



# A More Peaceful World?

Regional Conflict Trends and  
U.S. Defense Planning

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## Preface

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This report documents the findings of the Conflict Trends and Propensity for U.S. Intervention project. In this study, the Deputy Chief of Staff for Intelligence (G-2), U.S. Army, asked the RAND Corporation to identify regional variations in the incidence and types of future conflicts and to assess the likelihood of U.S. involvement in them. RAND was also asked to assess the potential for emergence of new types of conflicts that may not be captured in existing databases.

The report briefly summarizes the state of the debate within the defense community on long-term trends in violent conflict and their implications for U.S. defense planning. It reviews the data on historical trends, documenting the recent declines in levels of violent conflict. To assess whether these trends are likely to continue, the study team developed several statistical models of conflict incidence, with separate models for intra- and interstate war and for global and regional trends. The final chapters of this report discuss the implications of these conflict trends for U.S. defense planning, including the likelihood of military interventions for various purposes and in different regions of the world. The findings of this report should be of interest to those in the U.S. defense community with an interest in long-term planning and future trends in conflict.

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## Summary

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Ongoing wars in Afghanistan, Iraq, Syria, Ukraine, Yemen, and elsewhere have led many policymakers to warn that the United States faces a world in which the relative peace of the immediate post-Cold War era has been replaced by a world of escalating conflict and threats to U.S. security. Yet many U.S. defense decisions require a look beyond immediate crises and entail assumptions about the state of the world as it will be one, two, or even three decades in the future. What is the threat environment likely to look like? Are current heightened levels of instability and conflict likely to prove short-lived, or might they worsen? Was the near absence of war between states in the aftermath of the Cold War merely a fleeting moment before the onset of new rivalries between major powers? Or will continued advances in prosperity, economic interconnectedness, democracy, and other factors continue to drive down the incidence of violent conflict?

In this report, we explore trends in violent conflict and their broad implications for long-term U.S. defense planning.

- We built several models to project the incidence of violent conflict – both within and between countries – using statistical techniques. We then used forecasts of approximately a dozen key factors related to conflict to project the future incidence of conflict globally over the next 25 years. In the report, we attempt to make the analysis as transparent and approachable as possible so that nonspecialists can understand the assumptions built into the models.

- Recognizing that all regions of the world do not affect U.S. vital interests equally, we disaggregate conflict trends by region whenever the data permit. Although the models do not support reliable predictions about the specific countries involved in conflicts, disaggregation to the regional level provides important insights into the likely geographic scope of future violence.
- Making projections so far into the future is a perilous exercise. Consequently, we do not seek to make a single prediction about the future of war. Rather, we first project a “baseline” future – what levels of conflict are expected to look like if the future unfolds in ways that are broadly predictable on the basis of ongoing trends. We then explore four alternative scenarios regarding what is likely to happen to the incidence of conflict if the future looks radically different from our expectations (that is, if the key factors take on extreme but plausible values). If the same general levels of violent conflict are projected regardless of the alternative future being explored, that suggests these projections are robust and provide solid assumptions on which to base long-term U.S. defense planning. Diverging projections suggests that it is relatively more important for the United States to “hedge its bets” – that is, to plan for the possibility that the baseline future may be wrong and make investments accordingly.
- In this report, we also explore types of conflicts that are not captured well in the data sets on war and political violence on which this report’s models are based. More specifically, we examine the evolution of large-scale criminal violence and how this violence may affect the operational environment for the U.S. Army.
- Finally, we examine the implications of these conflict trends for long-term U.S. defense planning. We look at the relationship between violent conflict and the subsequent deployment of U.S. forces overseas. We also assess the extent to which U.S. forces might influence the outbreak of conflict – that is, the potential deterrent effect of U.S. force posture.



## Findings

In broad terms, the incidence of armed conflict has declined in both number and intensity since the end of the Cold War, with particularly sharp declines in interstate and higher-intensity conflicts, and our future projections of the key drivers of conflict suggest these trends are likely to continue over the long term. There has been an uptick in some forms of intrastate conflict in 2012–2015, but our research suggests that the current spike in armed conflict is likely to prove relatively short-lived. It could easily last for several more years, but it is unlikely to represent a “new normal” – that is, a decades-long increase in the incidence of war.

According to our analysis, approximately a dozen key factors together explain much of the historical variation we have seen in levels of war and conflict. The long-term trends in nearly all of these factors have been conducive to peace. For the conflicts of the past few years to represent the beginnings of a major reversal in long-standing trends toward lower levels of conflict, one of two things would have to happen. First, the decades-long trends toward higher levels of development, more open economies, more democratic governance, and stronger international institutions and norms of peaceful conflict resolution (among others) would all have to suffer large and sustained reversals – reversals that we have only seen in crises such as the Great Depression or the early years of the Cold War. Such reversals are not impossible. But they have been sufficiently rare over the past two centuries that considerable additional evidence of such reversals is needed before the crises of a few years are interpreted to represent the beginnings of a new trend. Alternatively, it may be that the wars of the future have different causes than those of the past, in which case our models – all of which are based on historical patterns of conflict – would be misleading. While possible, our review of the literature on armed conflict did not identify compelling arguments for a fundamental shift in the drivers of conflict.

