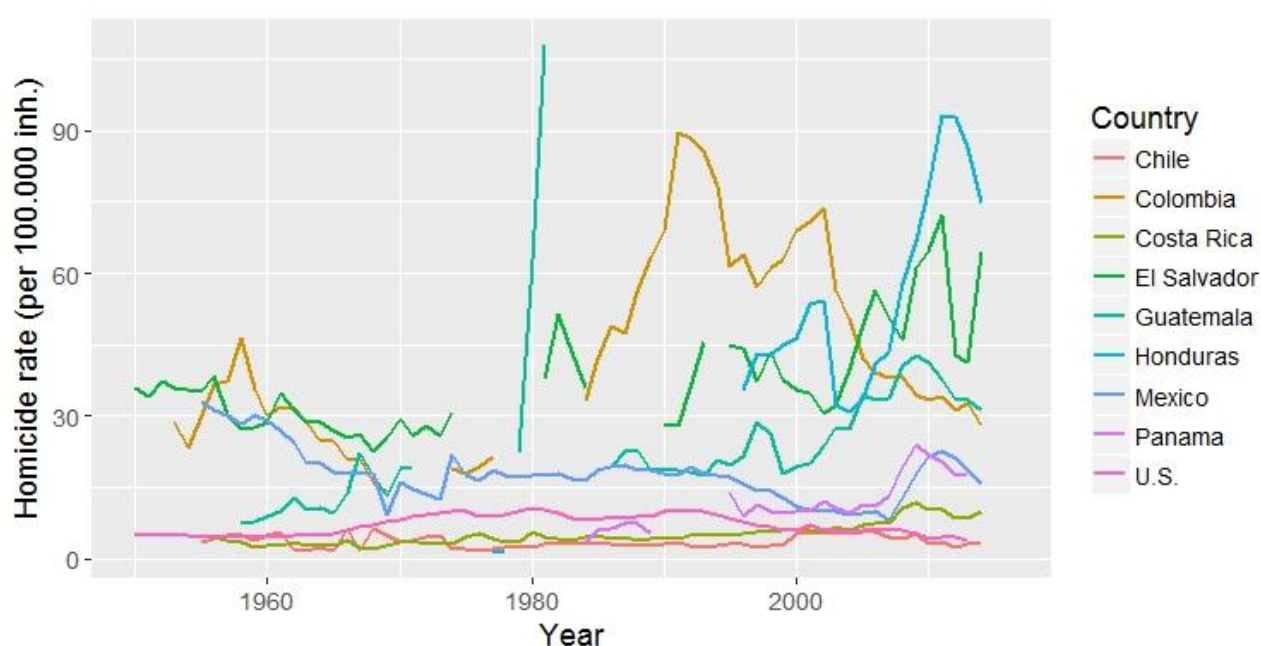
Elaboration by the author; Data sources: Clio-Infra, UNODC, WHO

Due to its comparatively large population and the limited number of countries in the subregion, the homicide rate for Northern America was strongly influenced by developments in the U.S (Figure IV-10). But while the U.S. homicide rate ranked highest among the original member countries of the OECD, as Figure IV-11 indicates, a comparison with other American countries

puts the U.S. at the lower edge. Given the steady decline of the U.S. homicide rate over the past decades, this rate of decline in homicide held especially true for the most recent years.

IV.2.3. Homicide trends in Asia

Figure IV-12 shows the development of the clustered homicide rate in Asia in relation to the number of countries in each subregion for which data on homicide rates had been available. Again, it shall be called to mind that the development of the clustered homicide rate cannot be interpreted in form of a trend as the reference population changed according to the number of countries for which data had been available for any given year.

As previously seen in the cases of Europe and the Americas, the number of available countries started out low at the beginning of the observation period and grew over time—with a decline in the number of available countries towards recent years. For most of the time from the 1950s until the mid-1980s, the availability of data on homicide rates in Asia was limited to less than 10 countries. Being part of Eastern and Southern Asia respectively, Japan and India were the only countries that provided a complete time series. Homicide rates for other countries were less continuously available. For Central Asian countries, for example, data did not become available until the beginnings of the 1980s. Also for the other subregions, the coverage has long been rather poor, with relative improvements setting in at the beginning of the 2000s.

Figure IV-12 Clustered homicide rate for Asia and availability of homicide data for Asian subregions (1950-2014)
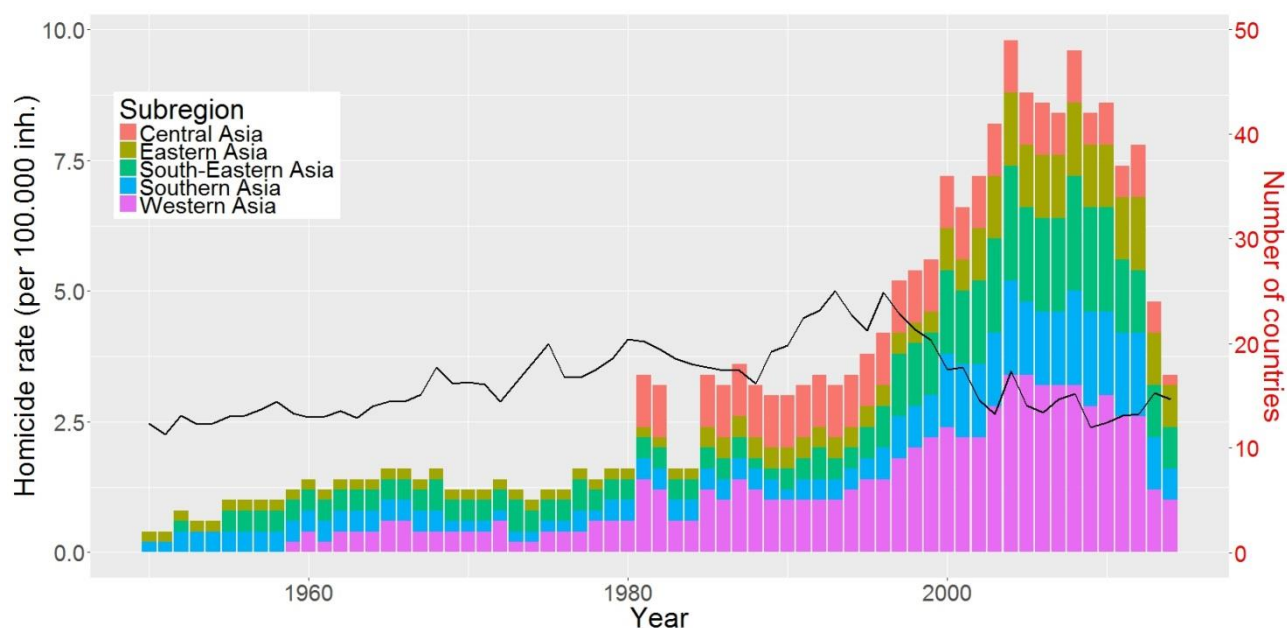
Elaboration by the author; Data sources: Clio-Infra, UNODC, WHO

In comparing the different subregions (see Figure IV-13), it became apparent that Eastern Asia—encompassing Japan, China, Mongolia and the Korean peninsula—exhibited the lowest homicide rates in Asia during the observation period (Johnson 2008; UNODC 2013, 34). The development of the clustered rate appeared to be rather stable, without any major deflections. Though generally higher than in Eastern Asia, also the homicide rate in Southern Asia appeared to develop rather stably over time. This was somewhat different in the other subregions. Especially the data for Southeastern Asia suggested a rather dynamic development over time.

Figure IV-13 Clustered homicide rates for Asian subregions (1950-2014)
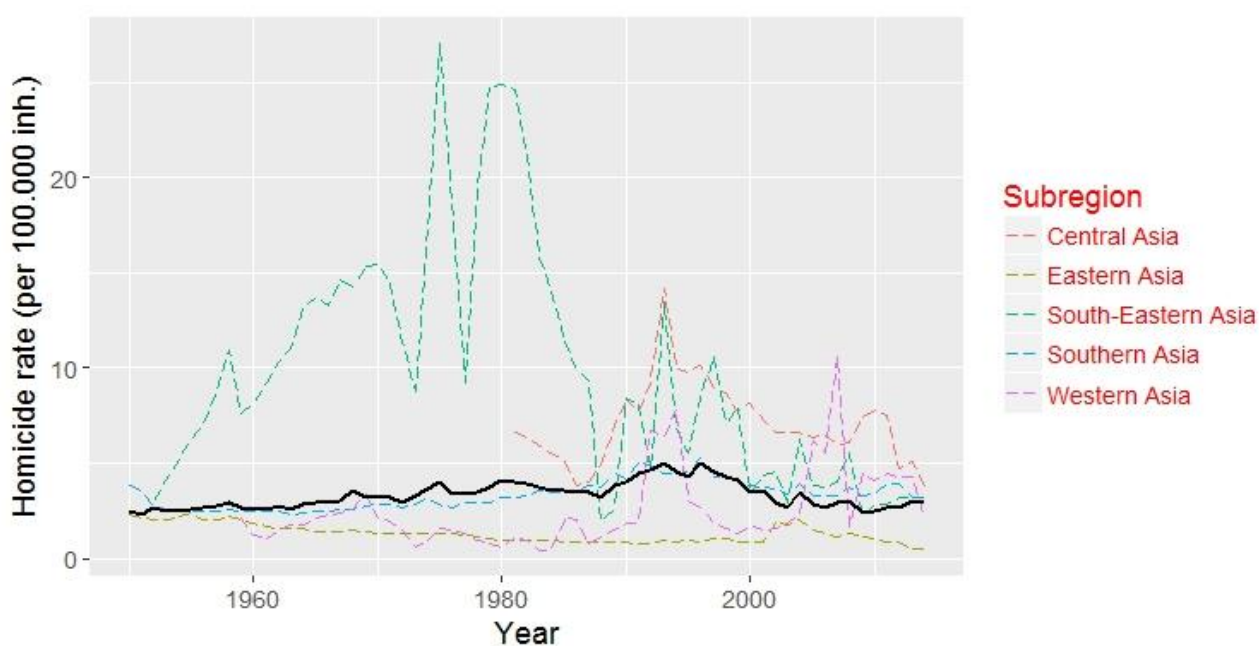
Elaboration by the author; Data sources: Clio-Infra, UNODC, WHO

In looking at selected countries in each subregion, Figure IV-14 confirms that the homicide rates in China and South Korea were comparatively stable and low. As for China, this result was based on a rather limited time series, while the availability of data for South Korea was better. As previously mentioned, homicide rates for Japan were available for the whole observation period. They are not depicted in Figure IV-14, however, as they have previously been discussed as part of the comparison of the homicide rates of selected OECD member states (see Figure IV-6).

Due to its large population and the continuous availability of data, Southern Asia's homicide rate was strongly influenced by India (UNODC 2013, 34). Afghanistan is another Southern Asia country depicted in Figure IV-14. Data for Afghanistan was widely unavailable. As one

of the most notorious conflict zones, it would have been interesting to compare its values with those recorded for Iraq which belongs to Western Asia. Much like Afghanistan, Iraq has seen widespread war and terrorism over the past years.

Table IV-4 Top 5 homicide rates in Asia (1950-2014)

Year	Country	Homicide rate
2007	Iraq	66.10
1994	Azerbaijan	62.50
1996	Sri Lanka	61.68
1992	Azerbaijan	51.80
1993	Tajikistan	50.20

As Table IV-4 shows, this led to a major spike in Iraq's homicide rate which made for the highest value measured for any Asian country during the observation period. However, it is not obvious why the homicide rate would drop as drastically as depicted in Figure IV-14 in the following year.

Figure IV-14 Homicide rates for selected Asian countries (1950-2014)
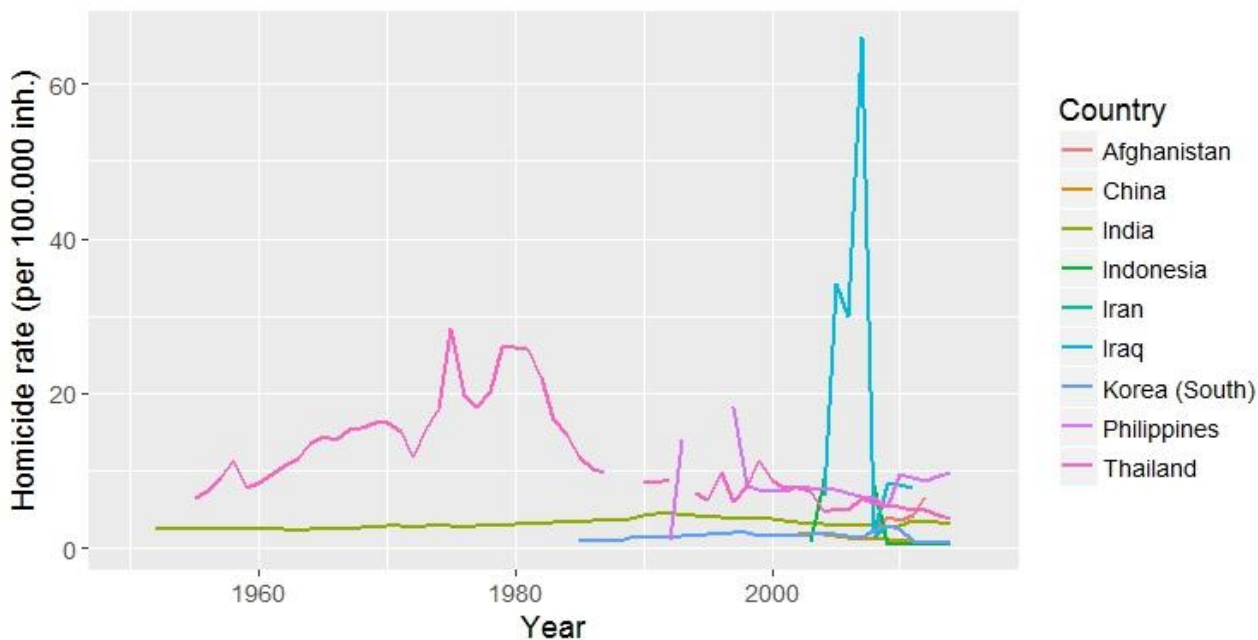
Elaboration by the author; Data sources: Clio-Infra, UNODC, WHO

Figure IV-13 indicates a comparatively dynamic development in the clustered homicide rate for Southeastern Asia. The comparatively high levels up to the 1980s were strongly influenced by Thailand's homicide rate, as a comparison with Figure IV-14 reveals. Thailand's homicide

rate has since declined and has been surpassed by the Philippines, another country belonging to Southeastern Asia.

IV.2.4. Homicide trends in Africa

Among all world regions, the availability of homicide data was poorest in Africa (I. H. Marshall and Summers 2012, 42). As Figure IV-15 shows, the dataset contains observations for no more than three countries before 1995. A remarkably complete time series was available for Mauritius which belongs to Eastern Africa. However less complete, also homicide data for Egypt which is part of Northern Africa, was more widely available than for other countries. A very limited number of observations was also available for Uganda in the 1960s.

Figure IV-15 Clustered homicide rate for Africa and availability of homicide data for African subregions (1950-2014)
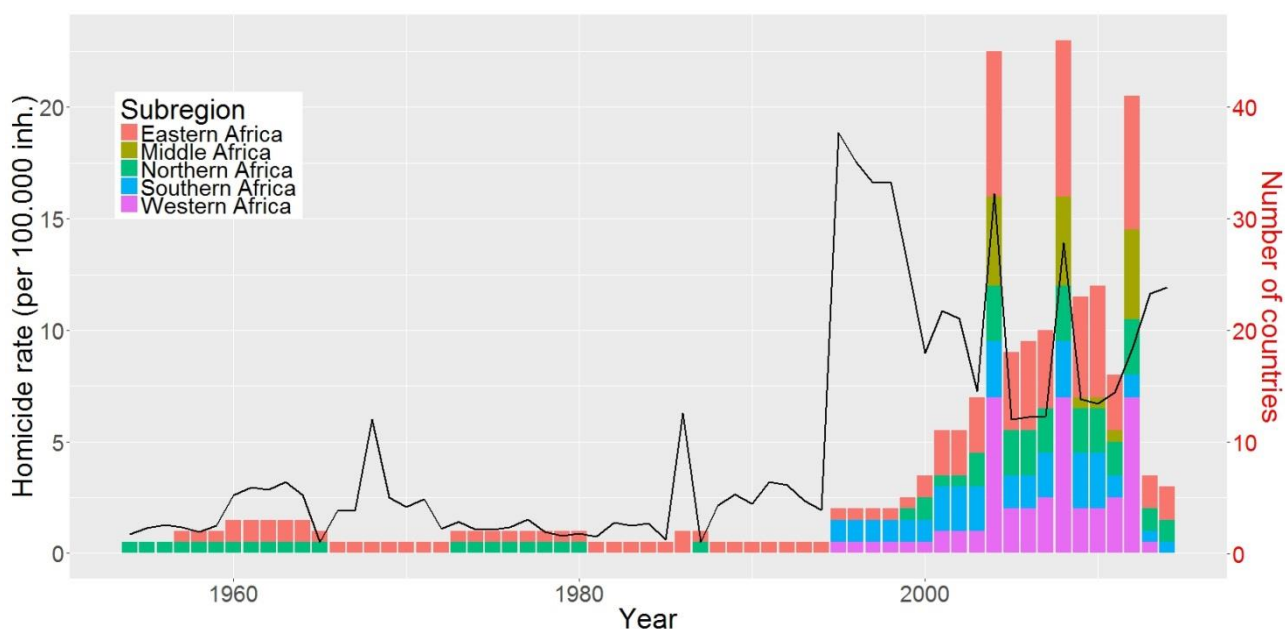
Elaboration by the author; Data sources: Clio-Infra, UNODC, WHO

Data for Mauritius was present in all three of the original homicide datasets (Clio Infra, UNODC, WHO). The same was true for Egypt. As Figure IV-15 shows, data for more African countries became available as of the mid-1990s, and increasingly from 2000 onwards. This was because data from UNODC and the WHO became available more widely around that time.

Figure IV-15 shows spikes in the number of available countries for the years 2004, 2008 and 2012. The clustered homicide rate reacted rather sensitively to that. As seen in Table IV-5, South Africa has in fact comparatively high homicide rates. The values peaked throughout the

1990s which made for the highest values measured for any African country during the observation period. As indicated in Figure IV-16, South Africa's homicide rate has since declined (UNODC 2013, 54).

Figure IV-16 reveals that the corresponding deflections are not only caused by changes in the reference population, but are indeed also visible when disaggregating the homicide rates of selected countries. The spikes are caused by strong differences in the homicide rates reported by UNODC and WHO respectively. The WHO provided in fact much higher values, but the data was not consistently over time. WHO figures exceeded the UNODC data by up to 2-3 times for many countries. That was not the case for all African countries, however. Stable data was available, for example, for South Africa.

Table IV-5 Top 5 homicide rates in Africa (1950-2014)

Year	Country	Homicide rate (combined)
1995	South Africa	64.900
1996	South Africa	60.400
1998	South Africa	57.700
1997	South Africa	57.100
1999	South Africa	51.200

As seen in Table IV-5, South Africa has in fact comparatively high homicide rates. The values peaked throughout the 1990s which made for the highest values measured for any African country during the observation period. As indicated in Figure IV-16, South Africa's homicide rate has since declined (UNODC 2013, 54).

Figure IV-16 Homicide rates for selected African countries (2000-2014)
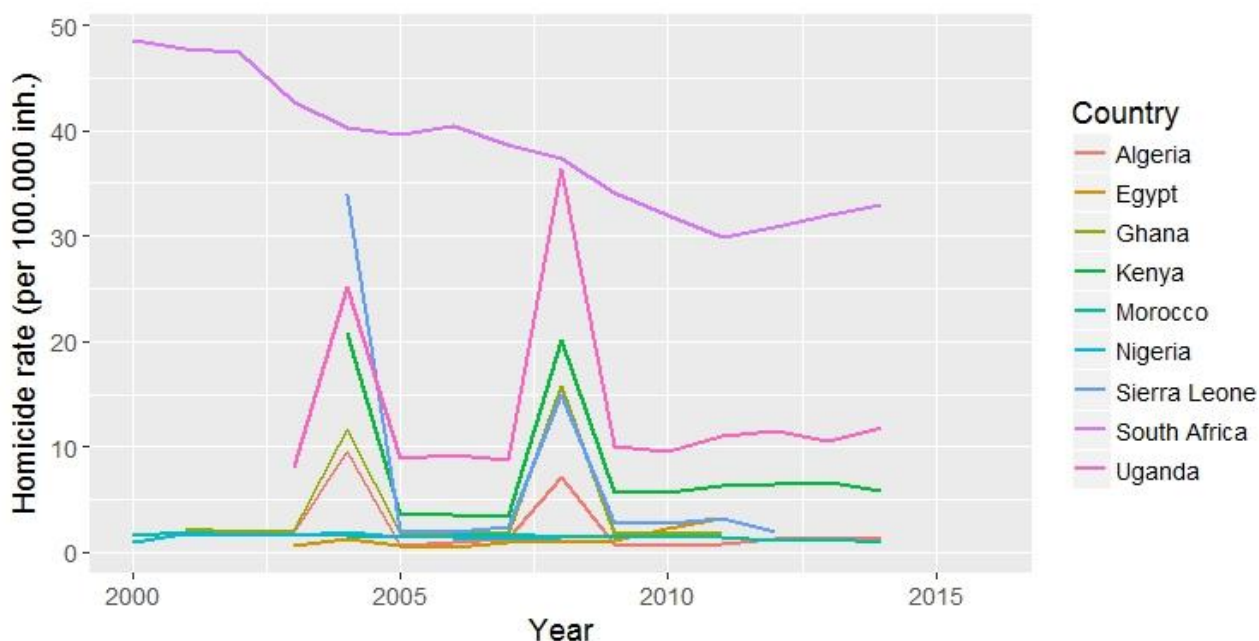
Elaboration by the author; Data sources: Clio-Infra, UNODC, WHO

Of course, the strong variance and differences between the values reported by the WHO and UNODC cast doubt about the quality and reliability of their data. Still, albeit lower than the correlation measured for the overall dataset, it should be noted that the association between the homicide rates reported by each organization for countries in Africa remains fairly strong (> 0.8) as a calculation of the correlation revealed.

IV.2.5. Homicide trends in Oceania

In terms of both population and number countries, Oceania constitutes the smallest among all major world regions designated by the UN Statistics Division. The vast majority of Oceania's population is concentrated in Australia, Papua New Guinea and New Zealand, while the rest of the population is dispersed over a number of comparatively small island states.

Figure IV-17 Clustered homicide rate for Oceania and availability of homicide data for Oceanian subregions (1950-2014)
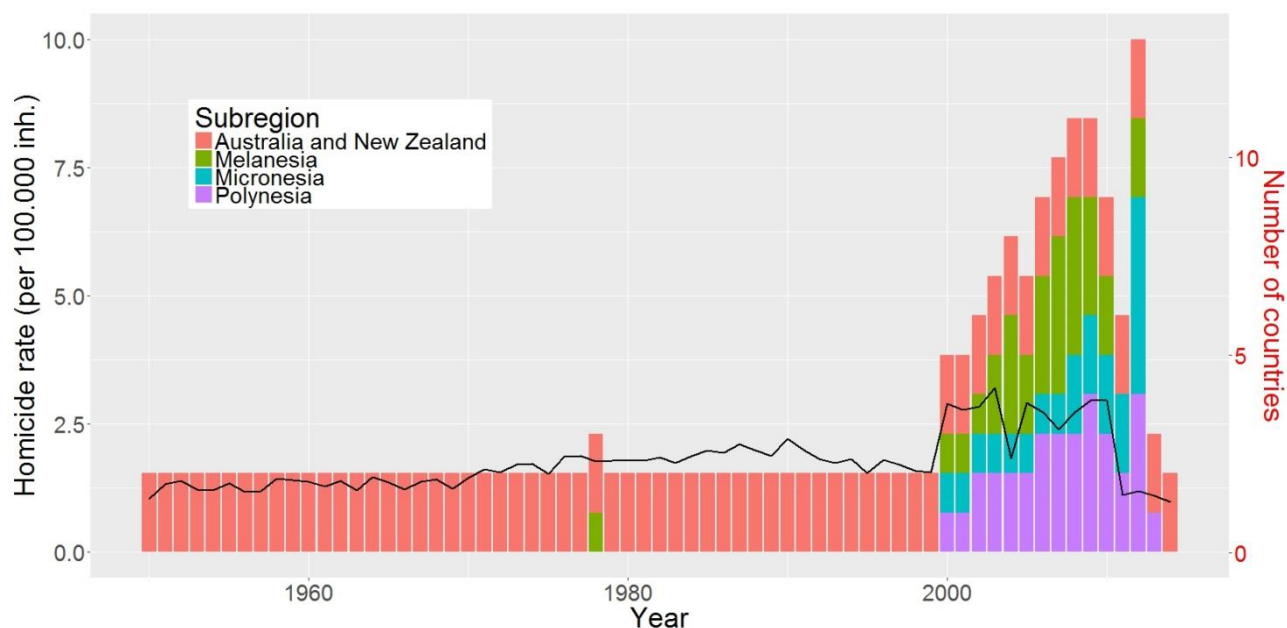
Elaboration by the author; Data sources: Clio-Infra, UNODC, WHO

Figure IV-17 shows how the number of countries with available data on homicide has increased over time. Throughout the second half of the 20th century, the availability of data for countries in Oceania was almost exclusively limited to Australia and New Zealand. Both countries provided a complete time series for the observation period and were also included in the clustered homicide rates for the original OECD member countries. The number of Oceanian countries with available homicide data eventually grew starting at the beginning of the 21st century around the time that data from the WHO and UNODC became increasingly available. In regard to the clustered homicide rate for Oceania, this led to an increase. Figure IV-18 reveals that this increase was entirely due to changes in the reference population, and is as such merely a registration effect. All subregions other than Australia and New Zealand exhibited above average homicide rates. The highest rates were found for Melanesia. Especially the comparatively high homicide rates of Papua New Guinea, a country belonging to Melanesia, effected the clustered homicide rate positively.

Figure IV-18 Clustered homicide rates for Oceanian subregions (1950-2014)
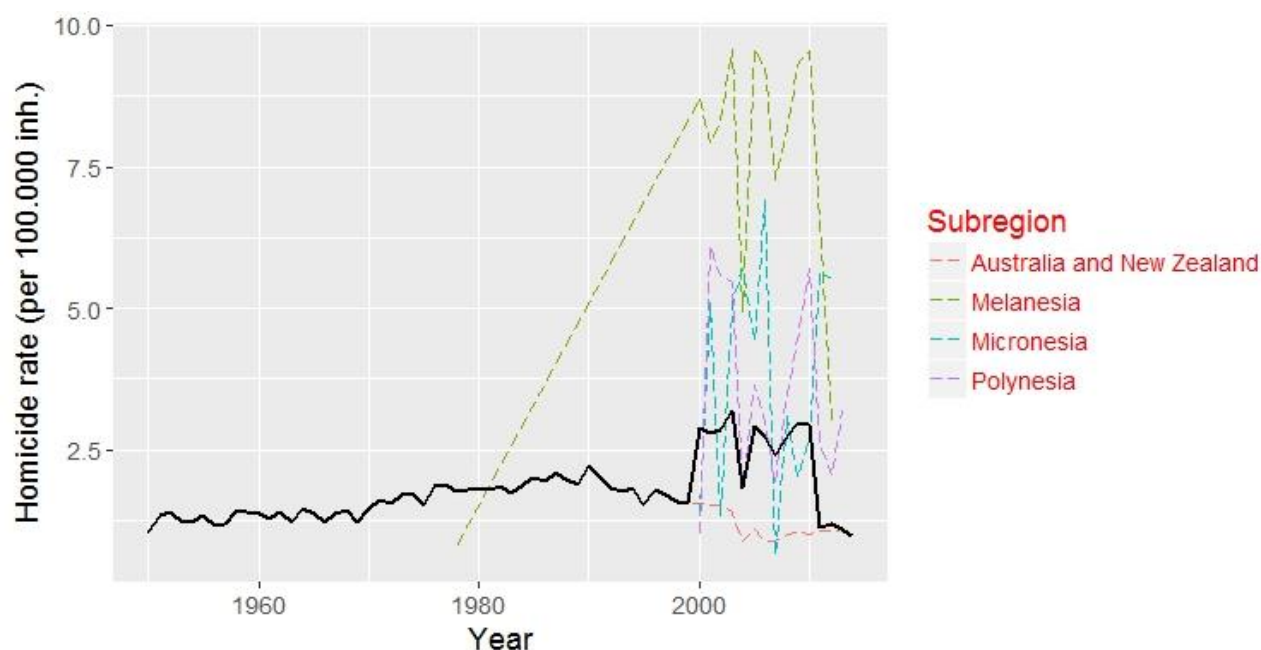
Elaboration by the author; Data sources: Clio-Infra, UNODC, WHO

Australia and New Zealand's clustered homicide rate continued to decline—a trend which started at the beginning of the 1990s and relates to the general decline of homicide rates as found, for example, for the U.S. and other OECD member states (Weiss et al. 2016). The development of the homicide rates in Melanesia, Micronesia and Polynesia, on the other hand, appeared to be somewhat heterogeneous and without any clear trend. This was mostly because data was not continuously available for many of the countries. Especially for Micronesia and Polynesia, it was necessary to consider that these countries had a very small populations pool. Comparatively few homicides could thus have had a major impact on the homicide rate. Thus, as for the regression analyses presented in this study, these countries were excluded.

IV.3. Associations between homicide rates and economic and population-based indicators

Before testing the hypotheses—namely how terrorism, warfare and major violence influence homicide rates—it seemed advisable to assess the impact of the control variables in a series of separate models. Hence, in order to gain a clear idea of how these control variables affect the homicide rate, their influence on the homicide rate was tested independently from the explanatory variables of interest. The results are presented below.

IV.3.1. Correlations between the dependent and the control variables

As described in section III.4.1, the natural logarithm of the homicide rate served as the main dependent variable for the purpose of this research. This was because the distribution of the untransformed homicide rate exhibited a significant positive skew, with a long tail to the right, as

Figure IV-19 reveals. The logarithmic transformation of the variable was performed in order to correct for this skew.

Figure IV-19 Density plots of the untransformed and log-transformed homicide rate
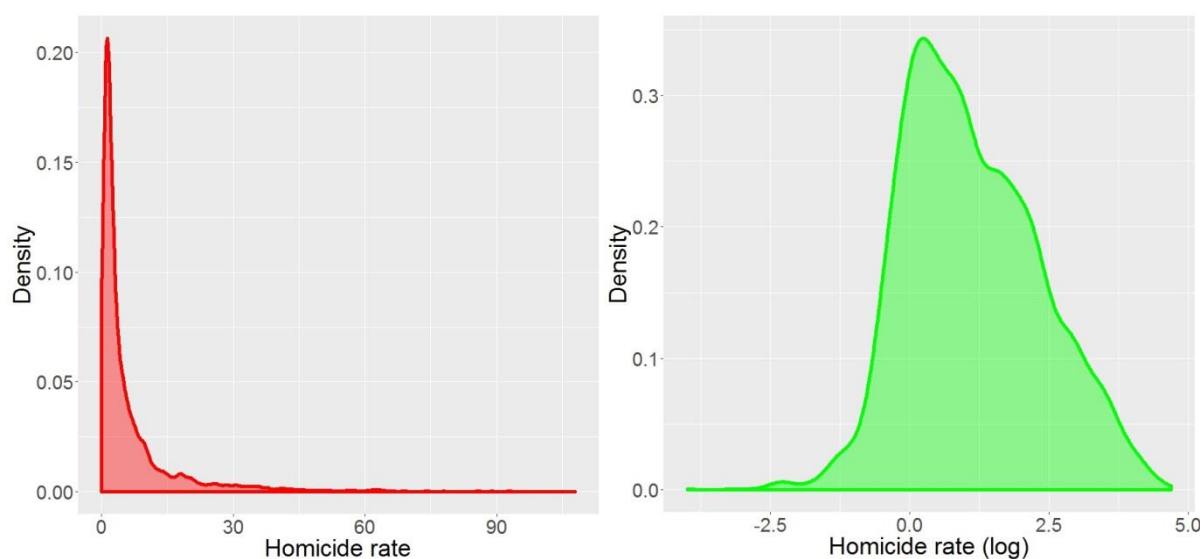
Elaboration by the author; Data sources: Clio-Infra, UNODC, WHO

Figure IV-19 shows that this transformation resulted in a more balanced distribution. Values in untransformed homicide rate below 1 have been transformed into values below zero. This explains why the previous minimum in the homicide rate, 0,019 (Bosnia-Herzegovina 1990) is now represented by a negative value—namely the transformed minimum of -3.17 (see Table IV-6). The previous maximum (107 homicides per 100,000 population in Guatemala 1981, represented by a transformed maximum of 4.68) on the other hand was pulled a lot closer to the median of the distribution.

Table IV-6 Summary statistics for the homicide rate (untransformed and log)

Statistic	N	Mean	St. Dev.	Min	Median	Max
Homicide rate	4,406	6.604	10.461	0.019	2.600	107.990
Homicide rate (log)	4,406	1.116	1.209	-3.178	0.956	4.682

As described in section I.2, the literature revealed a wide array of factors that have been tested in regard to their effect on homicide rates (Trent and Pridemore 2012). A selection of these factors is considered to serve as control variables for the purpose of this study. Their correlations with the homicide rate and between each other are depicted in the correlogram below (Figure IV-20). As becomes apparent, only a few factors seemed to be strongly or even moderately correlated with the homicide rate. The strongest correlation that could be shown concerned the Gini coefficient, a measurement of inequality. The positive influence of the Gini coefficient on the homicide rate is probably the most well-established association in homicide studies (Trent and Pridemore 2012, 133). Another positive correlation shown in Figure IV-20 was between the percentage of young male population and the homicide rate (ibid., 130). It was somewhat weaker, however, than the correlation with the Gini coefficient. There is a similarly moderate though negative correlation between the homicide rate and the GDP per capita (ibid., 127).

Figure IV-20 Correlogram of the homicide rate and control variables
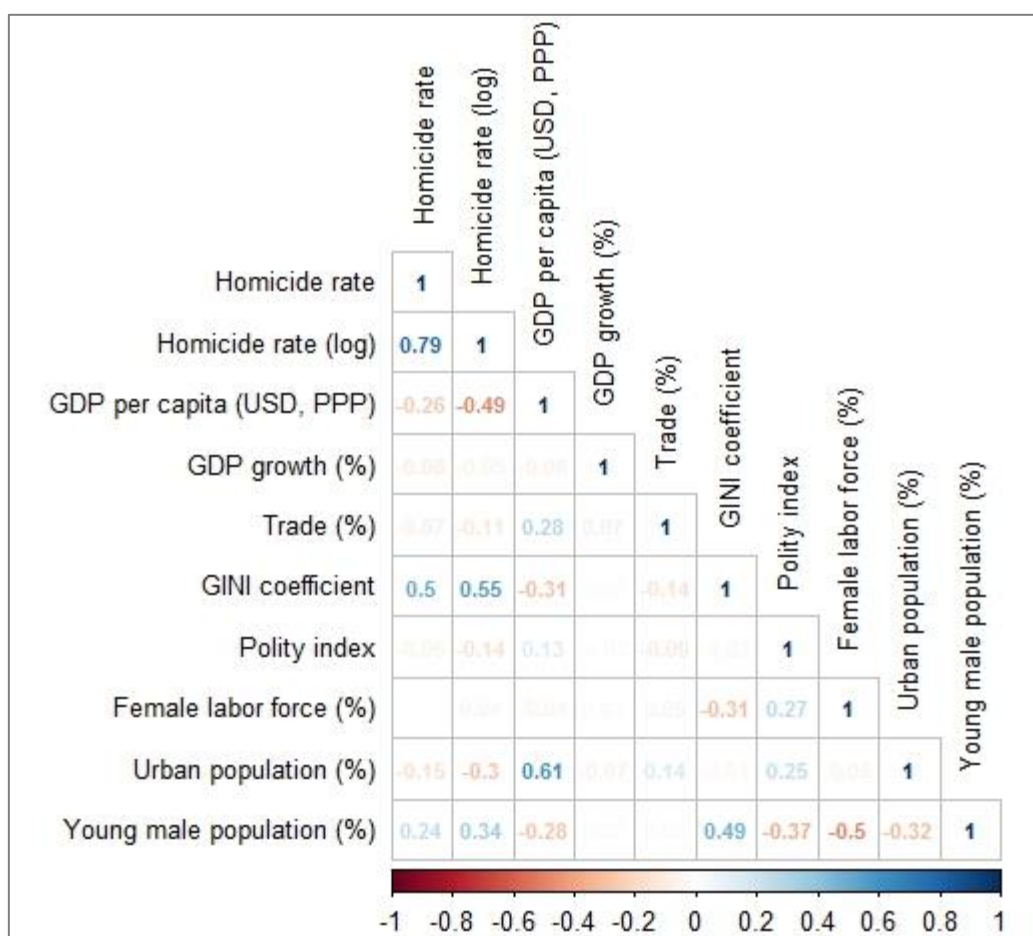
The correlation between the homicide rate and some of the control variables was sensitive to the log transformation. While the correlation between the Gini coefficient and the homicide rate (log) grew only slightly, the correlations with the GDP per capita and the percentage of young male and urban population appeared to be much stronger after the transformation. The correlation between the homicide rate and the other control variables, however, remained fairly weak. Instead, a number of strong and moderate correlations between the control variables became apparent. The percentage of young male population was, for example, strongly negatively associated with the GDP per capita, and strongly positively with the Gini coefficient. Also, both the percentages of female labor force and urban population were moderately negatively associated with the young male population. They exhibited, however, only weak a correlation between each other.

In addition, the polity index was included as a control variable. It measures political systems on a scale of -10 (autocracy) to +10 (democracy). Its association with the homicide rate and the other control variables was mostly weak, except for a moderate positive correlation with

the percentage of urban population and a moderate negative correlation with the young male population.

IV.3.2. Partial models on the effects of socioeconomic and population-based indicators on homicide rates

In testing the effect of the control variables on the homicide rate, Table IV-7 shows that none of the economic control variables bore much power in predicting the homicide rate (log) individually. While the coefficients for GDP per capita, GDP growth (%) and trade (%) were indeed significant, the overall explained variance as indicated by the R^2 suggested a bad overall fit of the model.

Table IV-7 Fixed-effects panel models (individual/reg. SE): Homicide rate ← socioeconomic control variables

			Dependent variable:		
			Homicide rate (log)		
	(1)	(2)	(3)	(4)	(5)
GDP/capita (_k_USD)	-0.020***				-0.020***
	(0.001)				(0.001)
GDP growth (%)		-0.005***			-0.004
		(0.002)			(0.003)
Trade (%)			-0.001***		-0.003***
			(0.0005)		(0.001)
Gini coefficient				0.002	-0.003
				(0.002)	(0.003)
Observations	2,516	3,671	3,713	1,866	1,326
R^2	0.040	0.002	0.002	0.0004	0.119
F Statistic	98.446*** (df = 1; 2349)	8.457*** (df = 1; 3503)	7.617*** (df = 1; 3546)	0.615 (df = 1; 1732)	40.272*** (df = 4; 1193)

Note:	*p<0.1; **p<0.05; ***p<0.01

While the individual consideration of each of the economic variables did not lead to reasonable levels of explained variance, the explanatory power rose when combining the variables in a single model (see Table IV-7, Model 5).

Table IV-8 shows that the results were also sensitive to the type of panel analysis that was conducted. This bore strong implications about the significance and strength of the coefficients.

Table IV-8 Various panel models: Homicide rate ← socioeconomic control variables

	Dependent variable:			
	Homicide rate (log)			
	Pooled	Fixed (within)	Between	Random
	(1)	(2)	(3)	(4)
GDP/capita (kUSD)	-0.041***	-0.020***	-0.032***	-0.020***
	(0.010)	(0.001)	(0.010)	(0.001)
GDP growth (%)	-0.020***	-0.004	-0.023	-0.006**
	(0.005)	(0.003)	(0.032)	(0.003)
Trade (%)	0.0003	-0.003***	0.0003	-0.002***
	(0.001)	(0.001)	(0.002)	(0.001)
Gini coefficient	0.055***	-0.003	0.054***	0.005*
	(0.003)	(0.003)	(0.009)	(0.003)
Constant	-0.094		-0.335	1.676***
	(0.125)		(0.422)	(0.147)
Observations	1,326	1,326	129	1,326
R^2	0.477	0.119	0.433	0.162
F Statistic	301.488*** (df = 4; 1321)	40.272*** (df = 4; 1193)	23.685*** (df = 4; 124)	63.556*** (df = 4; 1321)
Note:				*p<0.1; **p<0.05; ***p<0.01

The Gini coefficient, for example, whose influence on the homicide rate (log) did not exhibit significance in the fixed-effects model (Table IV-8, Model 2), in contrast, was highly significant in the pooled model (Model 1). The pooled model also suggested that the effect would be positive, namely a 5.5% increase in the homicide rate for every one-unit increase in the Gini coefficient. The between-model produced results rather similar to this.

Running a Hausman test to evaluate whether the fixed or random effects model (see Table IV-8, Models 2 and 4) would be preferable yielded a p-value of < 2.2e-16 (chisq = 96.756, df = 4), indicating that fixed effects should be used.

When conducting individual tests for the population-based control variables, the strongest effect was found for the percentage of young male population (see Table IV-9). A one-unit increase would thereby predict an increase of more than 5 % in the homicide rate. The effect of the urban population on the homicide rate was also positive and significant, though

somewhat weaker. Testing for the percentage of female labor force did not return significant results. Also, as indicated by the R^2, none of the variables alone were able to account for a reasonable level of explained variance.

Table IV-9 Fixed-effects panel models (individual/reg. SE): Homicide rate ← population-based control variables

	Dependent variable:			
	Homicide rate (log)			
	(1)	(2)	(3)	(4)
Female labor force (%)	0.005			0.021***
	(0.006)			(0.007)
Urban population (%)		0.017***		-0.009*
		(0.001)		(0.004)
Young male population (%)			0.056***	0.057***
			(0.007)	(0.012)
Observations	2,574	4,089	4,406	2,574
R^2	0.0003	0.032	0.013	0.012
F Statistic	0.663 (df = 1; 2405)	128.783*** (df = 1; 3919)	55.582*** (df = 1; 4236)	9.510*** (df = 3; 2403)
Note:				*p<0.1; **p<0.05; ***p<0.01

As in indicated in Model 4, Table IV-9, the level of explained variance remained low even when combining the population-based variables in a single model. It influenced the strength and significance of the coefficients, however. When controlling for the percentages of urban and young male population, the percentage of female labor force became significant and increased in strength. The percentage of urban population, on the other hand, lost significance and turned weakly negative.

Again, the results were sensitive to the choice of methodology. This is shown in Table IV-10. Both the strength and significance of the coefficients varied according to the type of estimation. Comparing the overall fit of the models, it became apparent that the fixed-effects model was the only one that did not reach a reasonable level of explained variance.