Our forecast of future conflict trends, however, comes with several critical caveats. First, declines in conflict have not been monotonic, particularly with regard to interstate war. Interstate wars are

rare and becoming rarer, but their historical decline often has been interrupted by periodic spikes. Even if the overall frequency of such wars continues to fall, this general decline still could be interrupted by a brief burst of devastating conflict in the next quarter-century. Long-term defense planning, in other words, cannot be based only on the long-term trend, but must also consider the potential for short-term deviations from that trend.

Second, much of the recent and projected decline in conflict is in regions that have been historically of less strategic interest to the United States (that is, regions in which the United States has not had forces stationed or undertaken substantial military interventions). Sub-Saharan Africa accounts for much of the recent and projected decline in intrastate conflict, while the strategically important region of the Middle East shows a persistently high level of such conflict, even in our baseline projections.

Third, overwhelming U.S. military superiority may have been part of the explanation for the historically low levels of conflict recently observed. Our analysis provides some evidence that U.S. military potential and U.S. forward presence can deter conflict to some degree. Were the United States to reduce its commitment to protect the international order that it helped to erect in the aftermath of the Second World War, there would likely be an increase in the prevalence of violent conflict (although our model does not allow us to estimate the extent of the increase with any precision).

Fourth, demand for U.S. military forces does not correlate closely with the incidence of conflict. In fact, the number of U.S. military operations (e.g., combat, counterinsurgency, stability operations, humanitarian assistance) increased just as the global incidence of conflict was beginning to decline. It is possible that the trends toward lower levels of conflict and higher levels of U.S. intervention are related; the same economic interconnectedness that helps to depress interstate war, for instance, also raises the strategic significance of an internal conflict in a country that previously might have been considered of little relevance. There are substantial debates about whether these deployments of U.S. forces were actually required to protect U.S. interests in this period, or whether the United States simply had the luxury to intervene

militarily in a period of unipolarity and relatively low fiscal constraints. We cannot resolve those debates. Instead, we note that U.S. presidents have perceived requirements to deploy U.S. forces that do not correspond with the overall level of violent conflict in the world. Moreover, our model projects continued substantial levels of instability in at least some of the regions that historically have been the focus of U.S. military interventions.

Finally, our projections depend on historical data that could be incorporated into statistical models. Therefore, they are subject to two limitations. First, they do not include drivers of conflict that we could not translate into our statistical models. Although the fit of the models with historical patterns of conflict and war was good overall, we were not able to model the dynamics of variables such as international norms, international organizations, or, perhaps most importantly, proxy wars. Because much external support for the warring factions in civil wars is covert or otherwise poses difficulties to reliable data collection, we decided to exclude this factor from our models. If proxy conflicts were to increase in the future – especially to levels last seen during the Cold War – we may well expect to see both the incidence of intrastate conflict and its lethality rise considerably. Second, because our models rely on historical data, they do a poor job of accounting for future “shocks” that have no historical analogue. Rapid worldwide advancements in and diffusion of technology – particularly robotics, biotechnology, and information and communications technology – threaten to erode U.S. military superiority and to invest certain nonstate actors with military capabilities that traditionally have been the domain of states. Climate change – at least in the more dire projections – may also pose challenges to stability without historical parallel. Our models have difficulty incorporating such changes, which might reverse the historical trend toward lower levels of violent conflict.

These caveats notwithstanding, our analysis suggests that the long-term trend toward lower levels of violence is fairly robust. To contend with the inherent uncertainty of the future, we developed several alternative scenarios featuring “worst-case” assumptions. In many of the conflict projections made on the basis of these worst-case alternative futures, future levels of conflict rose no higher than they are today.

Only in one of these worst-case scenarios did violence rise to levels approaching those of the worst periods of the past century. These findings thus suggest a nuanced view of the future, one in which overall levels of violence are likely to decline, but where strategically important regions remain unstable and where the United States must still contend with the risk – albeit a reduced one – of conflict among major powers.

## **Implications**

Beyond these broad findings about the future of conflict, the report includes several specific suggestions for intelligence analysts and defense planners interested in the implications of the long-term future for U.S. defense decisions.

### **Early Warning Indicators**

We recommend using five indicators as the most important sources of warning that conflict trends may be increasing over our baseline projections:

- recent power transitions (which increase the likelihood of interstate wars)
- new, higher-salience territorial claims (which are also positively correlated with interstate war)
- ratios of bilateral trade to gross domestic product (GDP) (where greater economic interdependence reduces the likelihood of interstate war)
- recent democratizing transitions (which increase the likelihood of intrastate conflict)
- annual GDP growth rates (where increases in growth rates reduce the likelihood of intrastate conflict).

These indicators are not novel; they are well represented in both the academic and policy literature on war and conflict. The extent of the explanatory “weight” that they pull in our models, however, suggests that

of the enormous number of potential “red flags” that could serve as causes of concern, changes in these factors are among the most important.

### **Regions of Concern**

Although conflict has been declining globally, the experience of different regions has diverged considerably and, according to our models, may be expected to continue to do so. Intrastate conflict may be expected to remain at current – very low – levels in Europe and the Western Hemisphere, and it is expected to decline considerably in most of sub-Saharan Africa and the Asia-Pacific region. On the other hand, the Middle East is likely to see intrastate conflict persist at its currently high level.