Table IV-10 Various panel models: Homicide rate ← population-based control variables

	Pooled (1)	Fixed (within) (2)	Between (3)	Random (4)
		Dependent variable:		
		Homicide rate (log)		
Female labor force (%)	0.033***	0.021***	0.033***	0.024***
	(0.003)	(0.007)	(0.010)	(0.005)
Urban population (%)	-0.009***	-0.009*	-0.011***	-0.012***
	(0.001)	(0.004)	(0.004)	(0.003)
Young male population (%)	0.217***	0.057***	0.173***	0.064***
	(0.013)	(0.012)	(0.047)	(0.012)
Constant	-2.267***		-1.521	0.336
	(0.298)		(1.015)	(0.343)
Observations	2,574	2,574	168	2,574
R^2	0.179	0.012	0.217	0.051
F Statistic	186.843*** (df = 3; 2570)	9.510*** (df = 3; 2403)	15.178*** (df = 3; 164)	45.934*** (df = 3; 2570)

Note: *p<0.1; **p<0.05; ***p<0.01

IV.3.3. Full models on the effects of socioeconomic and population-based indicators on homicide rates

Neither the economic nor the population-based control variables bore much power in explaining the homicide rate (log) when individual country-level effects were accounted for with a fixed effects estimator. Inserting the variables into the combined model, however, led to reasonable levels of explained variance, as Model 1, Table IV-11 shows. In addition to the economic and population-based control variables, the polity index was also included to serve as a control variable in the regressions. As previously demonstrated in the corellogram (Figure IV-20), the polity index was only moderately correlated with the other variables, among them the GDP per capita and the percentages of urban and young male population. Hence, when adding it to the regression models, the polity index bore no significant effect on the homicide rate (log), and only minimal effects on the other control variables and the overall level of explained variance.

Besides running the model with fixed country-effects, also a model with additional time-fixed effects was computed (Table IV-11, Model 2). This led to rather strong changes in some of the

coefficients. The GDP per capita, for example, lost half of its strength. The coefficient for urban population, on the other hand, increased noticeably, and so did the Gini coefficient that also gained significance at .1-level. As the Models 3 and 4 in Table IV-11 show, calculating the heteroscedasticity-corrected standard errors for both models did not lead to any changes in the significance of the coefficients. Also, the impact on the size of the standard errors was rather marginal.

Table IV-11 Fixed-effects panel models (individual/two-ways – reg./rob. SE): Homicide rate ← all control variables

	Dependent variable:			
	Homicide rate (log)			
	Regular SE		Robust SE	
	Individual	Two-ways	Individual	Two-ways
	(1)	(2)	(3)	(4)
GDP/capita (kUSD)	-0.032***	-0.016***	-0.032***	-0.016***
	(0.003)	(0.004)	(0.002)	(0.003)
GDP growth (%)	-0.004	-0.002	-0.004*	-0.002
	(0.003)	(0.003)	(0.002)	(0.003)
Trade (%)	-0.003***	-0.002**	-0.003***	-0.002**
	(0.001)	(0.001)	(0.001)	(0.001)
Gini coefficient	-0.002	-0.006*	-0.002	-0.006*
	(0.003)	(0.003)	(0.003)	(0.003)
Female labor force (%)	0.056***	0.069***	0.056***	0.069***
	(0.009)	(0.009)	(0.009)	(0.009)
Urban population (%)	0.021***	0.037***	0.021***	0.037***
	(0.005)	(0.006)	(0.005)	(0.006)
Young male population (%)	0.003	0.021	0.003	0.021
	(0.018)	(0.019)	(0.017)	(0.019)
Polity index	-0.003	0.004	-0.003	0.004
	(0.007)	(0.007)	(0.007)	(0.007)
Observations	1,278	1,278		
R^2	0.188	0.155		
F Statistic	33.211*** (df = 8; 1149)	25.756*** (df = 8; 1125)		

Note: *p<0.1; **p<0.05; ***p<0.01

IV.3.4. Regional models on the effects of socioeconomic and population-based indicators on homicide rates

A number of regional differences became apparent when running regression models separately for different world regions (Table IV-12). These calculations were conducted with time-fixed effects in addition to group-fixed effects and heteroscedasticity-corrected standard errors. The R^2 indicated that the explained variance was highest for the OECD countries and lowest for Asia. Europe, the Americas and Africa exhibited roughly the same levels of explained variance. Africa, however, failed the F test which was due to the low number of complete observations available for the full model. As far as regards the coefficients, their significance, strength and direction varied considerably between the regions. The effect of the GDP per capita, for example, was significant and negative for the Americas, Asia and the OCED countries, but not so for Europe. The Gini coefficient, on the other hand, was positive and significant for Europe, negative and significant for the Americas, and insignificant for the other regions. In fact, none of the variables appeared to be particularly consistent when comparing their influence between the different regions of the world.

Table IV-12 Fixed-effects panel models (two-ways – rob. SE) by world region: Homicide rate ← all control variables

	Europe	Americas	Asia	Africa	OECD
	Dependent variable:				
	Homicide rate (log)				
	(1)	(2)	(3)	(4)	(5)
GDP/capita (*k*USD)	0.001	-0.033***	-0.024***	0.080	-0.015*
	(0.005)	(0.007)	(0.008)	(0.106)	(0.009)
GDP growth (%)	-0.004	-0.005	-0.016**	-0.013	-0.004
	(0.004)	(0.006)	(0.007)	(0.013)	(0.006)
Trade (%)	-0.002*	-0.004*	0.003*	0.009	-0.007***
	(0.001)	(0.002)	(0.002)	(0.005)	(0.002)
Gini coefficient	0.009**	-0.012*	-0.006	0.006	0.001
	(0.003)	(0.007)	(0.006)	(0.016)	(0.005)
Female labor force (%)	0.099***	-0.024	0.088***	0.090	0.072***
	(0.014)	(0.016)	(0.022)	(0.087)	(0.015)
Urban population (%)	0.006	0.045***	0.016	-0.071	0.030***
	(0.008)	(0.010)	(0.015)	(0.052)	(0.011)
Young male population (%)	0.037	-0.058	0.039	0.018	-0.002
	(0.023)	(0.042)	(0.049)	(0.151)	(0.031)
Observations	592	358	284	74	420
R^2	0.123	0.146	0.062	0.134	0.208
F Statistic	10.453*** (df = 7; 524)	7.421*** (df = 7; 303)	2.057** (df = 7; 216)	0.528 (df = 7; 24)	10.566*** (df = 7; 281)

Note: *p<0.1; **p<0.05; ***p<0.01

CHAPTER V.   The effects of terrorism on homicide

CHAPTER V deals with the effects of terrorism on homicide. The chapter is divided into two sections. First, an overview of trends in terror attacks between 1970 and 2014 is presented. The overview itself is divided into global and regional trends. As described in the methods section, data on terror attacks was drawn from the Global Terrorism Database (GTD). The database contained 156,772 entries of terror attacks from 1970 until July 2016. In the dataset that has been computed for the purpose of this research, however, the period of observation was shortened to 2014. As the GTD is an event dataset, aggregate statistics have been computed to convert the data into a country-year format (see section III.3). It should be mentioned that the resulting time series was incomplete. This is because the operators of the GTD lost all information for the year 1993 in a computer accident. This produced a hole in the dataset that is apparent in Figure V-1 below, and all other figures for that matter.

V.1. Global and regional trends in terrorism (1970-2014)

V.1.1. Global terrorism trends

Figure V-1 shows how a number of key terrorism-related variables have evolved over time. At the beginning of the observation period, the number of terror attacks appeared to be rather low but increased until the mid-1980s and remained at a relatively stable level until the mid-1990s. The end of the 20th century and the beginning of the 21th century were notable for a comparatively low level of terrorism before the number of attacks increased after 2005 and especially from 2012 onwards.

Figure V-1 Global counts of terror attacks, terror-related deaths, and the deaths per attack ratio (1970-2014)
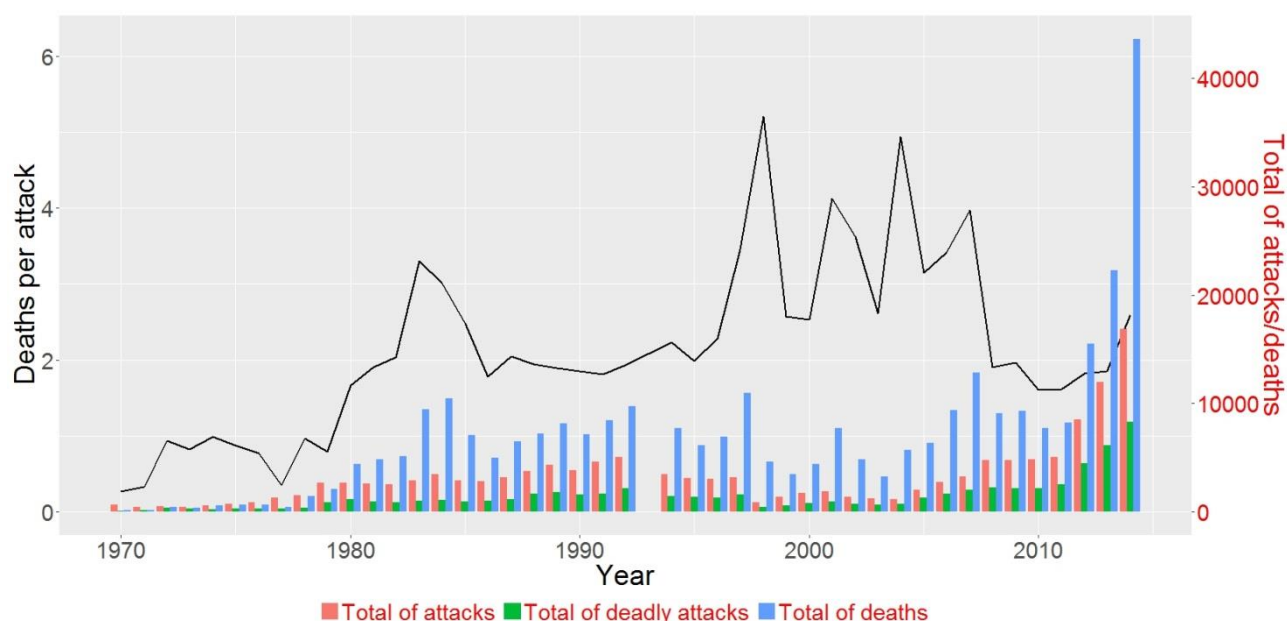
Elaboration by the author; Data source: UMD-START/GTD

During most years, roughly half of the attacks contained in the GTD involved the deaths of either perpetrators or victims (deadly attacks). The relationship between the number of deaths and number of attacks is best described in terms of a 'deaths per attack ratio'. Figure V-1 shows that this ratio changed over time. It peaked for the first time during the first half of the 1980s and later peaked several times between 1998 and 2007 before leveling out again.

Figure V-2 below shows that victims of terrorism (both targeted or incidental victims) accounted for the majority of deaths caused by terror attacks. This number also included members of security forces that died while responding to terror attacks. The count of killed terrorists, on the other hand, has long remained comparatively low. This also became apparent when dividing the number of killed terrorists by the number of victims killed during terror attacks in any given year. The highest share of killed terrorists had initially been reached in 1975, before the number declined and remained comparatively low for more than two decades before rising again towards the end of the 1990s.

Figure V-2 Global counts of victims/terrorists killed in attacks and percentages of killed terrorist per killed victims (1970-2014)
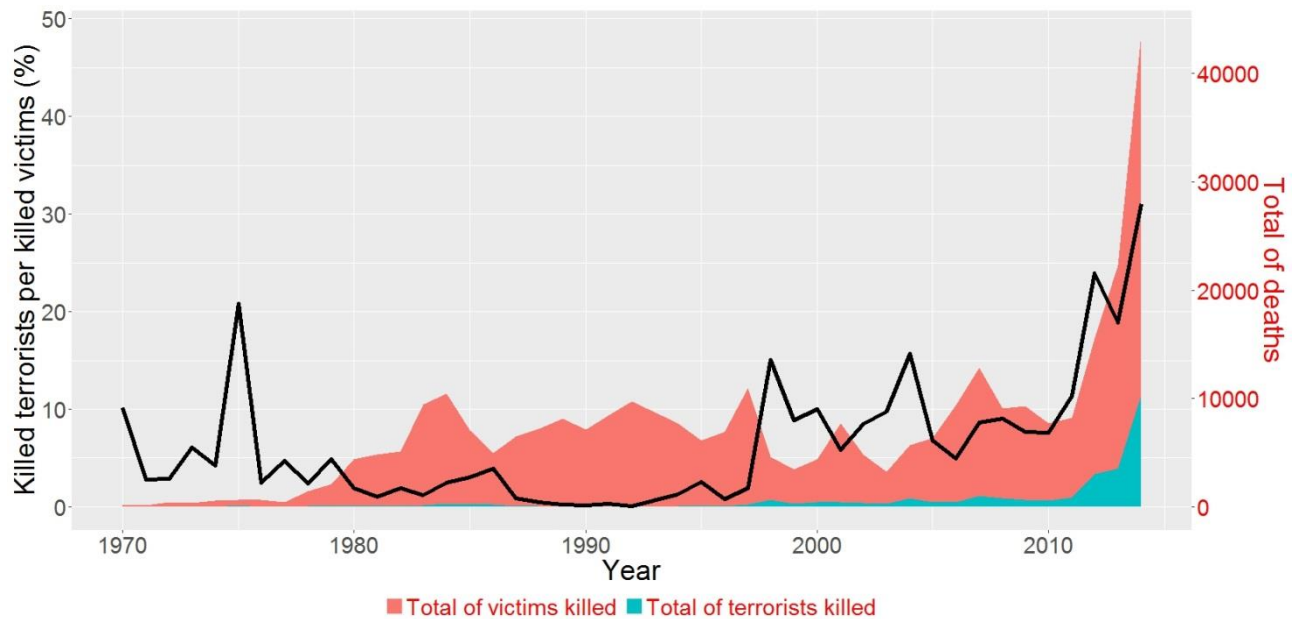
Beginning in 2010, higher increases in the number of terrorists killed during attacks occurred. In 2014, the most recent year under observation, the number of terrorist killed totaled roughly one third of the number of victims killed. This amounted to more than 10,000 killed terrorists and more than 30,000 victims killed.

Increases in the numbers of killed terrorists were largely a reflection of the ongoing conflicts in Western and Southern Asia (Syria, Iraq, Afghanistan, Pakistan). Depending on the context, such attacks may resemble military conflict rather than conventional terror attacks, including, for example, prolonged attacks and combat with security forces. Increases in the numbers of killed terrorists should therefore not be confounded with increases in suicide attacks. Looking at the past decade, the number of suicide attacks actually declined while the number of killed attackers increased. A suicide attack is not so much characterized by the willingness of the attacker to be killed or to commit suicide during or after the attack, but by the extent to which the actual death of an attacker is instrumental to an efficacious terror attack. That is to say that the suicide of the attacker is part of the attack plot or *modus operandi* (cf. Atran 2003; Hoffman and McCormick 2004; Pape 2005).

Figure V-3 Percentages of international attacks, extended attacks and suicide attacks (1970-2014)

International attacks (%)   Extended attacks (%)   Suicide attacks (%)
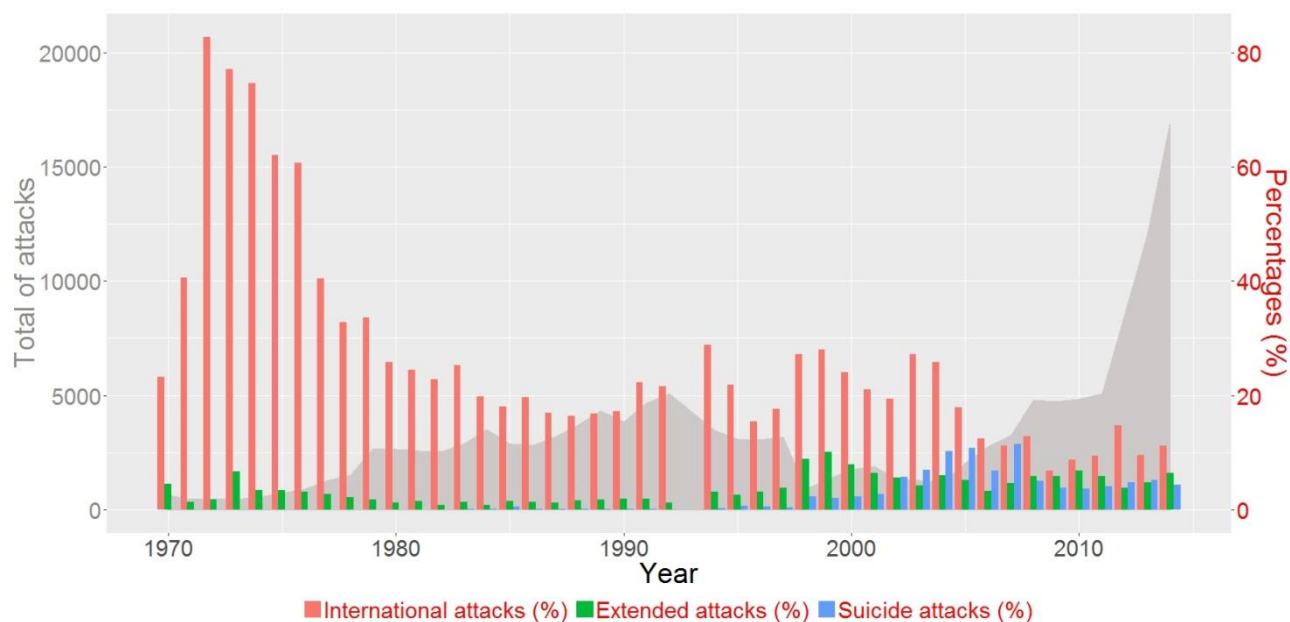
Elaboration by the author; Data source: UMD-START/GTD

Figure V-3 reveals that the percentage of suicide attacks among all attacks was generally low. The highest shares were reached in 2005 and 2007 at roughly 11 percent. Looking at the overall period of observation, Figure V-3 also shows that suicide attacks were extremely rare before the second half of the 1990s.

Another characteristic depicted in Figure V-3 was the degree to which the attack could be considered international. Internationality as measured in the GTD exhibited several dimensions. These included, for example, the status of attackers or targeted victims as foreigners in the country where the attack occurred. Logistical aspects were also included, for example whether the attack was plotted or supported from outside, i.e. whether persons behind the attack were based in another country. Figure V-3 shows that the percentage of international terror attacks was rather high to begin with and continued to decline over time. Their share peaked in 1972 and declined until the end of the 1980s while the overall number of terror attacks increased during the same period.

Changes in internationality were in fact caused by overall changes in the regional composition of terror attacks. Much like previously discussed in regard to the homicide rates, aggregated depictions of trends in terrorism tend to mask the often heterogeneous and somewhat opposing developments in different parts of the world. Figure V-4 shows a regional breakup of deaths

caused by terror attacks and reveals that up until the late 1970s, most deaths contained in the GTD occurred in Europe. Within Europe, in turn, most killings were in fact committed by different factions of the Irish Republican Army (IRA) in the UK, hence the high percentage of international terror attacks.

Figure V-4 Clustered counts of terror-related deaths in different world regions (1970-2014)
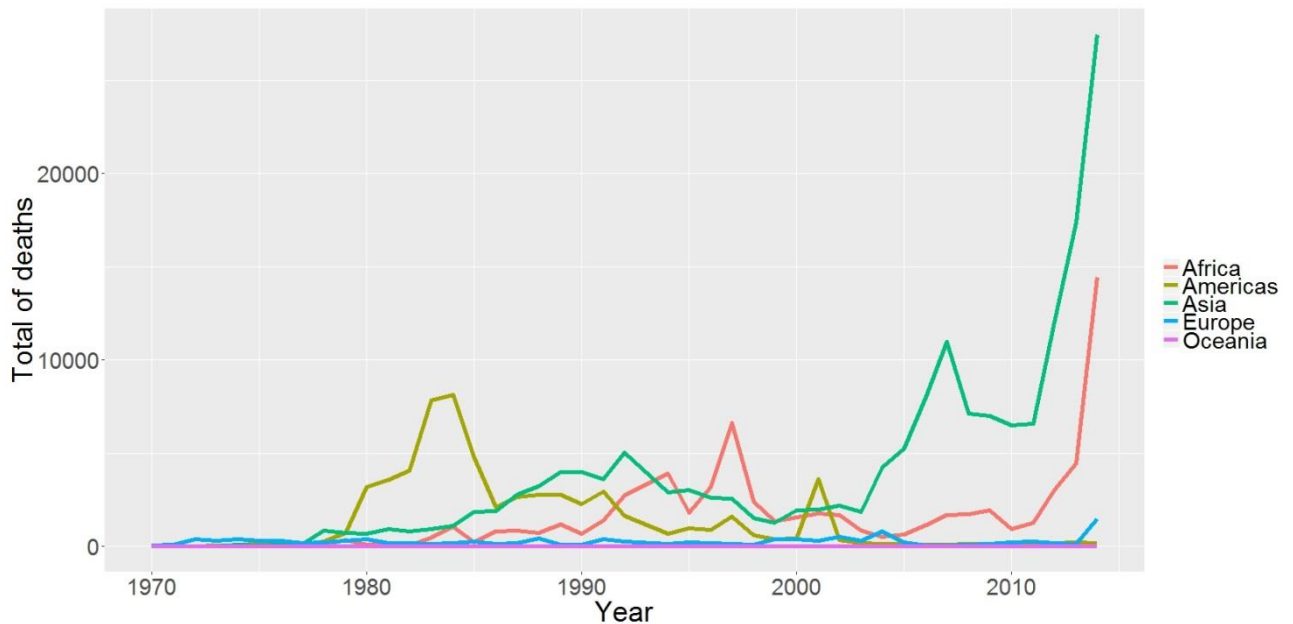
Elaboration by the author; Data source: UMD-START/GTD

Figure V-4 also reveals that the increase in the number of deaths caused by terror attacks beginning in the second half of the 1970s was attributable to regions other than Europe. This especially regards the Americas and to a lesser degree Asia. The sharp increase in the Americas was due to conflicts that arose in Central America. These conflicts were tightly interwoven across several neighboring countries and strongly driven by the late Cold War. Especially the U.S. were heavily involved behind the scenes. The U.S. strategy has been studied as a form of state crime, for example for Nicaragua (Rothe 2009). However, many of the corresponding terror attacks, were domestic. The same goes for the increases in numbers of terror attacks beginning in the mid-2000s. Figure V-4 indicates a steep rise in the number of deaths caused by terror attacks around that time that was attributable to Asia. As of 2011, this rise gained momentum again, and Africa exhibited a strong increase as well. As previously mentioned, the increases in Asia were mostly attributable to Syria, Iraq, Afghanistan and Pakistan. Also in Europe, a comparatively strong rise in the number deaths caused by terror attacks became apparent. This was attributable to the Ukraine crisis. The surrounding conflicts in any of the

aforementioned countries exhibit heavy involvement of international stakeholders. Almost all of the corresponding terror attacks, however, were coded as domestic in the GTD.

While the number of deaths caused by terror attacks appeared to develop rather dynamically in some regions—namely in Africa, the Americas and Asia—Europe and Oceania exhibited a comparatively flat and stable trend line. This does not mean, however, that the number of terror attacks in both regions would not have developed dynamicly over time. It is merely that the respective changes in the number of terror attacks are not recognizable in Figure V-4 because their overall counts were much lower than in the other world regions.

V.1.2. Disaggregated terrorism trends in selected countries with low and high exposure to terrorism

The dynamics became somewhat clearer when disaggregating the data by country. Figure V-5 shows the disaggregated number of deaths caused by terror attacks for selected OECD countries. These countries exhibited overall low counts, at least when compared to conflict areas.

Figure V-5 Counts of terror-related deaths in selected OECD countries (1970-2014)
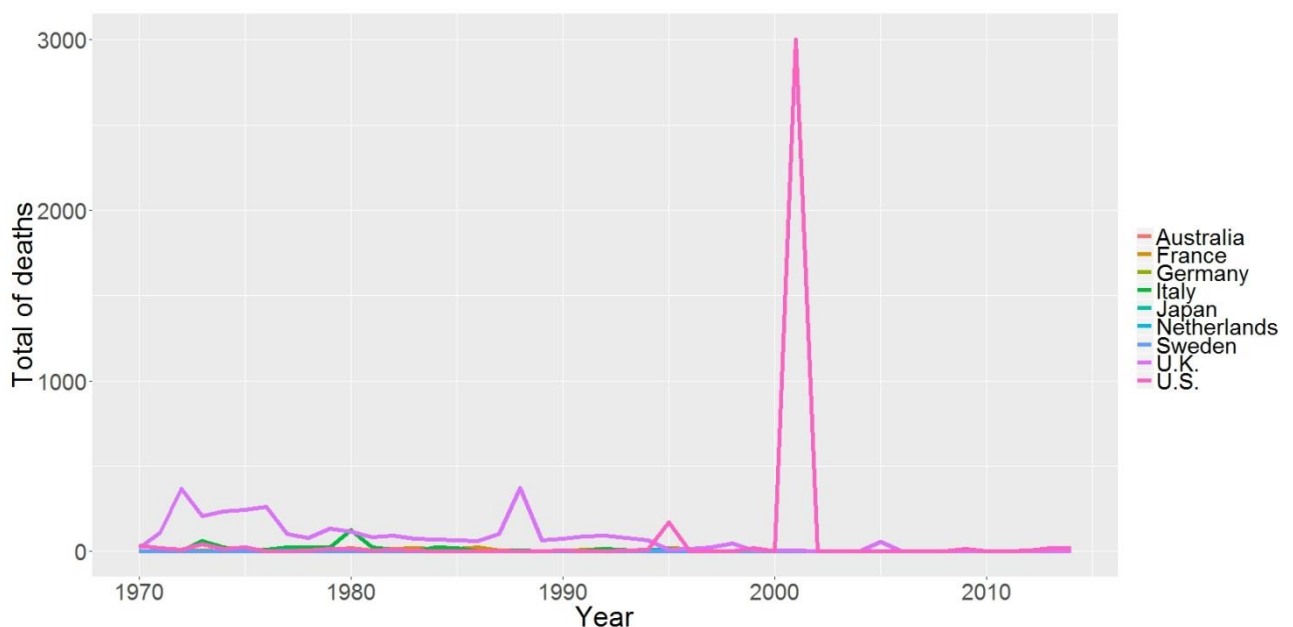
Elaboration by the author; Data source: UMD-START/GTD

The most salient aspect of the plot is the major deflection in the U.S. number of deaths caused by terror attacks at the beginning of the 21st century. This referred to the September 11th attacks on the World Trade Center. These attacks are widely cited as the single most lethal terror attack.

When plotted, the impact of the September 11th attacks caused the problem of stretching the display range which scaled down the trend line for the remaining countries. This can be seen in Figure V-5. Variance in the development of the number of deaths was hardly visible, with the U.K. as an exception. As mentioned before, the country experienced a long running series of terror attacks throughout the second half of the 20th century. These were carried out by different factions of the IRA which was long regarded one of the world's most notorious terrorist organizations (Horgan and Taylor 1997; English 2004).

Figure V-6 Counts of terror-related deaths in selected countries with high exposure to terrorism (1970-2014)
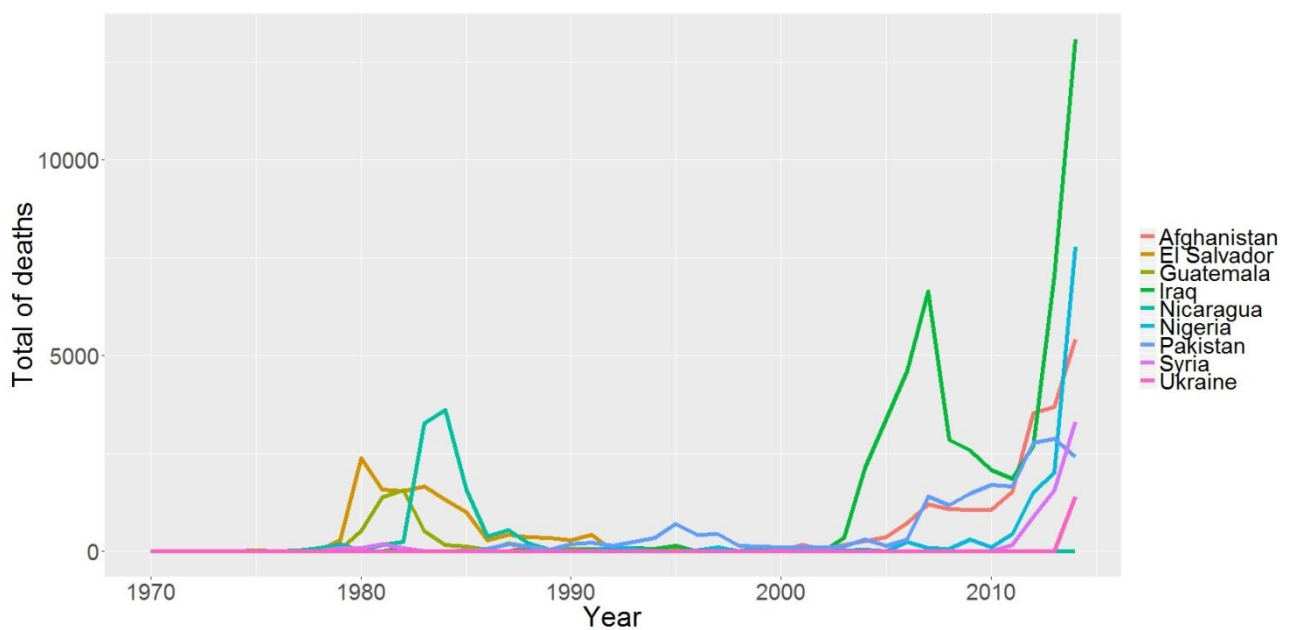
Elaboration by the author; Data source: UMD-START/GTD

Figure V-6 shows disaggregated data for a selected number of countries with exceptionally high exposure to terrorism. As already mentioned, the rise of terror violence from the end of the 1970s throughout the first half of the 1980s was largely attributable to the Americas. This regarded essentially three countries, namely El Salvador, Guatemala and Nicaragua.

Following a decline in the Americas, the global development of terror attacks took a less polarized turn towards the second half of the 1980s. The respective drop depicted in Figure V-6 is somewhat misleading, however. It is not indicative of a global trend. The relative relaxation of violence in Central America had indeed a dampening effect on the global number of deaths caused by terror attacks, but not on the number of terror attacks as such. On the one hand, this arises because the lethality of terror attacks in Central America had been very high.

At a value of more than three, the global deaths per attack ratio therefore reached a preliminary high in 1983 (see Figure V-1). The global drop in the number of deaths lasted rather shortly, however, because the number of terror attacks and deaths in regions other than the Americas—notably in Asia and Africa—started to grow around the same time. Globally, this led to a continuous increase in the number of terror attacks which reached its preliminary peak at roughly 5,000 attacks in 1992. With around 10,000 casualties, also by then the total number of deaths caused by terror attacks had almost regained its previous high from 1984. The average number of deaths per attack, on the other hand, was lower.

The absolute numbers of terror attacks and deaths caused by these attacks gave a somewhat distorted impression of how the severity of terrorism compared between countries. If other factors are accounted for, one would naturally expect a larger number of terror attacks in regions or countries with larger populations. It turned out to be more appropriate to compare terrorism trends in terms of rates rather than counts. Therefore, the terrorism mortality rate, meaning the number of deaths caused by terror attacks per population divided by 100,000, was calculated. The transformation of these counts bore two advantages. Firstly, it made levels of terrorism more easily comparable—not only between countries but also within countries over time. Secondly, it made the impact of terror attacks comparable to other forms of lethal violence, especially homicide which is also calculated based on rates per 100,000 population.

Figure V-7 Terrorism mortality rate (per 100,000 inh.) in selected OECD countries (1970-2014)
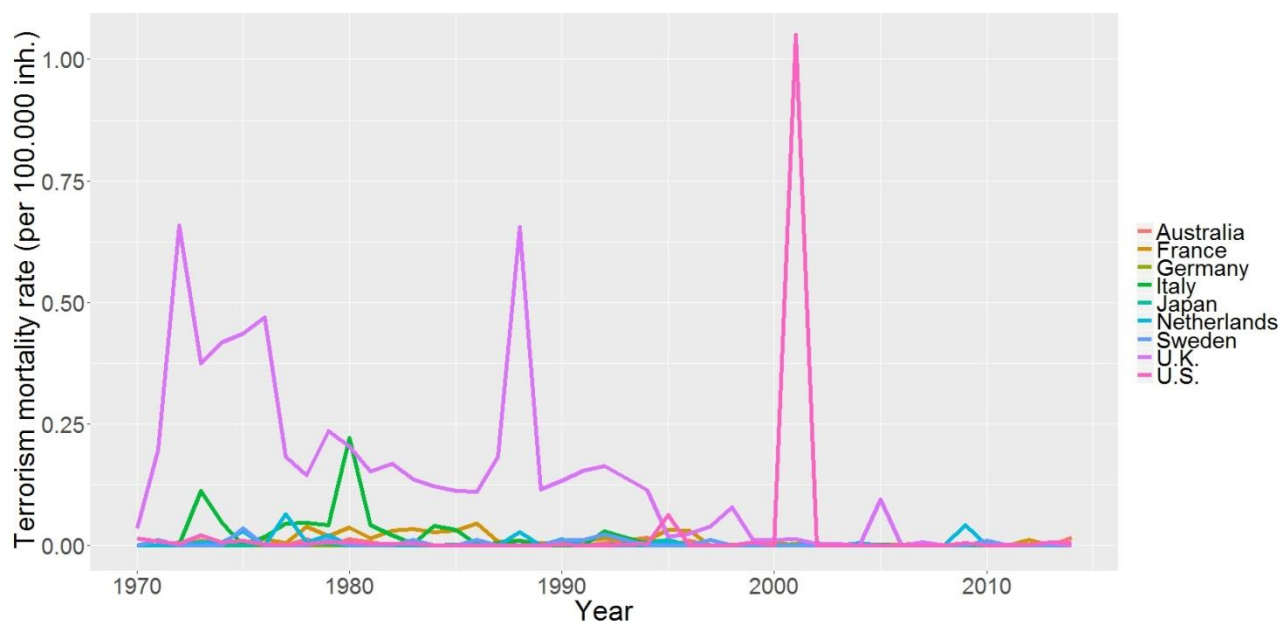
Elaboration by the author; Data source: UMD-START/GTD

Figure V-7 shows the terrorism mortality rate for selected OECD countries. A comparison of Figure V-7 with Figure V-5—which depicted the counts of victims caused by terror attacks for the same selection of countries—reveals that the use of rates rather than counts did indeed put the severity of terror attacks into perspective. The spike in the number of deaths caused by terror attacks in the U.S. in 2001 confirms that the World Trade Center attacks remain the single most serious terror attacks in the developed world. They caused the highest terrorism mortality rate measured for any OECD country during the period of observation. A juxtaposition of terrorism mortality rates rather than counts, however, made the spike for the U.S. in 2001 smaller as compared to the other countries and years. The leveling of the scale made the dynamics in other countries more recognizable. This holds especially true for the terrorism mortality rate in the U.K.

The effect borne by calculating the terrorism mortality rates became even more salient when comparing the terrorism trends of the countries that were most impacted by terrorism during the observation period. The terrorism mortality rates for these countries are exhibited in Figure V-8. In comparison with Figure V-6, it became apparent that the period of terror attacks experienced in Central America during the first half of the 1980s was even more intense than what could be inferred from Figure V-6. The rate of roughly 100 measured for Nicaragua in 1984 was by far the highest measured for any country throughout the whole dataset, and the rate for El Salvador in 1980 was the highest for any country other than Nicaragua. The absolute number of terror attacks in Nicaragua in 1984 was 302, causing 3617 deaths which results in a ratio of ca. 12 deaths per attack. This compared to 2386 killed in 710 attacks in El Salvador in 1980—resulting in a terrorism mortality ratio of roughly 52 and a deaths per attack ratio of ca. 3.4.

Figure V-8 Terrorism mortality rate (per 100,000 inh.) in selected countries with high exposure to terrorism (1970-2014)
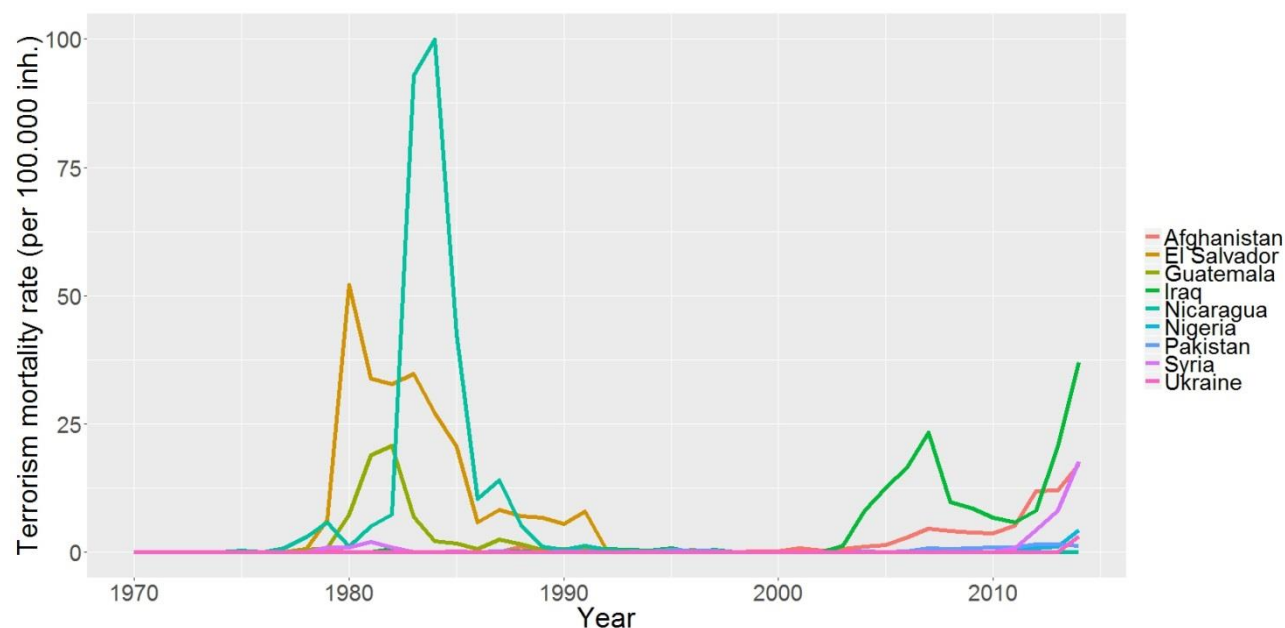
Elaboration by the author; Data source: UMD-START/GTD

As opposed to Figure V-6, the comparison of the terrorism mortality rates depicted in Figure V-8 suggested that the period of attacks in Central America was more intense than the upsurges in terrorist violence that Western and Southern Asia have experienced over the past decade. This is despite the fact that the absolute numbers of attacks and deaths caused by these attacks in Iraq, Syria, Pakistan and Afghanistan continue to push for globally unprecedented highs in absolute counts. Also, here it is noteworthy that the counts of attacks and victims indicated differences in terms of the terrorism mortality rate. For example, the peak in the terrorism mortality rate for 2007 for Iraq was due to 6292 deaths caused by 1047 attacks. The value for Iraq in 2013 indicated roughly the same number of victims but almost three times as many attacks. This made for a much lower ratio of deaths per attack.

V.1.3. Terrorism trends in Europe

Among all the world regions under observation, Europe was the one second least affected by terrorism (after Oceania). Table V-1 gives a summary of key variables on terrorism in Europe. As indicated by the medians, most countries did not experience terror attacks nor terror-related deaths in most years. This is also reflected by the median value of zero for the terrorism mortality rate. As indicated by the maximum values, however, severe episodes of terrorist

violence did indeed occur at times. This had a strong influence on the mean values and made for a strong positive skew in the distributions as a comparison of mean and median values indicated.

Table V-1 Summary statistics of key indicators of terrorism in Europe

Statistic	N	Mean	St. Dev.	Min	Median	Max
Number of attacks	1,781	11.07	42.46	0	0	891
Victims killed	1,781	6.61	41.07	0	0	972
Terrorism mortality rate	1,781	0.02	0.16	0.00	0.00	4.98

Figure V-9 gives indication of how the number of terror attacks and deaths caused by these attacks developed in Europe over time. Compared to other regions, terrorism trends in Europe appeared to be relatively stable and homogenous. The most salient feature was the spike in the deaths per attack ratio in 2004.

Figure V-9 Clustered counts of terror attacks, terror-related deaths, and the deaths per attack ratio in Europe (1970-2014)
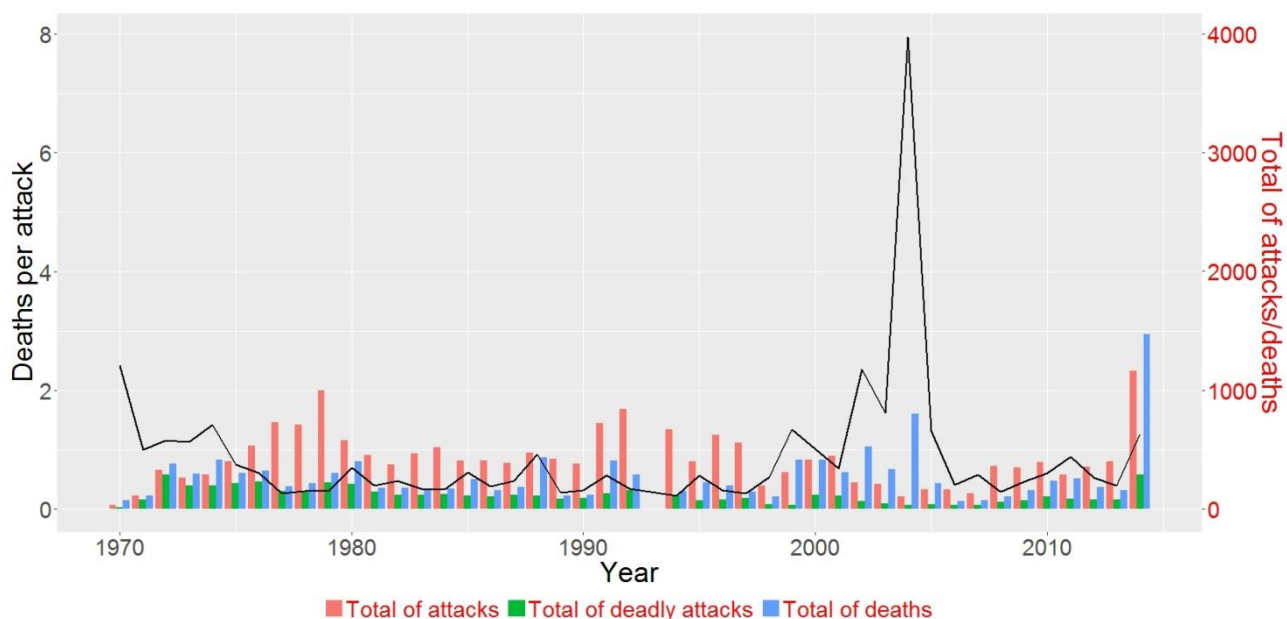
Elaboration by the author; Data source: UMD-START/GTD

This spike during that year is the result of two factors. Firstly, a very low number of terrorist attacks occurred during that year. The number is in fact one of the lowest ever recorded in Europe. Secondly, however, several of these attacks caused an unusually high number of casualties, notably the Madrid train bombings in March 2004. These attacks consisted of a

number of simultaneous bomb explosions which cost the lives of 192 victims. The attacks were initially blamed on the terrorist organization ETA, but shortly after Al-Qaeda was found to be responsible (Rose, Murphy, and Abrahms 2007). Several other high-profile attacks occurred in Russia during that year. These include two attacks on the Moscow metro which were carried out in February and August by Islamic suicide bombers and cost 51 lives (Monaghan 2010). The deadliest terror attack occurring in Europe that year, however, was the so-called Beslan school siege that took place in North Ossetia, a Russian republic in the North Caucasus. It was an extended attack that lasted more than two days and was carried out by Chechnyan separatists. The siege caused almost 400 deaths, making it the deadliest attack that has occurred in Europe so far (Dunlop 2009). The Russian security forces have been widely criticized for mishandling the incident and thus contributing to the high number of casualties (Dunlop 2006). Before then, the highest number of victims in a single terror attack were killed in the 1988 Lockerbie bombing—an attack on a passenger plane (Pan Am Flight 103) that exploded with 259 people aboard and when crashing in Scotland killed an additional 11 on the ground (Beveridge 1992, 907).

Figure V-10 Terrorism mortality rate (per 100,000 inh.) in selected European countries (1970-2014)
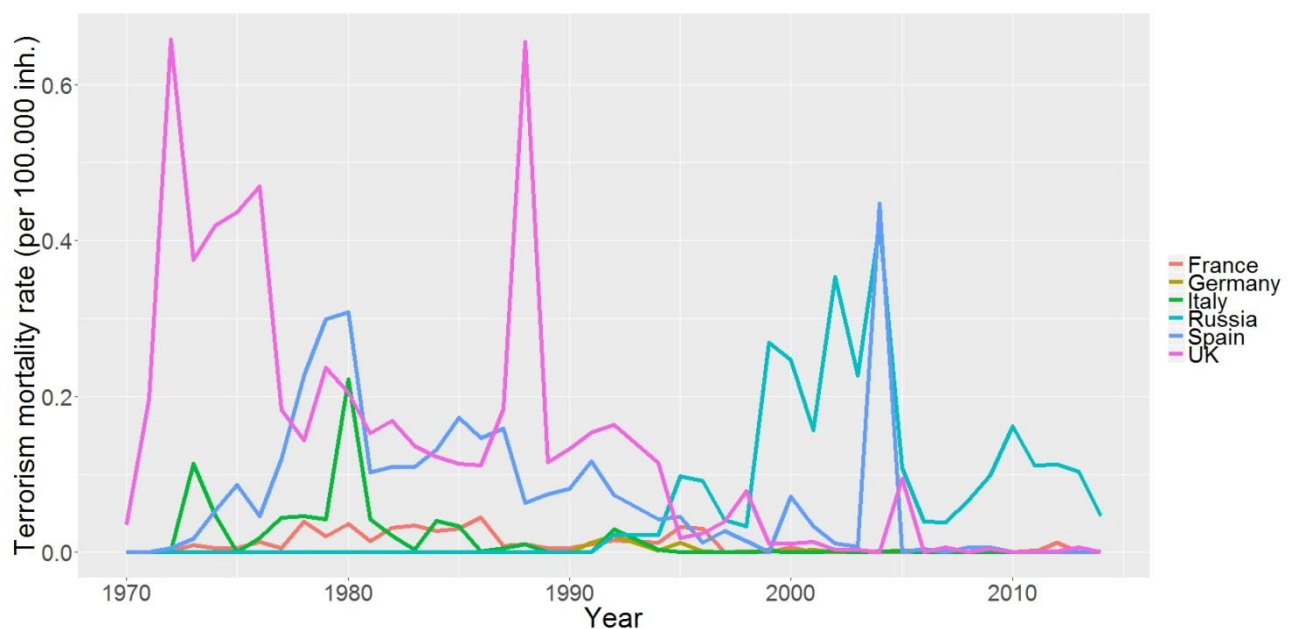
Elaboration by the author; Data source: UMD-START/GTD

As mentioned above, the influence of all these terror attacks became visible when consulting the disaggregated terrorism mortality rates of selected European countries (Table V-2). This confirmed the strong effect that single terror attacks can take on the terrorism mortality rate.

The Lockerbie bombing in 1988, for example, caused an increase of several hundred percent in the terrorism mortality rate for the U.K., boosting it to more than 0.6. The U.K.'s homicide rate during the same year was 1.09, revealing that a single terror attack accounted for a significant portion of violent deaths in the U.K. during that year.

Due to differences in the population sizes, the effect on the terrorism mortality rate was less pronounced in the case of the above-mentioned attacks in Russia. Table V-2 shows the Top 5 observations on terrorism in Europe aggregated at level of country-year, sorted by the absolute count of victims killed. The 2004 terror attacks in Russia made for a terrorism mortality rate of 0.4. This seemed comparatively high. However, compared to a homicide rate of 27.3 during the same year, the attacks accounted only for a minor share of the overall number of violent deaths. This is different in the Ukraine which accounts for the highest number of victims measured for any European country-year. As previously discussed, the Ukraine crisis led to a significant increase of terror attacks which are equally noticeable at regionally aggregated levels. Figure V-9 reveals that 2014 accounts for the highest number of deaths caused by terrorism measured in Europe during the time under observation.

Table V-2 Top 5 country-year observations of terrorism in Europe (number of victims killed)

Country	Year	Number of attacks	Victims killed	Terrorism mortality rate
Ukraine	2014	891	972	2.16
Russia	2004	43	573	0.40
Russia	2002	89	459	0.32
Ukraine	2015	637	396	0.88
Russia	1999	54	382	0.26

Table V-3 shows the Top 5 observations of terrorism in Europe aggregated at level of country-year, sorted by the terrorism mortality rate. Here, the Ukraine (2014) accounted for the second highest terrorism mortality rate ever measured in Europe. A higher rate was only measured in Croatia in 1991, the year the Croatian war of independence started (Cigar 1993). Also the high terrorism mortality rate in Bosnia and Herzegovina marked the onset of a war, namely the Bosnian war which was to become the bloodiest of all Yugoslav wars and involved genocide (Ching 2009). The high rate for Macedonia in 2001, on the other hand, marks the end of the Yugoslav wars. It links to a relatively short-lived conflict between ethnic Albanian militants and Macedonian security forces that started and ended in 2001 (R. C. Hall 2014, 178).

Table V-3 Top 5 country-year observations of terrorism in Europe (terrorism mortality rate)

Country	Year	Number of attacks	Victims killed	Terrorism mortality rate
Croatia	1991	26	237	4.98
Ukraine	2014	891	972	2.16
Norway	2011	3	77	1.55
Bosnia and Herzegovina	1992	22	55	1.28
Macedonia (FYR)	2001	67	24	1.19

Among the five highest terrorism mortality rates measured during the observation period in Europe, only Norway 2015 did not relate to a conflict setting. The spike was caused, in fact, by the attacks committed by Anders Breivik on Utøya island and in Oslo (Leonard et al. 2014). These attacks made for a terrorism mortality rate of 1.55. The homicide rate in Norway during the same year was 2.2, compared to 0.67 in 2010 and 0.5 in 2012. This gives a striking example of how influential a single terror attack can be in boosting the homicide rate of a country.

V.1.4. Terrorism trends in the Americas

The Americas were more affected by terrorism than Europe during the whole observation period. This was reflected by the mean values in all three of the major indicators of terrorism listed in Table V-4. Also, the maximum values for the number of deaths and terrorism mortality rate measured in any country-year spoke to a higher level of terrorist violence in the Americas. This holds especially true for the terrorism mortality rate whose maximum was almost 50 times higher than that in Europe. In the Americas, only the maximum number of attacks was lower However, similar to Europe, the majority of countries did not experience terror attacks nor terror-related deaths during most years as the medians showed. This again made for a strong positive skew in the distributions as indicated by the comparison of mean and median.

Table V-4 Summary statistics of key indicators of terrorism in the Americas

Statistic	N	Mean	St. Dev.	Min	Median	Max
Number of attacks	1,640	19.65	74.70	0	0	710
Victims killed	1,640	37.20	223.49	0	0	3,617
Terrorism mortality rate	1,640	0.49	4.31	0.00	0.00	99.94

Figure V-11 shows how the number of terror attacks and deaths caused by these attacks in the Americas developed over time. The distribution of the values appeared to be less stable and

homogeneous than in Europe. The number of attacks started comparatively low at the beginning of the observation period. The end of the 1970s then marked the beginning of a period of heightened terrorist violence in the Americas. This period was especially intense during the first half of the 1980s and lasted roughly until the mid-1990s. Since then, levels of terrorism in the Americas have returned to comparatively low levels, with the exception of a spike in the number of deaths and the deaths per attack ratio in 2001 due to the September 11th attacks.

Figure V-11 Clustered counts of terror attacks, terror-related deaths, and the deaths per attack ratio in the Americas (1970-2014)
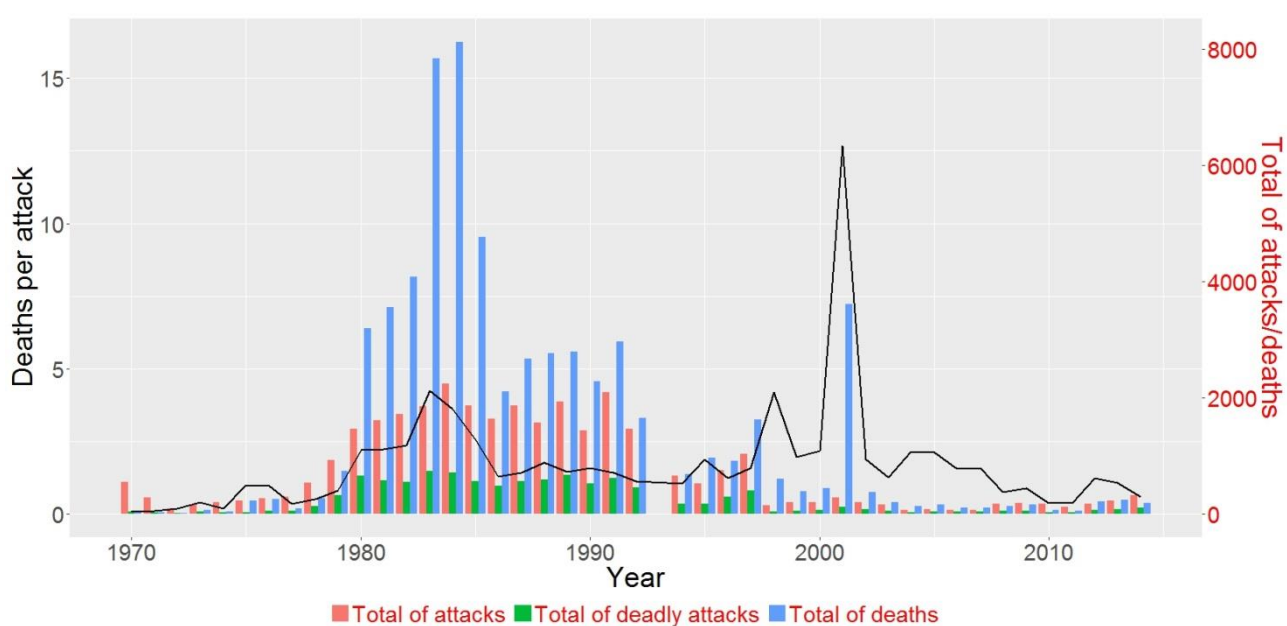
Elaboration by the author; Data source: UMD-START/GTD

As previously discussed, the heightened terrorist violence throughout the 1980s was primarily concentrated in Central America. This especially regards three countries, El Salvador, Guatemala and Nicaragua.

In El Salvador, a coup d'état led to an accession to power of a military junta in 1979. This sparked the Salvadoran civil war which lasted until 1991 (Wood 2003). As apparent in Figure V-12, both the onset and ending of the civil war concur with the period of heightened terrorist violence. Over the course of the war, death squads and security services terrorized the civilian population and made use of forced disappearances. The majority of attacks listed in the GTD (3330 out of 5320), however, were committed by the Farabundo Martí National Liberation Front (FMLN), a left-wing guerilla group that targeted mainly Salvadoran military and police

(Behlendorf, LaFree, and Legault 2012). Leaving 300 dead, the highest death count in a single incident was counted when the FMLN attacked a military post in the town of Suchitoto in 1980.

In Guatemala, a civil war between the government and left-wing guerrilla groups had been going on since 1960. Like in El Salvador, deaths squads terrorized the civilian population and made use of enforced disappearances (Afflitto 2000).[20] This, in turn, led to increased recourse to terror tactics on the side of the insurgents, with Guatemala City as the main theatre (Wilkinson 2004). Counting 100 deaths, however, the deadliest attack listed in the GTD occurred in a settlement called Ixtal when the *Guerrilla Army of the Poor* attacked an army garrison in 1981. As indicated in Figure V-12, 1981 marked the year with the second highest terrorism mortality rate measured for Guatemala throughout the observation period.

Figure V-12 Terrorism mortality rate (per 100,000 inh.) in selected American countries (1970-2014)
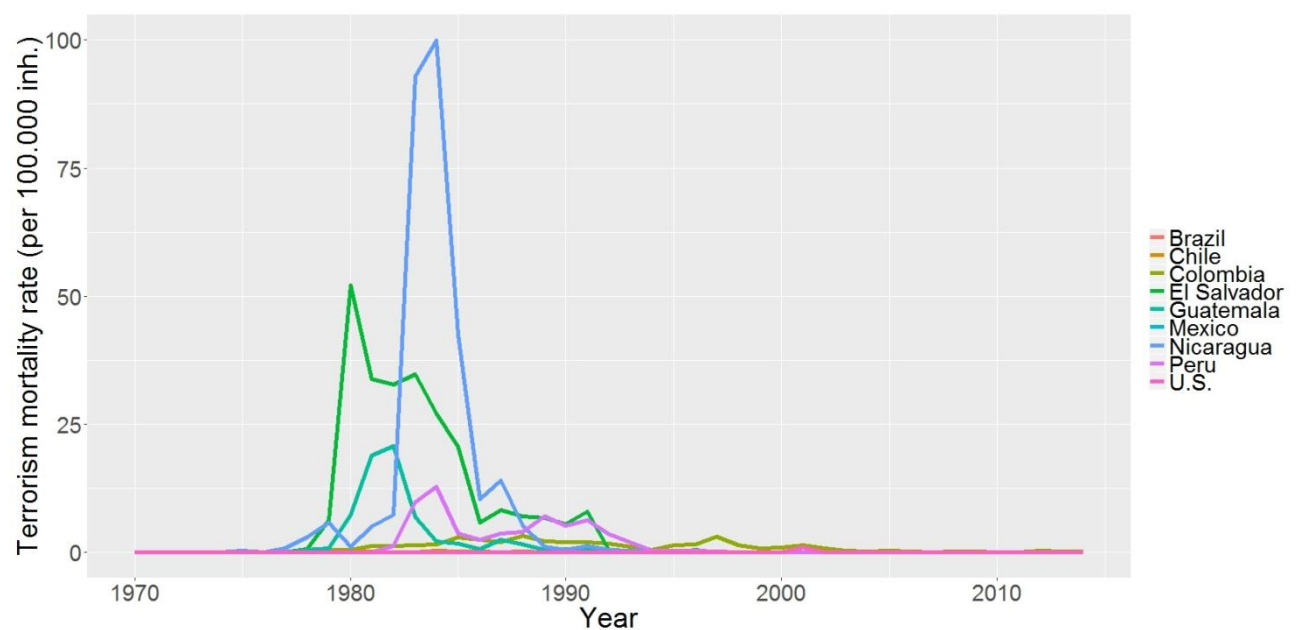
Elaboration by the author; Data source: UMD-START/GTD

In Nicaragua, the long-lasting dictatorship of the Somoza family had been overthrown by the Sandinista National Liberation Front (FSLN) in 1979. With heavy backing of the U.S.

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[20] Enforced disappearances have meanwhile evolved to be defined as a crimes against humanity (Article 7, 1. [i], Rome Statute) and are as such relevant in the criminological discussion on state crimes (Barak 1991, 10; Dieterich 1986).

government, several right-wing militant groups, collectively referred to as the "Contras", formed and started to fight the Sandinista government (Solaun 2005, 79).[21] Hence, unlike in the case of El Salvador and Guatemala, the majority of the 1,970 terror attacks listed in the GTD for Nicaragua were committed by right-wing guerilla groups, especially the Nicaraguan Democratic Force (FDN). The majority of the terror attacks that occurred before the ousting of the last Somoza president, however, were committed by the FSLN (Goodwin 2006, 2032). With 270, the largest number of deaths recorded in a single incident occurred when the FDN attacked a military unit in El Cumbo in 1984. That is the very year that Nicaragua reached the highest mortality rate, not only in the Americas, as previously discussed, but for any country in any year during the period of observation. This is confirmed in Table V-5 which shows the Top 5 observations on terrorism in the Americas aggregated at level of country-year, sorted by the terrorism mortality rate. It also becomes apparent that unlike in the case of rather isolated attacks, the effect of the attack in El Cumbo on the terrorism mortality rate of the same year was rather limited. It accounted for less than 10 percent of all the victims killed during terror attacks in Nicaragua in 1984.

Table V-5 Top 5 country-year observations of terrorism in the Americas (terrorism mortality rate)

Country	Year	Number of attacks	Victims killed	Terrorism mortality rate
Nicaragua	1984	302	3,617	99.94
Nicaragua	1983	299	3,277	92.89
El Salvador	1980	710	2,368	51.73
Nicaragua	1985	258	1,575	42.46
El Salvador	1983	371	1,662	34.70

The sequence changed when sorting the observations on terror attacks in the Americas by absolute counts of deaths rather than by the terrorism mortality rate (see Table V-6). Both entries for Nicaragua remained at the top of the list. The entry for El Salvador, however which previously occupied the third place, dropped to the fifth place, while the entries for Nicaragua and El Salvador in 1985 and 1983 respectively dropped out of the list. Their listings were assumed by the U.S. (2001) and Peru (1984).

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[21] Rothe (2009) drew on the U.S. intervention in Nicaragua during the Reagan administration in order to analyze the etiological factors behind state crime.

Table V-6 Top 5 country-year observations of terrorism in the Americas (number of victims killed)

Country	Year	Number of attacks	Victims killed	Terrorism mortality rate
Nicaragua	1984	302	3,617	99.94
Nicaragua	1983	299	3,277	92.89
U.S.	2001	41	2,984	1.04
Peru	1984	592	2,444	12.80
El Salvador	1980	710	2,368	51.73

The impact of the September 11th attacks has been discussed elsewhere. Just to highlight the scaling effects, it shall be remembered that when comparing the counts of deaths caused by terror attacks and also the terrorism mortality rates among selected OECD countries (Figure V-5 and Figure V-7), the impact of the September 11th attacks stretched the display range. This scaled down the trend line for all other countries so that many of the dynamics in the development of the terrorism counts and rates remained invisible. When comparing the U.S. rates with the rates of other selected American countries, however, the effect of the September 11th attacks was hardly visible (Figure V-12).

V.1.5. Terrorism trends in Asia

Asia was the world region most affected by terrorist violence during the observation period. Table V-7 gives a summary of key variables on terrorism in Asian countries. Both the mean and the maximum values of the number of attacks and number of deaths caused by these attacks was higher than either in Europe or the Americas. The mean of the terrorism mortality rate, however, was lower in Asia than in the Americas.

Table V-7 Summary statistics of key indicators of terrorism in Asia

Statistic	N	Mean	St. Dev.	Min	Median	Max
Number of attacks	2,147	39.00	191.99	0	0	3,925
Victims killed	2,147	76.37	441.94	0	0	11,400
Terrorism mortality rate	2,147	0.32	1.69	0.00	0.00	32.32

Also, the exceptionally high standard deviations in Asia were noteworthy. This indicated severe episodes of terrorist violence. Similar to Europe and the Americas, however, the median values for any of the three key variables was zero, suggesting that like the countries in other

world regions most Asian countries did not suffer terror-related deaths or attacks in most years. Again, this made for a strong positive skew in the distribution.

Figure V-13 shows how the counts of terror attacks and deaths caused by these attacks evolved over time. The counts started out low at the beginning of the observation period and grew rather slowly and steadily to reach a preliminary maximum in 1992. The period from the mid-1990s to the mid-200s was characterized by a relative drop while the death toll began to rise again in 2004. All-time maximums were eventually reached in 2006 and 2007, and again for each of the three most recent observations. As previously discussed, this is due to conflicts that arose in Afghanistan, Iraq and Syria. Also, Pakistan showed exceptionally high counts.

Figure V-13 Clustered counts of terror attacks, terror-related deaths, and the deaths per attack ratio in Asia (1970-2014)
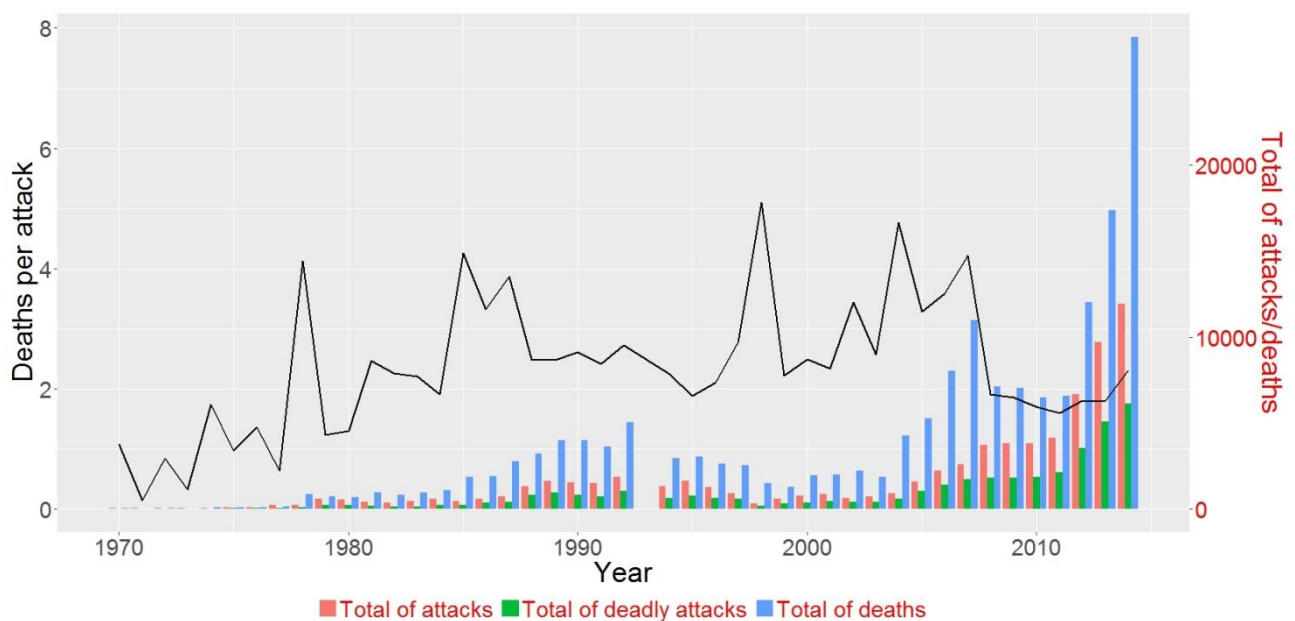
Elaboration by the author; Data source: UMD-START/GTD

The deaths per attack ratio in Asia developed comparatively stable throughout the observation period. As opposed to Europe and the Americas whose distributions showed out-of-the-ordinary peaks for 2004 and 2001 respectively, no major deflections became apparent for any single year. The spikes in Europe and the Americas were caused by single attacks with unusually high numbers of victims. The influence of rare but impactful events in Asia, on the other hand, is most likely restricted by overall higher counts of attacks and deaths.

Figure V-14 shows how the disaggregated terrorism mortality rate for selected Asian countries developed over time. In order to not overstretch the display range, countries with major conflict

zones (e.g. Iraq, Syria) were not included in the figure. Among the countries presented, Israel showed the highest terrorism mortality rate. This regarded both the number of years that the rate ranked first as well as the maximum value attained by any of the observed countries during the observation period.

Figure V-14 Terrorism mortality rate (per 100,000 inh.) in selected Asian countries (1970-2014)
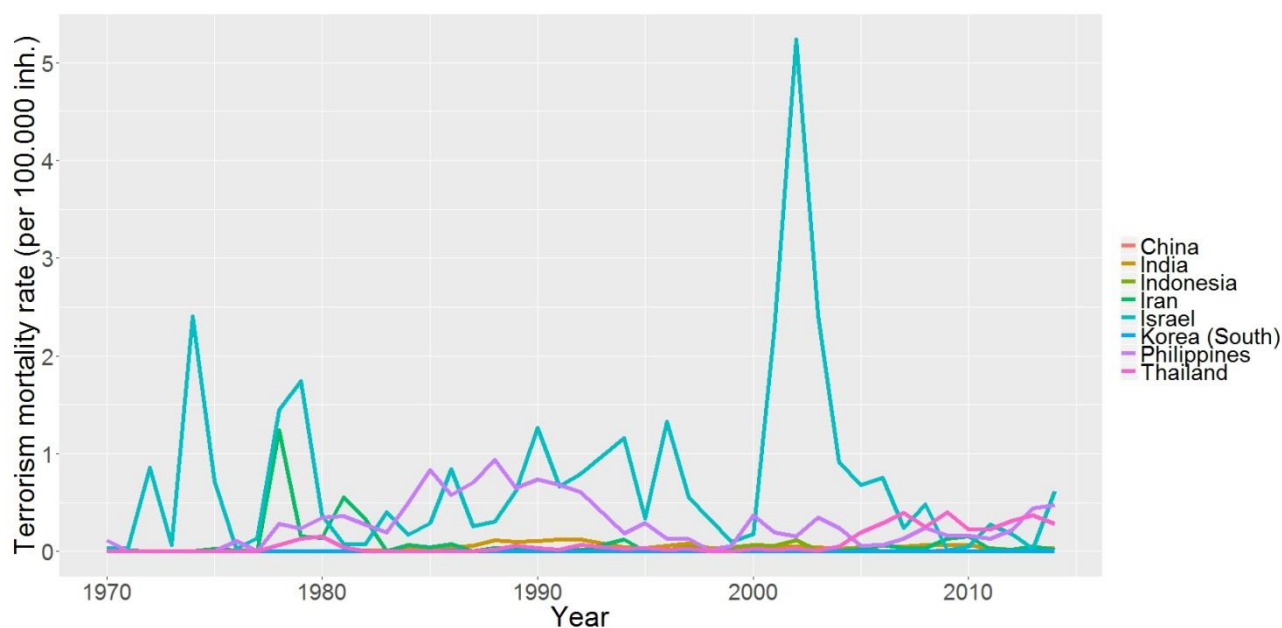
Elaboration by the author; Data source: UMD-START/GTD

Terrorism in Israel is fundamentally linked to the Israeli-Palestinian conflict (Ganor 2015). Violence between Jews and Arabs erupted as early as 1920. The conflict strengthened with the founding of the state of Israel in 1948 which caused a number of wars between Israel and Arab countries throughout the second half of the 20th century (Bregman 2016). Palestinian nationalist organizations, on the other hand, resorted to terrorism and political violence. The most lethal attack occurred in 1978, causing 42 deaths. It was committed by a Fatah commando who attacked a bus on a coastal highway near Tel Aviv. Due to Israel's comparatively small population, single terror attacks had indeed a high impact as the spike in the in the terrorism mortality rate for Israel 1978 illustrates (see Figure V-14). The highest deflection, however, occurred in 2002 right in the midst of the 2nd Intifada. There were alone 13 attacks that accounted for more than 10 victims. All of these attacks were bombings aimed at civilians, most of them being carried out by suicide bombers linked to the Hamas and the Al-Aqsa Brigade (Moghadam 2003).

Besides Israel, Figure V-14 exhibits also higher rates of terrorism mortality in Iran, the Philippines and Thailand. Many of the terror-related deaths in Iran occurred in 1978, the very year of the Iranian revolution (cf. Zabih 1982). The rate was strongly influenced by an attack on a cinema complex carried out by mujahedeen fighters which cost 422 lives. Also in regard to the spike in 1981, one event was particularly impactful, namely the bombing of the Islamic Republican Party's headquarters. The authors of the attack remained long unknown, but one perpetrator linked to the Mujahedin-e Khalq Organization (MKO), an "exiled Iranian dissident cult group living in Iraq" that cooperated with Saddam Hussein in the context of the Iran-Iraq War (Goulka et al. 2009, 14), was eventually arrested in Albania in 2016.[22]

The rise in terror attacks in the Philippines, starting at the beginning of the mid-1980s and leveling out towards the mid-1990s, were carried out mostly by the New People's Army (NPA), the armed wing of the Communist Party of the Philippines (Weinberg 1991, 436). While the NPA is still active as of today, the majority of attacks since the mid-1990s were mostly carried out by Islamic separatists belonging to the Moro ethnicity, and the Jihadist militant group Abu Sayyaf which in 2014 declared a new Philippines Province of the Islamic State (Abuza 2015).

Eventually, as in the Philippines, much of the terrorist violence in Thailand is linked to Islamic separatist groups (Chongkittavorn 2004). These groups are based in the southernmost provinces of Thailand where Muslims account for up to 30 percent of the total population.

Table V-8 shows the top five observations on terrorism in Asia aggregated at level of country-year, sorted by the absolute count of victims killed in terror attacks. None of the selected Asian countries discussed above appear on the chart.

Table V-8 Top 5 country-year observations of terrorism in Asia (number of victims killed)

Country	Year	Number of attacks	Victims killed	Terrorism mortality rate
Iraq	2014	3,925	11,400	32.32
Iraq	2015	2,743	6,597	18.11
Iraq	2013	2,849	6,556	19.22
Iraq	2007	1,047	6,292	22.14
Iraq	2006	837	4,467	16.12

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[22] Press TV (Iran): "Bomber linked to 1981 Tehran attack arrested in Albania: Iran police". http://www.presstv.ir/Detail/2016/05/14/465629/iran-mko-irp-arrested-interpol, consulted on 12/05/2017

The order of the list was in fact overshadowed by the intensity of the previously discussed terrorist violence in Iraq. As becomes apparent, not even Afghanistan, Syria or Pakistan made it onto the list. The sequence changed, however, when sorted by the terrorism mortality rate. The top three observations for Iraq remained, but the second and third spot were occupied by observations from Lebanon in 1985 and 1983. The observations fall into the time of the Lebanon war (1982-1985) that was fought between Israel and Christian Lebanese militias on one side, and a variety of Arab groups on the other (Bregman 2016, 152). Most terror attacks in this context were carried out against Israeli military targets, but also against civilians and diplomats.

Table V-9 Top 5 country-year observations of terrorism in Asia (terrorism mortality rate)

Country	Year	Number of attacks	Victims killed	Terrorism mortality rate
Iraq	2014	3,925	11,400	32.32
Lebanon	1985	95	643	24.02
Lebanon	1983	234	613	23.12
Iraq	2007	1,047	6,292	22.14
Iraq	2013	2,849	6,556	19.22

V.1.6. Terrorism trends in Africa

According to the GTD, countries in Africa were less affected by terrorism than Asian or American countries. The mean values of all three key variables shown in Table V-10—the number of attacks, the number victims killed and the terrorism mortality rate—were lower than the equivalent values for Asia and the Americas. This was not true, however, for the maximum values of two of the variables. While the maximum value for the number of victims killed was indeed lower in Africa than in the Americas and Asia, Africa's maximum count of attacks was higher than in the Americas, and Africa's maximum terrorism mortality rate was higher than in Asia. The medians, instead, exhibited the same values as for all other regions, namely zero. This, again, made for a strong positive skew in the distribution and indicated that most countries did not experience terrorism during most years.

Table V-10 Summary statistics of key indicators of terrorism in Africa

Statistic	N	Mean	St. Dev.	Min	Median	Max
Number of attacks	2,271	8.66	47.36	0	0	862
Victims killed	2,271	30.89	209.00	0	0	6,193
Terrorism mortality rate	2,271	0.22	1.37	0.00	0.00	36.36

Figure V-15 shows how the number of terror attacks and deaths caused by these attacks has evolved during the observation period. There were hardly any values visible before 1985, in fact, and the counts remained relatively low until the beginning of the 1990s. A notable increase, especially the death toll, set in in 1992 and led to subsequent highs in 1995 and 1997. The numbers subsequently dropped and remained comparatively low before increasing again in 1992. Eventually, 2014 marked an all-time peak that was roughly twice as high as the previous maximum reached in 1997.

Figure V-15 Clustered counts of terror attacks, terror-related deaths, and the deaths per attack ratio in Africa (1970-2014)
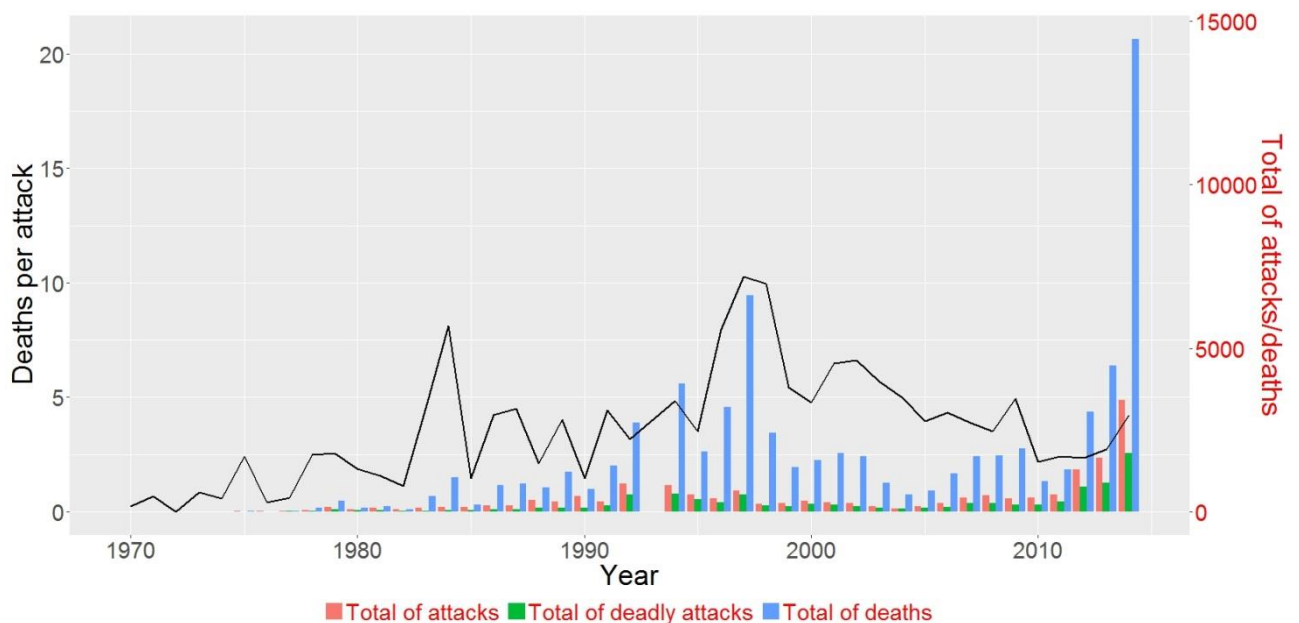
Elaboration by the author; Data source: UMD-START/GTD

Also, the deaths per attack ratio is shown in Figure V-15. It does not show major deflections comparable to the ones indicated in Figure V-9 and Figure V-11 for Europe (2004) and the Americas (2001) respectively. The ratio increased, however, over time and peaked in 1997 before declining again. This trend was largely driven by increases in the counts of deaths while the counts of attacks remained comparatively stable.

Figure V-16 shows the disaggregated terrorism mortality rates for selected African countries. As becomes visible, terrorist violence in Africa throughout the 1990s was generated by attacks in several countries, in particular Rwanda and Algeria. The significant increase during the most

recent years under observation, on the other hand, was largely due to rising levels of terrorism in Nigeria.

The level of terrorist violence in Rwanda is linked to the Rwandan genocide that took place in 1994. Combined with the genocidal violence that occurred in Bosnia during the breakup of Yugoslavia, this event has evolved into one of the most notorious and influential cases in driving the debate on genocide and crimes against humanity—and has also found its way into the criminological debate (Maier-Katkin, Mears, and Bernard 2009, 227). This is not only associated with the magnitude of this case, but also with the international community's failure to intervene appropriately while the genocide took place (Barnett 1995). Rwanda is inhabited by two major ethnicities, the Hutu and Tutsi. While the Hutu form the vast majority of the population, Rwanda had long been dominated politically by a Tutsi monarchy under Belgian colonial rule. When gaining independence in 1962, Rwanda became a republic and power was transferred to the Hutu. The following decades were marked by tension and violence between the two ethnicities. In 1990, a civil war between the Rwandan government and the Tutsi-led Rwandan Patriotic Front (FPR) broke out. The shooting-down of the Rwandan president's airplane in 1994, eventually, sparked a genocide committed by Hutu extremists who targeted predominantly the Tutsi population which claimed at least 500,000 lives (Prunier 1997). The perpetrators of the terror attacks listed in the GTD for Rwanda in 1994 are mostly unknown. The deadliest attack, however, an armed assault killing 1180 Tutsi hiding in a church, was attributable to Hutu extremists.

As far as the spike in the number of deaths in 1997 is regarded (see Figure V-15), the number of terror attacks and deaths occurring in Algeria was even higher than in Rwanda. This is hardly visible in Figure V-16 below, however, because Algeria's terrorism mortality rate was roughly the same as Rwanda's during the same year (also see Table V-12). In Algeria, a civil war had been going on since 1990, fought between the government and Islamic rebels. While the earlier years were primarily marked by battles with Algerian security forces, 1997 was characterized by a dramatic increase in so-called village massacres committed by Islamists (Kalyvas 1999, 243). The deadliest one listed in the GTD caused 256 deaths.

Figure V-16 Terrorism mortality rate (per 100,000 inh.) in selected African countries (1970-2014)
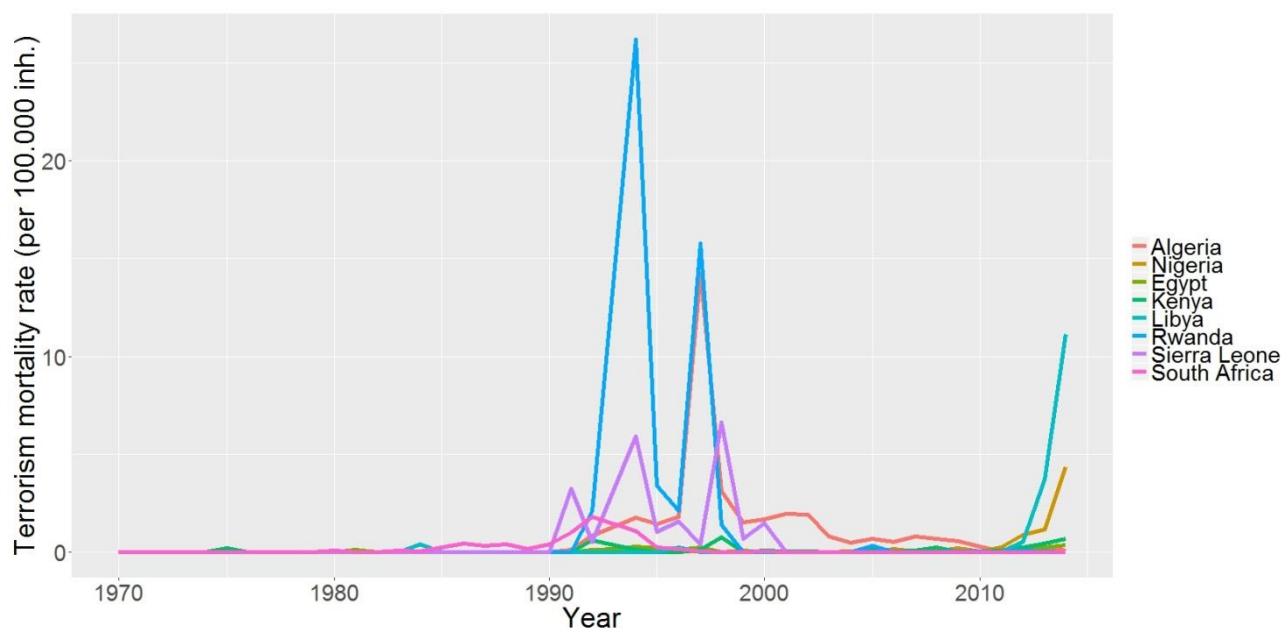
Also, others among the selected countries displayed in Figure V-16 exhibited increases in their terrorism mortality rates throughout the 1990s. There was, for example, Sierra Leone which experienced a civil war lasting from 1991 until 2002 (Zack-Williams 1999, 143). Most of the terror attacks listed in the GTD for Sierra Leone were committed by rebels against the civilian population. South Africa, in turn, experienced mutual attacks between the African National Congress (ANC) and the Inkatha Freedom Party (IFP) (LaFree and Dugan 2007, 197). Both political parties were caught up in a struggle over power in laying the foundations for the post-Apartheid era. The deadliest incident occurred when ANC members attacked an IFP rally in 1991, costing 53 lives.

Table V-11 shows the top five observations on terrorism in Africa aggregated at level of country-year and sorted by the absolute count of victims killed during terror attacks. Two observations from Algeria and Rwanda were in the list while the other positions were occupied by observations from Nigeria. The rise in terrorist violence in Nigeria is a rather recent phenomenon, as can be seen in Figure V-16. The terror attacks occurring in Nigeria pushed the number of deaths related to terrorism in Africa to an all-time high in 2014. Most attacks are committed by Boko Haram, an Islamist terror organization that started an insurgency in 2009 and pledged allegiance to the Islamic state in 2015 (Byman 2016, 80). The worst terror attack

committed by Boko Haram occurred in 2014 in the town of Gamboru Ngala and consisted in the killing 315 victims.

Table V-11 Top 5 country-year observations of terrorism in Africa (number of victims killed)

Country	Year	Number of attacks	Victims killed	Terrorism mortality rate
Nigeria	2014	713	6,193	3.49
Nigeria	2015	637	4,270	2.34
Algeria	1997	344	4,254	14.23
Rwanda	1994	33	1,571	26.20
Nigeria	2013	345	1,563	0.90

Even though the number of terror attacks in Nigeria was considerably high in absolute terms, their impact on the terrorism mortality rate was comparatively limited. This is because Nigeria is the most populous African country. Table V-12 shows the top five entries on terrorism in Africa aggregated at the level of country-year but sorted by the terrorism mortality rate rather than by the absolute counts of victims. While Nigeria drops out of the list, the entries from Rwanda and Algeria remain. The first place is occupied, however, by Djibouti which suffered three particularly deadly attacks by the Front for the Restoration of Unity and Democracy (FRUD) (Bereketeab 2016, 7) against two military posts and a government facility.