The regional prospects for interstate war are more difficult to assess. Interstate wars have been so rare historically that no regionally disaggregated statistical analysis is possible. The critical importance of power transitions for interstate wars, however, provides an indication of which regions may be of particular concern in the future as we are able to assess the regions where these transitions are most likely to occur. The most likely regions for concern are East Asia, prompted by the continued rise of China, and Eurasia, particularly if the North Atlantic Treaty Organization alliance were to fracture or an ascendant China were to seek a greater role for itself in that region as well.

### **Ground Force Capabilities and Capacities Required**

The research in this report was not structured to provide guidance on the specific structure that the United States should maintain in its land forces. It is, however, useful as a source of insights about the broad capabilities and capacities that the United States should seek to maintain for the long-term future.

Perhaps most importantly, the analysis presented in this report demonstrates that interventions did not correlate at all closely with overall patterns of violent conflict (although they did parallel conflict trends in specific regions at specific times). In fact, the number and scale of U.S. military interventions rose rapidly in the aftermath of the Cold War, just as conflict began to subside. Even if levels of violent conflict continue their gradual decline over the coming decades, this

trend does not necessarily imply a decreased demand for deployments of U.S. forces.

We find little support for the assumption that war-weariness among U.S. voters means that the United States will not undertake sizable and prolonged ground operations in the short- or medium-term future. Looking back at the history of U.S. interventions over the past century, there was only one brief period – the four years immediately after U.S. withdrawal from Vietnam – during which the United States did not engage in any interventions abroad. Moreover, decisionmakers would be ill advised to assume that interventions will be short or to ignore the possibility of overlapping interventions. Although the majority of interventions last less than two years, half of large interventions (those involving 20,000 or more troops) persist two or more years, and a quarter of large interventions persist five or more years. In addition, a large percentage of interventions have overlapped with other interventions – an issue of concern because simultaneous interventions may place substantial strain on military forces.

Finally, for more than 30 years, nearly every overseas operation the United States has undertaken has involved a substantial civil-military element. Although this fact alone cannot tell us exactly what the United States' force structure should look like, it does suggest the importance of continuing to make substantial investments in the unit types heavily stressed by such operations (including all forms of Special Operations Forces, rotary aviation, explosive ordnance disposal, military police, and military intelligence) and in training, education, and experiences that help military leaders acquire the knowledge and skills necessary to interact successfully with foreign populations.

## **Conclusion**

Insights into the likely trajectories of violent conflict do not yield specific recommendations about U.S. long-term defense investments. Ultimately, such decisions are about risk tolerance: How much risk should the United States take in the area of national security to keep its fiscal house in order? Decisionmakers may have available the best

possible information about the future and still come to different conclusions about the appropriate size and capabilities of the U.S. military as a result of their differential willingness to accept risk.

What this report can do is contribute to a common understanding of the extent of risk involved in high-level and long-term decisions about defense policy. A continuing downward trend in violent conflict globally is the most probable future, and substantial uncertainty remains. Were major crises on a par with the Great Depression or early Cold War to strike the international community, the likelihood of war should be expected to rise well beyond recent levels and approach (although not equal) the levels the world last saw more than a half-century ago. Such scenarios are clearly extreme. Over the course of the next quarter-century, however, they are plausible.

These findings rest on assumptions that the United States will retain a critical role in the international system in ways that continue to foster a long-term decline in violence. Continued U.S. commitment to an open economic order and global norms of peaceful conflict resolution plays an important role, as does continued investment in the military defense of this international order.





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## Abbreviations

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ASEAN	Association of Southeast Asian Nations
COW	Correlates of War
EU	European Union
GDP	gross domestic product
HQDA, G-2	Deputy Chief of Staff for Intelligence, U.S. Army
IFs	International Futures
IPCC	Intergovernmental Panel on Climate Change
LREC	language, regional expertise, and culture
MEPV	Major Episodes of Political Violence
MID	Militarized Interstate Dispute
NATO	North Atlantic Treaty Organization
NMC	National Material Capabilities
PITF	Political Instability Task Force
PRIO	Peace Research Institute Oslo
QDR	Quadrennial Defense Review
SD	standard deviation
UCDP	Uppsala Conflict Data Program
UN	United Nations
UNODC	United Nations Office on Drugs and Crime



## Introduction

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Current headlines are filled with stories of violence and the threat of war – from the unrest in Syria and Iraq, to Russian incursions into Ukraine, to disputes over islands in the South China Sea. These stories are paralleled by recent upticks in systematic counts of violent conflicts and wars, as well as in the number of people killed in these crises.<sup>1</sup> Some senior U.S. decisionmakers have warned that these crises pose substantial threats to U.S. national security. John Brennan, the Director of Central Intelligence, for instance, recently proclaimed, “In the 36 years since I first entered government, I have never [witnessed] a time with such a daunting array of challenges to our nation’s security.”<sup>2</sup>

Many U.S. defense decisions, however, require us to look beyond the immediate crises and they entail assumptions regarding the state of the world one, two, or even three decades in the future. What will the United States’ threat environment look like in this long-term future? Are current heightened levels of instability and conflict likely to persist or even increase? Alternatively, are they likely to prove short-lived? Was the near absence of war between states in the aftermath of the Cold War merely a fleeting moment before the onset of new rivalries between major powers? Or will continued advances in prosperity, eco-

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<sup>1</sup> These statistics will be discussed in depth in Chapter Two. For an overview, see Scott Gates, Håvard Mogleiv Nygård, Håvard Strand, and Henrik Urdal, *Trends in Armed Conflict, 1946–2014*, Oslo: Peace Research Institute Oslo (PRIO), 2016.