Table V-12 Top 5 country-year observations of terrorism in Africa (terrorism mortality rate)

Country	Year	Number of attacks	Victims killed	Terrorism mortality rate
Djibouti	1992	6	228	36.36
Rwanda	1994	33	1,571	26.20
Burundi	1996	35	1,365	21.55
Rwanda	1997	33	1,027	15.79
Algeria	1997	344	4,254	14.23

Besides that, also Burundi is included in the list. Similar to Rwanda, Burundi suffered from ethnic violence and civil war (1993-2006) between the Hutu and Tutsi. In 1996, the Hutu president was ousted by a Tutsi in a coup d'état which led to intense violence between the two ethnic groups (DeRouen and Heo 2007, 199). The deadliest incident listed in the GTD regards an attack committed by the Tutsi against a Hutu village, killing 375. The second deadliest attack, on the other hand, was committed by the Hutu against a Tutsi refugee camp, killing 304.

V.2. Analyses on the effects of terrorism on homicide

As the review of terrorism trends showed, a variety of ways in which levels and trends of terrorism can be measured come into consideration. This includes the absolute counts of terror attacks and deaths caused by these attacks as well as the terrorism mortality rate. For the purpose of this study, the terrorism mortality rate was determined to serve as the independent variable of interest. Also, initially the effects of other indicators of terrorism were tested. These calculations did not yield consistent results, however.

As described in the methodology, the terrorism mortality rate was also transformed with a natural logarithm in order to pull and smoothen the data and to make the results of the regression interpretable in form of a log-log relationship (see section III.4.1). The effect of this transformation is shown in Table V-13. The maximum of the untransformed terrorism mortality rate, 34.80, is represented by a transformed maximum of 3.55. This value deviates from the actual maximum measured for the terrorism mortality rate contained in the database. This is because Table V-13 contains only those observation which could be considered for the regression analysis, meaning they contained at least information on the homicide rate and the terrorism mortality rate. The value presented in Table V-13 refers to El Salvador in 1983, not Nicaragua in 1994 which was the actual maximum in the GTD as presented before.

Table V-13 Summary statistics of the terrorism mortality rate (untransformed and log)

Statistic	N	Mean	St. Dev.	Min	Max
Terrorism mortality rate	3,527	0.192	1.428	0.000	34.806
Terrorism mortality rate (log)	3,527	0.077	0.289	0.000	3.553

V.2.1. Correlations between the dependent and independent variables and different indicators of terrorism

As mentioned, for the purpose of this study, a number of different indicators had initially been considered to serve as independent variables. Figure V-17 shows the correlation between these variables. As becomes apparent, the aforementioned counts of deaths and attacks were included. In regard to the latter, a distinction was made between overall counts of attacks, and separate counts of lethal attacks.

Furthermore, dummy variables were coded as to whether any lethal attack, or any terror attack whatsoever, occurred in a given country-year or not. As expected, all variables were correlated positively. Figure V-17 reveals that the correlation between the variables varied, however. It was stronger among the absolute counts and the terrorism mortality rate (log) whose correlation with the dummy variables was

Figure V-17 Correlogram of indicators of terrorism

	Terrorism mortality rate (log)	Terrorist attacks (count)	Lethal terrorist attacks (count)	Victims killed (count)	Terrorist attacks (dummy)	Lethal terrorist attacks (dummy)
Terrorism mortality rate (log)	1					
Terrorist attacks (count)	0.62	1				
Lethal terrorist attacks (count)	0.66	0.93	1			
Victims killed (count)	0.72	0.78	0.86	1		
Terrorist attacks (dummy)	0.25	0.24	0.19	0.16	1	
Lethal terrorist attacks (dummy)	0.37	0.34	0.29	0.24	0.67	1

-1 -0.8 -0.6 -0.4 -0.2 0 0.2 0.4 0.6 0.8 1

relatively weak. The strongest association was measured between the counts of lethal and overall terror attacks. It has to be noted in that regard, that the count of the former is already contained in the latter. A similarly strong association was measured between the count of lethal terror attacks and the count of victims. Also, the terrorism mortality rate (log) was strongly correlated with the count of victims. Its association with the count of attacks and lethal attacks was instead mildly more moderate. The terrorism mortality rate was eventually determined to serve as the main independent variable of interest for the purpose of this study. This was because it proved to give rather consistent and robust results while other indicators of terrorism did not prove to be significant and reliable across different models.

Figure V-18 Correlogram of homicide rates, terrorism mortality rate and control variables

	Homicide rate	Homicide rate (log)	Terrorism mortality rate	Terrorism mortality rate (log)	GDP per capita (USD, PPP)	GDP growth (%)	Trade (%)	GINI coefficient	Polity index	Female labor force (%)	Urban population (%)	Young male population (%)
Homicide rate	1											
Homicide rate (log)	0.79	1										
Terrorism mortality rate	0.22	0.15	1									
Terrorism mortality rate (log)	0.24	0.17	0.83	1								
GDP per capita (USD, PPP)	-0.26	-0.49		0.12	1							
GDP growth (%)				-0.01		1						
Trade (%)		0.11			0.28		1					
GINI coefficient	0.5	0.55		0.1	-0.31		-0.14	1				
Polity index		-0.14			0.13				1			
Female labor force (%)			-0.23	-0.27				-0.31	0.27	1		
Urban population (%)	-0.15	-0.3			0.61		0.14		0.25		1	
Young male population (%)	0.24	0.34		0.12	-0.28			0.49	-0.37	-0.5	-0.32	1

-1   -0.8   -0.6   -0.4   -0.2   0   0.2   0.4   0.6   0.8   1

Figure V-18 shows the correlation between the homicide rate (log) as the dependent variable—and the terrorism mortality rate (log) as the main independent variable of interest. Also, the various control variables that were considered in any of the regression models, are included in Figure V-18. Their associations between each other and with the homicide rate (log) have been discussed in CHAPTER IV. Looking at the correlation between the terrorism mortality rate (log) and the other variables, no particularly strong association with the homicide rate (log), or any of the control variables for that matter, became apparent at the bivariate level. The strongest association was actually exhibited with the percentage of female labor force, though being negative and comparatively weak. The strongest positive association, on the other hand, happened to be with the untransformed dependent variable, the homicide rate.

When plotting the terrorism mortality rate (log) against the homicide rate (log) in a scatterplot, no immediate relationship at bivariate level became visible. In interpreting the scatterplot, it is

important to note, however, that neither fixed effects for countries or years nor the impact of confounding variables were accounted for.

Figure V-19 Scatterplot of homicide rate (log) vs. terrorism mortality rate (log)
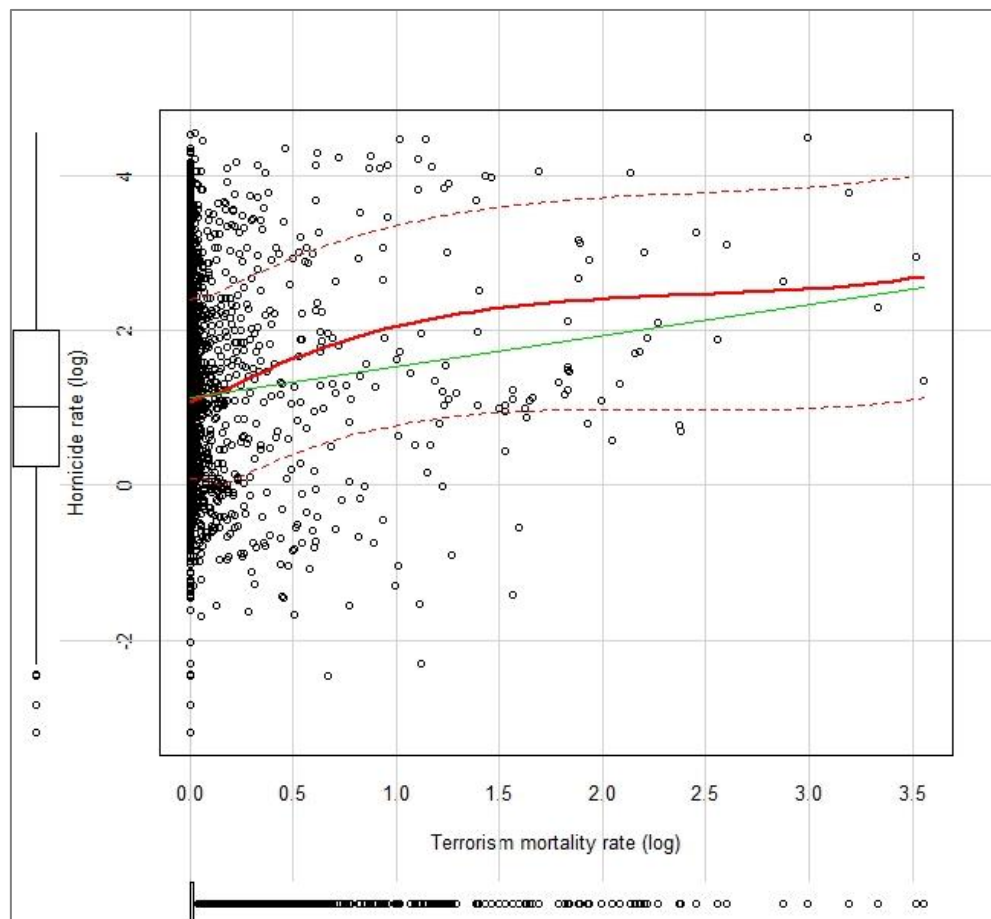
While the interpretation of the covariate distribution of observations remained difficult, adding a simple regression line to the scatterplot indicated that there was a positive association between the homicide rate (log) and the terrorism mortality rate (log).

V.2.2. Partial models on the effect of terrorism on homicide

A positive relationship between the homicide rate (log) and the terrorism mortality rate (log) was also indicated when running fixed-effects panel models with various economic variables as controls. As apparent in Model 1, Table V-14, a regression with GDP per capita as a control predicted that a 1 % increase in the terrorism mortality rate would lead to a 0,15 % increase in the homicide rate. The estimate for the coefficient was highly significant. The explained variance, however, as indicated by the R^2 suggested that such a model bears no explanatory power. The same held true when controlling individually for GDP growth, trade and the Gini

coefficient. None of the models reached reasonable levels of explained variance. In addition, also the coefficient for the terrorism mortality rate (log) were insignificant.

Table V-14 Fixed-effects panel models (individual/reg. SE): Homicide rate ← terrorism mortality rate, socioeconomic control variables

			Dependent variable:		
			Homicide rate (log)		
	(1)	(2)	(3)	(4)	(5)
Terrorism mortality rate (log)	0.154***	0.047	0.039	0.045	0.213***
	(0.059)	(0.044)	(0.044)	(0.071)	(0.080)
GDP/capita (kUSD, PPP)	-0.012***				-0.021***
	(0.001)				(0.001)
GDP growth (%)		-0.001			-0.002
		(0.002)			(0.003)
Trade (%)			-0.002***		-0.003***
			(0.001)		(0.001)
Gini coefficient				0.001	-0.004
				(0.003)	(0.003)
Observations	2,420	3,261	3,251	1,707	1,284
R^2	0.035	0.0005	0.008	0.0004	0.110
F Statistic	41.148*** (df = 2; 2256)	0.740 (df = 2; 3096)	11.734*** (df = 2; 3087)	0.334 (df = 2; 1573)	28.466*** (df = 5; 1151)

Note: *p<0.1; **p<0.05; ***p<0.01

As shown in Model 5, Table V-14, the results changed when inserting all economic control variables in a combined regression. The explained variance as indicated by the R^2 rose to a reasonable level and the coefficient of the terrorism mortality rate (log) became significant again. Also, its strength grew, indicating that a 1 % increase in terrorism mortality would lead to a 0.21 % increase in the homicide rate.

When comparing the results for the fixed effects model with other approaches to panel analysis, it became apparent that the fixed effects model returned the lowest value for the coefficient as well as the lowest level of overall explained variance (see Table V-15). The pooled model (Model 1, Table V-15), for example, returned an estimate almost twice as high as the fixed effects model, and so did the between-estimator (Model 3, Table V-15). Both models exhibited much larger levels of explained variance, in this case more than four times higher than for the

fixed effects model. The differences between the fixed and the random effects model, on the other hand, were only minor. The random effects model yielded a slightly stronger estimate of the effect of the terrorism mortality rate (log) on the homicide rate (log), and resulted in an increase of the explained variance.

Running a Hausman test to evaluate whether the fixed or random effects model (see Table V-15, Models 2 and 4) would be preferable yielded a p-value of $< 2.2e\text{-}16$ (chisq = 104.39, df = 5), indicating that fixed effects should be used.

Table V-15 Various panel models: Homicide rate ← terrorism mortality rate, socioeconomic control variables

	Dependent variable:			
	Homicide rate (log)			
	Pooled	Fixed (within)	Between	Random
	(1)	(2)	(3)	(4)
Terrorism mortality rate (log)	0.396***	0.213***	0.389	0.217***
	(0.111)	(0.080)	(0.249)	(0.078)
GDP/capita (kUSD, PPP)	-0.041***	-0.022***	-0.038***	-0.022***
	(0.001)	(0.001)	(0.011)	(0.001)
GDP growth (%)	-0.017***	-0.002	-0.022	-0.003
	(0.006)	(0.003)	(0.033)	(0.003)
Trade (%)	0.0005	-0.003***	0.0003	-0.002***
	(0.001)	(0.001)	(0.002)	(0.001)
Gini coefficient	0.055***	-0.004	0.057***	0.005*
	(0.003)	(0.003)	(0.009)	(0.003)
Constant	-0.201		-0.531	1.608***
	(0.130)		(0.435)	(0.152)
Observations	1,284	1,284	128	1,284
R^2	0.479	0.110	0.452	0.154
F Statistic	235.080*** (df = 5; 1278)	28.466*** (df = 5; 1151)	20.156*** (df = 5; 122)	46.477*** (df = 5; 1278)

Note: *p<0.1; **p<0.05; ***p<0.01

The regression models returned positive and significant results for the effect of the terrorism mortality rate (log) on the homicide rate (log) also when population-based rather than economic variables where controlled for. Model 1 in Table V-16 indicates that a 1 % increase in terrorism mortality would lead to a 0.21 % increase in the homicide rate (Model 1, Table V-16). As indicated by the R^2, however, the overall model fit was insufficient. This was equally the case

when controlling individually for urban population (Model 2, Table V-16) and young male population (Model 3, Table V-16) instead of female labor force. The explained variance remained insufficiently low, suggesting that the models had no validity. As opposed to the economic variables, also a model that combined all population-based variables (Model 4, Table V-16) did not lead to reasonable levels of explained variance.

Table V-16 Fixed-effects panel models (individual/reg. SE): Homicide rate ← terrorism mortality rate, population-based control variables

	Dependent variable:			
	Homicide rate (log)			
	(1)	(2)	(3)	(4)
Terrorism mortality rate (log)	0.214***	0.082*	0.059	0.222***
	(0.059)	(0.043)	(0.043)	(0.059)
Female labor force (%)	0.014**			0.030***
	(0.007)			(0.008)
Urban population (%)		0.018***		-0.007
		(0.002)		(0.005)
Young male population (%)			0.033***	0.061***
			(0.009)	(0.013)
Observations	2,471	3,526	3,527	2,471
R^2	0.007	0.022	0.005	0.018
F Statistic	7.757*** (df = 2; 2305)	38.227*** (df = 2; 3359)	8.369*** (df = 2; 3360)	10.428*** (df = 4; 2303)

Note: *p<0.1; **p<0.05; ***p<0.01

When comparing the fixed effects models with population-based control variables with other methods of panel analysis (Table V-17), it became apparent again that the fixed effects estimator yielded weaker coefficients for the effect of the terrorism mortality rate (log) on the homicide rate (log) than the other models. The estimates in the pooled and between models were almost twice as strong. Both models also returned larger levels of explained variance than the fixed effects model. The random effects model, on the other hand, yielded an estimate similar to the fixed effects model. Though still comparatively low, it also showed an improved overall model fit. In any case, all models displayed in Table V-17 exhibited lower levels of explained variance than their counterparts with the economic variables as controls (Table V-16).

Table V-17 Various panel models: Homicide rate ← terrorism mortality rate, population based control variables

	Dependent variable:			
	Homicide rate (log)			
	Pooled	Fixed (within)	Between	Random
	(1)	(2)	(3)	(4)
Terrorism mortality rate (log)	0.424***	0.222***	0.407	0.224***
	(0.087)	(0.059)	(0.279)	(0.058)
Female labor force (%)	0.041***	0.030***	0.043***	0.032***
	(0.003)	(0.008)	(0.011)	(0.006)
Urban population (%)	-0.008***	-0.007	-0.010**	-0.011***
	(0.001)	(0.005)	(0.004)	(0.003)
Young male population (%)	0.227***	0.061***	0.202***	0.069***
	(0.014)	(0.013)	(0.049)	(0.012)
Constant	-2.816***		-2.449**	-0.156
	(0.313)		(1.100)	(0.364)
Observations	2,471	2,471	164	2,471
R^2	0.197	0.018	0.253	0.057
F Statistic	150.860*** (df = 4; 2466)	10.428*** (df = 4; 2303)	13.492*** (df = 4; 159)	37.302*** (df = 4; 2466)

Note: *p<0.1; **p<0.05; ***p<0.01

V.2.3. Full models on the effect of terrorism on homicide

The overall fit of the fixed effects model increased considerably when combining the economic and population-based control variables in a single regression. This became apparent in Table V-18. The explained variance as indicated by the R^2 in Model 1 was considerably higher than in the models that included the economic (Model 5, Table V-14) and population-based control variables separately (Model 5, Table V-16). Also, the polity index was considered as a control variable. As a reminder, the polity index measures governance on a level of -10 (autocracy) to +10 (democracy). As shown in Model 2, Table V-18, adding it to the economic and population-based indicators caused a rather strong drop in the strength of the terrorism mortality rate (log) coefficient. The estimate for the effect of the polity index itself was insignificant, however, and the other coefficients remained mostly unaffected. The model without the polity index suggested that an increase of 0.36% in the terrorism mortality rate would lead to a 1% increase in the homicide rate. This value dropped to 0.3% when adding the polity index to the regression.

Table V-18 Fixed-effects panel models (individual – reg./rob. SE): Homicide rate ← terrorism mortality rate, all control variables

	Dependent variable:			
	Homicide rate (log)			
	Regular SE		Robust SE	
	(1)	(2)	(3)	(4)
Terrorism mortality rate (log)	0.361***	0.300***	0.361***	0.300**
	(0.078)	(0.078)	(0.123)	(0.122)
GDP/capita (kUSD, PPP)	-0.031***	-0.031***	-0.031***	-0.031***
	(0.001)	(0.001)	(0.001)	(0.001)
GDP growth (%)	-0.002	-0.002	-0.002	-0.002
	(0.003)	(0.003)	(0.003)	(0.003)
Trade (%)	-0.003***	-0.003***	-0.003***	-0.003***
	(0.001)	(0.001)	(0.001)	(0.001)
Gini coefficient	-0.002	-0.003	-0.002	-0.003
	(0.003)	(0.003)	(0.003)	(0.003)
Female labor force (%)	0.065***	0.066***	0.065***	0.066***
	(0.009)	(0.009)	(0.010)	(0.010)
Urban population (%)	0.022***	0.022***	0.022***	0.022***
	(0.006)	(0.006)	(0.006)	(0.006)
Young male population (%)	0.006	0.009	0.006	0.009
	(0.018)	(0.019)	(0.017)	(0.017)
Polity index		-0.004		-0.004
		(0.007)		(0.007)
Observations	1,284	1,237		
R^2	0.189	0.185		
F Statistic	33.464*** (df = 8; 1148)	27.938*** (df = 9; 1108)		

Note: *p<0.1; **p<0.05; ***p<0.01

When calculating robust standard errors, the coefficient of the terrorism mortality rate (log) remained significant (Models 3 and 4, Table V-18). In the case of the model which included the polity index, however, the significance of the terrorism mortality rate (log) dropped by one level. The size of the robust standard errors was much larger than the regular errors of the terrorism mortality rate (log). They almost doubled in size while similar changes did not occur in case of the other variables.

The fixed effects models were also run with additional time-fixed effects (Table V-19) which caused changes to the terrorism mortality rate (log) coefficient. The values dropped rather

strongly, as becomes apparent when comparing the respective models with their counterparts in Table V-18. The same also happened to the GDP per capita while the effect for the urban population, for example, rose in strength. When calculating robust standard errors, the significance for the terrorism mortality rate (log) decreased, but remained significant at .5-level. The errors were larger again than their regular counterparts, but the mutual difference in size was smaller than in the case of the standard errors in the models without time-fixed effects (Table V-18).

Table V-19 Fixed-effects panel models (two-ways – reg./rob. SE): Homicide rate ← terrorism mortality rate, all control variables

	Dependent variable:			
	Homicide rate (log)			
	Regular SE		Robust SE	
	(1)	(2)	(3)	(4)
Terrorism mortality rate (log)	0.305***	0.238***	0.305**	0.238**
	(0.080)	(0.080)	(0.121)	(0.118)
GDP/capita (kUSD, PPP)	-0.023***	-0.023***	-0.023***	-0.023***
	(0.001)	(0.001)	(0.001)	(0.001)
GDP growth (%)	-0.002	-0.001	-0.002	-0.001
	(0.003)	(0.003)	(0.003)	(0.003)
Trade (%)	-0.002**	-0.002**	-0.002**	-0.002**
	(0.001)	(0.001)	(0.001)	(0.001)
Gini coefficient	-0.005	-0.006*	-0.005	-0.006*
	(0.003)	(0.003)	(0.003)	(0.003)
Female labor force (%)	0.072***	0.074***	0.072***	0.074***
	(0.010)	(0.010)	(0.010)	(0.010)
Urban population (%)	0.034***	0.035***	0.034***	0.035***
	(0.006)	(0.006)	(0.006)	(0.006)
Young male population (%)	0.024	0.022	0.024	0.022
	(0.019)	(0.020)	(0.018)	(0.019)
Polity index		0.003		0.003
		(0.007)		(0.007)
Observations	1,284	1,237		
R^2	0.151	0.153		
F Statistic	25.065*** (df = 8; 1125)	21.769*** (df = 9; 1085)		
Note:				*p<0.1; **p<0.05; ***p<0.01

V.2.4. Regional models on the effect of terrorism on homicide

Separate models were also run for each of the major world regions (except Oceania) and the group of OECD countries. Merely running the model for Europe returned a significant estimate of the terrorism mortality rate (log) coefficient. The coefficient remained insignificant for all other regions. The coefficient became significant, however, when grouping the other regions together. Indicating an increase of almost 0.5 % in the homicide rate for every 1 % increase in the terrorism mortality rate, the strength of the effect for Europe was more than twice as strong than in the overall model, and also more than twice as strong than for the group of other world regions. The coefficient for Europe remained equally significant when run with robust standard errors, but dropped to .1-level for the group of other regions. Deviating from the disparity between regular and robust standard errors in the overall model and the model for the group of other regions, the robust standard error in the model for Europe was in fact smaller than its regular counterpart.

Table V-20 Fixed-effects panel models (two-ways – reg./rob. SE) by world region: Homicide rate ← terrorism mortality rate, all control variables

	Dependent variable:			
	Homicide rate (log)			
	Regular SE		*Robust SE*	
	Europe	Other regions	Europe	Other regions
Terrorism mortality rate (log)	0.488***	0.211**	0.488***	0.211*
	(0.179)	(0.101)	(0.161)	(0.127)
GDP/capita (*k*USD, PPP)	-0.001	-0.023**	-0.001	-0.023***
	(0.011)	(0.014)	(0.009)	(0.014)
GDP growth (%)	-0.003	-0.002	-0.003	-0.002
	(0.004)	(0.005)	(0.004)	(0.004)
Trade (%)	-0.002*	-0.002	-0.002*	-0.002
	(0.001)	(0.001)	(0.001)	(0.001)
Gini coefficient	0.011**	-0.009*	0.011***	-0.009*
	(0.004)	(0.005)	(0.004)	(0.004)
Female labor force (%)	0.109***	0.053***	0.109***	0.053***
	(0.015)	(0.013)	(0.014)	(0.013)
Urban population (%)	0.007	0.035***	0.007	0.035***
	(0.008)	(0.009)	(0.008)	(0.009)
Young male population (%)	0.027	-0.021	0.027	-0.021
	(0.023)	(0.032)	(0.024)	(0.031)
Polity index	-0.018	0.007	-0.018	0.007
	(0.014)	(0.009)	(0.012)	(0.009)
Observations	542	694		
R^2	0.158	0.097		
F Statistic	9.887*** (df = 9; 475)	6.923*** (df = 9; 578)		

Note: *p<0.1; **p<0.05; ***p<0.01

V.2.5. Lagged models on the effect of terrorism on homicide

Apart from using the terrorism mortality rate (log) as a predictor for the same year's homicide rate (log), separate models were run with a homicide rate rate lagged by one year. The results of this are shown in Table V-21. As apparent, the estimates for the lagged homicide rate (log) were largely similar to the synchronized model, but had some noteworthy effect on the strength of the coefficients. The value was roughly the same in the model without the polity index (compare Model 1 in Table V-19 and Table V-21), namely indicating an increase of roughly

0.3% in the homicide rate for every 1% increase in the terrorism mortality rate. Included the polity index in the regression (compare Model 2 in Table V-19 and Table V-21), on the other hand, yielded differences between the lagged and the synchronous model. In case of the synchronous model, adding the polity index had led to a rather considerable drop in the strength of the coefficient, while doing the same in the lagged model effectuated almost no change to the coefficient. While calculating robust standard errors for both models caused a drop in the significance of the coefficients, they remained significant at .05-level (Models 3 and 4, Table V-21). The explained variance for the lagged models was lower than for the synchronous models.

Table V-21 Fixed-effects panel models (two-ways – reg./rob. SE): Lagged homicide rate (1Y) ← terrorism mortality rate, all control variables

	Dependent variable:			
	Homicide rate (log)			
	Regular SE		Robust SE	
	(1)	(2)	(3)	(4)
Terrorism mortality rate (log)	0.289***	0.292***	0.289**	0.292**
	(0.080)	(0.080)	(0.116)	(0.115)
GDP/capita (kUSD, PPP)	-0.021***	-0.020***	-0.021***	-0.020***
	(0.004)	(0.004)	(0.003)	(0.003)
GDP growth (%)	0.002	0.001	0.002	0.001
	(0.003)	(0.003)	(0.003)	(0.003)
Trade (%)	-0.002**	-0.002**	-0.002**	-0.002**
	(0.001)	(0.001)	(0.001)	(0.001)
Gini coefficient	-0.002	-0.004	-0.002	-0.004
	(0.003)	(0.003)	(0.003)	(0.003)
Female labor force (%)	0.076***	0.078***	0.076***	0.078***
	(0.010)	(0.010)	(0.010)	(0.010)
Urban population (%)	0.024***	0.027***	0.024***	0.027***
	(0.007)	(0.007)	(0.007)	(0.007)
Young male population (%)	0.007	0.009	0.007	0.009
	(0.020)	(0.020)	(0.018)	(0.019)
Polity index		-0.004		-0.004
		(0.008)		(0.008)
Observations	1,191	1,148		
R^2	0.129	0.137		
F Statistic	19.362*** (df = 8; 1043)	17.750*** (df = 9; 1006)		

Note: *p<0.1; **p<0.05; ***p<0.01

The lagging of the dependent variable—the homicide rate (log)—was also performed for each of the major world regions and the member countries of the OECD. Again, Europe was the only region for which a significant estimate of the terrorism mortality rate (log) coefficient appeared. As shown in Table V-22, grouping the other regions together, however, resulted in a coefficient that had roughly the same strength than for Europe, but exhibited a higher level

of significance. The overall explained variance, on the other hand, was higher for the model on Europe than for the group of other regions. The coefficients for both Europe and the group of other regions retained their significance when robust standard errors were calculated. In the case of Europe, the significance level remained the same at .1, while the coefficient for the groups of other regions dropped from .01 to .05.

Table V-22 Fixed-effects panel models (two-ways – reg./rob. SE) by world region: Lagged homicide rate (1Y) ← terrorism mortality rate, all control variables

	Dependent variable:			
	Homicide rate (log)			
	Regular SE		Robust SE	
	Europe	Other regions	Europe	Other regions
Terrorism mortality rate (log)	0.303[*]	0.293[***]	0.303[*]	0.293[**]
	(0.183)	(0.099)	(0.183)	(0.120)
GDP/capita (kUSD, PPP)	0.006	-0.021[**]	0.006	-0.021[***]
	(0.005)	(0.008)	(0.004)	(0.006)
GDP growth (%)	0.002	-0.004	0.002	-0.004
	(0.004)	(0.005)	(0.004)	(0.005)
Trade (%)	-0.002[*]	-0.001	-0.002[**]	-0.001
	(0.001)	(0.002)	(0.001)	(0.001)
Gini coefficient	0.013[***]	-0.006	0.013[***]	-0.006
	(0.005)	(0.005)	(0.004)	(0.004)
Female labor force (%)	0.111[***]	0.055[***]	0.111[***]	0.055[***]
	(0.015)	(0.013)	(0.015)	(0.013)
Urban population (%)	-0.003	0.023[**]	-0.003	0.023[**]
	(0.009)	(0.010)	(0.008)	(0.009)
Young male population (%)	0.007	-0.045	0.007	-0.045
	(0.024)	(0.033)	(0.025)	(0.029)
Polity index	-0.041[***]	0.006	-0.041[***]	0.006
	(0.014)	(0.010)	(0.012)	(0.009)
Observations	522	626		
R^2	0.175	0.089		
F Statistic	10.739[***] (df = 9; 457)	5.628[***] (df = 9; 519)		

Note:	*p<0.1; **p<0.05; ***p<0.01

V.2.6. Full models on the effects of terrorism on homicide in countries without occurrences of warfare

As the foregoing examination of terrorism trends has shown, terror attacks are often embedded in different forms of hard conflict, e.g. civil warfare. In order to isolate the effect of terror attacks from occurrences of warfare, the above presented models were also run on a subset of data in which any country-years that exhibited warfare of any kind (independence, civil, ethnic, and international) were sorted out. As shown in Table V-23, this led to a considerable increase in the value of the terrorism mortality rate (log) coefficient. While the model on the whole dataset had indicated that an increase of 1 percent in the terrorism mortality rate would be associated with a 0.3 percent increase in the homicide rate, the model on the subset without occurrences of war yielded a value of roughly 0,46 percent (compare Model 1 in Table V-19 and Table V-23). As opposed to the model based on the whole dataset, the addition of the polity index to the regression caused only a minor drop in the strength of this effect. Calculating robust standard errors for the model without occurrences of warfare did not lead to major changes in the significance of the terrorism mortality rate (log) coefficients. The level remained the same at .01 as for the model without the polity index, and dropped to .05 as for the model in which the polity index was included.

Table V-23 Fixed-effects panel models (two-ways – reg./rob. SE) for country-years without warfare: Homicide rate ← terrorism mortality rate, all control variables

	Dependent variable:			
	Homicide rate (log)			
	Regular SE		*Robust SE*	
	(1)	(2)	(3)	(4)
Terrorism mortality rate (log)	0.456***	0.424***	0.456***	0.424**
	(0.114)	(0.116)	(0.168)	(0.168)
GDP/capita (*k*USD, PPP)	-0.024***	-0.021***	-0.024***	-0.021***
	(0.001)	(0.001)	(0.001)	(0.001)
GDP growth (%)	0.00001	0.001	0.00001	0.001
	(0.003)	(0.003)	(0.003)	(0.003)
Trade (%)	-0.002**	-0.002**	-0.002**	-0.002**
	(0.001)	(0.001)	(0.001)	(0.001)
Gini coefficient	-0.003	-0.004	-0.003	-0.004
	(0.003)	(0.003)	(0.003)	(0.003)
Female labor force (%)	0.083***	0.086***	0.083***	0.086***
	(0.010)	(0.010)	(0.010)	(0.010)
Urban population (%)	0.027***	0.028***	0.027***	0.028***
	(0.006)	(0.006)	(0.006)	(0.006)
Young male population (%)	0.024	0.021	0.024	0.021
	(0.019)	(0.020)	(0.017)	(0.018)
Polity index		0.006		0.006
		(0.008)		(0.008)
Observations	1,219	1,175		
R^2	0.167	0.170		
F Statistic	26.780*** (df = 8; 1065)	23.342*** (df = 9; 1026)		

Note:	*p<0.1; **p<0.05; ***p<0.01

Also, regional models on the data subset which excluded (the) country-years with occurrences of warfare were computed. Like it had been the case in the models for the full dataset, only the estimate of the terrorism mortality rate (log) coefficient for Europe was significant. The coefficient was also significant, however, when all other regions were grouped together. The estimate for Europe was again stronger than the overall estimate, and stronger for the group of other regions. As indicated, an increase of 1 percent in the terrorism mortality rate would lead to an increase of roughly 0.5 percent in the homicide rate in Europe, and 0.37 percent in the group of other regions.

When comparing the regional results for the full dataset and the subset without occurrences of warfare, it became apparent that the estimate for Europe was the same (compare Model 1 in Table V-20 and Table V-24). This was because almost no warfare occurred in Europe during the observation period. In case of the group of other regions, however, the estimate gained in strength when country-years with occurrences of warfare were excluded from the calculation. While the estimate on the full dataset indicated that an increase of 1 percent in the terrorism mortality rate would lead to an increase of 0.21 percent in the homicide, this value almost doubled in case of the subset without occurrences of war (compare Model 2 in Table V-20 and Table V-24). In the case of Europe, the calculation of robust standard errors led again to a decrease in the size of the errors while the estimate remained highly significant. In case of the other regions, the significance dropped from level .05 to .1.

Table V-24 Fixed-effects panel models (two-ways – reg./rob. SE) for country-years without warfare, by world region: Homicide rate ← terrorism mortality rate, all control variables

	Dependent variable:			
	Homicide rate (log)			
	Regular SE		*Robust SE*	
	Europe	Other regions	Europe	Other regions
	(1)	(2)	(3)	(4)
Terrorism mortality rate (log)	0.488***	0.374**	0.488***	0.374*
	(0.179)	(0.158)	(0.161)	(0.204)
GDP/capita (*k*USD, PPP)	-0.001	-0.034***	-0.001	-0.034***
	(0.011)	(0.013)	(0.009)	(0.013)
GDP growth (%)	-0.003	0.001	-0.003	0.001
	(0.004)	(0.005)	(0.004)	(0.004)
Trade (%)	-0.002*	-0.002	-0.002*	-0.002
	(0.001)	(0.002)	(0.001)	(0.001)
Gini coefficient	0.011**	-0.006	0.011***	-0.006
	(0.004)	(0.005)	(0.004)	(0.005)
Female labor force (%)	0.109***	0.063***	0.109***	0.063***
	(0.015)	(0.014)	(0.014)	(0.013)
Urban population (%)	0.007	0.020**	0.007	0.020**
	(0.008)	(0.010)	(0.008)	(0.008)
Young male population (%)	0.027	-0.039	0.027	-0.039
	(0.023)	(0.034)	(0.024)	(0.029)
Polity index	-0.018	0.012	-0.018	0.012
	(0.014)	(0.010)	(0.012)	(0.010)
Observations	542	632		
R^2	0.158	0.100		
F Statistic	9.887*** (df = 9; 475)	6.427*** (df = 9; 519)		
Note:				*p<0.1; **p<0.05; ***p<0.01

CHAPTER VI. The effects of warfare and other episodes of major violence on homicide

CHAPTER VI deals with the effects of warfare and other episodes of major violence on homicide. The chapter is divided into two sections. To begin with, an overview of trends in warfare and major violence between 1950 and 2012 is presented. The overview is further divided into global and regional trends. The underlying data was drawn from the dataset on major episodes of political violence (MEPV), provided by the Integrated Network for Societal Conflict Research (INSCR)/Center for Systemic Peace. Variables contained in the dataset included four measures of warfare magnitude (independence, international, ethnic, civil) as well as three measures on the magnitude of major violence other than warfare (international, ethnic, civil). Possible magnitude scores ranged from 0 to 10 in each category. These scores are mutually comparable (ratio scale) and were added to total scores of major episodes of political violence (MEPV).

VI.1. Trends in warfare and major violence

VI.1.1. Global trends in warfare and major violence (1950-2012)

The following section provides an overview of trends in global warfare and major violence between 1950 and 2012. Out of 157 countries contained in the database, 102 (65%) experienced some kind of warfare or other major violence (MEPV) during the observation period. The highest overall measure was attained by China in 1950, followed by Iraq and Iran throughout the 1980s. Yet, as Table VI-1 indicates, most countries did not experience any kind of major violence during any of these years. The median values constantly exhibit zero.

Table VI-1 Summary statistics for different types of warfare and other major violence

Statistic	N	Mean	St. Dev.	Min	Median	Max
Independence warfare	7,961	0.046	0.403	0	0	6
International violence	7,961	0.030	0.236	0	0	6
International warfare	7,961	0.083	0.606	0	0	9
Civil violence	7,961	0.073	0.433	0	0	4
Civil warfare	7,961	0.210	0.970	0	0	10
Ethnic violence	7,961	0.073	0.398	0	0	5
Ethnic warfare	7,961	0.267	1.039	0	0	10
MEPV	7,961	0.735	1.808	0	0	18

VI.1.1.1. Global warfare

Figure VI-1 shows how both the magnitude and character of warfare evolved over the second half of the 20th and beginning of the 21st century. The overall magnitude started out comparatively low in the 1950s. It began to grow beginning in the mid-1960s and even more so in the mid-1970s. The all-time high was reached in 1985. A continuous decline of global warfare intensity set in at the beginning of the 1990s and lasted until the end of the observation period in 2012.

Figure VI-1 Global magnitude scores of warfare (1950-2012)
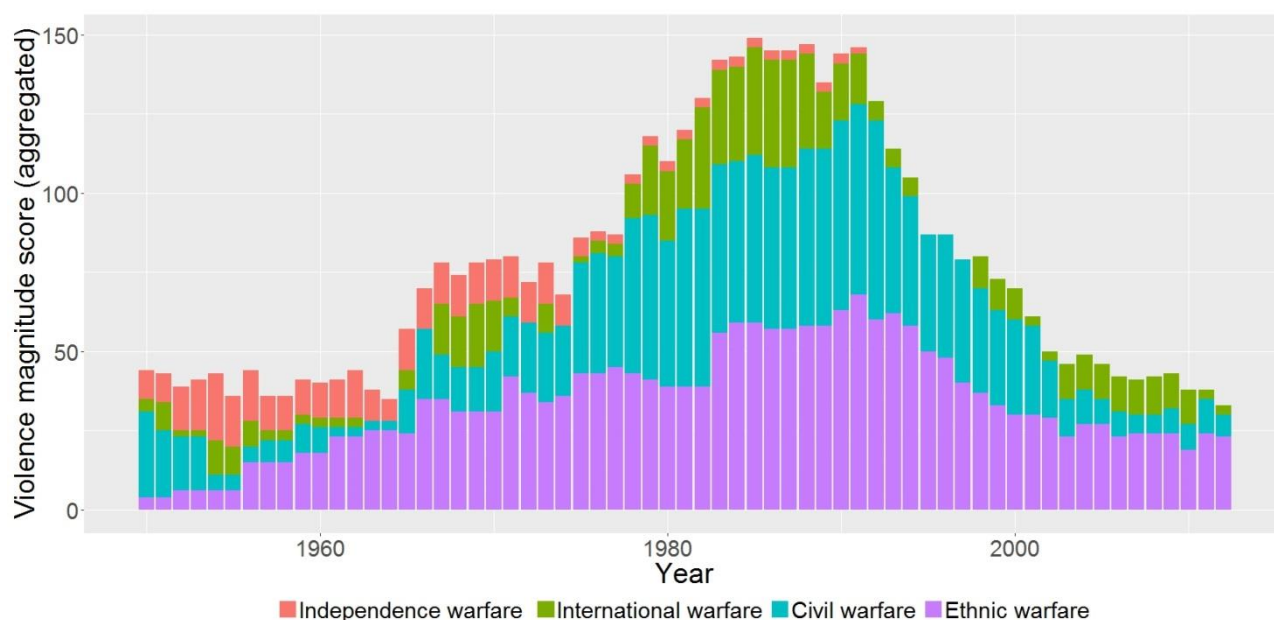
Elaboration by the author; Data source: Center for Systemic Peace

Ethnic conflict accounted for the largest share of warfare. This was true for the whole observation period as well as for most individual years. Another significant share of global warfare intensity was driven by civil war. Together, civil and ethnic war stably accounted for more than 70% in most years under observation and even reached a share as high as 100% between 1995 and 1997.

Compared to that, the effect of international warfare was comparatively less influential in driving the global warfare magnitude. Throughout the 1950s and the first half of the 1960s, international warfare regularly made for the smallest shares of the various categories of war. This changed during the second half of the 1960s which were the very years when the U.S. escalated their engagement in Vietnam. Other episodes of increased international warfare set in at the end of the 1970s. These eruptions are notably linked to the beginning of the Soviet engagement in Afghanistan, but also to the intensification of previous wars and the onset of new wars in different world regions, for example a war between Iraq and Iran.

With the demise of the Soviet Union and the end of the Cold War, also the measurements of "hot" war as exhibited in Figure VI-1 started to drop almost monotonically. This drop was mostly attributable to ethnic and civil warfare. The development of international warfare, on the other hand, did not indicate a clear trend, but appeared to be more stable over time.

There was also the category of independence warfare. Figure VI-1 shows that independence warfare was largely centered around the 1950s and 1960s when it accounted for larger shares than international warfare. That changed during the second half of the 1970s when independence warfare dropped to the smallest share among all categories of war. Eventually, 1991 was the last year that exhibited any independence-related warfare.