<sup>2</sup> David Smith, “Brexit Crisis Contributing to ‘Daunting’ U.S. Security Challenges, CIA Director Says,” *The Guardian*, June 29, 2016.

conomic interconnectedness, democracy, and other factors slowly drive down the incidence of violent conflict?

In this report, we explore trends in violent conflict and their broad implications for long-term defense planning. With very few exceptions, most of the existing analyses of conflict trends have avoided long-term predictions about the future of conflict.<sup>3</sup> Although we draw on these past analyses, this report breaks new ground in several ways:

- We built several models to project the incidence of violent conflict – both within and between countries – using logistic regression (logit) techniques. We then used forecasts of approximately a dozen drivers of conflict (what we call “key factors”) to project the future incidence of conflict globally over the next 25 years. In this report, we attempt to make the analysis as transparent and approachable as possible so that nonspecialists can understand the assumptions built into the models.
- Recognizing that all regions of the world do not equally affect U.S. vital interests, the analysis disaggregates conflict trends by region whenever the data permit. Although the models do not support reliable predictions about the specific countries involved in conflicts, disaggregation to the regional level provides important insights into the likely geographic scope of future violence.
- Making projections so far into the future is a perilous exercise; the future frequently surprises even the most expert observers. Consequently, we do not seek to make a single prediction about the future of war. Rather, we first project a “baseline” future – what levels of conflict are expected to look like if the future unfolds in ways that are broadly predictable on the basis of ongoing trends. It then

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<sup>3</sup> The few analyses that have sought to make predictions have usually been short-term warning devices (for example, seeking to predict outbreaks of conflict within the next two years). See Jack A. Goldstone, Robert H. Bates, David L. Epstein, Ted Robert Gurr, Michael B. Lustik, Monty G. Marshall, Jay Ulfelder, and Mark Woodward, “A Global Model for Forecasting Political Instability,” *American Journal of Political Science*, Vol. 54, No. 1, January 2010. For one of the very few predictions of long-term conflict trends, see Håvard Hegre, Joakim Karlsen, Håvard Møkleiv Nygård, Håvard Strand, and Henrik Urdal, “Predicting Armed Conflict, 2010–2050,” *International Studies Quarterly*, Vol. 57, No. 2, June 2013.

explores four alternative scenarios – what is likely to happen to the incidence of conflict if the future looks radically different from our expectations (that is, if the key factors take on extreme but plausible values). If the same general levels of violent conflict are projected regardless of the alternative future being explored, it suggests these projections are robust and provide solid assumptions on which to base long-term U.S. defense planning. If these projections diverge, that suggests it is relatively more important for the United States to “hedge its bets” – that is, to plan for the possibility that the baseline future may be wrong and make investments accordingly.

- The report also explores types of conflict that are not captured well in the data sets on war and political violence on which this report’s models are based. More specifically, it examines large-scale criminal violence and the ways in which it is likely to evolve in the coming 25 years.
- Finally, the report examines the implications of these conflict trends for long-term U.S. defense planning. It looks at the relationship between violent conflict and the subsequent deployment of U.S. forces overseas. But it also assesses the extent to which U.S. forces might influence the outbreak of conflict – that is, the potential deterrent effect of the U.S. force posture.

## **Objectives and Organization**

The project that led to this report was sponsored by the Headquarters of the Department of the Army, Office of the Deputy Chief of Staff for Intelligence (HQDA G-2). It represents a refinement and expansion of previous research conducted for a project entitled *Emergence of New Conflict Trends*, also sponsored by HQDA G-2. The goal of this research stream has been to develop conflict models based on the best available social science literature to help the U.S. Army base its long-term planning on an empirically grounded understanding of broad conflict trends.

Chapter Two sets the stage for the rest of the report. It first lays out the current policy debate about long-term conflict trends and their

implications for U.S. grand strategy generally and U.S. force structure more narrowly. It then examines the academic debates about conflict trends that largely preceded and influenced the current policy debates.

Chapter Three reviews the descriptive data on the incidence of conflict over the past century to help acquaint readers who are less familiar with this field with recent trends in violence. It includes a review of conflict trends by level of intensity, by the actors involved, and by geographic region to provide a more nuanced understanding of recent conflict trends.

Chapter Four explains the methodology behind the models of conflict used throughout the rest of the report. The chapter is written for nonspecialists, with much of the technical details placed in extensive footnotes. Nonetheless, some readers may wish to skip this chapter to focus on the actual conflict projections and their policy implications discussed in subsequent chapters. These readers will miss some of the logic behind the conflict projections and some important caveats to the analysis, but the broad arguments should remain easily understandable. On the other hand, readers for whom the methodology chapter does not suffice and who desire even more in-depth understanding of the model as well as the data and various “key factors” on which it is based may read RAND’s prior reviews of the data sets and academic literature on which this analysis is based.<sup>4</sup>

Chapter Five presents the central findings about the projected incidence of conflict. It provides the analysis’ baseline conflict projection, which includes a comparison of the amounts of conflict “predicted” by the model over the past century with the actually occurring rates of conflict, as well as the projected future incidence of conflict if the future holds no major surprises. These include projections for both interstate and intrastate conflict, presented globally and – where

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<sup>4</sup> Thomas S. Szayna, Angela O’Mahony, Jennifer Kavanagh, Stephen Watts, Bryan Frederick, Tova Norlen, and Phoenix Voorhies, *Conflict Trends and Conflict Drivers: An Empirical Assessment of Historical Conflict Patterns and Future Conflict Projections*, Santa Monica, Calif.: RAND Corporation, RR-1063-A, 2017; and Stephen Watts, Jennifer Kavanagh, Bryan Frederick, Tova Norlen, Angela O’Mahony, Phoenix Voorhies, and Thomas S. Szayna, *Understanding Conflict Trends: A Review of the Social Science Literature on the Causes of Conflict*, Santa Monica, Calif.: RAND Corporation, RR-1063/1-A, 2017.



the data permit – by region, and presented at various levels of conflict intensity. The second half of the chapter then presents four “alternative futures” – narrative-based scenarios for how the future might look radically different from the recent past. These scenarios are then translated into alternative values for the key drivers of violent conflict, and alternative projections about the expected future incidence of conflict are presented. In this way, the report attempts to grapple with the inherent uncertainty of the rapidly evolving global landscape.

Chapter Six extends on the conflict models to identify early warning indicators for the intelligence community and other observers to track. How do we know whether long-term declines in conflict are likely to endure for the foreseeable future, or if instead a gradual or sudden reversal of those trends is likely? Quantitative indicators of the key drivers of conflict identified in this study provide the beginnings of an early warning system to help us understand if our initial projections about the future are turning out to be ill-founded.

Chapter Seven explores a major source of violence that is not captured in the statistical models of this report: large-scale criminal violence. The data sets of conflict on which the models in this report and those in most academic analyses rely are compilations of *political* violence. Yet the recent experience of many countries in Central America (among others) makes clear that large-scale criminal violence can be more deadly than traditional forms of war. This chapter assesses the evolution of large-scale criminal violence and its implications for future U.S. defense policy.

Chapter Eight examines the relationship between conflicts and force utilization: How many of what types of forces (in very broad terms) have been used how frequently to respond to violence and instability around the world? What do these historical trends in utilization suggest about the ways in which the United States should man, train, and equip its Army over the long term? But the analysis also examines the relationship between violent conflict and the *lack* of utilization of U.S. forces – or, more precisely, the potential that U.S. force posture helps to deter conflict so that U.S. forces can achieve their goals without ever being deployed.

Finally, Chapter Nine concludes with a discussion of the broader policy implications of the research presented in this report.



## Grand Strategy, Long-Term Threat Projections, and the Future of War

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Debates about the future trajectory of violent conflict have limited impact on defense decisionmaking in the short and medium term – roughly over the next two to five years. Such decisions are better based on an analysis of specific threats and demands for U.S. forces. However, many areas of defense planning require much longer-term predictions about the threat environment that the United States will face. The acquisition of advanced weapon systems and other hardware, the development of experienced military leaders, and the construction of appropriate facilities around the world all take place over many years – often decades.<sup>1</sup> If policymakers reduce or misallocate military spending based on incorrect assessments of future threats, it may take many years to recover in these areas. Thus, it is critical to develop well-founded expectations about the general threat environment that the United States is likely to face two to three decades in the future. While observers cannot predict specific threats so far in advance, it may well be possible to make broad projections about overall levels of violence and instability and the regions most at risk. It is for this reason that debates about the long-term future of war have much more than purely academic significance.

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<sup>1</sup> The 2012 *Army Strategic Planning Guidance*, for instance, states, “The development of mid-grade officers and non-commissioned officers has been the historical limiting factor in expansibility. Experienced and effective leaders are not grown quickly.” U.S. Army, *Army Strategic Planning Guidance*, Washington, D.C.: U.S. Department of Defense, 2012, p. 12. For an overview of the timelines associated with “re-growing” the U.S. Army, see James A. Dewar, Steven C. Bankes, Sean J.A. Edwards, and James C. Wendt, *Expandability of the 21st Century Army*, Santa Monica, Calif.: RAND Corporation, MR-1190-A, 2000.