Figure VI-2 Clustered magnitude scores of independence warfare in different world regions, and the number of states pertaining to the international system (1950-2012)
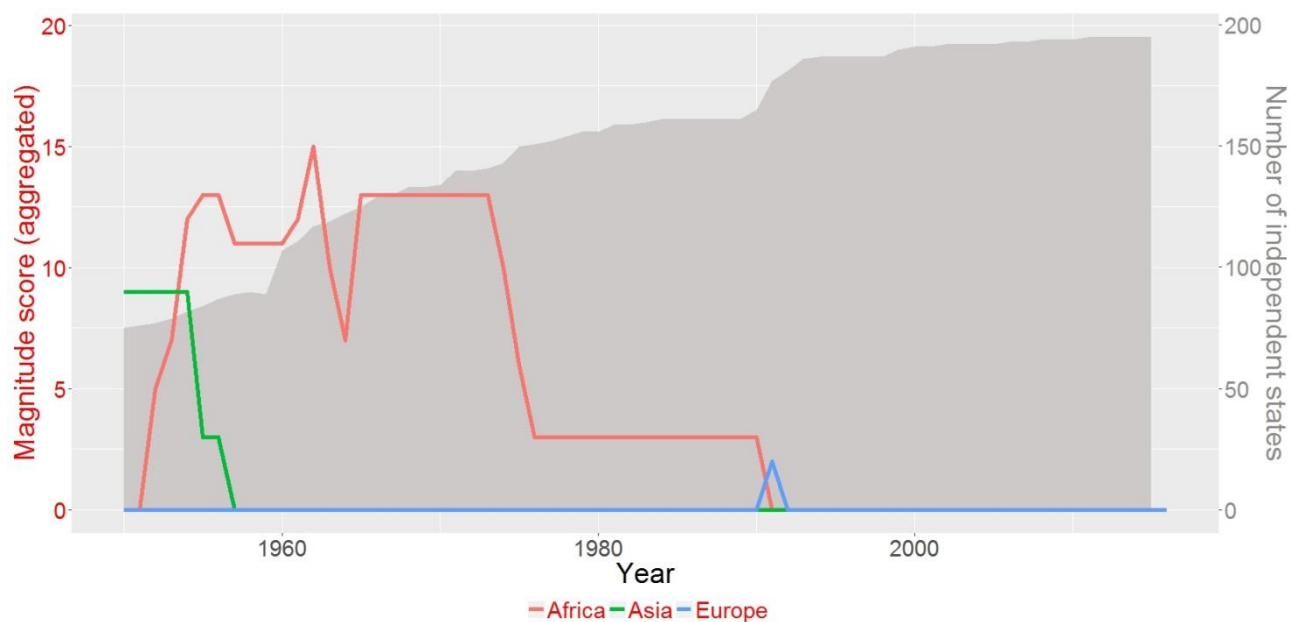
Figure VI-2 gives indication of how the intensity of independence warfare developed in different world regions. As apparent, the bulk occurred in Africa between the mid-1950s and mid-1970s. Some independence warfare also occurred in the 1950s in Asia, but wore off for good in 1957. Europe, on the other hand, remained free from independence warfare for most of the observation period. There was, however, a spike in 1991 which referred to the Croatian war for independence from Yugoslavia (Cigar 1993), and the so-called 10-day war which was fought for Slovenian independence (Hall 2014, 289). Other warfare occurring in the Western Balkans throughout the 1990s was categorized as ethnic, not independence warfare. As far as other world regions were regarded, i.e. the Americas, there was no independence warfare whatsoever. Latin American countries, in fact, had already reached their independence from Spain through a series of independence wars in the early 19th century (Archer 2000).

Besides disaggregating the intensity of independence warfare by major world regions, Figure VI-2 also shows the number of independent countries belonging to the international system. As apparent, the intensity of independence warfare was linked to a growth in the number of internationally recognized states. This link was not strict, of course, as not all national independences were preceded by war-type conflict or any violence whatsoever (cf. Fabry 2010, 147). As the figure indicates, however, especially the independence of African states was a rather violent matter. Independence thereby refers to the decolonization of the African

continent from European countries which was largely achieved by the mid-1970s. Figure VI-2 shows, however, that independence warfare in Africa carried on for some time namely until 1990—the year when the so-called South African Border War ended and Namibia gained independence from South Africa (cf. Leys, Saul, and Brown 1995). Apart from that, the beginning of the 1990s marked the accession of a number of new states to the international system. This included, as mentioned above, not only Slovenia and Croatia, but also other former Yugoslav republics and, of course, the successor states of the Soviet Union (cf. Rich 1993). While the dismembering of the Soviet Union occurred mostly in a peaceful manner, the disintegration of Yugoslavia was accompanied by rather intense violence. As already mentioned, much of this violence took the form of ethnic warfare and is therefore not exhibited in Figure VI-2.

Figure VI-3 Clustered magnitude scores for warfare in different world regions (1950-2012)
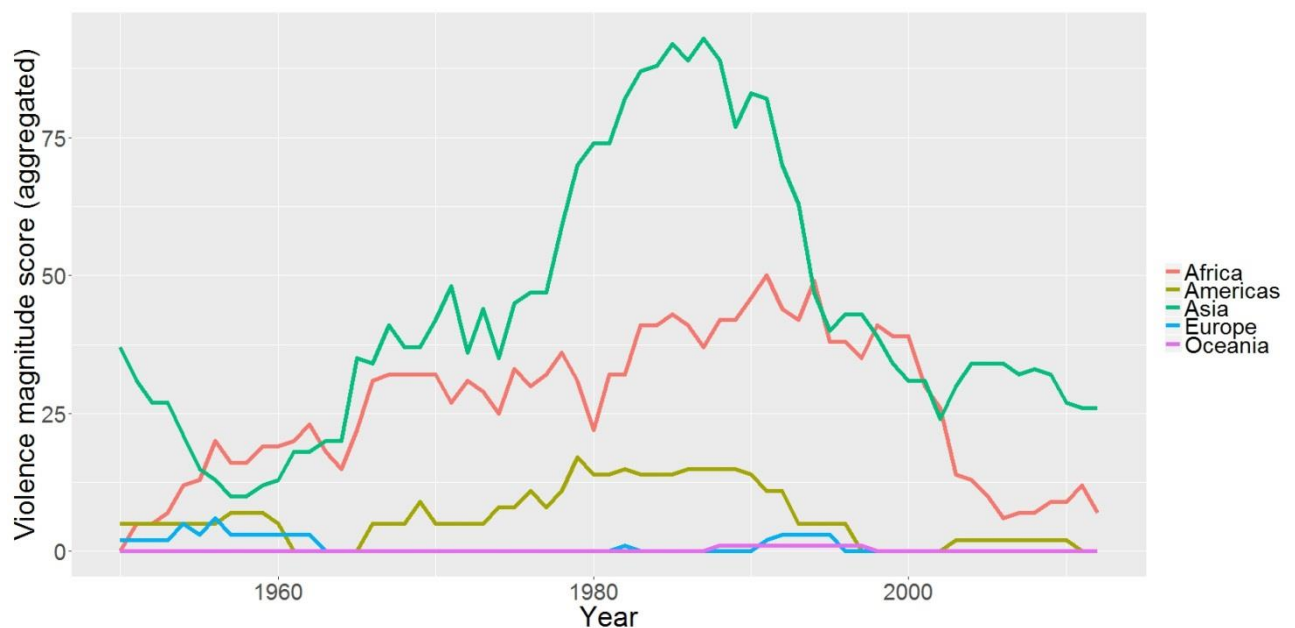
Elaboration by the author; Data source: Center for Systemic Peace

Figure VI-3 shows the warfare magnitude scores disaggregated by major world regions. As apparent, most warfare throughout the observation period occurred in Asia and Africa while the Americas and Europe accounted for comparatively minor shares. Except for the so-called Bougainville Civil War fought between Papua New Guinea and an independence movement

surrounding the Bougainville Revolutionary Army between 1988 and 1998 (cf. Saffu 1992)[23], no warfare occurred in Oceania.

Interpreting the comparison of major world regions as exhibited in Figure VI-3, it was important to keep in mind that the number of countries and population sizes were not accounted for in the magnitude scores. Having Asia rank first and Oceania last for most of the years under observation is in part due to their differences in size of population and the number of states they entail. Low overall magnitude scores should also not be mistaken as being indicative of the intensity of any given war in a specific place and year, as, for example, illustrated by the Yugoslav wars which caused the elevations in warfare magnitude indicated for Europe during the 1990s in Figure VI-3. The elevations seem comparatively small. This is because they were rather isolated incidents of warfare in an overall context of stability and peace in Europe.

VI.1.1.2. Global episodes of major violence

Episodes of collective violence contained in the dataset were not limited to warfare. Beyond war, major episodes of violence involved, for example, intense terrorism, rebellion, insurgency, criminal violence and others. Figure VI-4 shows how different types of major violence other than war have evolved since 1950. In comparing such violence to warfare as depicted in Figure VI-1, it became apparent that the overall magnitude scores for warfare ranked much higher. Taking, for example, the maximum values of both distributions, the score for other major episodes of violence peaked in 1978 and 1983 at a value more than three times lower than the maximum that had been reached for warfare in 1985. Also, unlike to what is exhibited by the distribution of warfare, the magnitude scores for other episodes of major violence did not show a clear trend of decline over the 1990s and 2000s.

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[23] Kent and Barnett (2012) presented a paper on post-conflict violence occurring in the aftermath of the Bougainville civil war. They claim that "if the end of conflict does not bring with it changes in the structures which constrain the capacity of individuals to choose peaceful pathways, the risk of violence remains."

Figure VI-4 Global magnitude scores of major violence other than warfare (1950-2012)
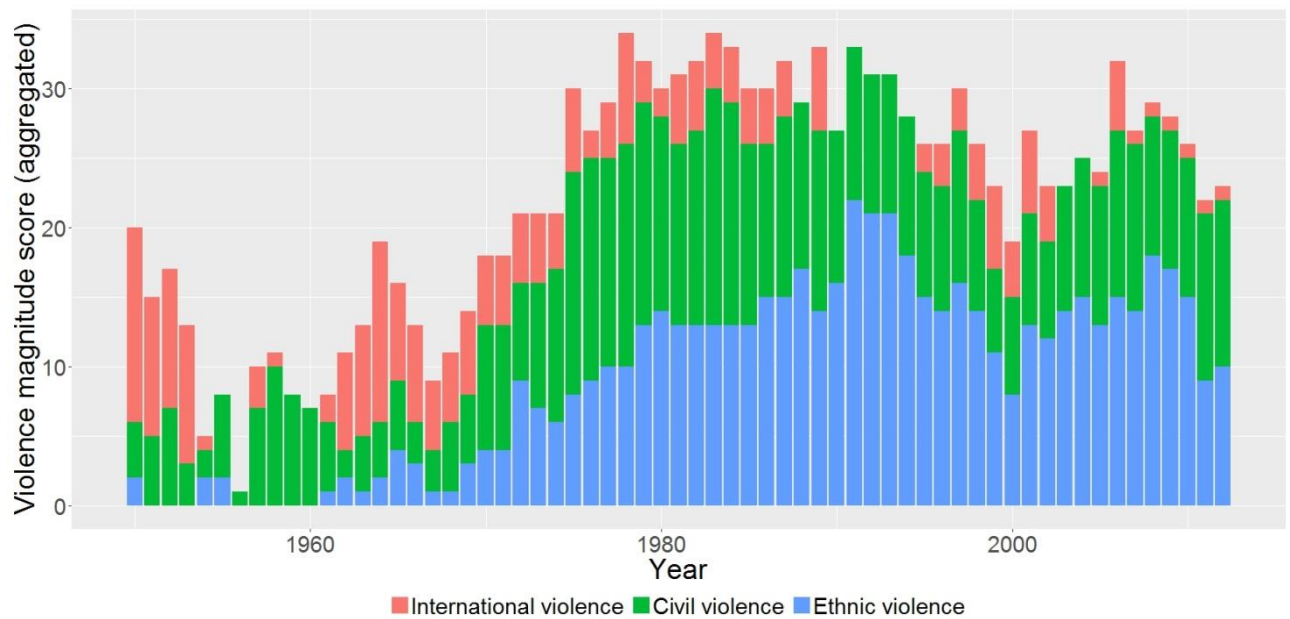
Elaboration by the author; Data source: Center for Systemic Peace

A comparison of Figure VI-4 with Figure VI-1 also revealed a number of similarities between the development of warfare and other episodes of major violence. The magnitude scores for both started out at a comparatively low level and reached their maximum values around the same time. Regarding the composition of violence, major episodes of violence other than warfare were mostly characterized by ethnic and civil rather than international conflict. It has to be noted, however, that for most of the time under observation, international conflict played a comparatively larger role in regard to other major episodes of violence than in regard to warfare.

Figure VI-5 shows the disaggregated magnitude scores of major episodes of violence other than warfare. The scores frequently overlapped between different world regions and drew a lot nearer to each other than it had been the case for warfare. It was nevertheless apparent that major episodes of violence other than warfare were more frequent in Asia, Africa and the Americas than in Europe or Oceania. This pattern had been equally present in the warfare magnitude scores.

Figure VI-5 Clustered magnitude scores of major violence other than warfare in different world regions (1950-2012)
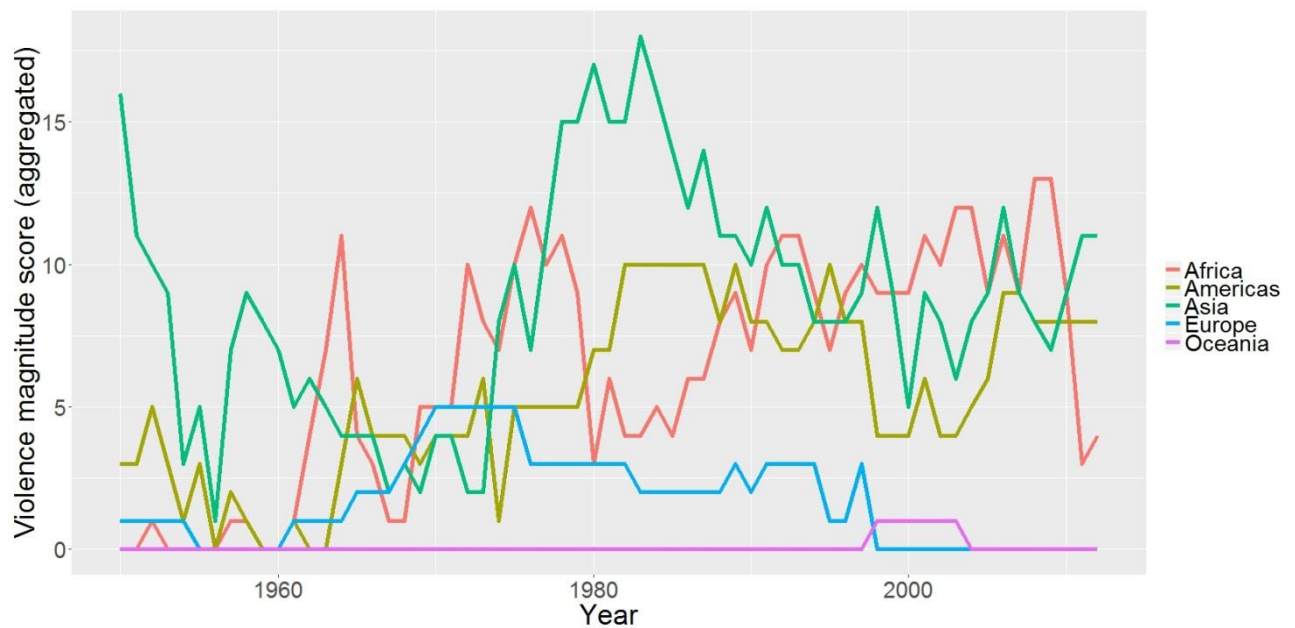
Elaboration by the author; Data source: Center for Systemic Peace

The development of the scores for Africa and the Americas appeared to be comparatively stable in the sense that no clear maximum values became apparent. The values for Asia, on the other hand, started comparatively high in 1950 and reached similar peaks at the beginning of the 1980s before building a maximum in 1982. This marked the all-time high in major episodes of violence other than warfare for any region during the time of observation. After that, the scores for Asia declined again to levels similar as those for Africa and the Americas.

VI.1.2. European trends in warfare and major violence (1950-2012)

The following section provides an overview of trends in warfare and major violence occurring in Europe between 1950 and 2012. Out of 34 European countries contained in the database, 9 (26%) experienced warfare or major violence of any kind during the observation period. The highest and most continuous overall measures were attained by France throughout the 1950s. As indicated by the mean and median values in Table VI-1, most European countries did not experience any kind of warfare or major violence during most years.

Table VI-2 Summary statistics for different types of warfare and other major violence in Europe (1950-2012)

Statistic	N	Mean	St. Dev.	Min	Median	Max
Independence warfare	1,587	0.001	0.050	0	0	2
International violence	1,587	0.020	0.182	0	0	2
International warfare	1,587	0.026	0.277	0	0	5
Civil violence	1,587	0.003	0.061	0	0	2
Civil warfare	1,587	0.000	0.000	0	0	0
Ethnic violence	1,587	0.045	0.276	0	0	2
Ethnic warfare	1,587	0.008	0.150	0	0	3
MEPV	1,587	0.101	0.456	0	0	5

VI.1.2.1. Warfare in Europe

During the time under observation, Europe was the second least warfare-affected region (after Oceania). As Figure VI-6 indicates, Europe did not see prolonged periods of war, but clusters of specific types of warfare at different points in time. There was, for example, a concentration of international warfare in Europe throughout the 1950s that wore off in 1962. The rest of the 1960s and 1970s was then marked by the absence of warfare. The same held true for the 1980s, interrupted only by a comparatively mild outburst of international warfare in 1982. Eventually, 1991 marked the onset of new episodes of war which this time were not characterized by international but independence and ethnic conflict.

Figure VI-6 Clustered magnitude scores of warfare in Europe (1950-2012)
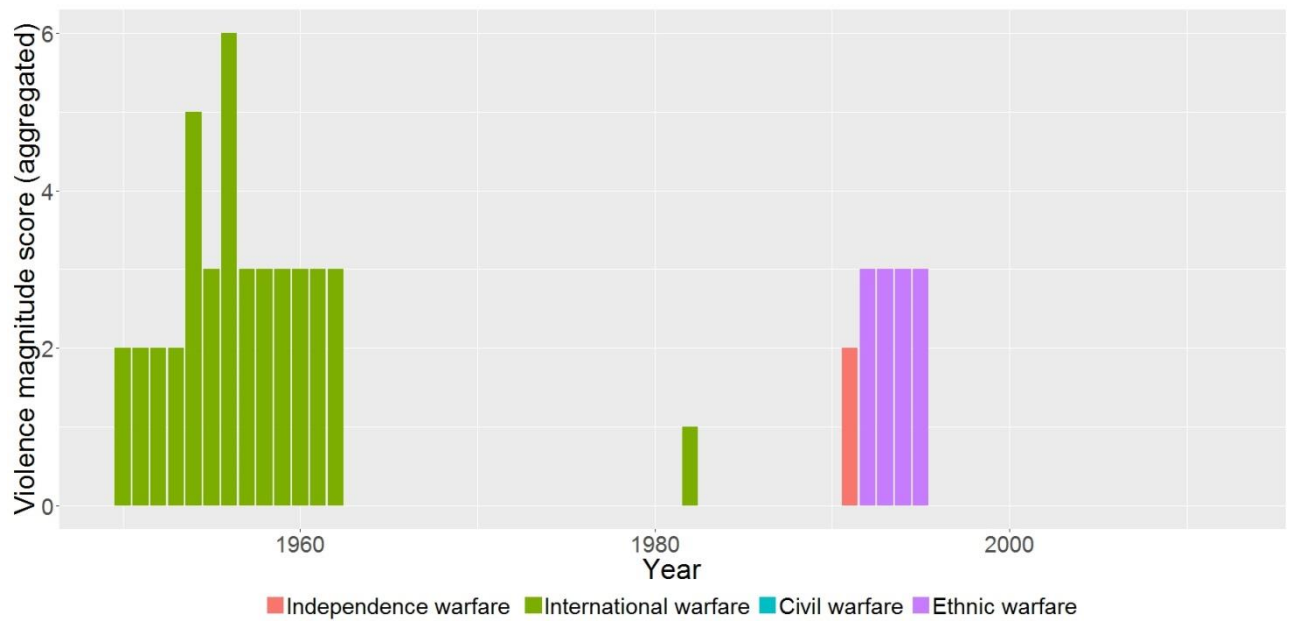
Elaboration by the author; Data source: Center for Systemic Peace

Figure VI-7 gives indication of how the magnitude of warfare exhibited in Europe was distributed geographically. As apparent, the concentration of international warfare in the 1950s and beginning of the 1960s was centered in Western Europe, with the exception of one eruption of warfare occurring in Eastern Europe in 1956. As far as the war in Western Europe is regarded, the depiction actually refers to the Algerian War which was fought between France and the Algerian Front de Libération National (FLN) from 1954 till 1962. It was a decolonization war taking place in Algeria which, however, was considered an integral part of France at the time. The war ended with Algeria gaining independence from France, having caused several hundred thousand casualties most of which were FLN fighters and Algerian civilians (cf. Shepard 2008).

The eruption of warfare in Eastern Europe in 1956, on the other hand, refers to the Hungarian Revolution. It lasted roughly three weeks and involved hostilities between Soviet troops and Hungarian security forces on one side, and Hungarian revolutionaries on the other. It led to the killing of several thousand combatants and civilians and ended with the breaking-down of all opposition in Hungary (cf. Békés, Byrne, and Rainer 2002).

Figure VI-7 Clustered magnitude scores of warfare in European subregions (1950-2012)
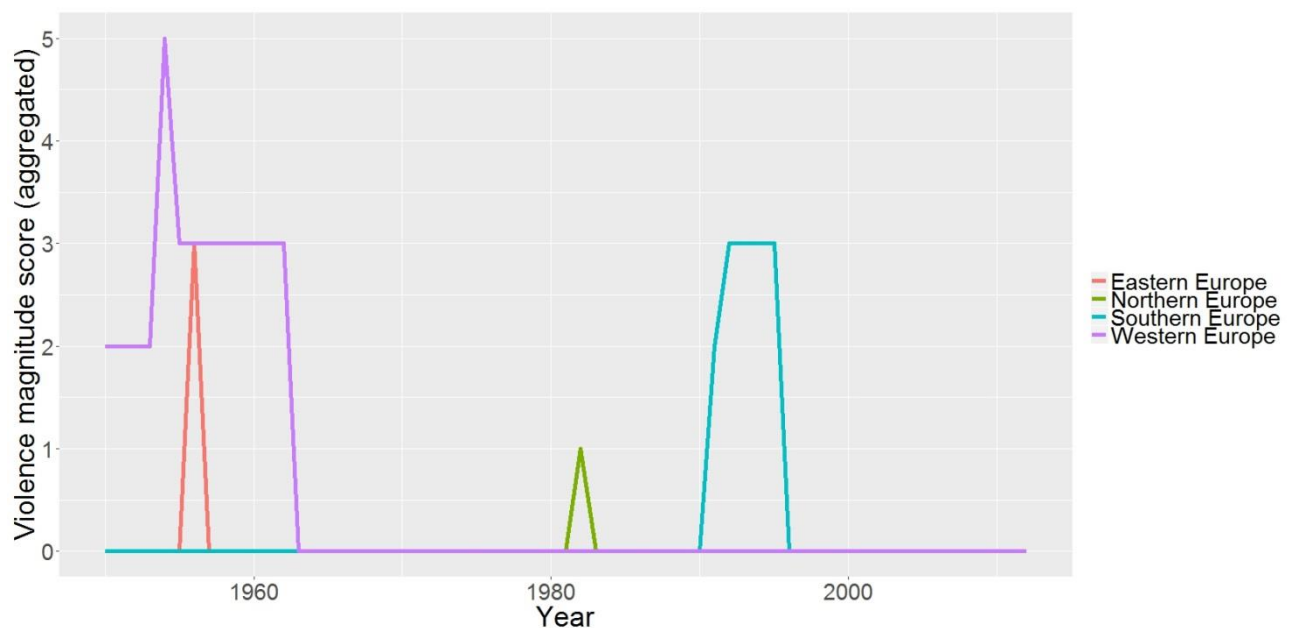
Elaboration by the author; Data source: Center for Systemic Peace

After years of peace, Figure VI-7 points to a war with Northern European involvement in 1982. As Figure VI-6 indicates, this regarded an eruption of international warfare, namely the Falklands War which was fought between the United Kingdom and Argentina over the Falklands islands which are located ca. 500 km off the Argentinian coast. The islands are a British overseas territory and fall as such under British sovereignty. The war lasted ca. two and a half months and led to the killing of ca. 900 military personnel on both sides (cf. Boyce 2005).

Beginning in 1991, Figure VI-7 points to the Yugoslav Wars which began with the aforementioned independence wars in Slovenia and Croatia and carried on as ethnic war for several years. [24] In the violent disintegration of Yugoslavia, impendence, ethnic and civil warfare were heavily intertwined (cf. Oberschall 2000). While several constituent republics of Yugoslavia declared independence at the onset of the process in 1991, the complex scattering of various ethnicities among them boosted further violence and led to severe crimes against humanity. Overall, the Yugoslav Wars produced ca. 150,000 casualties. The Bosnian War was the most violent of the Yugoslav Wars, killing more than 100,000. The Kosovo war is not

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[24] The Yugoslav wars mark a highly relevant case in regard to a criminological perspective on both warfare and the effects of warfare on crime. They led to the first establishment of a war crimes tribunal since the Nuremberg trials and heavily influenced the later adoption of the Rome Statute which established the International Criminal Court (cf. Neu 2012). Secondly, they are most commonly cited when the effects of warfare on crime are discussed from a criminological perspective (Nikolic-Ristanovic 1998, 474; also cf. Stamatel 2012, 167).

depicted in Figure VI-7. Due to its uncertain sovereignty status, Kosovo could not be matched into the database which consists only of those countries that belong to the international system.

VI.1.2.2. Major violence in Europe

Figure VI-8 shows major episodes of violence other than war in Europe. The development was characterized by international violence that took place throughout the 1950s, 1960s and 1970s. The violence in the 1950s regards British action against rebellions in Kenya and Malaysia, namely the Mau Mau Uprising (cf. Maloba 1994) and the Malayan emergency. The latter has been called influential in bearing a counterinsurgency paradigm and an "important source of counterinsurgency lessons" (Hack 2009, 383). On the other hand, the international violence beginning in 1961 and lasting until 1975 links to the Portuguese colonial wars in Africa (cf. MacQueen 1997).

Figure VI-8 Clustered magnitude scores of violence other than warfare in Europe (1950-2012)
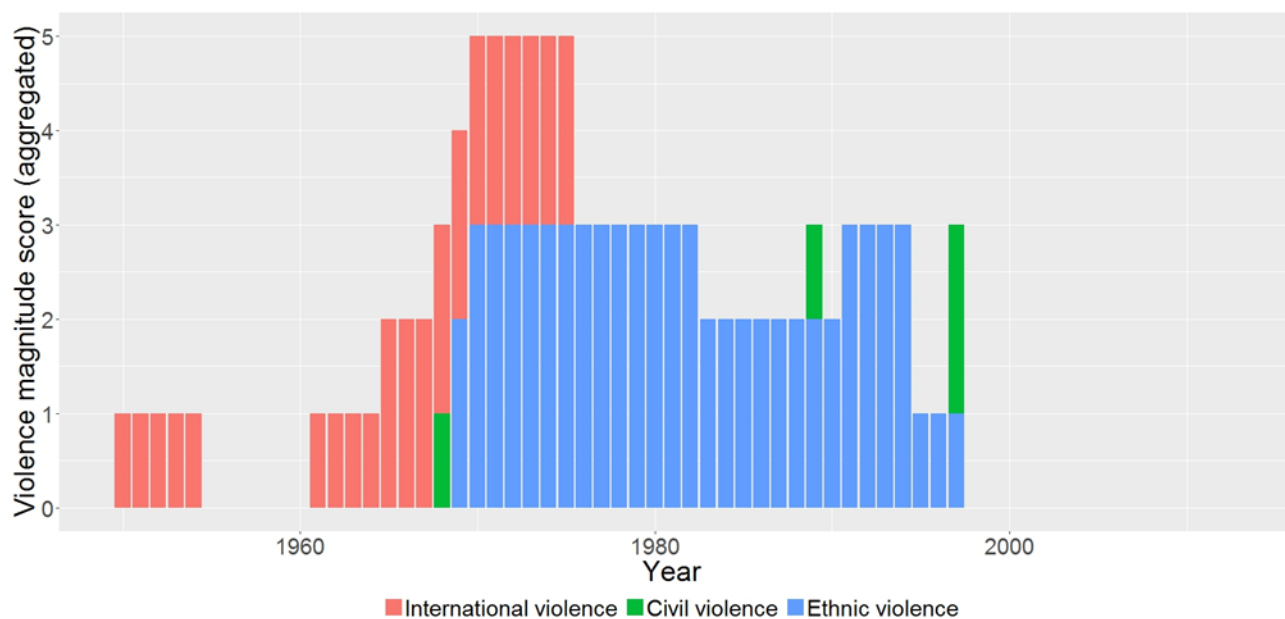
Elaboration by the author; Data source: Center for Systemic Peace

Starting at the end of the 1960s, Figure VI-8 indicated eruptions of ethnic violence in Europe. This regarded foremost violence in the United Kingdom which related to the Northern Ireland conflict, also known as "The Troubles" (cf. McKittrick and McVea 2002), and violence in Italy which related to a secessionist movement in South Tyrol (cf. Steininger 2009).

VI.1.3. American trends in warfare and major violence (1950-2012)

The following section provides an overview of trends in warfare and major episodes of violence occurring in the Americas between 1950 and 2012. Out of the 25 American countries contained in the database, 21 (84%) experienced warfare or major episodes of violence of any kind during the observation period. From this perspective, the Americas were the most collective violence-affected world region. The maximum values attained by states in the Americas, however, were lower than those attained in Asia or Africa. The highest magnitude scores for any American country were recorded for El Salvador throughout the 1980s, followed by Colombia throughout the 1950s and Guatemala for several decades from the 1960s until the 1990s. As Table VI-3 indicates, however, also most American countries did not experience any kind of warfare or major violence during most years.

Table VI-3 Summary statistics for different types of warfare and other major violence in the Americas (1950-2012)

Statistic	N	Mean	St. Dev.	Min	Median	Max
Independence warfare	1,522	0.000	0.000	0	0	0
International violence	1,522	0.047	0.318	0	0	3
International warfare	1,522	0.014	0.164	0	0	2
Civil violence	1,522	0.175	0.736	0	0	4
Civil warfare	1,522	0.135	0.788	0	0	6
Ethnic violence	1,522	0.003	0.051	0	0	1
Ethnic warfare	1,522	0.104	0.708	0	0	5
MEPV	1,522	0.477	1.302	0	0	6

VI.1.3.1. Warfare in the Americas

Figure VI-9 shows how the magnitude scores of different types of warfare have evolved in the Americas since 1950. Unlike in Europe, Africa and Asia, no independence warfare occurred in the Americas. Most wars were related to civil and ethnic conflict, while a limited number of eruptions were due to international warfare.

The first episode of international warfare occurring in the Americas took place in 1969 when El Salvador and Honduras engaged in the so-called Football War. Both countries had already been in conflict over population- and migration-related issues when aggression sparked during the qualifier games in the run-up to the 1970 World Cup. The war lasted for several days and caused up to 3000 casualties while displacing several hundred thousand (cf. Cable 1969). The international war taking place in 1982, on the other hand, referred to the Argentinian

involvement in the Falkland Wars which has previously been discussed in regard to the role of the U.K. All further episodes of international warfare visible in Figure VI-9 took place after the year 2000 and related to the U.S. involvement in the War on Terror, most notably in Afghanistan and Iraq.

Figure VI-9 Clustered magnitude scores of warfare in the Americas (1950-2012)
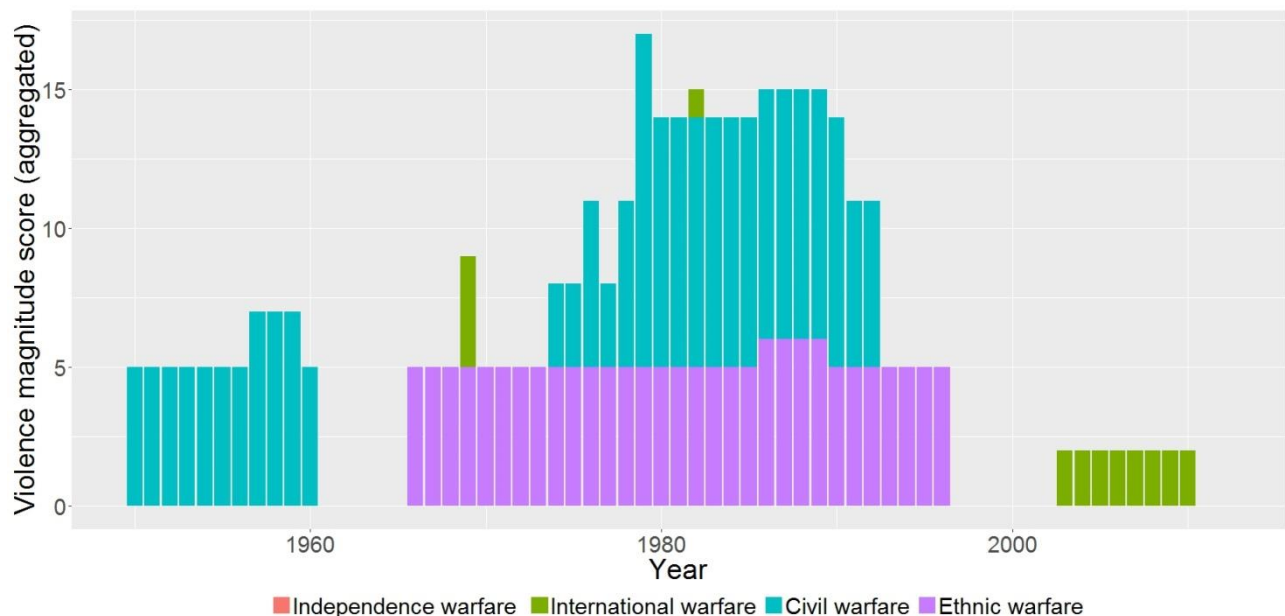
Elaboration by the author; Data source: Center for Systemic Peace

As far as civil warfare in the Americas is regarded, a cluster throughout the 1950s became visible. Most of this violence referred to occurrences in Colombia, namely a conflict between the Conservative and the Liberal Party which is commonly known as "La Violencia". The war was fought between paramilitary and guerilla groups affiliated with either one of the aforementioned parties or the Communist party for that matter, and resulted in more than 200,000 casualties (cf. Sánchez and Bakewell 1985). Next to "La Violencia", the tips visible in the magnitude scores for civil warfare between 1957 and 1959 related to the guerilla episode of the Cuban revolution (cf. Guevara 1996) which ended with the establishment of a socialist government in Cuba.

The extended episode of ethnic warfare in the Americas revealed in Figure VI-9 lasted from 1966 until 1996 and linked to the Guatemalan Civil War. This episode is also apparent in Figure VI-10 which shows the magnitude scores of warfare occurring in the Americas disaggregated by sub-regions. Central America reached the highest values among all sub-regions. Historiographically, the onset of the Guatemalan Civil War occurred in 1960 with a failed

revolt by left-leaning military personnel against the Guatemalan government. This led to a continuous insurgency by a wide-ranging armed left-wing movement against the Guatemalan state. After U.S. intelligence entities had gotten involved and Guatemalan counterinsurgency measures became increasingly robust, an escalation set in in 1966. With more than 40%, Guatemala has one of the largest indigenous populations in Latin America, much of the violence was concentrated in rural areas. Guatemala's state apparatus, on the other hand, had long been in the hands of European descendants which lent a strong ethnic dimension to the conflict. Until the ending of the war in 1996, an estimated 200,000 people had lost their lives (cf. Wilkinson 2004).

Figure VI-10 Clustered magnitude scores of warfare in American subregions (1950-2012)
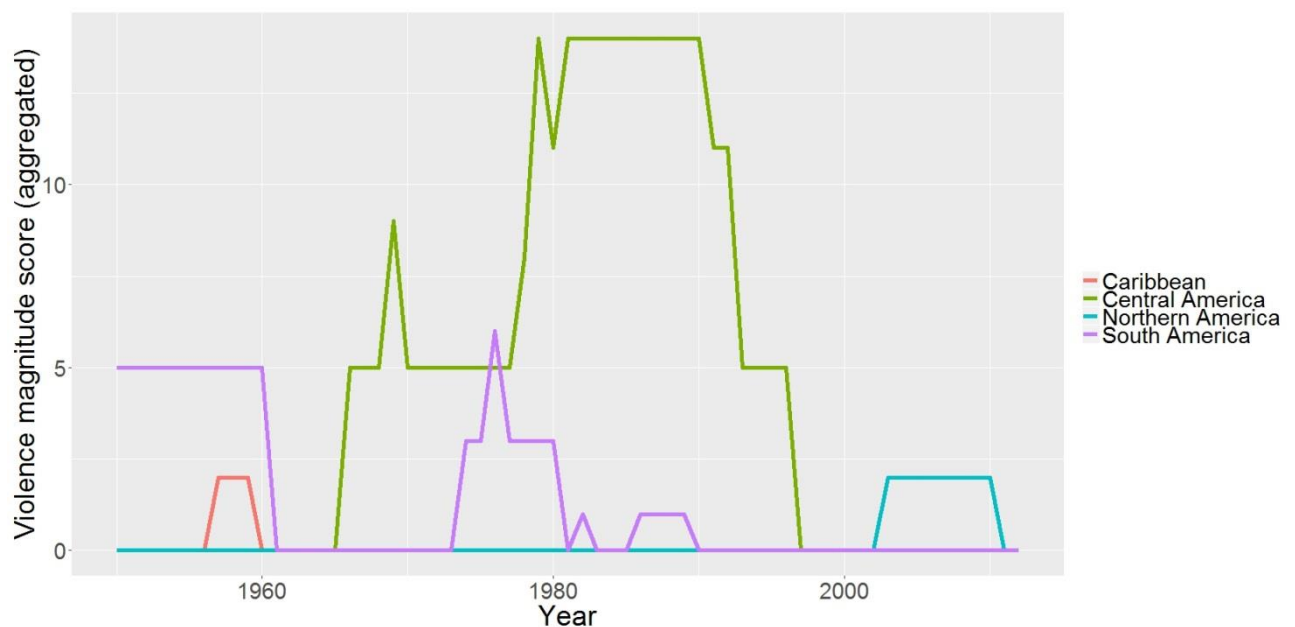
Elaboration by the author; Data source: Center for Systemic Peace

Further variations in the Central American warfare magnitude scores became apparent for the second half of the 1970s and were related to the previously discussed Nicaraguan revolution and the civil war in El Salvador. Figure VI-9 reveals that unlike the Guatemalan Civil War, these wars did not show a strong ethnic dimension and were therefore classified as civil warfare.

VI.1.3.2. Major violence in the Americas

Moving away from warfare, it became apparent that international forms of conflict played a comparatively larger role in other episodes of major violence in the Americas. Up until the mid-1970s, most major violence in the Americas was indeed international before civil conflict

became the dominating category for the remainder of the observation period. Major ethnic violence other than warfare appeared to play only a minor role and was limited to four years of intensified conflict in Mexico, namely revolutionary and counterrevolutionary action surrounding the armed activities of the Zapatista Army of National Liberation (cf. Haar 2005).

Figure VI-11 Clustered magnitude scores of violence other than warfare in the Americas (1950-2012)
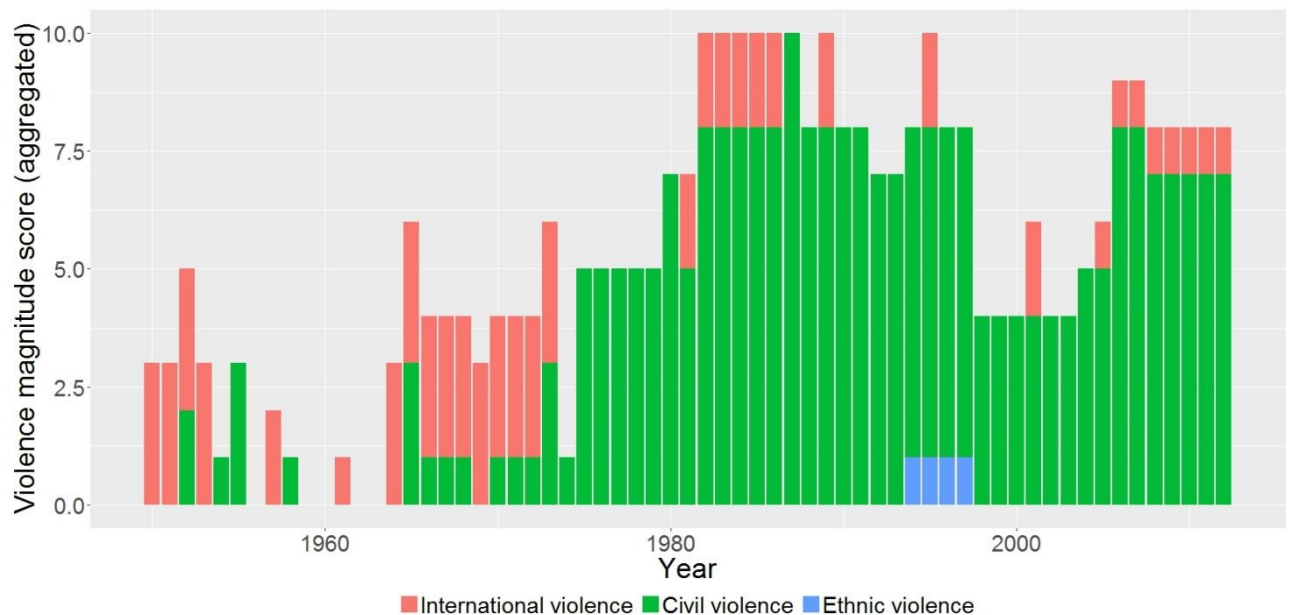
Elaboration by the author; Data source: Center for Systemic Peace

Up until the end of the Cold War, almost all of the international violence depicted in Figure VI-11 related in one way or the other to U.S. involvement in political struggles in Latin America. This began with the installment of a military dictatorship in Guatemala in the 1950s, attempts to turn back the Cuban revolution in the 1960s, and heavy involvement in the aforementioned political conflicts in Central America in the 1980s. Especially the U.S. involvement in Nicaragua, and also in particular the Iran-Contra affair (Barak 1991, 6), have been studied by criminologists as examples of state crime (Rothe 2009). U.S. interventionism in Latin American had long been a cornerstone of U.S. foreign policy, most notably outlined in the so-called Roosevelt Corollary to the Monroe Doctrine (cf. Ricard 2006; also see Dent 1999) and later as containment policies to counter the spread of communism (Schoultz 2014, 106). The U.S. invasion of Panama in 1989 which itself has been studied as state crime (Johns and Johnson 1994), marked in a certain sense the end of this interventionism. Even before the Panama intervention, however, some scholars (e.g. Bagley 1988) had argued that the U.S.-led war on drugs had taken over as a new form of U.S. interventionism in Latin America. In any

case, with the end of the Cold War, a relative decline in international violence in the Americas became apparent. Throughout the 1990s there was only one occurrence of international violence, the so-called Cenepa War between Ecuador and Peru (Cooper 2003). Due to its limited impact, and despite its name, it has not been characterized as a war and therefore shows up as major violence and not as warfare in Figure VI-11. Further incidents of international violence regarded the September 11th attacks on the World Trade Center, violence linking to the U.S.-led War on Terror, but also the U.S. engagement in the Mexican Drug War.