## The Policy Debate

U.S. official defense policy and doctrinal documents do not make any specific claims about whether the world is becoming more or less violent, unstable, or threatening. The 2014 Quadrennial Defense Review (QDR), for instance, does not state that the world is becoming more or less threatening, only that it is becoming more uncertain and unpredictable.<sup>2</sup> Similarly, in its assessment of global trends, the U.S. Army Training and Doctrine Command concluded that the “[l]ong-term implications . . . are uncertain and can lead to a multitude of potential alternative security futures . . . ranging from some variant of the status quo, to a more violent world, to a less brutal outlook.”<sup>3</sup>

Despite this official agnosticism within the defense community on the direction of conflict trends, many individual officials have spoken out forcefully in favor of either optimistic or pessimistic interpretations of the extent of violent threats in the recent past and the future. Most notably, President Barack Obama articulated a more optimistic perspective. Responding to questions in a social media forum, the President declared, “The world is less violent than it has ever been.”<sup>4</sup> In a commencement address at the U.S. Military Academy, he stated, “by most measures, America has rarely been stronger relative to the rest of the world. . . . Our military has no peer. The odds of a direct threat against us by any nation are low and do not come close to the dangers we faced during the Cold War.”<sup>5</sup>

In contrast to these claims that the world is becoming an ever more peaceful place, however, many other officials have argued that the United States faces intense threats now and may face even more in the

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<sup>2</sup> U.S. Department of Defense, *Quadrennial Defense Review 2014*, Washington, D.C., 2014b, Ch. 1.

<sup>3</sup> U.S. Army Training and Doctrine Command, *Operational Environments to 2028: The Strategic Environment for Unified Land Operations*, Washington, D.C.: U.S. Army, August 2012, p. 4.

<sup>4</sup> Cited in James S. Robbins, “13 Years After 9/11, Terror Threat Undiminished,” *USA Today*, August 6, 2014.

<sup>5</sup> White House, “Remarks by the President at the United States Military Academy Commencement Ceremony,” May 28, 2014.

future. Former Chairman of the Joint Chiefs of Staff General Martin Dempsey, for instance, has stated, "I can't impress upon [you] enough that in my personal military judgment, formed over 38 years, we are living in the most dangerous time in my lifetime, right now."<sup>6</sup> Director of National Intelligence James Clapper echoed this judgment, saying that he had "not experienced a time when we've been beset by more crises and threats around the globe."<sup>7</sup>

Nor are these officials alone in their assessments. In its response to the 2014 QDR, the National Defense Panel stated, "[G]lobal threats and challenges are rising, including . . . the rapidly expanding availability of lethal technologies . . . demographic shifts including increasing urbanization . . . diffusion of power among many nations . . . and heated competition to secure access to scarce natural resources."<sup>8</sup> Similarly, former Department of State Director of Policy Planning Richard Haass argued that

with U.S. hegemony waning but no successor waiting to pick up the baton, the likeliest future is one in which the current international system gives way to a disorderly one with a larger number of power centers acting with increasing autonomy, paying less heed to U.S. interests and preferences. This will cause new problems even as it makes existing ones more difficult to solve. In short, the post-Cold War order is unraveling, and while not perfect, it will be missed.<sup>9</sup>

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<sup>6</sup> Martin Dempsey, Testimony before the House Armed Services Committee on the FY 2013 National Defense Authorization Budget Request from the Department of Defense, February 15, 2012.

<sup>7</sup> Quoted in Cheryl Pellerin, "Intelligence Leaders Detail Global Threats to Senate Panel," American Forces Press Service, February 11, 2014.

<sup>8</sup> William J. Perry and John P. Abizaid, *Ensuring a Strong U.S. Defense for the Future: The National Defense Panel Review of the 2014 Quadrennial Defense Review*, Washington, D.C.: U.S. Institute of Peace, July 31, 2014.

<sup>9</sup> Richard N. Haass, "The Unraveling: How to Respond to a Disordered World," *Foreign Affairs*, Vol. 93, No. 6, November/December 2014.

Reflecting on the parallels between the lead-up to World War I and the current global environment, Ward Wilson recently wrote in the pages of *Foreign Policy*,

There is much about the 1890s that seems disquietingly familiar. Our time echoes theirs . . . One explanation for the peculiarities of our age might be that, like the Concert of Europe, there has been an established order that has been solidly in place for almost seventy years. Anchored by NATO [North Atlantic Treaty Organization] and a series of other alliances (mostly the product of the United States), the world order has remained remarkably stable for generations. It has brought peace and prosperity to much of the West. But like the Concert of Europe it has also sometimes stifled change and rebellion.<sup>10</sup>

These divergent assessments in part reflect different aspects of the threat environment (for instance, the risk of conventional war among great powers in contrast to terrorist or cyber threats) and different time horizons (a perspective that emphasizes the broad sweep of human history versus one that focuses on immediate threats). But there is an underlying and profound difference of opinion among many of these observers, and it has considerable implications for U.S. defense policy.

In a period of fiscal constraints, grand strategy — and particularly the effort to align U.S. goals abroad with the requirements of its domestic economy — has become a central preoccupation of the defense community. To forge any degree of consensus on grand strategy, however, it is first necessary to understand the threat environment the United States faces. If the United States faces few threats to its vital interests, then it may be able to reduce the size or readiness of its military forces in order to strengthen its fiscal and broader economic position.<sup>11</sup> If, on the other hand, the United States faces substantial threats in the foreseeable future, then such defense reductions could ultimately prove

<sup>10</sup> Ward Wilson, “The Age of Frustration,” *Foreign Policy*, November 13, 2014.