Figure VI-12 Clustered magnitude scores of violence other than warfare in American subregions (1950-2012)
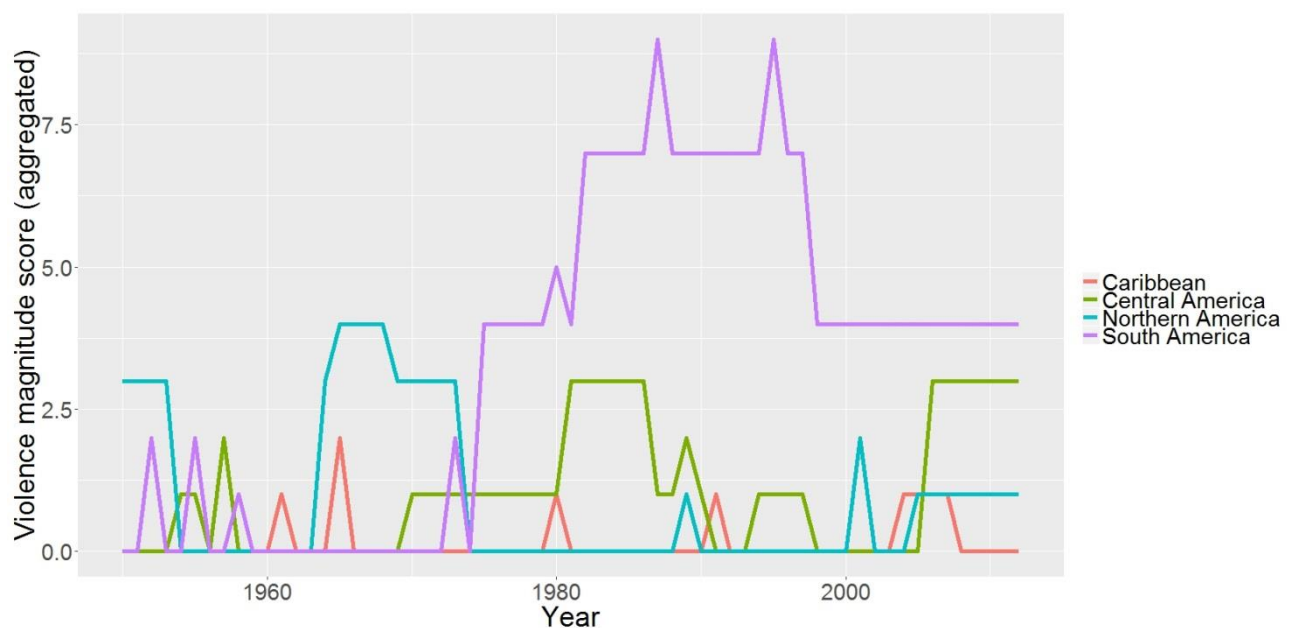
In spite of its international dimension, much of the violence linked to the Mexican Drug War was counted as civil violence and regarded both the struggle between the Mexican state and drug cartels as well as inter- and intra-cartel violence. In addition to that, civil violence in the Americas included wide-ranging forms of conflict in a plethora of countries. This included political as much as criminal struggles, for example gang and cartel violence in Central America. However, most civil violence was attributable to South America, as Figure VI-12 reveals. This regarded, in particular, the long-ongoing conflict between the Colombian government and the FARC, an infamous armed revolutionary movement spelled out as *Fuerzas Armadas Revolucionarias de Colombia* (cf. Leech 2011). The conflict between the FARC and the Colombian government had been going on since the 1960s but became more intense at the beginning of the 1980s when the influx of drug money allowed the FARC to upgrade its

capabilities for combat (cf. Vargas 1999; Norman 2017). The FARC dissolved in 2017 and is currently disarming.

VI.1.4. Asian trends in warfare and major violence (1950-2012)

The following section provides an overview of trends in warfare and major episodes of violence occurring in Asia between 1950-2012. Out of the 46 Asian countries contained in the database, 36 (78%) experienced warfare or major episodes of violence of any kind during the observation period. The highest magnitude scores for any Asian country were measured for China in 1950, followed by continuously high values for Iraq and Iran throughout the 1980s. These were also the highest values attained globally, and led to the highest mean values in all categories of warfare, as Table VI-4 shows. As indicated by the mean values, however, most Asian countries did not experience any episodes of warfare or major violence during the period of observation.

Table VI-4 Summary statistics for different types of warfare and other major violence in Asia (1950-2012)

Statistic	N	Mean	St. Dev.	Min	Median	Max
Independence warfare	2,328	0.022	0.322	0	0	6
International violence	2,316	0.037	0.268	0	0	6
International warfare	2,316	0.232	1.023	0	0	9
Civil violence	2,316	0.089	0.420	0	0	4
Civil warfare	2,316	0.323	1.194	0	0	10
Ethnic violence	2,316	0.111	0.473	0	0	4
Ethnic warfare	2,317	0.602	1.416	0	0	8
MEPV	2,317	1.394	2.509	0	0	18

VI.1.4.1. Warfare in Asia

Compared among all major world regions, Asia exhibited the highest magnitude of warfare. Figure VI-13 shows how the magnitude of different types of warfare in Asia evolved over time. The peak value was attained in 1986, being also the highest value reached for any world region during any year of the observation period. Most warfare related to ethnic and civil conflict, with major eruptions of international conflict occurring especially throughout the 1980s.

Figure VI-13 Clustered magnitude scores of warfare in Asia (1950-2012)
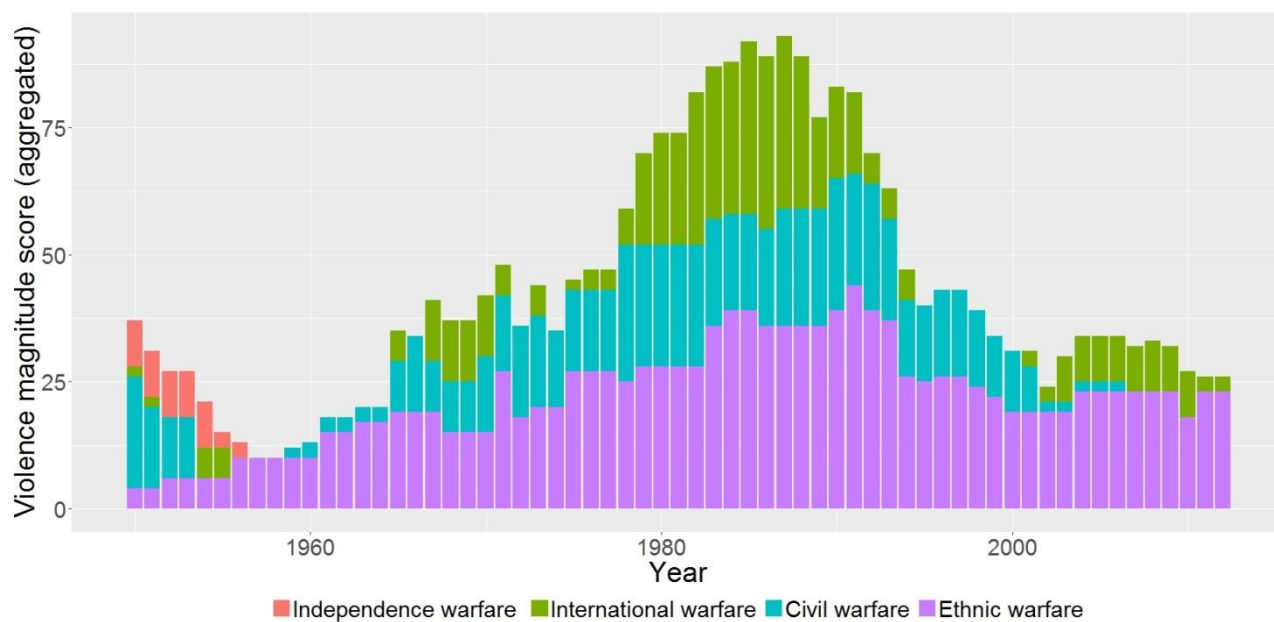
Elaboration by the author; Data source: Center for Systemic Peace

Asia was one of three world regions that exhibited independence warfare, the other one being Africa and Europe. As discussed above, independence warfare in Europe was limited to the violent breakup of Yugoslavia in the 1990s. On the other hand, compared to Africa, independence warfare in Asia played only a minor role and was limited to two colonial territories in the 1950s. The most intense independence warfare in Asia occurred in French Indochina that was later to become Vietnam. It lasted from 1946 until 1954 and ended with the victory of the Soviet–supported Viet Minh over a U.S.-supported coalition led by France. The war caused several hundred thousand casualties. The second independence war was the previously discussed Malayan Emergency which was fought out between U.K.-led forces supported by the U.S., and the Malayan Communist Party supported by the Soviet Union and others. It cost several thousand lives (Hack 2009, 383).

The first Indochina war paved the way for the Vietnam War, also known as the second Indochina War. It had both an international and civil dimension and lasted from 1955 until 1975, killing more than one million people (cf. Miller and Vu 2009). The rise in the violence magnitude scores for Southeastern Asia depicted in Figure VI-14 was not only caused by the Vietnam war, however, but also by the Cambodian Civil War. In the aftermaths of both wars, eventually, a Cambodian-Vietnamese war and a war between China and Vietnam broke out. Together with a number of border conflicts and insurgencies in Thailand and Laos, these wars

were collectively known as the third Indochina War. All of these were driven by civil conflict, but heavily overshadowed by the international dynamics of the Cold War (cf. Westad, Westad, and Quinn-Judge 2006).

Figure VI-14 Clustered magnitude scores of warfare in Asian subregions (1950-2012)
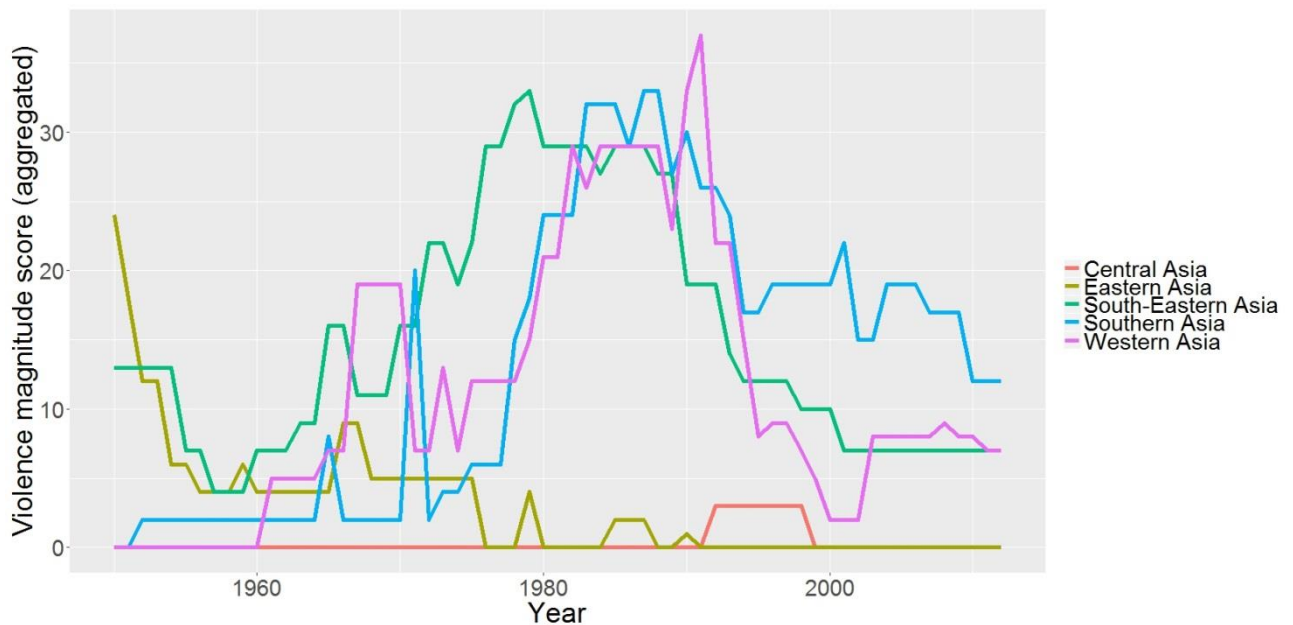
Elaboration by the author; Data source: Center for Systemic Peace

Aside from the continued violence in Southeastern Asia, the 1970s also marked an increase in the magnitude of warfare in Western and Southern Asia which peaked in the 1980s. This regards most notably the war between Iran and Iraq that was driven by both ethnical and international conflict and lasted from 1980 until 1988 (cf. Karsh 2009). Apart from that, a number of wars between Israel and several Arab nations led to an increased warfare magnitude scores for several decades, e.g. the Six-Day War, the Yom Kippur War and continued episodes of war in Lebanon that Israel participated in (cf. Bregman 2016).

Increases in the warfare magnitude score for Southern Asia towards the end of the 1970s are also linked to the Soviet-Afghan War which lasted from 1979 until 1989. That war was on one hand international, but exhibited also a strong dimension of civil conflict in that an U.S.-led coalition backed Mujahideen fighters against the Afghan government which in turn was supported by the Soviet Union (Grau 2004, 129; Lansford 2017, 112). The Soviet-Afghan war was succeeded by two civil wars in Afghanistan, and eventually the Afghan theatre of the Global War on Terror which is still ongoing (cf. Tomsen 2013).

VI.1.4.2. Major violence in Asia

Besides a plethora of wars, many Asian countries have also seen major episodes of violence other than warfare throughout the second half of the 19th century and beginning of the 20th century. Again, most of it was driven by ethnic and civil conflict, but also international violence played an important role.

Figure VI-15 shows how different forms of major violence other than warfare evolved since 1950. The highest values for major violence in Asia are centered around the same time as the highest values for warfare, namely the 1980s, and decreased thereafter. This was due to a growth in ethnic violence which pushed the overall levels up while the values for civil and international violence remained comparatively stable.

Figure VI-15 Clustered magnitude scores of violence other than warfare in Asia (1950-2012)
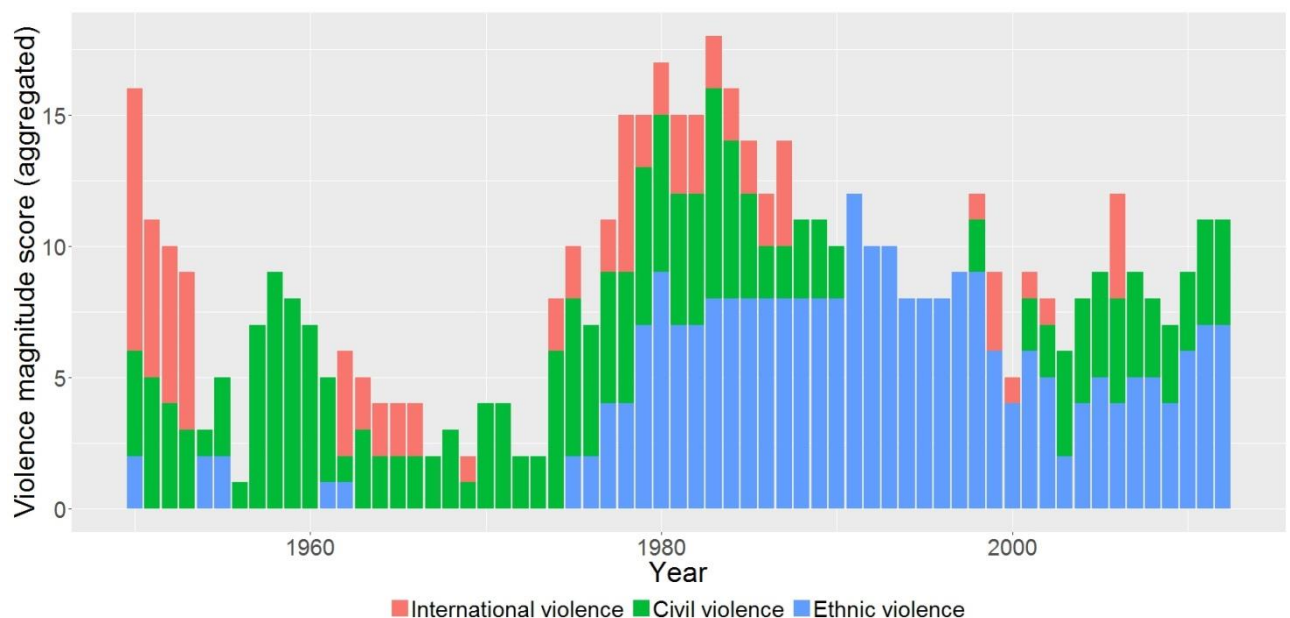
Elaboration by the author; Data source: Center for Systemic Peace

The increases in ethnic violence towards the 1980s were not caused by any single incident, but by concurrent developments in a number of countries. Throughout the observation period, 11 countries (accounting for 22% of all countries contained in the database) experienced ethnic violence. Roughly half of the magnitude was due to conflict between Kurds and the Iraqi government that intensified during the Iran-Iraq War. This conflict is widely credited as a genocide. Apart from that, also China, Indonesia and Pakistan saw rising levels of ethnic violence. In China, ethnic tensions occurred in Xinjiang (Davis 2008) and Tibet (Chandler 2017, 372). Almost half of Xinjiang's population is made up by Uyghurs, a predominantly

Islamic ethnic minority, while Tibet continues to be predominantly inhabited by Tibetans who are Buddhists. Both ethnic minorities were in conflict over autonomy from Han-dominated China. Ethnic violence in Indonesia, on the other hand, was linked to the Indonesian occupation of East Timor that lasted from 1975 until 1999 (cf. Nevins 2005), while Pakistan saw growing tensions between Pashtun and Urdu-speaking ethnic groups in the 1990s (cf. Waseem 1996).

A larger share of Asian countries, namely 20 (39%), experienced civil violence during the observation period. The largest intensity was measured for Indonesia during the second half of the 1950s and beginning of the 1960s and was due to the increasingly authoritative rule of President Sukarno. This violence culminated in the Indonesian mass killings of 1965/1966 which caused several hundred thousand deaths. Due to their intensity, they are not visible as major violence in Figure VI-16, but as a spike in the Southeastern Asian warfare magnitude depicted in Figure VI-14.

Figure VI-16 Clustered magnitude scores of violence other than warfare in Asian subregions (1950-2012)
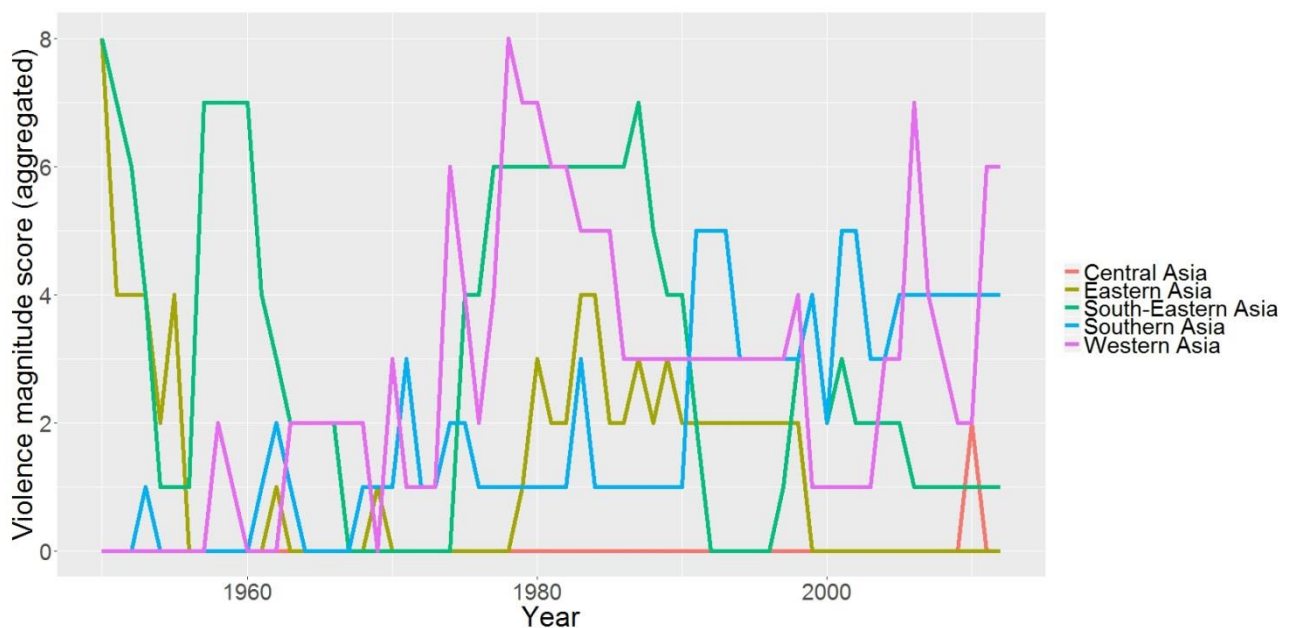
Elaboration by the author; Data source: Center for Systemic Peace

International violence was eventually experienced by 15 countries (29%). The largest magnitude was measured for China throughout the first half of the 1950s, linking to the annexation of Tibet (Chandler 2017, 361). An especially extended episode of international violence was also experienced, for example, by Cambodia between 1977 and 1987. This violence fell under the regime of the Khmer Rouge leadership and was in fact hard to

distinguish from ethnic and civil violence, and warfare for that matter (cf. Kiernan 2002). A good deal of the violence was directed against Vietnamese people living in Cambodia, however, and was a main factor in causing the aforementioned Cambodian-Vietnamese War (cf. Morris 1999).

VI.1.5. African trends in warfare and major violence

The following section provides an overview of trends in warfare and major episodes of violence occurring in Africa between 1950 and 2012. Among all 47 African countries contained in the database, 34 (72%) experienced some kind of warfare or major episodes of violence throughout the observation period. The highest magnitude scores were measured for Rwanda in 1994 and Nigeria in 1966, followed by Ethiopia and Angola with similarly high scores for several subsequent years in the 1970s. The mean and maximum values attained by African countries were the second highest after Asia. However, in Africa most countries did not experience episodes of warfare or major violence during most years, as the median values exhibited in Table VI-5 suggest.

Table VI-5 Summary statistics for different types of warfare and other major violence in Africa (1950-2012)

Statistic	N	Mean	St. Dev.	Min	Median	Max
Independence warfare	2,297	0.132	0.660	0	0	5
International violence	2,297	0.022	0.173	0	0	2
International warfare	2,297	0.028	0.341	0	0	5
Civil violence	2,297	0.045	0.318	0	0	4
Civil warfare	2,297	0.312	1.163	0	0	6
Ethnic violence	2,297	0.107	0.509	0	0	5
Ethnic warfare	2,297	0.240	1.089	0	0	10
MEPV	2,297	0.751	1.705	0	0	10

VI.1.5.1. Warfare in Africa

Figure VI-17 shows how different forms of warfare in Asia evolved over time. As became apparent, independence warfare played a much larger role as opposed to other world regions. A total of 9 countries (19%) experienced independence warfare during the observation period.

The highest magnitude of independence warfare was measured for Algeria throughout the 1950s, referring to the war fought for independence from France (Shepard 2008). A slightly lower magnitude was measured for Angola throughout the 1960s, referring to the war fought

for independence from Portugal. Both wars have previously been discussed in regard to their visibility in the European warfare magnitude scores. As apparent, the last year exhibiting any independence warfare was 1991 which concerned the independence of Namibia from South Africa (Leys, Saul, and Brown 1995). All other independence warfare regarded independence of African countries from European countries.

Figure VI-17 Clustered magnitude scores of warfare in Africa (1950-2012)
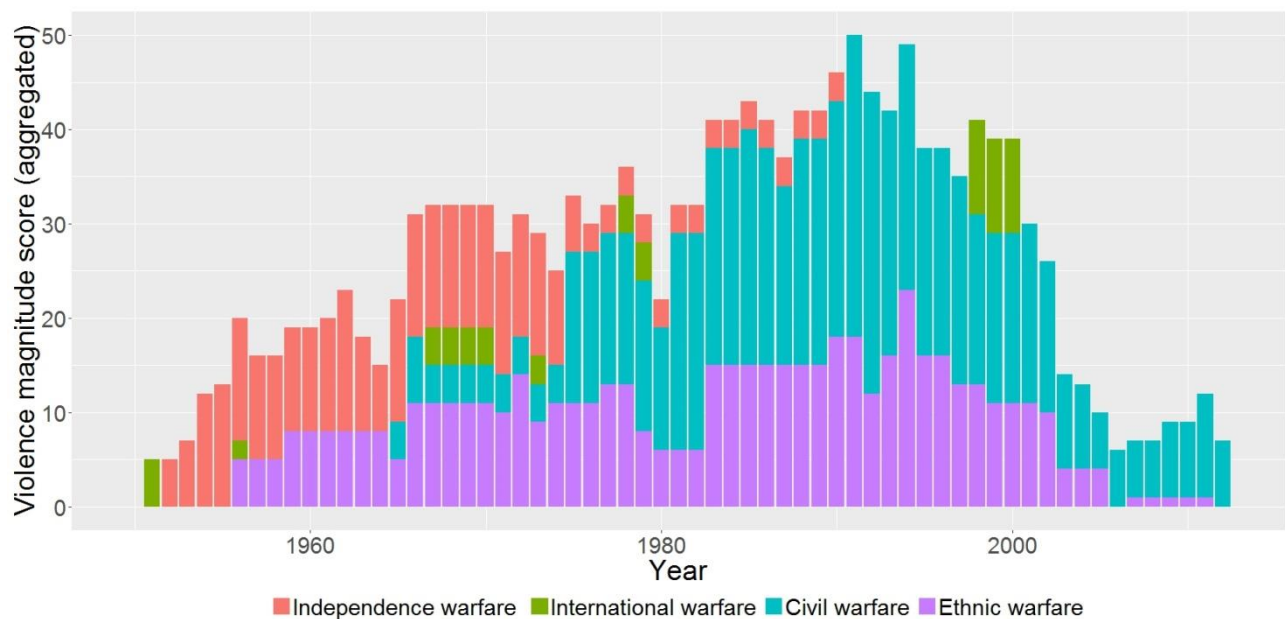
Elaboration by the author; Data source: Center for Systemic Peace

Figure VI-17 reveals that international warfare in Africa played a comparatively minor role. Only five (11%) of all African countries contained in the dataset exhibited international warfare during the observation period. The highest values were measured for Eritrea and Ethiopia. Eritrea had invaded Ethiopia in 1998 over disputed territory. The war ended after two years of fighting and several hundred thousand deaths (Negash and Tronvoll 2000). The spike in the Eastern African warfare magnitude towards the late 1990s visible in Figure VI-18 relates to this. Other episodes of international warfare regard mostly Egypt's continued involvement in the Arab-Israeli wars (Ovendale 2015; also see Bregman 2016), especially during the late 1960s, and a number of comparatively isolated episodes of warfare involving other countries.

As has been the case for all other world regions, most of the warfare magnitude in Africa occurred due to civil and ethnic conflict (Straus 2012, 180). During the observation period, twelve of the countries (26%) contained in the dataset experienced civil war and seven (15%) experienced ethnic war. The largest share of civil warfare was attributable to long-lasting civil

wars, especially in Angola (1975-1992) (James 2011), but also in Mozambique (1977-1992) (DeRouen and Heo 2007, 509), Somalia (since the 1980s) (ibid., 675) and, as previously discussed, Algeria (1991-2002) (ibid., 103). These and a number of other civil wars caused each several thousand up to several million casualties.

Figure VI-18 Clustered magnitude scores of warfare in African subregions (1950-2012)
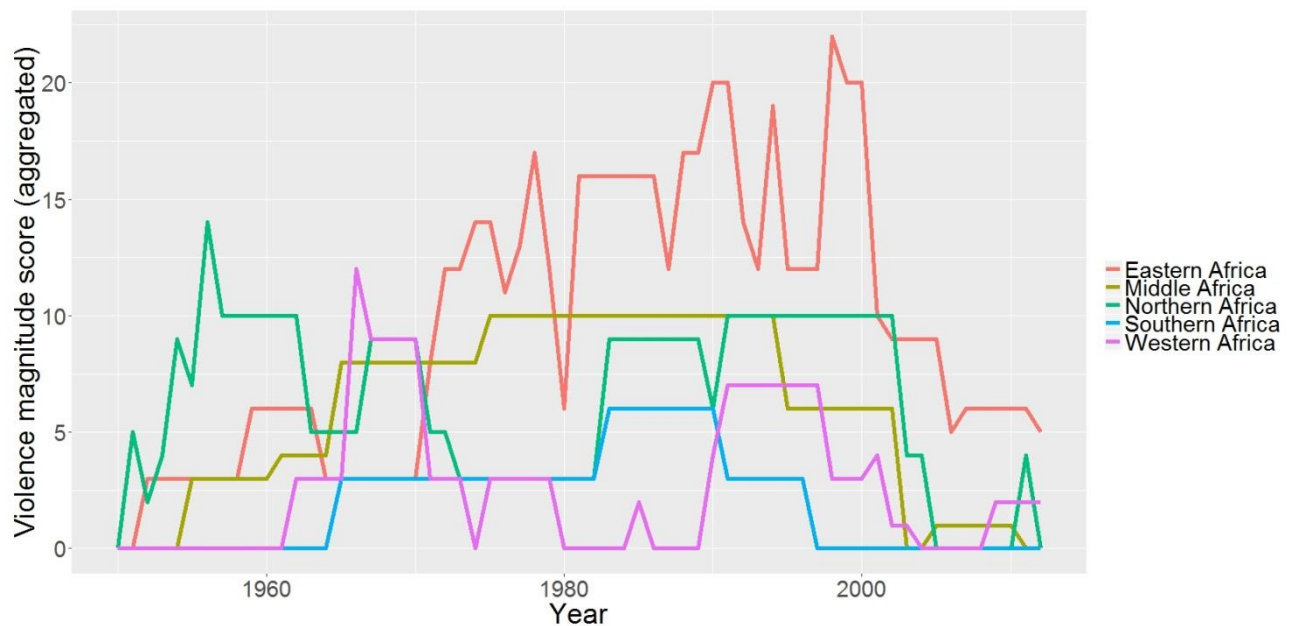
Elaboration by the author; Data source: Center for Systemic Peace

Though episodes of ethnic warfare in Africa occurred less often than civil warfare, their magnitude scores outranked the ones for civil warfare. The highest-ranking value regarded the previously discussed Rwandan genocide in 1994 which killed up to 1,000,000 million.

VI.1.5.2. Major violence in Africa

During the observation period, Africa also experienced major episodes of violence other than warfare. Most of the violence magnitude was caused by ethnic conflict. A total of 14 African countries (30%) contained in the database experienced major episodes of ethnic violence. As indicated in Figure VI-19, strong increases in ethnic violence occurred after the year 2000. Several countries accounted for this increase, especially Sudan between 2003 and 2010, but also Nigeria between 2001 and 2003 and Kenya in 2008 and 2009.

Figure VI-19 Clustered magnitude scores of violence other than warfare in Africa (1950-2012)
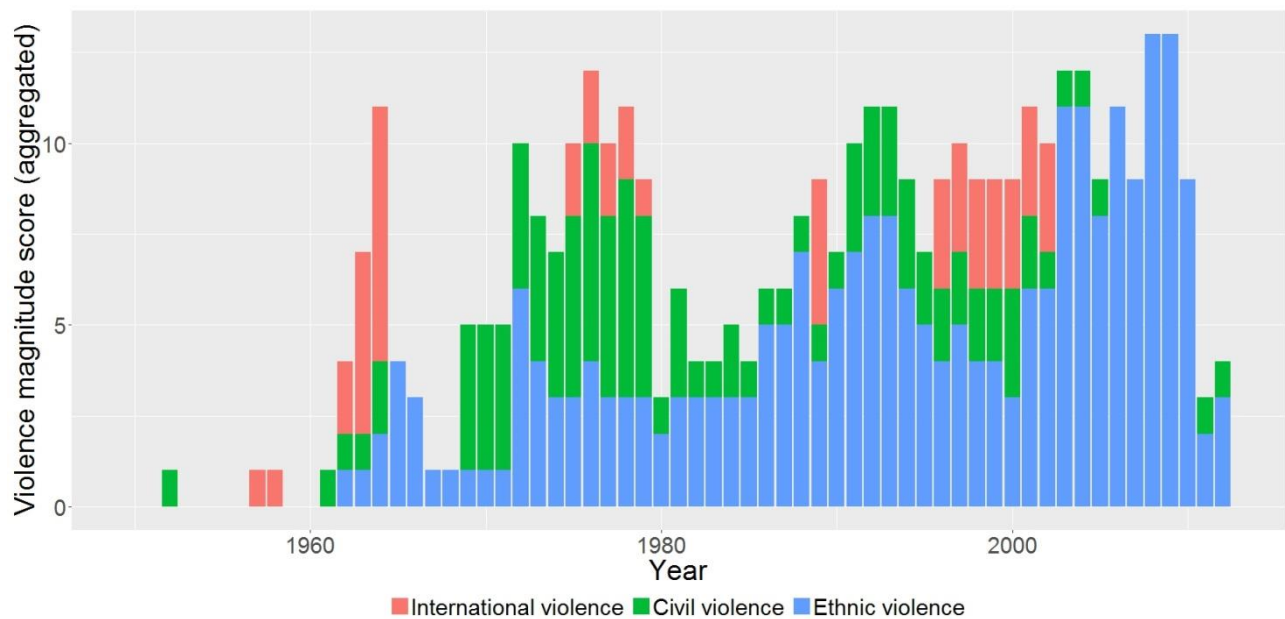
Elaboration by the author; Data source: Center for Systemic Peace

The violence in Sudan linked to a conflict in Darfur, with a conflict line that runs between Muslim state forces and a non-Muslim majority population in the region. The conflict is still ongoing and is often referred to as war and/or genocide and has as such also been discussed from a criminological perspective (Hagan, Rymond-Richmond, and Parker 2005). The conflict has produced several 100,000 casualties since its outset in 2003 (ibid., 525). Violence in Nigeria, on the other hand, was caused by repeated clashes between Christians and Muslims, e.g. the so-called Jos and Miss World riots (Sampson and Sampson 2012). Kenya, eventually, experienced ethnically-charged violence in the aftermaths of a disputed presidential election (Brown and Sriram 2012). However, particularly extended episodes of ethnic violence also occurred in other African countries, e.g. in Zimbabwe throughout the 1970s, in Uganda throughout the 1980s, 1990s and 2000s, and in a plethora of conflicts in Congo (Dem. Rep.).

More African countries, namely 17 (36%), experienced major episodes of civil rather than ethnic violence. Together, these episodes generated lesser magnitude scores than was the case for ethnic violence. The highest magnitude scores for civil violence were reached by Equatorial Guinea throughout the 1970s. This violence was exerted mostly by security forces against the civil population, commanded by President Francisco Macías Nguema. Equatorial Guinea had peacefully gained independence from Spain in 1968, and Francisco Macías Nguema was subsequently democratically elected. However, he installed a dictatorship, and civil violence

lasted up to his violent removal from office and his execution in a coup d'état in 1979 (Fegley 1989; Sundiata 1990). The occurrences are visible as a concentration of middle-African violence magnitude in Figure VI-20. Other extended, however much weaker, episodes of civil violence occurred in Angola throughout the 1970s, 1980s and 1990s, while many other African countries exhibited comparatively isolated episodes throughout the observation period.

Figure VI-20 Clustered magnitude scores of violence other than warfare in African subregions (1950-2012)
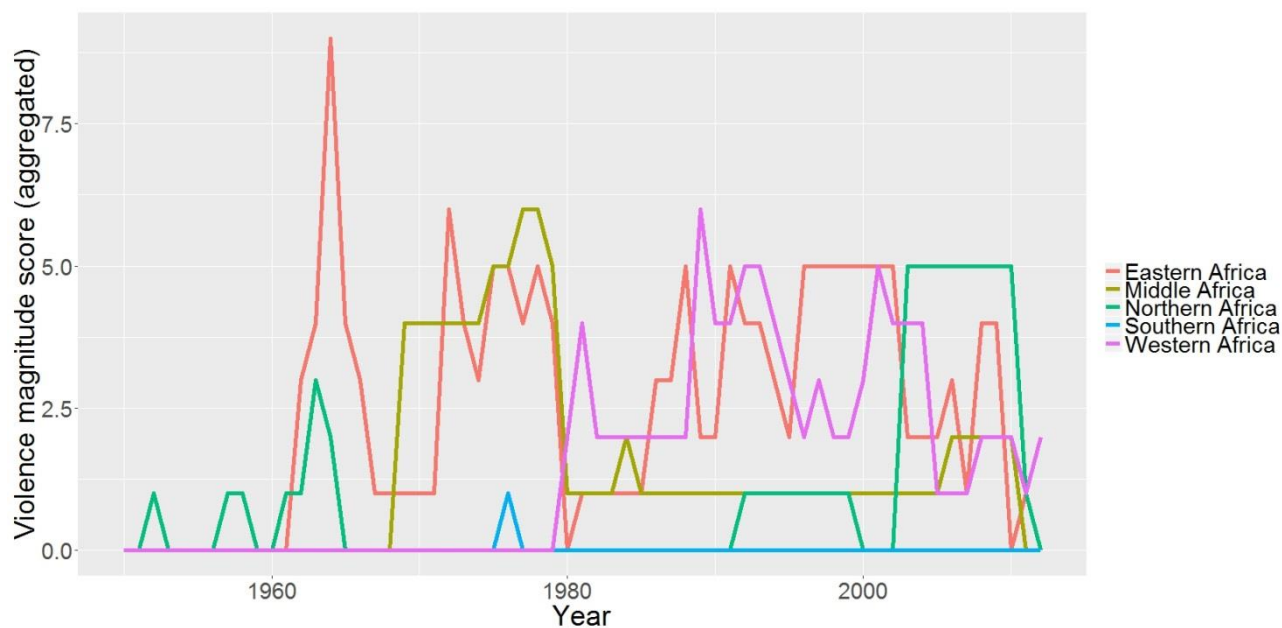
Elaboration by the author; Data source: Center for Systemic Peace

In addition, international violence occurred at comparatively low levels and in the form of rather isolated incidents. A total of twelve countries (25%) exhibited international violence during the observation period, while only Uganda and Rwanda showed multiannual episodes throughout the 1990s. The highest overall magnitude of international violence occurred in 1964 when six countries experienced respective incidents. Most of these incidents occurred in Eastern Africa which corresponds to a peak visible in Figure VI-20. Apart from that, Figure VI-20 indicates a rather heterogeneous development of the violence magnitude scores between the different African sub-regions. Most notably, according to the database, Southern Africa was largely exempt from major eruptions of violence, interrupted only by the so-called Soweto uprising in South Africa in 1976 (Ndlovu 2006).

VI.2. Analyses of the effects of warfare and major violence on homicide

In this section, the results from the regressions analyses about the effect of warfare and other major episodes of violence on homicide are presented. The analyses are based on the combined homicide datasets from Clio-Infra, UNODC and the WHO which served as the dependent variable and have been presented in section IV.1. The independent variables were drawn from the dataset on major episodes of political violence (MEPV), provided by the Integrated Network for Societal Conflict Research (INSCR)/Center for Systemic Peace, that has been presented in the preceding sections on global and regional trends in warfare and major episodes of violence other than warfare. As described in the methods section (III.4.2), the regression analyses are largely based on fixed effects models while the dependent and independent variable of interest have been transformed with a natural logarithm. For the purpose of comparison, also regression analyses using other methods for panel analyses have been conducted.

VI.2.1. Correlations between the dependent and independent variables

Before presenting the results from the regression analysis, the correlations between the dependent and independent variables (including the variables on terrorism drawn from the Global Terrorism Database) as well as their correlation with the control variables are provided.

Figure VI-21 Correlogram of indicators of violence
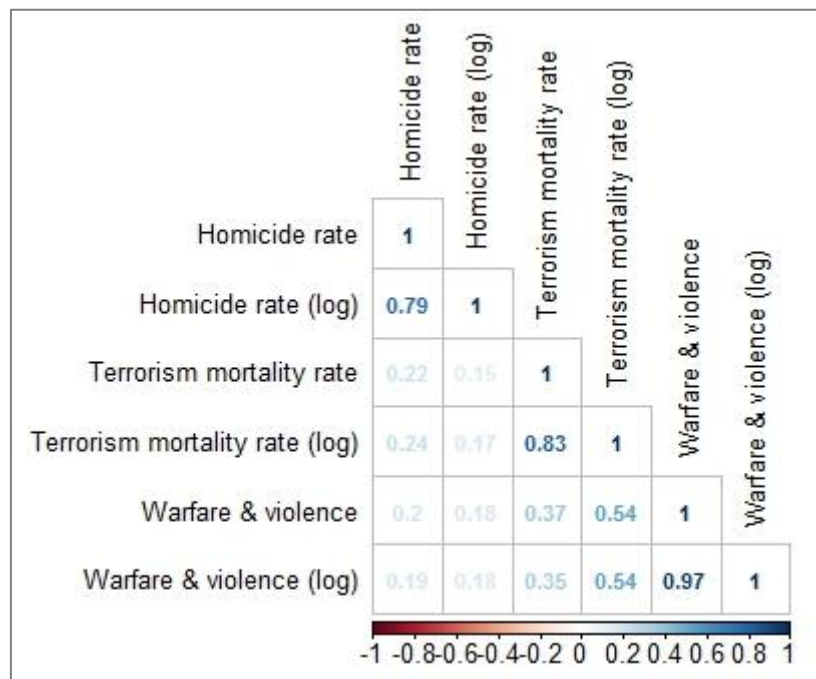
As shown in Figure VI-21, all the indicators of violence that served as the dependent and independent variables for the purpose of this research were correlated positively. The strongest correlations exhibited in Figure VI-21 were reached between each variable and its log-transformed counterpart. While the correlation between the transformed and untransformed magnitudes scores for warfare and major violence was almost total, the

correlation of the homicide and terrorism mortality rates with their log-transformations were somewhat lower, though still strong. This pointed to the long tails to the right that both the distributions of the homicide and the terrorism mortality rate exhibited. The distribution of the magnitude scores for warfare and violence, on the other hand, was a lot narrower. Next to the transformed and untransformed variables, the strongest correlation that became apparent was between the magnitude scores for warfare and violence and the log-transformed terrorism mortality rate. This confirmed largely what has already been described in the preceding section on trends in terrorism, namely that the bulk of terrorism occurs in the context of conflict and war. The differences in the strength of this correlation, on the other hand, indicated that the link between terrorism and conflict/warfare may be better described in terms of a log-log or log-linear relationship than a linear relationship.

Figure VI-22 Correlogram of homicide, warfare and major violence, and control variables

	Homicide rate	Homicide rate (log)	Warfare & violence	Warfare & violence (log)	GDP per capita (USD, PPP)	GDP growth (%)	Trade (%)	GINI coefficient	Polity index	Female labor force (%)	Urban population (%)	Young male population (%)
Homicide rate	1											
Homicide rate (log)	0.79	1										
Warfare & violence	0.2	0.18	1									
Warfare & violence (log)	0.19	0.18	0.97	1								
GDP per capita (USD, PPP)	-0.26	-0.49	-0.18	0.18	1							
GDP growth (%)						1						
Trade (%)		-0.11	-0.17	-0.19	0.28		1					
GINI coefficient	0.5	0.55	0.08	0.1	-0.31		0.14	1				
Polity index		-0.14		0.13	-0.0				1			
Female labor force (%)			-0.24	-0.23				-0.31	0.27	1		
Urban population (%)	-0.15	-0.3	-0.23	-0.22	0.61		0.14		0.25		1	
Young male population (%)	0.24	0.34	0.14	0.13	-0.28			0.49	-0.37	-0.5	-0.32	1

-1 -0.8 -0.6 -0.4 -0.2 0 0.2 0.4 0.6 0.8 1

Figure VI-22 shows the correlation between the homicide rate and the magnitude score for warfare and major violence as well as the control variables. The magnitude scores for warfare and major violence did not exhibit a particularly strong association with any of the control

variables, as became apparent. There was, however, noticeable negative correlation with the GDP per capita and percentage of international trade as well as with the percentage of urban population which itself was rather strongly and positively correlated with the GDP per capita.