<sup>11</sup> For the classic statement of the trade-offs among cost, military effectiveness, and time, see Richard K. Betts, *Military Readiness: Concepts, Choices, Consequences*, Washington, D.C.: Brookings Institution Press, 1995.

counterproductive, either by undermining the deterrent effect of U.S. military might or by forcing the United States to inefficiently reinvest in defense on timelines determined by world events rather than careful planning.

Those who perceive an historical trend toward slowly declining levels of violent conflict generally advocate lower U.S. defense spending. Columbia University professor Richard Betts, for instance, is very clear about the relationship between the threat environment he sees and the resources the United States should dedicate to national defense: “With threats from great powers in remission, and threats from terrorists mostly handled by the less expensive elements of military forces, it makes no sense for Washington to keep borrowing hundreds of billions of dollars in order to keep spending almost half of the world’s total for military power.”<sup>12</sup> Christopher Preble of the CATO Institute declared, “Our chances of suffering a violent death are very low and still declining . . . An honest assessment of the threat environment – problems that lurk today and on the horizon – will allow us to redirect some of the money that goes to the Pentagon and military contractors.”<sup>13</sup> Gordon Adams and Matthew Leatherman, both fellows at the Stimson Center, wrote in *Foreign Affairs*, “Defense missions have expanded and spending has soared even though the United States has never been more secure militarily. It has no close competitor, a strategic nuclear exchange is highly improbable, major conventional combat on land is unlikely, and it maintains significant dominance at sea.”<sup>14</sup> Ohio State University political science professor John Mueller recently wrote, “[I]t is time to consider the fact that a cataclysmic conflict like World War II is unlikely to recur. As such, the continued spending for an ever-receding likelihood needs to be seriously assessed . . . There is no

<sup>12</sup> Richard K. Betts, statement in Defense Advisory Committee, *Defense Strategy for a New Era: Military Superiority, Agility, and Efficiency*, Washington, D.C.: Stimson, November 2012, p. 64.

<sup>13</sup> Christopher Preble, “The Most Dangerous World Ever?” *Cato Policy Report*, Vol. 36, No. 5, September/October 2014, p. 8.

<sup>14</sup> Gordon Adams and Matthew Leatherman, “A Leaner and Meaner Defense,” *Foreign Affairs*, Vol. 90, No. 1, January/February 2011.

need for the maintenance of a large standing military force.”<sup>15</sup> Council on Foreign Relations senior fellow Micah Zenko and Michael Cohen announced,

The world that the United States inhabits today is a remarkably safe and secure place. It is a world with fewer violent conflicts and greater political freedom than at virtually any other point in human history . . . Although the United States faces a host of international challenges, they pose little risk to the overwhelming majority of American citizens and can be managed with existing diplomatic, economic, and, to a much lesser extent, military tools.<sup>16</sup>

Debates about long-term conflict trends, in short, are much more than academic exercises, even though many of the claims currently informing the policy debate began as academic arguments.

## The Academic Debate

U.S. debates about grand strategy and defense expenditures have been influenced by what were initially academic debates about the future of war. As early as the late 1970s and 1980s, some observers hailed the existence of a “long peace” – an extended period without war among great powers.<sup>17</sup> By the 2000s, several scholars were advancing arguments backed by statistical models to suggest that war of all kinds had declined remarkably and might reasonably be expected to continue to do so for the foreseeable future. Some even spoke of the “obsolescence of war.”<sup>18</sup> Today, several scholars have popularized this thesis through mass-market books. In what is perhaps the best known of these works,

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<sup>15</sup> John Mueller, “America Is Spending Too Much on Defense,” *Slate*, October 3, 2013.

<sup>16</sup> Micah Zenko and Michael A. Cohen, “Clear and Present Safety,” *Foreign Affairs*, Vol. 91, No. 2, March/April 2012.

<sup>17</sup> See especially John Lewis Gaddis, “The Long Peace: Elements of Stability in the Postwar International System,” *International Security*, Vol. 10, No. 4, Spring 1986.

<sup>18</sup> John Mueller, *The Remnants of War*, Ithaca, N.Y.: Cornell University Press, 2004.



*The Better Angels of Our Nature: Why Violence Has Declined*, Harvard professor Steven Pinker declared that “today we may be living in the most peaceable era in our species’ existence.”<sup>19</sup> Skeptics of these arguments have challenged both the specific statistical arguments employed by those who claim to observe a decline in violent conflict and the understandings of human nature and history that inform their arguments.

### **Arguments for the Decline of Violent Conflict**

The development and refinement of a number of data sets on armed conflict in the 1990s and early 2000s – particularly the work of the Uppsala Conflict Data Program (UCDP) and the Peace Research Institute Oslo (PRIO) – inspired considerable academic activity.<sup>20</sup> The end of the Cold War fueled global optimism for a coming period of peace – an optimism that quickly faded amid civil wars such as those in Yugoslavia, Somalia, and Rwanda. Yet these data sets seemed to suggest that the initial optimism was, in fact, well founded. Despite a brief surge of violence in the years immediately surrounding the collapse of the Soviet Union, violent conflict appeared to have been declining over a period of decades. This perspective became popularized in part through the work of the *Human Security Report*, which detailed many of these trends for a nonacademic audience.<sup>21</sup>

The decline in violent conflict appeared most pronounced in interstate wars – that is, wars between countries rather than civil wars. An academic literature had begun to develop over the previous two decades that sought to explain this apparent decline. Although this lit-

<sup>19</sup> Steven Pinker, *The Better Angels of Our Nature: Why Violence Has Declined*, New York: Penguin Group, 2011, p. xxi.