Figure VI-23 shows a scatterplot between warfare and major violence other than warfare (log) as the independent variable of interest, and the homicide rate (log) as the dependent variable. A relationship of any kind between the two variables is not instantly apparent. However, the inclusion of a regression line suggested a positive relationship. In interpreting the figure, it has to be kept in mind that the visualization gives only a bivariate account of the variables of interest while the data structure takes the form of a panel. The corresponding analytical model which assumes fixed effects for each country contained in the dataset, is not represented by Figure VI-23.

Figure VI-23 Scatterplot of magnitude scores of warfare/violence against the homicide rate
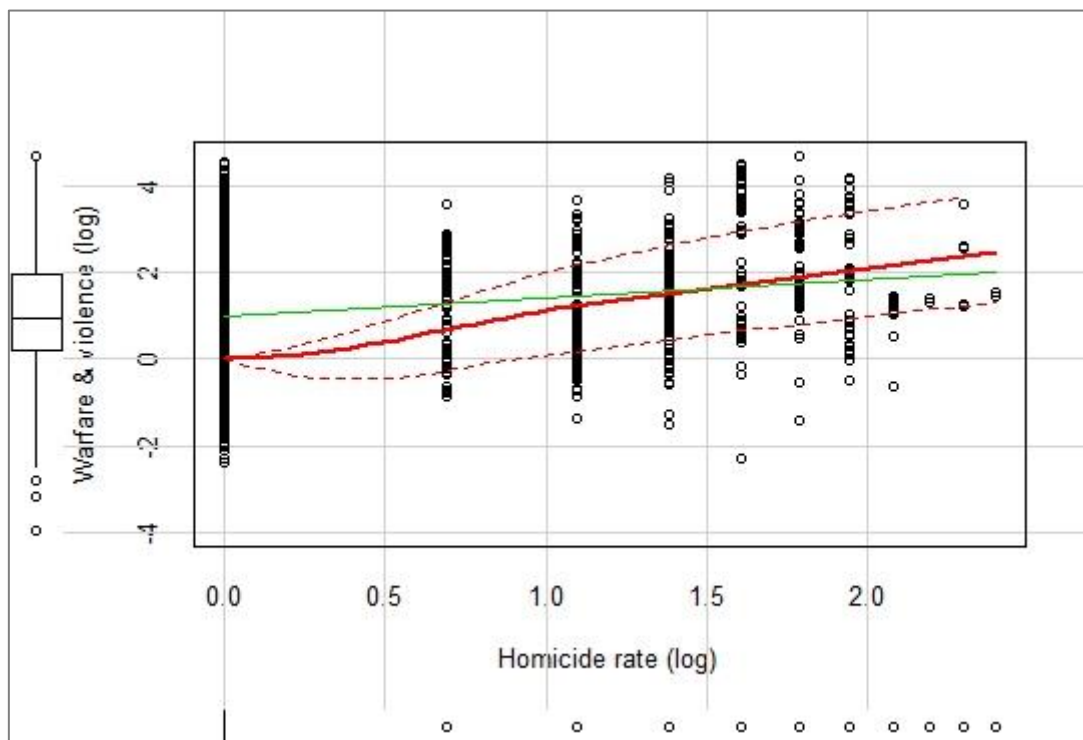
VI.2.2. Partial models on the effect of warfare on homicide

Results from the regression analyses suggested that warfare bears a positive influence on the homicide rate. For a start, when controlling for the economic control variables individually and then fitting all economic control variables into a combined model, the estimations predicted that 1 percent increases in warfare magnitude would lead to increases in the homicide rate between ca. 0.2 and 0.3 percent (compare Models 1-5 in Table VI-6). The corresponding

coefficients were highly significant. When controlling for the economic variables individually, however, the overall explained variance as indicated by the R^2 revolved around zero. That suggested that the models were not fitted well. The explained variance improved when controlling for all economic variables in a combined model.

Table VI-6 Fixed-effects panel models (individual/reg. SE): Homicide rate ← warfare magnitude score, socioeconomic control variables

	Dependent variable:				
	Homicide rate (log)				
	(1)	(2)	(3)	(4)	(5)
Warfare (log)	0.284***	0.170***	0.188***	0.217***	0.190***
	(0.041)	(0.032)	(0.031)	(0.050)	(0.069)
GDP/capita (*k*USD, PPP)	-0.021***				-0.021***
	(0.001)				(0.001)
GDP growth (%)		-0.005**			-0.003
		(0.002)			(0.003)
Trade (%)			-0.0005		-0.003***
			(0.0005)		(0.001)
Gini coefficient				-0.001	-0.006*
				(0.003)	(0.003)
Observations	2,208	3,298	3,343	1,700	1,227
R^2	0.057	0.012	0.012	0.012	0.116
F Statistic	62.320*** (df = 2; 2054)	19.304*** (df = 2; 3143)	18.578*** (df = 2; 3189)	9.590*** (df = 2; 1574)	28.921*** (df = 5; 1102)

Note: *p<0.1; **p<0.05; ***p<0.01

As apparent in Table VI-7, other modes of calculation—namely pooled, between and random effects models—predicted a positive influence of the warfare magnitude score (log) on the homicide rate (log). The fixed effects model exhibited the strongest among the significant coefficients as for the effect of the warfare magnitude score (log) on the homicide rate (log). At the same time, however, the fixed effects model exhibited the lowest overall model fit as indicated by the coefficient of determination. As previously seen in the chapters on socioeconomic and population-based independent variables (CHAPTER IV) and terrorism (CHAPTER V), the choice of estimators also affected the control variables, most notably the Gini coefficient. In the pooled and between models, the corresponding coefficients suggested a strong positive effect, namely that a 1 percent increase in economic inequality would lead to

roughly a 5 percent increase in the homicide rate. The fixed and random effects model, on the other hand, exhibited either a negative or insignificant effect.

Running a Hausman test to evaluate whether the fixed or random effects model (see Table VI-7, Models 2 and 4) would be preferable yielded a p-value of < 2.2e-16 (chisq = 96.581, df = 5), indicating that fixed effects should be used.

Table VI-7 Various panel models: Homicide rate ← warfare magnitude score, socioeconomic control variables

	Dependent variable:			
	Homicide rate (log)			
	Pooled	Fixed (within)	Between	Random
	(1)	(2)	(3)	(4)
Warfare (log)	0.121*	0.190***	0.339	0.173***
	(0.071)	(0.069)	(0.209)	(0.067)
GDP/capita (kUSD, PPP)	-0.041***	-0.021***	-0.03***	-0.023***
	(0.001)	(0.001)	(0.012)	(0.001)
GDP growth (%)	-0.017***	-0.003	-0.008	-0.004
	(0.006)	(0.003)	(0.032)	(0.003)
Trade (%)	0.001	-0.003***	0.002	-0.002***
	(0.001)	(0.001)	(0.002)	(0.001)
Gini coefficient	0.054***	-0.006*	0.056***	0.004
	(0.003)	(0.003)	(0.009)	(0.003)
Constant	-0.166		-0.692	1.628***
	(0.129)		(0.423)	(0.151)
Observations	1,227	1,227	120	1,227
R^2	0.488	0.116	0.458	0.151
F Statistic	233.160*** (df = 5; 1221)	28.921*** (df = 5; 1102)	19.230*** (df = 5; 114)	43.424*** (df = 5; 1221)
Note:				*p<0.1; **p<0.05; ***p<0.01

Calculating the effect of the warfare magnitude score (log) on the homicide rate (log) with population-based control variables (Table VI-8) generated a picture that was somewhat similar to the economic control variables. When introduced first individually and then in a combined model, the estimated effect of the warfare magnitude score (log) showed to be highly significant and positive, suggesting that 1 percent increases in warfare would lead to increases in the homicide rate between ca. 0.2 and 0.3 percent. Significant and positive results were also

returned for the control variables. As had already been the case with the economic control variables, however, the overall quality of fit as evidenced by the coefficient of determination (R^2) was close to zero and as such insufficient. Also, the combination of the variables in a single model did not lead to a acceptable level of explained variance.

Table VI-8 Fixed-effects panel models (individual/reg. SE): Homicide rate ← warfare magnitude score, population-based control variables

	Dependent variable:			
	Homicide rate (log)			
	(1)	(2)	(3)	(4)
Warfare (log)	0.322***	0.210***	0.195***	0.331***
	(0.041)	(0.030)	(0.028)	(0.041)
Female labor force (%)	0.013**			0.023***
	(0.006)			(0.008)
Urban population (%)		0.019***		-0.003
		(0.001)		(0.005)
Young male population (%)			0.063***	0.047***
			(0.008)	(0.013)
Observations	2,252	3,535	3,815	2,252
R^2	0.029	0.060	0.029	0.035
F Statistic	30.831*** (df = 2; 2096)	106.931*** (df = 2; 3378)	55.293*** (df = 2; 3658)	19.033*** (df = 4; 2094)

Note: *p<0.1; **p<0.05; ***p<0.01

When comparing the results from the fixed effects model with the output from other common modes of estimation for panel data (Table VI-9), the fixed effects model once more exhibited the strongest coefficient as for the effect of the warfare magnitude score (log) on the homicide rate (log), but also the lowest level of explained variance as exhibited by the coefficient of determination (R^2). All estimation methods suggested a positive effect of warfare (log) on homicide (log). The between model reached the best overall fit, but the estimation for the warfare coefficient remained insignificant.

Table VI-9 Various models: Homicide rate ← warfare magnitude score, population-based control variables

	Dependent variable:			
	Homicide rate (log)			
	Pooled	Fixed (within)	Between	Random
	(1)	(2)	(3)	(4)
Warfare (log)	0.160***	0.331***	0.128	0.323***
	(0.056)	(0.041)	(0.227)	(0.041)
Female labor force (%)	0.030***	0.023***	0.031***	0.026***
	(0.003)	(0.008)	(0.011)	(0.005)
Urban population (%)	-0.008***	-0.003	-0.010**	-0.009***
	(0.001)	(0.005)	(0.004)	(0.003)
Young male population (%)	0.198***	0.047***	0.153***	0.054***
	(0.014)	(0.013)	(0.047)	(0.012)
Constant	-1.999***		-1.273	0.103
	(0.327)		(1.100)	(0.364)
Observations	2,252	2,252	154	2,252
R^2	0.166	0.035	0.201	0.067
F Statistic	111.958*** (df = 4; 2247)	19.033*** (df = 4; 2094)	9.352*** (df = 4; 149)	40.068*** (df = 4; 2247)
Note:				*p<0.1; **p<0.05; ***p<0.01

VI.2.3. Full models on the effect of warfare on homicide

A combination of all control variables into a single model, eventually, led to a rather good model fit as indicated by the coefficient of determination (R^2). Though only marginally higher, the best fit was reached by also adding the polity index score (measuring autocracy/democracy from -10 to +10). As shown in Model 2, Table VI-10, the estimate for the effect of the warfare magnitude score (log) on the homicide rate (log) was positive and significant at the highest level when calculated with regular standard errors. The prediction was that a 1 percent increase in the warfare magnitude score would lead to an increase of ca. 0.19 in the homicide rate. When comparing the estimates of the separate models for the economic and population-based control variables (Model 5 in Table VI-6; Model 4 in Table VI-8) with the full model, it became apparent that the absence of the economic control variables coincided with a higher estimate for the warfare (log) coefficient. The estimate from the model with the economic control variables, on the other hand, was roughly the same as in the full model. This pointed to links between the warfare magnitude score and key economic indicators that were likely to mediate some of the effects of warfare on homicide.

As apparent when comparing Models 1 and 2 in Table VI-10, the addition of the polity index score to the model had almost no effect on the strength and significance of the other coefficients and coincided with an insignificant estimate itself. Apart from a drop from .01 to .05 significance level as to the terrorism mortality rate (log) coefficient, neither the calculation of robust standard errors caused any changes to the significance of the other variables. The heteroscedasticity-corrected errors for the terrorism mortality rate (log) were also not much larger than their regular counterparts.

Table VI-10 Fixed-effects panel models (individual – reg./rob. SE): Homicide rate ← warfare magnitude score, all control variables

	Dependent variable:			
	Homicide rate (log)			
	Regular SE		Robust SE	
	(1)	(2)	(3)	(4)
Warfare (log)	0.191***	0.191***	0.191**	0.191**
	(0.067)	(0.066)	(0.075)	(0.075)
GDP/capita (kUSD, PPP)	-0.030***	-0.031***	-0.030***	-0.031***
	(0.003)	(0.003)	(0.002)	(0.002)
GDP growth (%)	-0.003	-0.002	-0.003	-0.002
	(0.003)	(0.003)	(0.003)	(0.002)
Trade (%)	-0.003***	-0.003***	-0.003***	-0.003***
	(0.001)	(0.001)	(0.001)	(0.001)
Gini coefficient	-0.005	-0.005	-0.005	-0.005
	(0.003)	(0.003)	(0.003)	(0.003)
Female labor force (%)	0.050***	0.050***	0.050***	0.050***
	(0.009)	(0.009)	(0.009)	(0.010)
Urban population (%)	0.023***	0.024***	0.023***	0.024***
	(0.006)	(0.006)	(0.006)	(0.006)
Young male population (%)	-0.003	-0.002	-0.003	-0.002
	(0.019)	(0.019)	(0.017)	(0.017)
Polity index		-0.002		-0.002
		(0.007)		(0.007)
Observations	1,227	1,204		
R^2	0.179	0.182		
F Statistic	29.985*** (df = 8; 1099)	26.605*** (df = 9; 1078)		
Note:				*p<0.1; **p<0.05; ***p<0.01

An addition of time-fixed effects to the group-fixed effects yielded some differences to the terrorism mortality rate (log) coefficient (compare Models 1 and 2 in Table VI-10 and Table VI-11). The strength of the coefficient dropped, and so did the significance level. While the fixed effects model had indicated that a 1 percent increase in the warfare magnitude score (log) would lead to a 0.19 percent increase in the homicide rate, this value dropped to 0.14 percent when accounting for time-fixed effects. Also, the significance level of the estimates dropped by one level. As for the calculation of robust standard errors, however, the significance did not drop further, but remained the same as for regular standard errors. The impact on the size of the errors was only marginal.

Table VI-11 Fixed-effects panel models (two-ways – reg./rob. SE): Homicide rate ← warfare magnitude score, all control variables

	Dependent variable:			
	Homicide rate (log)			
	Regular SE		*Robust SE*	
	(1)	(2)	(3)	(4)
Warfare (log)	0.144**	0.145**	0.144**	0.145**
	(0.068)	(0.067)	(0.069)	(0.069)
GDP/capita (kUSD, PPP)	-0.017***	-0.016***	-0.017***	-0.016***
	(0.004)	(0.004)	(0.004)	(0.004)
GDP growth (%)	-0.002	-0.001	-0.002	-0.001
	(0.003)	(0.003)	(0.003)	(0.003)
Trade (%)	-0.002**	-0.002**	-0.002**	-0.002**
	(0.001)	(0.001)	(0.001)	(0.001)
Gini coefficient	-0.006**	-0.006*	-0.006**	-0.006*
	(0.003)	(0.003)	(0.003)	(0.003)
Female labor force (%)	0.063***	0.064***	0.063***	0.064***
	(0.009)	(0.009)	(0.010)	(0.010)
Urban population (%)	0.036***	0.037***	0.036***	0.037***
	(0.006)	(0.006)	(0.006)	(0.006)
Young male population (%)	0.019	0.017	0.019	0.017
	(0.019)	(0.019)	(0.019)	(0.019)
Polity index		0.003		0.003
		(0.007)		(0.007)
Observations	1,227	1,204		
R^2	0.141	0.147		
F Statistic	22.081*** (df = 8; 1077)	20.200*** (df = 9; 1056)		
Note:				*p<0.1; **p<0.05; ***p<0.01

VI.2.4. Regional models on the effect of warfare on homicide

A division by major world regions or any other subgroupings of countries did not yield significant results. Thus, corresponding tables are not presented. All in all, the statistical power of the models seemed to be too low to produce significant results for any of the major world regions individually. In the case of Europe, the estimated effect of warfare (log) on homicide (log) was actually missing. As the preceding review of trends in major violence has shown, Europe arguably experienced a low level of warfare throughout the second half of the 19th century. The variance in the independent variable of interest was too limited to produce a coefficient.

VI.2.5. Lagged models on the effect of warfare on homicide

Besides measuring the concurrent effects of the warfare magnitude score (log) on the homicide rate (log) (Table VI-11),

Table VI-12 reveals how warfare magnitude (log) affected the homicide rates (log) of the subsequent year. For that purpose, the homicide rate was lagged by one year during the regression analysis. Just like the concurrent model, results indicated a significant positive effect of the warfare magnitude scores (log) on the homicide rate. The values were in fact only marginally lower than their counterparts in the concurrent model. The explained variance of the lagged model, on the other hand, was higher. As opposed to the concurrent model, however, the significance of the warfare magnitude (log) coefficient dropped to .1 level when calculating robust standard errors. Including the polity index score in the calculation, again, bore a marginal effect only.

Table VI-12 Fixed-effects panel models (two-ways – reg./rob. SE): Lagged homicide rate (1Y) ← warfare magnitude score, all control variables

	Dependent variable:			
	Homicide rate (log)			
	Regular SE		*Robust SE*	
	(1)	(2)	(3)	(4)
Warfare (log)	0.138**	0.137**	0.138*	0.137*
	(0.066)	(0.066)	(0.071)	(0.071)
GDP/capita (kUSD, PPP)	-0.029***	-0.029***	-0.029***	-0.029***
	(0.003)	(0.003)	(0.002)	(0.002)
GDP growth (%)	-0.002	-0.002	-0.002	-0.002
	(0.003)	(0.003)	(0.003)	(0.003)
Trade (%)	-0.004***	-0.004***	-0.004***	-0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
Gini coefficient	-0.005	-0.005*	-0.005	-0.005*
	(0.003)	(0.003)	(0.003)	(0.003)
Female labor force (%)	0.049***	0.049***	0.049***	0.049***
	(0.009)	(0.009)	(0.010)	(0.010)
Urban population (%)	0.016***	0.017***	0.016***	0.017***
	(0.006)	(0.006)	(0.006)	(0.006)
Young male population (%)	-0.008	-0.004	-0.008	-0.004
	(0.018)	(0.019)	(0.016)	(0.016)
Polity index		-0.009		-0.009
		(0.007)		(0.007)
Observations	1,194	1,171		
R^2	0.181	0.181		
F Statistic	29.525*** (df = 8; 1072)	25.855*** (df = 9; 1051)		

Note: *p<0.1; **p<0.05; ***p<0.01

In addition to testing the effect of the warfare magnitude score (log) on the homicide rate (log) of the subsequent year, also the effect on the average homicide rate during a period of five succeeding years was tested. The results are presented in Table VI-13. As becomes apparent, the findings on the former closely resemble the findings on the latter (

Table VI-12) and the concurrent model (Table VI-11). The coefficients of the warfare magnitude score (log) were almost the same, and so were their significance levels. Interestingly, the overall levels of explained variance (R^2) were higher when testing for the

effect on the 5-year averaged homicide rate as compared to the concurrent models and the models lagged by one year (Table VI-10 and

Table VI-12). The explained variance had already been higher for the model lagged by one year than for the concurrent model. In case of the model with the 5-year averaged homicide rate, the calculation of robust standard errors even led to an increase in significance in the coefficient for the warfare magnitude score (log). Though only marginally, also the size of the errors decreased. Finally, as opposed to the concurrent model and the model lagged by one year, the inclusion of the polity index score effected a more noticeable change in the coefficient of warfare magnitude (log) than the previous models. This change was not strong, actually. The coefficient of the polity index itself, however, when calculated with regular standard errors, became significant for the only time in any of the warfare models.

Table VI-13 Fixed-effects panel models (two-ways – reg./rob. SE): Lagged homicide rate (5Y average) ← warfare magnitude score, all control variables

	Dependent variable:			
	Homicide rate (log)			
	Regular SE		Robust SE	
	(1)	(2)	(3)	(4)
Warfare (log)	0.135**	0.144**	0.135**	0.144***
	(0.056)	(0.056)	(0.055)	(0.055)
GDP/capita (kUSD, PPP)	-0.025***	-0.026***	-0.025***	-0.026***
	(0.002)	(0.002)	(0.002)	(0.002)
GDP growth (%)	-0.003	-0.003	-0.003*	-0.003
	(0.002)	(0.002)	(0.002)	(0.002)
Trade (%)	-0.003***	-0.004***	-0.003***	-0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
Gini coefficient	-0.007***	-0.007***	-0.007***	-0.007***
	(0.002)	(0.002)	(0.002)	(0.002)
Female labor force (%)	0.018**	0.019**	0.018*	0.019**
	(0.008)	(0.008)	(0.010)	(0.010)
Urban population (%)	0.028***	0.029***	0.028***	0.029***
	(0.005)	(0.005)	(0.006)	(0.006)
Young male population (%)	-0.018	-0.021	-0.018	-0.021
	(0.016)	(0.016)	(0.013)	(0.013)
Polity index		0.012**		0.012
		(0.006)		(0.007)
Observations	939	922		
R^2	0.235	0.233		
F Statistic	31.722*** (df = 8; 828)	27.446*** (df = 9; 811)		

Note: *p<0.1; **p<0.05; ***p<0.01

VI.2.6. Full model on the effect of major violence other than warfare on homicide

Besides testing the effects of warfare, also the effects of major violence other than warfare on homicide were tested. A division by major world regions did thereby not yield significant results. Apart from that, as the significance and strength of the estimates were largely the same throughout the different configurations of control variables, only the results for the full models are presented below (Table VI-14). Firstly, it became apparent that the estimates of the effects of other violence (log) on homicide (log) were slightly weaker than the effect of warfare (log). They were also less significant, namely at 0.1 level with regular standard errors and

insignificant with robust standard errors. Secondly, the estimates seemed to be more invariant to the addition and omission of the different control variables. Partial models, for example which included the economic and population-based control variables separately yielded roughly the same warfare magnitude (log) coefficients as the overall models. Economic indicators did not seem to mediate the effects of major violence (log) on homicide (log) as had been the case for warfare (log). As apparent, also the inclusion of the polity index had almost no effect on any of the other coefficients.

Table VI-14 Fixed-effects panel models (two-ways – reg./rob. SE): Homicide rate ← major violence, all control variables

	Dependent variable:			
	Homicide rate (log)			
	Regular SE		Robust SE	
	(1)	(2)	(3)	(4)
Major violence (log)	0.117*	0.117*	0.117	0.117
	(0.068)	(0.067)	(0.090)	(0.089)
GDP/capita (kUSD, PPP)	-0.030***	-0.030***	-0.030***	-0.030***
	(0.003)	(0.003)	(0.002)	(0.002)
GDP growth (%)	-0.004	-0.003	-0.004	-0.003
	(0.003)	(0.003)	(0.003)	(0.003)
Trade (%)	-0.003***	-0.003***	-0.003***	-0.003***
	(0.001)	(0.001)	(0.001)	(0.001)
Gini coefficient	-0.003	-0.003	-0.003	-0.003
	(0.003)	(0.003)	(0.003)	(0.003)
Female labor force (%)	0.053***	0.053***	0.053***	0.053***
	(0.009)	(0.009)	(0.009)	(0.009)
Urban population (%)	0.021***	0.022***	0.021***	0.022***
	(0.006)	(0.006)	(0.006)	(0.006)
Young male population (%)	0.0002	0.001	0.0002	0.001
	(0.019)	(0.019)	(0.017)	(0.017)
Polity index		-0.002		-0.002
		(0.007)		(0.007)
Observations	1,227	1,204		
R^2	0.175	0.178		
F Statistic	29.199*** (df = 8; 1099)	25.894*** (df = 9; 1078)		
Note:				*p<0.1; **p<0.05; ***p<0.01

VI.2.7. Combined model on the effect of warfare and major violence on homicide

Finally, the effects of warfare and major episodes of violence other than warfare were tested in a combined model. For that purpose, the magnitude scores of both were added up. Interestingly, this led to a rather strong change in the model. The coefficient for the combined magnitude of warfare and major violence (log) was considerably stronger than the separate coefficients for either warfare (log) and major violence (log) alone. The coefficient in the combined model was also highly significant, and the overall level of explained variance was higher than for the separate models. The calculation of robust standard errors did not effectuate any change to the significance level of the combined warfare and major violence (log) coefficient, and also the error size was not considerably higher. Eventually, the inclusion of the polity index in the model did not cause changes to the magnitude score for warfare and major violence (log).

Table VI-15 Fixed-effects panel models (two-ways – reg./rob. SE): Homicide rate ← warfare and major violence, all control variables

	Dependent variable:			
	Homicide rate (log)			
	Regular SE		Robust SE	
	(1)	(2)	(3)	(4)
Warfare/Major violence (log)	0.178***	0.178***	0.178***	0.178***
	(0.050)	(0.050)	(0.062)	(0.061)
GDP/capita (kUSD, PPP)	-0.030***	-0.030***	-0.030***	-0.030***
	(0.001)	(0.001)	(0.001)	(0.001)
GDP growth (%)	-0.003	-0.002	-0.003	-0.002
	(0.003)	(0.003)	(0.003)	(0.002)
Trade (%)	-0.003***	-0.003***	-0.003***	-0.003***
	(0.001)	(0.001)	(0.001)	(0.001)
Gini coefficient	-0.004	-0.004	-0.004	-0.004
	(0.003)	(0.003)	(0.003)	(0.003)
Female labor force (%)	0.052***	0.053***	0.052***	0.053***
	(0.009)	(0.009)	(0.010)	(0.010)
Urban population (%)	0.022***	0.023***	0.022***	0.023***
	(0.006)	(0.006)	(0.006)	(0.006)
Young male population (%)	0.196	0.373	0.196	0.373
	(18.444)	(18.555)	(16.861)	(17.239)
Polity index		-0.001		-0.001
		(0.007)		(0.007)
Observations	1,227	1,204		
R^2	0.182	0.185		
F Statistic	30.645*** (df = 8; 1099)	27.213*** (df = 9; 1078)		

Note: *p<0.1; **p<0.05; ***p<0.01

Combining the magnitude scores for warfare and the terrorism mortality rate in a single model led to significant changes in the coefficients for the variables of interest (as seen in Table VI-16 below). When adding warfare magnitude scores, but not accounting for interaction effects, the estimate for the terrorism mortality rate gained in both strength and significance as compared to the same model without warfare magnitude scores. The estimate suggests that every 1-percent increase in the terrorism mortality rate would lead to an increase of 0.529 % in the homicide rate. The estimate for warfare, on the other hand, dropped to almost zero and lost its significance. The coefficient for the terrorism mortality rate gained even further in strength when also interaction effects between the warfare magnitude scores and the terrorism mortality

rate were added, suggesting that every 1-percent increase in the terrorism mortality rate would lead to an increase in the homicide rate of 0.687 %. The coefficient for the warfare magnitude score, in turn, remained close to zero and insignificant. The coefficient for the interaction effect between the terrorism mortality rate and the warfare magnitude scores was significant and positive (0.235) when the separate coefficients for the terrorism mortality rate and the warfare magnitude scores were not included in the same model. When including them, the value for the interaction effect dropped below zero, showed a strong increase in its standard deviation, and became insignificant.

Table VI-16 Fixed-effects panel models (two-ways – reg./rob. SE): Homicide rate ← warfare + terrorism, all control variables

		Dependent variable:	
		Homicide rate (log)	
	(1)	(2)	(3)
Terrorism mortality rate (log)	0.529***		0.687***
	(-0.125)		(-0.165)
Warfare (log)	0.01		0.076
	(-0.077)		(-0.09)
GDP per capita (USD, PPP)	-0.00003***	-0.00003***	-0.00003***
	(0)	(0)	(0)
GDP growth (%)	-0.001	-0.002	-0.001
	(-0.003)	(-0.003)	(-0.003)
Trade (%)	-0.003***	-0.003***	-0.003***
	(-0.001)	(-0.001)	(-0.001)
GINI coefficient	-0.003	-0.004	-0.003
	(-0.003)	(-0.003)	(-0.003)
Female labor force (%)	0.065***	0.052***	0.069***
	(-0.01)	(-0.01)	(-0.009)
Urban population (%)	0.024***	0.024***	0.023***
	(-0.006)	(-0.006)	(-0.006)
Young male population (%)	0.01	0.001	0.014
	(-0.018)	(-0.018)	(-0.017)
Polity index	-0.003	-0.005	-0.002
	(-0.008)	(-0.007)	(-0.008)
Terrorism + warfare (interaction)		0.235**	-0.195
		(-0.092)	(-0.145)
Observations	1,165	1,165	1,165
R^2	0.204	0.179	0.207
F Statistic	26.683*** (df = 10; 1039)	25.249*** (df = 9; 1040)	24.701*** (df = 11; 1038)
Note:			*p<0.1; **p<0.05; ***p<0.01

Adding both the terrorism mortality rate as well as the combined scores for warfare and major violence other than warfare in a single model (as shown in Table VI-17 below) yielded results similar to the model in which only the terrorism mortality rate and the warfare magnitude scores had been considered (see Table VI-16). The coefficient for the terrorism mortality rate grew in strength and significance while the coefficient for the warfare/major violence magnitude scores dropped and became insignificant. Similar to the models presented in Table VI-16, this effect was more pronounced when adding also the interaction effect between the terrorism mortality rate and the warfare/major violence magnitude scores. Again, the coefficient for the interaction effect itself was comparatively strong (0.292) and highly significant when the separate coefficients for the terrorism mortality rate and the warfare/major violence magnitude scores were not included in the same model. When including them, the interaction effect dropped below zero, showed a sharp increase in its standard deviation, and lost its significance.

**Table VI-17 Fixed-effects panel models (two-ways – reg./rob. SE): Homicide rate ←
warfare/major violence + terrorism, all control variables**

	Dependent variable:		
	Homicide rate (log)		
	(1)	(2)	(3)
Terrorism mortality rate (log)	0.500***		0.722***
	(-0.127)		(-0.183)
Warfare/Major violence (log)	0.053		0.068
	(-0.066)		(-0.068)
GDP per capita (USD, PPP)	-0.00003***	-0.00003***	-0.00003***
	(0)	(0)	(0)
GDP growth (%)	-0.001	-0.001	-0.001
	(-0.003)	(-0.003)	(-0.003)
Trade (%)	-0.003***	-0.003***	-0.003***
	(-0.001)	(-0.001)	(-0.001)
GINI coefficient	-0.003	-0.003	-0.003
	(-0.003)	(-0.003)	(-0.003)
Female labor force (%)	0.065***	0.061***	0.066***
	(-0.01)	(-0.01)	(-0.01)
Urban population (%)	0.023***	0.024***	0.023***
	(-0.006)	(-0.006)	(-0.006)
Young male population (%)	0.01	0.004	0.013
	(-0.018)	(-0.018)	(-0.017)
Polity index	-0.003	-0.005	-0.002
	(-0.007)	(-0.008)	(-0.007)
Terrorism + warfare (interaction)		0.292***	-0.164
		(-0.078)	(-0.13)
Observations	1,165	1,165	1,165
R^2	0.205	0.194	0.206
F Statistic	26.798*** (df = 10; 1039)	27.774*** (df = 9; 1040)	24.541*** (df = 11; 1038)

Note: *p<0.1; **p<0.05; ***p<0.01

CHAPTER VII. Discussion

CHAPTER VII resumes the main findings of the dissertation, and discusses them in light of the research questions and the theoretical framework that were initially formulated. Across several subchapters, also the limitations of this dissertation, its policy relevance, and perspectives for future research on the topic are discussed.

VII.1. Main findings

The main empirical finding of the present study is that a positive link between different forms of collective violence and homicide rates can be supported. The finding is robust in different modes of calculation and also holds up under rigorous assumptions, i.e. fixed effects models with additional time-fixed effects, calculated with robust standard errors. Based on the most comprehensive models (all control variables; fixed effects – two-ways; robust SE), the estimates are that an increase of 1 percent in the terrorism mortality rate lead to increases of roughly 0.24 percent in the homicide rate, while increases of 1 percent in the magnitude scores of major episodes of political violence (MEPV) lead to increases (in the homicide rate) of roughly 0.18 percent. A main aspect of the research question, namely as to whether a positive link between collective and criminal violence esists (following the 'legitimation of violence'/'legitimation-habituation'/'culture of violence' framework), can thus be answered positively. The corresponding hypothesis h_1 is supported by the findings/data. Accordingly, the competing hypothesis h_2 (catharsis model) that postulates negative effects can be rejected. This finding refers to both the effects of terrorism on homicide as presented in chapter V.2 and the effects of warfare on homicide as presented in chapter VI.2. As far as the effects of major violence other than warfare are concerned, the analyses (VI.2.6) did not yield sufficiently significant and robust results in support of a positive association with homicide. The incorporation of both warfare and other violence (VI.2.7), however, led to an improved model fit and a strong and highly significant coefficient that predicted positive effects for the combined scores of major episodes of political violence on homicide rates. Eventually, in regard to the competing hypothesis h_3 which postulated effects of collective violence on criminal violence mediated through socioeconomic impact, the results pointed to differences between terrorism and warfare. The hypothesis was supported for the latter, but not for the former.

The strength and significance of the findings varied according to different calculation methods, different types and numbers of control variables introduced in the models, the lagging of the independent variables of interest, and different world regions. Fixed effects models were found to be more appropriate than random effects models which could be confirmed by Hausman tests. The pooled models did not meet the appropriate assumptions for the structure of the dataset, while the between models did not produce significant results.

VII.1.1. Effects of terrorism on homicide

As far as the models on the effects of terrorism on homicide were concerned, introducing either fixed (individual) or random effects bore only marginal differences in terms of the strength of the coefficient, and no effect on their significance. Stronger differences became apparent when comparing the fixed effects models with the pooled and between models. Both the pooled and between models exhibited coefficients for the terrorism mortality rate (log) that were roughly twice as high. While the coefficient in the pooled models were highly significant, the coefficients in the between models were not. The implications of this are twofold. Firstly, there appear to be omitted variables varying at country level that mediate part of the positive effect between terrorism and homicide. Secondly, the terrorism mortality rate can significantly predict differences within countries over time, but not differences between countries. Apart from the control variables and omitted variables varying at the country level, there seem to also be common variables varying over time that influence the relationship between terrorism and homicide. This becomes apparent when comparing the results for the individual and two-ways fixed effects models. The additions of time-fixed effects lead to a drop in the coefficient by roughly a sixth.

In comparing different world regions, the most robust findings were available for Europe. The coefficient for the terrorism mortality rate (log) in Europe was roughly twice as high as the corresponding coefficient in the overall model, indicating that increases by 1 percent in the terrorism mortality rate are associated with increases in the homicide rate by almost 0.5 percent. Calculated with time-fixed effects and robust standard errors, the coefficient remained insignificant for each of the other world regions. The clustering of all regions other than Europe, on the other hand, led to a coefficient that was significant at 0.1 level and close in strength to the coefficient measured in the overall model. The interpretation of regional differences in the findings remained difficult and may possibly relate to both the limitations of

the dataset and fundamental aspects that remain to be discussed in the following sections of the discussion.

The lagging of the terrorism mortality rate (log) by one year caused further changes to the coefficient. It increased rather strongly to roughly 0.3. As for regional differences in the lagged model, the coefficients for Europe and for the group of regions other than Europe exhibited roughly the same strength as in the overall model. For Europe, this meant that the coefficient dropped rather sharply due to the lagging, namely from increases of roughly 0.48 percent in the homicide rate for every 1 percent increase in the terrorism mortality rate to roughly 0.3 percent. Also, the significance of the coefficient dropped considerably for Europe, namely from the highest to the lowest level ($p<0.1$), while the significance of the coefficient for the group of other regions increased (to $p<0.05$). A possible explanation for this may be that the terrorism mortality rate influences the homicide rate stronger in the short term. A reason why this effect did not become visible for the group of other regions may be caused by covariance between terrorism and warfare in combination with stronger long-term effects of warfare (compare with section VII.1.2 below).

Given that both the foregoing examination of trends in terrorism, warfare and other violence, and the calculation of the correlation between them, pointed to a strong overlap, separate models for terrorism were run for those country-years that did not exhibit any kind of warfare. While the significance of the coefficient climbed to the highest level, that almost led to a doubling of the effect, namely from 0.24 percent increases in the homicide rate for every 1 percent increase the terrorism mortality rate, to 0.42 percent. It appears that the isolated effects of terrorism on homicide are much stronger in settings where no warfare occurs. But again, the measurements may be biased due to a potentially disruptive effect of war on the underlying data. Comparing the coefficient for the terrorism mortality rate (log) between different world regions for those country-years that did not experience any warfare showed that the increase in the effect is entirely due to countries in regions other than Europe. The coefficient for Europe remained precisely the same as almost no complete observations for European country-years in which warfare occurred were available. For the group of other countries, however, it rose to 0.37 percent increase the homicide rate for every 1 percent increase in the terrorism mortality rate, and gained significance. When also excluding those country-years from the dataset which exhibited major violence other than warfare, the coefficient for the terrorism mortality rate (log) dropped in strength and became insignificant. This confirmed that in fact many

occurrences of terrorism were reflected in the MEPV dataset where they were coded as other violence.

Considering measurements of terrorism other than the terrorism mortality rate (i.e. absolute counts of attacks, lethal attacks and number of deaths) to predict the homicide rate did not lead to consistent and significant results. As it seems, not only the lethality of terror attacks, but also their lethality in relation to the size of the overall population of the country where the attacks occurred, play an important role as to whether terror attacks lead to an increase in the homicide rate. This links to Landau and Pfeffermann's (1988, 500) conclusions about the effects of prolonged states of warfare on homicide in Israel. They maintained that "what really affects the number of homicides is not just the existence of security-related tension but rather the occurrence of security-related loss of, or injury to, human life."

The addition/omission of the polity index score (autocracy/democracy) appeared to play a somewhat mysterious role in moderating the association between the terrorism mortality rate (log) and the homicide rate (log). Without ever being significant in itself, its addition to the model led to a rather considerable drop in the terrorism mortality rate (log) coefficient, namely from roughly 0.3 to a 0.24 percent increase in the homicide rate. So far, studies on the relationship between democracy and either homicide rates or terrorism have yielded ambiguous results (cf. LaFree and Tseloni 2006; LaFree and Ackerman 2009, 362).

VII.1.2. Effects of warfare and other major violence on homicide

The models about the effects of warfare on the homicide rate behaved somewhat differently than the models on terrorism. To begin with, again, calculating either fixed (individual) or random effects produced only marginal differences in terms of the strength of the coefficient, in this case the warfare magnitude scores (log). Rather than suggesting stronger effects like in the case of the terrorism mortality rate, the calculation of pooled and between models led to a drop in the strength of the coefficients. This points to additional omitted variables varying between countries that may moderate the effect of warfare on terrorism. The estimates in the between models were, again, insignificant which indicated that warfare may significantly predict changes in the homicide rate within countries over time, but not between different countries. The coefficient was thereby shown to be sensitive to the type of control variables that were introduced. With a 0.19 increase in the homicide rate for every 1 percent increase in the warfare magnitude score, the coefficient was much lower when introducing the economic control variables while their omission suggested a much stronger effect (0.33). This points

rather clearly to socioeconomic effects of warfare and their indirect effects on homicide. While studying homicide rates after nation-wars (international warfare), Archer and Gartner (1978, 954) discussed this topic using the "economic factors model", but found no evidence in its support. However, the results presented in the present study, show that a good part of the effects that different types of warfare bear on the homicide rate may be mediated by precisely the socioeconomic indicators that were introduced as control variables to the models. Thus, as for the effects of warfare on homicide, hypothesis h_3 (effects of collective violence mediated through socioeconomic impact) is supported by the findings.

A comparison of different world regions did not produce significant results. As for Europe, the calculation was not feasible as there were almost no complete observations in which European countries experienced warfare.

Similar to the models on terrorism, the addition of time-fixed effects (two-ways) to the full model led to a drop in the strength of the warfare magnitude (log) coefficient to roughly a 0.14 percent increase in the homicide rate for every 1 percent increase in warfare magnitude. When calculated with robust standard errors, the coefficient was only weakly significant ($p<0.1$). This changed when the independent variable of interest was lagged by one year. Even though the strength of the coefficient remained the same, its significance rose to the highest level. Eventually, when lagging the warfare score again but using a five-year average for the homicide rate rather than a single year rates, the coefficient more than doubled in strength. This gives rise to the conclusion that the impact of warfare on homicide may lead to a stronger increase in homicides over time. Besides that, however, warfare may lead to disruptions in the underlying data that may make it difficult to measure its effects in contemporaneous models.

The relationship between homicide rates and major violence other than warfare were also assessed. This did not lead to significant results, however, and may be attributable to limitations of the underlying dataset as discussed in section VII.3.1 ahead. However, the fitting of a combined model about the effects of collective violence on homicide, with the combined magnitude scores of major episodes of political violence (warfare and other violence) as the independent variable of interest, eventually led to a very robust result. The coefficient was stronger and more significant than for any of the datasets individually, suggesting that 1 percent increases in collective violence would lead to roughly 0.18 percent increases in the homicide rate.

Including the magnitude scores for warfare/major violence and the terrorism mortality rate in a combined model led to a strong and robust estimate for the terrorism mortality rate while the value for the warfare/major violence magnitude scores dropped to almost zero and became insignificant. The coefficient for the interaction affect between both was fairly strong and highly significant, but only when not included in a model in which the terrorism mortality rate and the warfare/major violence magnitude scores were not considered separately.

Testing for the effects of different types of warfare (i.e. independence, civil, ethnic and international warfare) on the terrorism mortality rate did not lead to consistent and significant results. Again, the most likely explanation for this links to problems in the underlying data as discussed in section VII.3.1 ahead.

The addition/omission of the polity index score (autocracy/democracy) did not bear any noticeable effects to the models. In fact, the warfare magnitude coefficient appeared to be largely invariant in this regard.

VII.2. Other findings

In addition to the aforementioned effects of terrorism, warfare and other major episodes violence on homicide, the results also revealed a couple of other findings that seem worth mentioning. The most important one regards the behavior of the Gini coefficient in predicting the homicide rate (log). In their review of cross-national empirical literature on social structure and homicide, Trent and Pridemore (2012, 133) find the positive association of economic inequality and violent crime to be the most well-established link in homicide studies, with the Gini coefficient as the most commonly used operationalization (ibid., 128). Theoretically, this argument links mostly to the anomie framework (Savolainen 2000; Messner, Thome, and Rosenfeld 2008). Concerning the analyses conducted in this study (see Chapter IV.3), the effect of the Gini coefficient appeared to be somewhat ambiguous. To begin with, a fairly strong correlation (0.5) between the Gini coefficient and both the untransformed and log-transformed homicide rate became visible. Introducing the Gini coefficient as an independent variable in the regression models, however, did not confirm a positive effect. In the fixed effects models, the Gini coefficient remained mostly insignificant while introducing time-fixed effects implied a weakly significant negative effect on the homicide rate. Hence, it can be argued that the Gini coefficient may be a reliable predictor of homicide trends within countries over time. The Gini coefficient was indeed highly significant and positive, however, when calculated in the pooled

and between models. It may thus be a significant predictor of differences in homicide levels, not trends, between countries. This differentiation seems to have been overlooked in the literature, but surely bears important implications as to the conceptualization of structural perspectives in the context of homicide. From a methodological point of view, strong correlation and findings from pooled regression models may not be sufficient to conclude that the Gini coefficient bears positive effects on homicide (cf. Fajnzylber, Lederman, and Loayza 2002; cited in Trent and Pridemore 2012, 128). This hold especially true as homicide data is more easily comparable within countries over time. Differences between countries, on the other hand, are more prone to distortion by country-specific factors, e.g. differences in definition (Smit, Jong, and Bijleveld 2012, 7), counting rules (Aebi 2008), and varying sizes in the dark figure of crime that may relate to differences in the overall capacity of national criminal justice systems. Especially matters of capacity can be expected to be heavily linked to the very variables that are commonly employed to predict homicide rates which poses a severe problem when making global comparisons based on datasets, for example, that include both industrialized and developing countries.

As far as theoretical frameworks or variables other than economic deprivation and the Gini coefficient are concerned, Trent and Pridemore (2012, 133) had stated that "cross-national homicide studies largely fail to lead to any definite generalizations". This most widely tested frameworks follow the Durkheimian-modernization perspective (Nivette 2011, 104) and are most commonly operationalized by economic indicators, i.e. the GDP per capita. The majority of studies find negative associations which concurs with the findings of this study. Not only the correlation was negative but also the GDP/capita coefficients in all different types of panel models.

Other control variables included, for example, the percentage of urban population that was consistently positively associated with the homicide rate. Even though empirical findings as presented in the literature vary on this point, the finding is in line with theoretical expectations (Trent and Pridemore 2012, 129). The percentage of young male population (ibid., 130; also see Kivivuori, Savolainen, and Danielsson 2012, 96), on the other hand, was rather variant to the addition/omission of other control variables. This was especially for its strong correlation with the Gini coefficient, but also with the percentage of female labor force. The coefficient for the polity index (autocracy/democracy), eventually, remained insignificant throughout almost all of the models that were tested (cf. LaFree and Tseloni 2006).

VII.3. Limitations

VII.3.1. Availability and quality of data

A main limitation of this study relates to the availability and quality of the underlying data (also see section III.3.5). The matter of limited availability concerned the dependent variable (homicide rates) as well as the control variables. As the examination of homicide trends (IV.2) revealed, corresponding data was not stably available over time for most countries. The exception in that regard were especially the most industrialized countries, i.e. the early member countries of the OECD (U.S., Western Europe, Australia & New Zealand, Japan) for whom data was widely available since 1950. For other regions, data became increasingly available over time. The biggest problem was obtaining data for African countries (Marshall and Summers 2012, 42). It was not until the beginning of the 2000s that homicide rates for a larger number of countries could be included in the dataset. The data of the control variables exhibited equally problematic gaps. To make things worse, these gaps were not stably aligned with the gaps in the homicide data. Therefore, as for the full models (all control variables) which were calculated for the purpose of this research, the number of observations dropped considerably and led to the exclusion of many country-years for which homicide data was available.

Concerns also applied to the quality of the data. This regarded not only the homide rate, but also the data on terrorism and warfare. As already discussed in regard to the literature on links between economic inequality and violent crime, homicide rates are not easily comparable between countries. This may be attributable to differences in definitions of homicide and varying counting rules. When applying fixed effects models to compare homicide trends, such differences should not be of major concern as long as they do not apply to the same country over time. However, when the quality of the data is impeded, for example, by a general failure of certain countries to provide consistent time series, homicide trends become unintelligible. This posed a problem especially for African countries. A remedy was found in pooling data from different sources (Marshall and Summers 2012, 42), i.e. national, UNODC and WHO data. The comparison revealed, however, that different sources may exhibit somewhat considerable differences in the levels of homicide rates they do report. Especially for a number of African countries the resulting time series were rather erratic and as such unlikely to be indicative of actual trends.

Quality limitations also apply to the datasets on terrorism and warfare. The datasets were compiled from open sources over long periods of time. This links to different problems, e.g.

bias in the original news sources, different stadards as applied by different coders, and general increases in the availability of international news following the onset of the digital age. It may thereby be less likely to miss entire episodes of warfare. Many single events of terrorism and political violence, however, as contained in the Global Terrorsim Databse, may never have made it into the news. This regards especially those contexts in which terror attacks occur at a very high frequency, e.g. during civil war. In any case, as far as the dataset on violence magnitude scores from the Center for Systemic Peace is regarded, another problem was that the application of labels such as "indepdence", "civil", "ethnic", and "international" to different types of warfare and violence may not provide an accurate reflection of the complexities that drive many conflicts, especially as those categories were applied mutually exclusively to each episode of violence. The problem became rather clear when examining the warfare trends VI.1, but also when running models for different types of warfare which did not return consistent results.

VII.3.2. Omitted variables bias

A main problem in social research links to the existence of variables that are correlated with both the dependent and one or several of the independent variables, but not contained in the model (Clarke 2005). This leads to a correlation between the independent variables and the error term and therefore poses a problem of endogeneity. Variables may be omitted because their relevance in the context of the model is unknown, or the corresponding data is unavailable. When relevant variables are omitted, the coefficient of the variable of interest is biased. This problem surely applies to the study of homicide. As discussed, many of the determinants of homicide have not been clearly established and remain in fact unknown (Trent and Pridemore 2012, 133). The rationale for applying fixed effect models is precisely to reduce the problem of omitted variables. In the individual fixed effects model, this regards those variables that are constant within units (countries) over time while adding time-fixed effects also captures those omitted variables that vary over time, but apply equally to all units. The omitted variables bias can thereby be significantly reduced, but not resolved (Phillips and Greenberg 2008, 52).

The results presented throughout this study revealed that the addition of fixed effects to the calculations effectuated changes to the coefficients of interest. Compared to the pooled models, the fixed effects models exhibited much lower levels of explained variance. This is because the variance attributable to the fixed effects is not counted as explained variance in the context of

the model. If there are omitted variables, this variance is wrongfully attributed to the independent variables contained in the model, and the coefficient of determination is inflated.

The findings also exhibited drops in the strength of the coefficients of interest when unit-fixed and time-fixed effects were added to the calculation. The standard error remained largely unaffected by this which indicates that omitted variables were indeed moderating or mediating some of the effect between the independent variables of interest and the homicide rate.

VII.3.3. Reverse causality and simultaneity

Another problem of endogeneity is caused by either reverse causality or simultaneity. These biases occur when the independent and the dependent variable are indeed associated, but the independent variable does not actually influence the dependent variable. Instead, it could be the other way around (reverse causality), or the independent and the dependent variables may de facto influence each other (simultaneity). As in the case of omitted variables, this leads to correlation between the independent variable and the error term. The problem could be approached by using instrumental variables. Such a variable would need to be 'relevant', meaning it is (strongly correlated) with the independent variable (collective violence). It also needs to meet the exclusion restriction requirement, meaning it bears no direct effect on the dependent variable (homicide) (Becker 2016, 4; also see Bushway and Apel 2010). Unfortunately, such a variable could not be identified. From a social-structural perspective, it is doubtful whether such a variable exists. Thus it proved impossible to address the causality problem with instrumental variables, or in the more evolved form of the generalized method of moments (Hall 2005). Alternatively, the problem is also often approached by simply lagging the independent variable of interest (Bellemare, Masaki, and Pepinsky 2017), as has been done in several models presented in this study. Reverse causality cannot be ruled out in this manner (ibid.), however, but needs to be discussed from a theoretical perspective.

VII.4. Interpretation of findings in light of 'legitimation of violence'/'legitimation-habituation'

As outlined in section VII.1 of the discussion, a main aspect of the research question, namely as to whether varying instances of collective violence are positively associated with criminal violence, can be answered positively. This leads to the second part of the research question, namely how this association could be explained.

The main theoretical framework in explaining the relationship between collective violence and homicide that had emerged from previous criminological studies centered around whether warfare legitimizes violence and it thus turns into a more accepted means of interaction among members of society in everyday settings. In studying the effects of warfare on postwar homicide rates, Archer and Gartner (1978) have named this the 'legitimation of violence' hypothesis. On the example of prolonged states of warfare in Israel, Landau and Pfeffermann (1988) subsequently widened the approach to incorporate security stressors of different kinds, including terrorism, and referred to it as 'legitimation-habituation'.

However, a main problem with the 'legitimation of violence'/'legitimation-habituation' framework is that it does not represent an elaborated model on how mechanisms of legitimation, generalization and habituation of violence may lead to elevated homicide rates. The assertion is merely that there could be a direct influence of collective violence on criminal violence, as opposed to, for example, mediation through economic impact and other fallout from conflict. In this sense, the results presented in this study lend prima facie support to the 'legitimation of violence'/'legitimation-habituation' framework. Both terrorism and warfare were continuously and positively associated with higher homicide levels.

As far as warfare is concerned, it became apparent that the positive effect is not limited to nation-wars as studied by Archer and Gartner (1978). Next to international warfare, the dataset provided by the Center for Systemic Peace allowed for the inclusion of additional types, i.e. independence, civil and ethnic warfare. The scope of the 'legitimation of violence' hypothesis can thus be extended to more inclusive understandings of conflict (cf. Kaldor 1999, 2013; Smith 2008) and thus applied to settings that account indeed for the majority of wars in the world, i.e. ethnic and civil wars in developing countries.

This is somewhat in line with Landau and Pfeffermann's (1988) aspiration to widen the scope of the 'legitimation of violence' hypothesis to include general security-related stressors associated with a prolonged state of warfare in Israel. One problem with the authors' approach is thereby that the focus on one country limits the generalizability of the findings. The results presented on the effects of terrorism on homicide in this study, on the other hand, incorporated a large number of countries over extended periods of time which lends general support to the 'legitimation-habituation' hypothesis throughout a variety of different national contexts.

A further problem with Landau and Pfeffermann's (1988) work was that, under the umbrella of security-related stressors, they missed to distinguish terrorism and warfare as to the distinct

effects that each may have on homicide. Landau (2003) eventually adopted the 'legitimation-habituation' hypothesis by making specific reference to terrorism as the independent variable. This was foremost a conceptual revision, however, and was not accompanied by a rigorous empirical update. The analyses presented in this study allowed to address this issue by applying different datasets and running separate models for each terrorism and warfare. To a certain extent, this allowed for a comparison of the strengths of both effects. In terms of an elastic (log-log) relationship, it appeared that the effects of terrorism on homicide were somewhat more pronounced than the effects of warfare, i.e. 0.24 percent as opposed to 0.14 percent increases in the homicide rate for every 1 percent increase in the terrorism mortality rate and warfare magnitude score respectively. This comparison is complicated, however, because of the correlation between warfare and terrorism. As the examination of trends in terrorism and warfare has shown, the vast majority of terror attacks occur in fact in conflict settings, especially during civil war. This relates to problems in defining terrorism (Dechesne 2012, 217), especially when trying to distinguish it from political violence. To isolate the effects of terrorism on homicide more clearly in this regard, separate models were run for those country-years that did not exhibit occurs of warfare. This caused the terrorism mortality rate (log) coefficient to grow much stronger. Also, the regional models for Europe and the group of non-European countries implied that the effect of terrorism on the homicide rate may be stronger when warfare is accounted for.

Archer and Gartner (1978) offered some speculations as to how specifically 'legitimation of violence' may take effect. This would be, for example, the spillover of officially sanctioned violence to the civilian population. The authors also highlight the role that changes in the depictions of violence may play in this regard, e.g. in the news, commercials, children's books, etc. Alternatively, war may cause larger numbers of homicide "simply though the awareness that violent homicides (in the form of soldiers killed in combat) are occurring during war" (ibid., 960) which in turn is communicated to the population in a variety of ways. Besides that, as highlighted by Archer and Gartner, a major aspect of 'legitimation of violence' may eventually link to state authority as a main reference point in shaping the values and beliefs of citizens. By codifying them as crimes, violent acts are—under normal conditions—ostracized as socially unacceptable behavior. During wartime, however, violent acts are enforced by the government in the form of war-related killings, and committed on behalf of the community. Societal support for this is secured by engaging in war propaganda and mobilizing the population. Rather than seen as deplorable losses, the killing of enemy soldiers may be

communicated as favorable to the war goals while the own soldiers who engage in killings may be depicted as heroes. All in all, "this wartime reversal of the customary peacetime prohibition against killing may somehow influence the threshold for using homicide as a means of settling conflict in everyday life" (ibid.)

As apparent, Archer and Gartner's accounts are strongly oriented to the explanation of increases in homicide rates after nation-wars, and operate on the assumption of rather modern societies with well-established statehood. When thinking about warfare outside the Western world, many of these aspects seem in principle relevant, of course. At the same time, however, conflict in developing countries may be characterized by rather elusive forms of political and ethnic divide. The role of governments as central authorities and societal points of reference may severely change under such circumstances. In fact, as the examination of warfare trends has shown, international wars made only for a small share of all wars that occurred during the observation period. This bears implications as to how 'legitimation of violence' may take effect in areas of limited statehood (Risse 2013), as will be discussed in section VII.6 ahead. Overall, the question as to how the positive association of collective violence and homicide could be explained remains difficult to answer. To begin with, this is not only because the direction of causality may be hard to establish from a methodological standpoint (reverse causality bias). In coming up with ways in which the effect of warfare on homicide may be mediated, any of the aspects raised by Archer and Gartner are essentially very complex to test for. It is already challenging to compile reasonably complete country-year data on the dependent and independent variables of interest, as well as control variables that may influence both. In this regard, addressing aspects such as war propaganda or the role of governments, news and entertainment during wartime, seems a rather impossible task. As long as sophisticated datasets do not become available, these issues may at best be addressed in case studies while generalizations remain difficult.

Another problem in analyzing 'legitimation of violence', or 'legitimation-habituation' for that matter, links to the distinction between different forms of collective violence, i.e. warfare and terrorism. As became clear from the literature, the theoretical framework for both is in fact the same. Empirical support, however, is based merely on the establishment of a positive association with homicide, but not on ways in how the effect would be mediated. Next to the overlap between terrorism and certain forms of warfare, the effect of both on homicide may actually be caused by various mediators. Landau and Pfefferman (1988) refer to violent incidents as security stressors which, again, points to the role of the media in reporting about

terrorism and warfare. When it comes to the role of governments in legitimizing violence, however, the question pops up as to what drives homicide rates: the occurrence of terror attacks, or the way in which governments respond to these attacks? Some governments feel prompted to fight terrorism in the form of war on terror which usually implies the sanctioned killings of terrorists; others may favor to leave the countering of terrorism within the confines of criminal justice systems. As has been discussed in the introduction and section I.1 on definitions of crime, this differentiation is somewhat constituent to criminology—and marks the border between the exceptional and the normal legal order, or the external and internal dimension of security, for that matter (Aradau and Munster 2007, 2009, Bigo 2001, 2016; also see section I.5). In terms of the effects of collective violence on homicide, the wider context here is that previous anthropological studies spoke of links between internal and external conflict (LeVine and Campbell 1972; Collins 1974; Sipes 1975; cited in Ross 1985, 550) rather than warfare and criminal violence. Landau and Pfeffermann's addition of the term habituation to the 'legitimation of violence' hypothesis, for example, rests on Ross' (1985) work on the relationship between external and internal conflict and violence. For the purpose of the present study, the differentiation between international and domestic terrorism did not reveal significant results. Nevertheless, similar to the distinction between international and civil war, it may be important to further address differences between international and domestic terrorism. More importantly, however, the blurring of internal and external security raises the question as to whether countries should be the preferred units of observation. There is in fact no fundamental reason to believe that the effects of collective violence on homicide should be constrained to within countries. One may similarly assume that warfare and terror attacks may affect the homicide rates in neighboring countries (cf. Salib 2003; Carreras 2012), or may for example, be embedded in rather complex transnational cycles of violence. This also links to matters of conflict transformation (Carment 1994, 567; Carment, James, and Taydas 2009), i.e. how one type of conflict may be transformed into other types of conflict. Warfare in one country, for example, may lead to terrorism in another or vice versa. This would imply rather complex causal chains that would surely have an effect on homicide rates. However, because of methodological and data constraints, such topics could not be explored in the present study. Thus, establishing at level of country-years that there is indeed a positive link between collective violence and homicide can only be regarded as a first step in addressing the intricate relationship between warfare, terrorism and homicide.

VII.5. Cultural understandings of violence

As discussed, the 'legitimation of violence'/'legitimation-habituation' framework does not provide a full-blown theory as to how the effect of warfare and terrorism on homicide may be mediated. Apart from that, the scope of the hypothesis is foremost criminological, namely the explanation of homicide, or criminal violence as operationalized by homicide. While a positive association between different types of collective violence and homicide could be established in the present study, the foregoing discussion has shown that the link cannot be explained easily. The 'legitimation of violence'/'legitimation-habituation' framework may in fact be insufficiently complex in assuming a simple causal connection that leads from collective violence to homicide. Instead, the model may be understood more readily in terms of a partial theory that fits into a wider concept of culture of violence.

To remember, Mullins and Young (2010) had aspired to predict terrorism by the general levels of violence in society and had found a positive association for different types of violence. Building on Landau and Pfeffermann's (1988) and Ember and Ember's (1994) work, they referred to the 'legitimation-habituation' framework as the most probable explanation, but the logic was somewhat reversed. Mullins and Young's hypotheses were that warfare, state-sponsored executions and homicide would be positively associated with terrorism. Homicide was thereby used as an indicator of culture of violence, not as the dependent variable. While concluding that societies that "experience higher levels of violence overall, be it interpersonal or political, experience higher levels of terrorism", the authors are very careful in drawing any theoretical conclusions: "This suggests that there are some common underpinnings to violence in general" (Mullins and Young 2010, 22).

Now, is there any point in seeking a causal explanation as to the positive association of collective violence and homicide, or should any types of violence simply be understood as expressions of a 'culture of violence' that sustains itself? Or put differently: Are warfare, terrorism and homicide indicators of the same phenomenon, namely a culture of violence? This is what Elwert (2003, 277) seems to be implying when he refers to a "quest for causes" and a "widespread hope that violence has roots", but points out that it would make no sense to identify specific roots of violence if violent systems, e.g. culture of violence, were to be seen as part of the social system. This makes for an interesting cross-connection to the evolutionary theories of violence that have been outlined in section I.4. If violence were simply a given fact, e.g. a product of evolution and as such a constant attribute of social systems, then any acts of

violence would simply be continued expressions of the same thing. Such an explanation seems relevant in so far as it may be impossible to weed out the roots of violence (ibid.), and that violence indeed continues to be a constant feature of human interaction. However, a second glance reveals that any call to end research on the causes of violence is fairly unwarranted. Even though violence may be considered a permanent feature of social systems, the comparison of violence levels over time and between places exhibits considerable variation. As the foregoing examination of trends has shown, this regards all types of violence that have been subject of the present study, i.e. warfare and other major episodes of political violence, terrorism, and homicide. These variations are surely not random, and thus 'culture of violence' ought not to be seen beyond cause.

As discussed in section II.3, Steenkamp (2005), for example, sought to conceptualize 'culture of violence' in order to explain violence after peace accords as a legacy of war. Culture, in its non-material dimension, is thereby understood as "beliefs, norms, values, customs and knowledge created by the community and shared by its members" (ibid., 254). According to the author, factors contributing to 'culture of violence' are dispersed over several levels that range from the individual to the international level. The official use of violence is thereby located at state level, more specifically the state security apparatus, but also at the political government in the form of glorification of violence. This is precisely where Archer and Gartner's (1978) main contention in regard to the 'legitimation of violence' hypothesis fits in (cf. Steenkamp 2005, 258).

The concept of 'culture of violence' stems from political science. It is easily connectable, however, to the prevailing criminological theory on subculture as most prominently laid out by Cohen (1956) in the tradition of the Chicago School and applied specifically to violence and homicide by Wolfgang, Ferracuti, and Mannheim (1967). The differences between culture and subculture of violence are not fundamental, but mostly a matter of scale which forms precisely around the disciplinary divides that distinguish criminological understandings of violence from other definitions (see CHAPTER I). In criminology, cultures—or subcultures for that matter—are defined on the extent to which they deviate from overall cultural norms in a given society. In a criminological context, this regards, for example gangs (Cohen 1956) or shared subcultures of violence among ethnic groups that account for differences in violent crime rates at neighborhood level (cf. Albrecht 2003, 621; also see Messner 1983), but also a regional 'culture of violence' that may explain elevations in violent crime rates in the Southern states of the U.S. (Gastil 1971; Nisbett 1993; Nisbett and Cohen 1996). As opposed to this, both 'culture of

violence' in a political science context and the 'legitimation of violence'/'legitimation-habituation' hypotheses as presented by Archer and Gartner (1976) and Landau and Pfeffermann (1988) are concerned with overall values and beliefs in society. This points to a weak point in subcultural theory, namely a rather static juxtaposition of unfavorable subcultures that would be shared among somewhat marginalized strands of society, and that in contrast the majority of the society is characterized by favorable norms and beliefs. Already when studying differences at neighborhood level, this divide seems questionable. When moving the perspective to the global theatre of violence, on the other hand, a subcultural perspective seems without merit. What would be the benchmark of overall values and beliefs on violence? In the end, rather than speaking of subcultures of violence, one may easily come the conclusion that certain regions may be characterized by subcultures of non-violence. Not only when comparing differences between countries, but also historically speaking, this may be the more correct account. Hence, subculture theory and 'culture of violence' may share similar assumptions. In its reliance on a distinction between subculture and culture, however, the former seems ill-suited to be adapted to the explanation of links between warfare and homicide. If overall values in society are the relevant measurement category, a better way of connecting 'culture of violence' to criminological theory may be, for example, through Merton's structural-functional framework of anomie. Merton (1968, 45) thereby defines deviant behavior as a configuration of cultural goals and institutionalized means. The most relevant adaptation to strain in the context of warfare and homicide is 'rebellion' which refers to the rejection and substitution of both societal means and goals.

To sum up, the findings from the present study that confirm a positive association of collective violence and homicide lend prima facie support to the 'legitimation of violence'/'legitimation-habituation' hypotheses. From a theoretical perspective, however, it seems favorable to integrate the hypotheses into a wider context of 'culture of violence'. This would allow to take different causal directions into account and situate the effects that collective violence may bear on homicide alongside other questions, e.g. how terrorism may affect warfare and vice versa. Still, also within a 'culture of violence' framework it seems logical to assume that homicide would remain the independent variable. While conceding that collective violence should not be regarded as the only factor that leads to culture of violence, Steenkamp upholds that the main causal direction would be from warfare to homicide in that "war lends legitimacy and widespread exposure to violence and these would certainly contribute to a social habituation to violence" (Steenkamp 2005, 265).

VII.6. Reasoning about mediators of the effect of collective violence on homicide

As has been outlined, a main shortcoming of previous works on the 'legitimation of violence'/'legitimation-habituation' hypotheses is clearly that the mediators of the effect of collective violence on homicide are not addressed in the models. The present research could not provide remedy to this, nor does the application of a more diversified 'culture of violence' framework shed immediate light on the issue. Nevertheless, it appears to be advantageous to continue reasoning on how 'culture of violence' may be mediated.

Archer and Gartner (1976) were frank in admitting that any of their accounts of how collective violence may drive homicide rates were speculative (ibid., 958). To remember, the cardinal point of their argument was that the official use of violence would legitimize violence overall. They also referred to the role of media and entertainment in that regard, but also the possibility that the mere awareness of ongoing warfare may be enough to trigger higher homicide rates.

Any of these speculations are in fact based on dissemination of knowledge, i.e. the transportation of information about the occurrence of collective violence to the population. It should be kept in mind that the datasets underlying the independent variables of interest in the present study, i.e. the Global Terrorism Database and the CSP dataset on major episodes of political violence, were entirely extracted from news reports. Indeed, news would be the most instantaneous mediator of the effect of collective violence on homicide, be it newspapers, television, or digital content. This links to the question on how the news report about war (Allen and Seaton 1999; Allan and Zelizer 2004; Matheson and Allan 2009), and how governments can influence this reporting, e.g. by means of war propaganda, embedded journalism or internet trolling as a form of cyber warfare (Hiebert 2003; Tuosto 2008; Aro 2016).

Given the evolvement of social media, one may also speculate that the new ways of sharing information among individuals could play an important role in shaping how information on collective violence is transported. This regards not only the sharing of news content, but also the increasing relevance of user-generated content in war reporting, for the example in the context of the Syrian civil war (Varghese 2013). More generally speaking, the phenomenon of user-generated news has been referred to as citizen journalism (Allan and Thorsen 2009). The lines between journalism, in the sense that information is catered to passive recipients, and citizens producing everyday information that shapes the dynamics of conflict, are in fact blurry. In regard to the uprisings of the Arab Spring, Cottle (2011) for example makes reference to the terms "twitter revolutions" and "facebook revolutions".

Besides news reporting on war, Archer and Gartner (1976) referred to the possible role of entertainment in legitimizing violence. They cited, for example, a study by Huggins and Straus (1975) who found that violence in children's books increases during wartime. There is also research on how warfare influences the content of movies (MacDonald 1978; Koppes and Black 1990; Gibson 1994). Some scholars even refer to a military-entertainment complex that extents not only to movies, but also to video games (Robinson 2012). In section II.4, the wider implications of this have already been mentioned in regard to psychological studies about links between media violence and aggression, be it on youth or society in general (Freedman 2002; Anderson and Bushman 2002b; Anderson et al. 2003). However, clear causal relationships could not be established, but experimental studies frequently report that subjects exposed to violent contents exhibit at least short-term increases in aggressive behavior. In bringing the matter to the field, Dahl and DellaVigna (2009) tested whether violent movies increase violent crimes and made an interesting finding. Rather than short-term increases in violent crime, they found that larger audiences in violent movies were associated with short-term drops in violent crime rates. They interpreted this as voluntary incapacitation (self-selection into violent movie attendance). While watching the movies, they were thus incapacitated to engage in violent crimes. This finding, of course, bears no relevance in terms of how 'culture of violence' spreads, but definite findings about long-term effects of media violence on violent behavior have not been presented so far.

All the above-mentioned aspects regard different channels in which information about occurrences of collective violence may reach individuals, either as accounts of reality (news) in the short term or routed through cultural commodities in the mid- to longer term as different forms of entertainment. Longer-term effects of collective violence on violent crime have also been discussed as a matter of socialization, e.g. by Ember and Ember (1994). Besides rather indirect forms in which 'culture of violence' may spread, it should not be forgotten, however, that the process may also take a rather direct turn. Archer and Gartner discussed, for example, the 'violent veteran model'. While they found that violent veterans may increase the homicide rate in postwar societies, they found that the model was insufficient as an overall explanation of the positive association between collective violence and homicide. The examination of warfare trends in the present study revealed, however, that compared to many nation-wars (except for the World Wars), episodes of civil and ethnic violence could reach an equally considerable over even higher magnitude, overlap with genocide and terrorism, and extent over significant periods of time. Depending on the setting, this implies that large parts of the

population may be directly exposed to violence over the course of extended periods of collective violence, be it as perpetrators, victims or both. It seems likely that such direct exposure to violence would be a source of 'culture of violence' in itself. In a series of studies about child and other soldiers in Uganda and Congo, for example, it was found that their exposure to combat had actually created an 'appetite for aggression' (or 'appetitive aggression') (Hecker et al. 2012; Weierstall, Schauer, and Elbert 2013; Elbert et al. 2016). Also the matter of violent veterans remains on the research agenda and is often discussed in regard to links between posttraumatic stress disorder (PTSD) and violent behavior (Beckham, Feldman, and Kirby 1998; Taft et al. 2005; Marshall, Panuzio, and Taft 2005).

The importance of any of the above-mentioned matters in serving as mediators of collective violence is not limited to warfare, of course, but equally regards terrorism. Terrorist strategies are in fact oriented to creating media attention and intimidate the public (LaFree and Ackerman 2009, 347). In section II.4, common strategies pursued in terrorism have been discussed in regard to terrorism contagions (Nacos 2010) and their conceptual vicinity to the contagion of criminal violence (Berkowitz and Macaulay 1971).

VII.7. Violence and limited statehood

As outlined in section III.1, major consideration was to be given to the interpretation of results between world regions, and in how the findings could be interpreted in regard to escalations of violence in transitional and developing countries.

The comparison between world regions remained somewhat difficult. In case of the effects of terrorism on homicide, only the analysis for Europe produced significant results. The reasons for this may be technical in the sense that they link to a lack of quality and availability of data for certain world regions (see sections III.3.5 and VII.3.1). The models may simply have lacked statistical power. Most full observations were in fact available for European countries. They accounted for almost half of all full observations. With less than 100, on the other hand, the lowest number of full observations was available for African countries. This led regression analyses for African countries to fail the F test. Now, when grouping all regions other than Europe together, the coefficient was positive and significant, but only at $p < 0.1$ level. Calculating the same model for countries outside of Europe while excluding country-years that exhibited warfare led to a significant rise in the terrorism mortality rate (log) coefficient (significant again at $p < 0.1$). Lagging the independent variable, eventually, produced a stronger

and more significant result. Apart from technical reasons, a fundamental explanation of this finding may be that the effects of terror attacks on homicide could be generally stronger when the overall levels of terrorism are lower. One could speculate that a certain number of terror attacks may be enough to induce a culture of violence. Additional attacks would then not have equally strong effects. The same may hold true for countries that are already experiencing warfare. A 'culture of violence' may thus already persist while the additional occurrence of terror attacks would not be significant. This would explain, for example, why the coefficient's strength rose when country-years that exhibited warfare were excluded from the analysis. Also, the elasticity (log-log) of the relationship between the log-transformed independent and dependent variable has to be noted in this regard. When levels of terrorism are higher to begin with, additional attacks make for lower percentage values as expressed by the coefficients. At the same time, the underlying mortality rates reflected by the coefficients may be higher than the corresponding values in settings where the overall level of terror attacks is low (e.g. in Europe).

In case of warfare, the situation was somewhat reversed. Almost all variance in warfare magnitude was confined to countries outside of Europe. Therefore, it wasn't even possible to calculate the corresponding coefficient for a European model. For lack of statistical power, the coefficient for warfare magnitude was not significant when calculated separately for the other regions. It was highly significant, however, when calculating both the overall model and a clustered model for countries other than Europe. This outcome, of course, cannot be interpreted in regard to Europe, but applies to those countries in the dataset that experienced warfare which are typically developing countries that experienced civil and ethnic warfare.

In order to interpret findings about increases in homicide as a results of collective violence in developing countries, the concept of 'governance in areas of limited statehood' (Risse 2006, 2013) has been outlined in section I.5. The defining feature of 'areas of limited statehood' is that the ability of governments to enforce central decisions is impeded or inexistent. This does not only imply that the state monopoly of violence is not established in those areas, but also points to the role of non-state actors in filling these roles. While the monopolization of violence is typically marked by the absence of (political) violence, war is certainly to be described as an extreme form of limited statehood. This bears severe implications on many factors that seem relevant in driving crime and homicide for that matter. To begin with, this would be the rather direct exposure to violence. The potential relevance of exposure to violence in mediating 'culture of violence' has been discussed in the foregoing section VII.6. However, relevance

must also be given to factors outside a specific cultural understanding. This could be different forms of strain, e.g. economic impact. The common control mechanisms on (violent) crime that the state provides would be constricted or cancelled out. The advantage of the framework of 'governance in areas of limited statehood' in theorizing about such conditions is that it does not operate on a simple dichotomy of well-established states on the one side, and failed states on the other. It also defies the idea that limited statehood would be characterized by chaos and the absence of order. The logic of violence could rather be characterized by what Tilly et al. (1985) referred to as war making and state making as organized crime (see section I.5), namely a process in which single actors and groups engage in the monopolization of violence, precisely by exerting violence. Depending on the setting, this may include state actors, but would also involve warlords, terrorist organizations or organized criminal groups that emerge as sovereign actors (Rossi 2014; Ernst 2015). The overall process of state making could be situated within Norbert Elias' civilization theory that provides, in fact, a comprehensive and historically informed cultural theory that has widely been applied to the study of homicide (Kivivuori, Savolainen, and Danielsson 2012, 100).

Now, does 'governance in areas of limited statehood' harmonize with a cultural understanding of violence? Steenkamp (2005, 256) actually subsumes any of the above- mentioned characteristics of limited statehood under manifestations of culture of violence, in this case located at state level under the security apparatus (official use of violence, extrajudicial actions, devolved use of violence), and under judiciary/law and order (inefficient criminal justice system, weak state control, impunity for past violence/atrocities). This speaks to the holistic pretense of the 'culture of violence' framework, but also a danger becomes apparent. In understanding any acts of violence or non-violence for that matter as cultural expressions, the original argument as outlined in the 'legitimation of violence'/'legitimation-habituation' hypotheses of how collective violence may affect homicide becomes blurred. The argument was that collective violence affects the common norms and beliefs of everyday members of society as to how the apply violent means in everyday settings. Rather than subsuming everything under culture of violence, it may be worthwhile to clearly distinguish, on the one side, 'culture of violence' as violent norms and beliefs—and features of limited statehood on the other side, but not necessarily as manifestations of 'culture of violence' itself, but as the conditions under which 'culture of violence' manifests. Depending on the conditions, the same cultural norms and beliefs may actually lead to very different actions. Violent acts are thus not only expressions of violent beliefs, but also of other common factors of criminological

relevance. From an anomie perspective, these are for example the socioeconomic conditions that situate violence vis-à-vis the availability of other institutionalized means to reach goals. But also, the ability of governments to counter violence plays a decisive role, namely in determining the cost-benefit analysis of resorting to violence.

The idea of areas of limited statehood provides, all in all, an ample framework to analyze different ways in which collective violence may influence criminal violence and crime in general. It thereby thwarts a key limitation of criminological theories that has been discussed in section I.1, namely their reliance on well-established statehood as the conceptual reference point. Among criminological theories, the closest counterpart of areas of limited statehood would surely be social disorganization theory. Like subcultural theory, social disorganization theory has emerged from the Chicago school to explain elevated crime rates in specific urban neighborhoods that are characterized, for example, by population heterogeneity, poverty, and residential instability (Kivivuori, Savolainen, and Danielsson 2012, 98). In order to explain increases in terror attacks, Fahey and LaFree (2015) applied social disorganization to the level of countries and characterized it as a function of revolutionary and ethnic war, adverse regime change, and genocide (ibid., 81). As opposed to this, when studying the effects of collective violence on criminal violence, it may be more useful to resort to the more fine-tuned and somewhat politically informed concept of areas of limited statehood rather than overstretching the original context of social disorganization by applying it to the level of countries.

Within the confines of this study, the discussion of 'governance in areas of limited statehood' should be regarded as a theoretical outlook. It was not the purpose of the research design to provide for rigorous testing on how governance modes influence homicide rates. Nevertheless, at least as regards warfare and other major episodes of political violence, the independent variable of interest itself can be seen as a strong indicator of limited statehood. Besides that, of course, the use of the term governance refers to different modes of political resource production. The polity index, a measurement of autocracy/democracy, had therefore been added to the models. This did not produce any major effect, either on the coefficients of interest or as a significant predictor of homicide itself (cf. LaFree and Tseloni 2006).

VII.8. Policy relevance

Both the empirical support for a positive association between collective and criminal violence as well as the theoretical outlook as discussed in regard to 'culture of violence' and 'governance

in areas of limited statehood' bear policy implications. These implications concern international policies to prevent violence.

As discussed in section I.4 on violence and public health, the WHO has outlined violence as a health problem, but more importantly as preventable (WHO 2002, 4)[25]. According to the WHO, the development of sustainable prevention strategies needs to be based on the uncovering of as much basic knowledge as possible about all aspects of violence, incl. the reasons why it occurs (ibid.). In this sense, findings of the present study bring a relevant contribution in this area of research. They support the idea that different types of violence may influence each other, i.e. that warfare and terrorism are contagious not only by feeding into themselves and each other, but also by driving criminal violence. Thus, a global and integrative perspective both in studying and preventing violence is clearly warranted.

The outline of violence as a public health problem dates back more than 20 years by now.[26] It seems, nevertheless, that criminology has been slow in responding to the corresponding challenge of studying criminal violence vis-à-vis other forms of violence. This seems to be changing now as criminologists are increasingly interested in matters of terrorism. In particular, an upcoming special issue of *Homicide Studies* ("The Intersection between Homicide, Terrorism and Violent Extremism") promises to be insightful in that regard.[27] Also the next UNODC Global Study on Homicide is rumored to prominently address links and intersects between homicide and collective violence. This prioritization should be seen as paradigmatic for future criminological research on links between collective and criminal violence. For now, however, at least the study of warfare remains at the sidelines of the criminological research agenda.

While a positive association between collective and criminal violence is supported by the present study, the explanation of how exactly effects of warfare and terrorism on homicide are mediated could only be addressed in the form of a theoretical outlook. This has borne two frameworks which seemed particularly well-suited to being adopted for criminological purposes, i.e. 'culture of violence' and governance in areas of limited statehood. Both point to

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[25] Cf. Krug, Mercy, Dahlberg, & Zwi, 2002; WHO, 2010; WHO & UNODC, 2014

[26] See World Health Assembly Declaration 49.25 "Prevention of violence: a public health priority", Geneva 20-25./05/1996

[27] Homicide Studies – Call for manuscripts --Special Issue: The Intersection between Homicide, Terrorism and Violent Extremism (February 2018 issue), http://journals.sagepub.com/pb-assets/cmscontent/HSX/HSX_CFP_AUG2016.pdf, accessed 02/05/2017

different but interlinked angles where effective violence prevention strategies could be targeted. If collective violence cannot be prevented to begin with, a relevant question would be, for example, how its cultural spread could be limited. Many forms of collective violence are answered with belligerence, typically accompanied by narratives that mobilize the population. In this sense, responding to terror attacks or violent organized criminal groups by resorting to war does not seem effective to prevent the cultural spread of violence. Also, a governance perspective would suggest that, wherever warranted, conflict may be best responded to within the confines of criminal justice systems as to not to be devolved into the logic of the military that may eventually weaken the state institutions overall. Of course, this does not mean that the employment of military resources would always be unwarranted. However, it should not be the outcome of political opportunism, but of careful cost-benefits analyses aimed at preventing contagions of violence. This also implies that once wars have been fought, the main priority ought to be the rebuilding of state institutions including the capacitation of security apparatuses on the principle of good governance and rule of law.

Any of the above-mentioned insights on how to prevent violence, of course, are not new. They are the result of decades-long examination in peace and conflict studies (see section I.6) and have made it into international peacekeeping strategies as well as recently to the UN's official development agenda.[28] Corresponding to these policies, it seems important to bring matters of conflict and crime to the criminological mainstream, make them subject to empirical study, and thus advance a both global and integrative criminological perspective on violence (see section I.1).

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[28] In the UN's post-2015 development agenda, sustainable development goal (SDG) 16 addresses "peace, justice, and strong institutions". It foresees, for example, to "promote the rule of law" and to "significantly reduce all forms of violence and related death rates everywhere". Specific reference to terrorism is made in target 16.A: "to prevent violence and combat terrorism and crime" – https://sustainabledevelopment.un.org/sdg16, accessed on 15/02/2017

Conclusions

A number of objectives were outlined at the beginning of this study. The first objective was to generate new findings on links between different forms of collective violence and homicide. Support for an association of collective violence and criminal violence could thereby be found. Following previous works on the influence of nation-wars on homicide rates, it could be established that also more elusive forms of warfare, i.e. civil and ethnic wars outside the Western world, are positively associated with homicide rates. As for terrorism, this subject matter (whether terror attacks influence homicide rates) has been addressed empirically for the first time from a cross-national perspective. The findings suggest a positive association of terrorism mortality rates and homicide rates.

The second objective of the study was to contribute to the theoretical explanation on how positive links between collective violence and homicide could be interpreted. Previous studies had hypothesized that criminal violence increases as a function of wider 'legitimation of violence' when governments engage in warfare. Besides that, collective violence (be it warfare, prolonged states of belligerence, or terrorism) may spread because ordinary citizens habituate to it and are subsequently more prone to resort to violent means in resolving everyday conflict. The results presented in this study provide tentative support to both the legitimation and habituation argument. The problem, however, with both arguments is that the ways in which the effect of collective violence on criminal violence is actually mediated continues to remain in the dark. Even though a positive association could be confirmed, it turns out to be difficult to establish causality. Without giving up the argument of a causal direction from collective to criminal violence, the theoretical discussion generated the benefit of situating the legitimation and habituation arguments within a wider framework of 'culture of violence' that incorporates varying causal directions both between different forms of collective violence as well as with criminal violence.

This leads to the third objective that was pursued, namely to widen the scope of contemporary criminological explanations of homicide vis-à-vis other forms of violence. The topic pointed to the relevance of two major criminological frameworks, namely subculture and social disorganization theory. The theoretical discussion revealed, however, that for their specific history of origins, both seem eventually ill-suited to address links between collective and criminal violence. Indeed, the 'sub' in subculture and the 'dis' in social disorganization imply

a need to enrich criminological understandings with frameworks from political science, and situate both under the umbrella of an integrated violence research agenda. Two concepts from political science were discussed as being particularly suitable for this purpose, firstly for their applicability to the research problem, and secondly for their proximity to the aforementioned criminological frameworks. While the underlying assumptions may be similar, (1.) 'culture of violence' strips subcultural theory from any hierarchical connotations of different strands of society, and opens the perspective to seamless spread of violence that is labeled 'legitimate' and/or 'criminal'. Similarly, (2.) 'governance in areas of limited statehood' defies the notion of the absence of order under transitional conditions that resonates with social disorganization theory—and steers the focus to alternate systems as well as to the regulatory functions that may apply to the use of violence by state or non-state actors in areas of limited statehood, including terrorists or criminal groups.

The final objective of this research had been to contribute to a global perspective in criminology. At the beginning of the study, a number of different perspectives in criminology had been discussed. Global criminology has been defined as the merging of transnational and comparative research from all world regions with a view to building a globally inclusive and cosmopolitan discipline (Bowling 2011, 1). This study has tried to address this pursuit in a number of ways. First of all, it is reflected in the choice of the topic itself. If there is a positive association between collective and criminal violence, and many regions in the world suffer from collective violence, then criminology needs to address this link. Ever since collective violence has become rare in the Western world however, this exploration has rarely happened and has left previous works outdated. A second aspect of advancing a more global perspective in criminology leads to the above-mentioned widening of common theoretical approaches. All major criminological frameworks have evolved to explain everyday crimes in the developed world, meaning a context of functioning statehood. The aim of the theoretical discussions presented in this study was to elaborate on different ways in which criminology can be oriented nearer to the reality of crime in developing and newly industrialized countries, and in this way become more global.

While all of the objectives that were outlined at the beginning could be met, the results and the theoretical discussions presented in this study could only provide a first and rather general idea on how to deepen the criminological understanding of links between collective and criminal violence. Further research is needed on many of the aspects introduced by this study. Among other things, this includes the specification of mediators; the introduction of transnational

effects; a further differentiation of the different features and types of both collective and criminal violence; and eventually the elaboration of more intricate chains of cause and effect that may ultimately drive the contagion of violence.

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