<sup>20</sup> See especially Nils Petter Gleditsch, Peter Wallensteen, Mikael Eriksson, Margareta Sollenberg, and Håvard Strand, “Armed Conflict 1946–2001: A New Dataset,” *Journal of Peace Research*, Vol. 39, No. 5, 2002; Bethany Lacina and Nils Petter Gleditsch, “Monitoring Trends in Global Combat: A New Dataset of Battle Deaths,” *European Journal of Population*, Vol. 21, No. 2–3, 2005; Lotta Harbom and Peter Wallensteen, “Armed Conflicts, 1946–2009,” *Journal of Peace Research*, Vol. 47, No. 4, July 2010. For details on the dataset, see PRIO, “Data on Armed Conflict,” undated.

<sup>21</sup> Human Security Report Project, *Human Security Report*, undated.

erature is vast and complex, the arguments generally can be reduced to three lines of reasoning, one that stressed the changed cost-benefit calculus of war, one that stressed the role of various international institutions in restraining conflict, and one that stressed the pacifying effects of economic and political development.

The cost-benefit argument can be expressed succinctly: The benefits of seizing land from another country have been declining for decades, while the costs of warfare have risen substantially. In a predominantly agrarian society, the primary source of wealth is land – an asset that is relatively simple to seize and exploit by force. In industrial and postindustrial economies, except for those centered on the export of natural resources (especially oil and gas), the primary sources of wealth generally flow from various forms of expertise and know-how – assets that are extremely difficult to acquire through violence. Further, the rapid expansion of the global trading system has made it much easier to obtain desired goods and services through voluntary contracts rather than by expropriation. The benefits of invading and occupying other countries, in short, have declined. At the same time, the costs of attacking and pacifying foreign lands have risen rapidly due to both military and political developments. Advances in military technology – ranging from firearms to nuclear weapons – have made warfare more deadly than ever before.<sup>22</sup> The spread of these technologies from the developed to the developing world, combined with new forms of political and military organization (including nationalism and

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<sup>22</sup> The role of nuclear weapons in advancing peace is highly debated. For some, nuclear weapons are a strong determinant of peaceful relations (see, for instance, Kenneth N. Waltz, *The Spread of Nuclear Weapons: More May Be Better*, London: International Institute for Strategic Studies, Adelphi Paper 171, 1981). Others argue that the reasons for the decline in interstate war preceded nuclear weapons (see, for instance, John Mueller, *Retreat from Doomsday: The Obsolescence of Major War*, New York: Basic Books, 1988). While quantitative analyses of the possession of nuclear weapons have generally found that they have some ability to reduce the likelihood of war (see John Vasquez, “The Deterrence Myth: Nuclear Weapons and the Prevention of Nuclear War,” in Charles W. Kegley, Jr., ed., *The Long Post-war Peace: Contending Explanations and Projections*, New York: Harper Collins, 1991; Kyle Beardsley and Victor Asal, “Winning with the Bomb,” *Journal of Conflict Resolution*, Vol. 53, No. 2, 2009; and Robert Rauchhaus, “Evaluating the Nuclear Peace Hypothesis: A Quantitative Approach,” *Journal of Conflict Resolution*, Vol. 53, No. 2, 2009), the debate on their effects remains ongoing.

guerrilla warfare) ensured that foreign populations have become much more difficult to pacify, even if they could be successfully invaded. The combination of these two trends has made interstate war a poorer “value proposition” in most cases.<sup>23</sup>

A number of international institutions have also developed over the past several decades that may have led to a decline in interstate war. These institutions might be either formal or informal. Formal institutions, such as the United Nations, or regional organizations, such as the European Union (EU), may undertake direct interventions, such as peacekeeping missions, or provide a forum for negotiation and mediation to discourage interstate conflict. Informal institutions, such as international norms against the revision of international borders by force and various practices of international arbitration and confidence-building measures, may also reduce the likelihood of violence. Such institutions can reshape the incentives and expectations of states and their leaders regarding the likely international reaction to armed aggression while simultaneously encouraging them to pursue nonviolent dispute resolution mechanisms. Together, the development and strengthening of these different institutions may have helped to reduce or better manage sources of tension that previously helped to ignite wars.<sup>24</sup>

Finally, several characteristics of developed states have become much more prevalent over the past several decades, and these characteristics may have reduced conflict among states that possess them. Many states have become simultaneously democratic, wealthy, and economically intertwined in recent years, and war among such states

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<sup>23</sup> See, for instance, Robert Gilpin, *War and Change in International Politics*, Cambridge, UK: Cambridge University Press, 1981; and Erik Gartzke and Dominic Rohner, “The Political Economy of Imperialism, Decolonization, and Development,” *British Journal of Political Science*, Vol. 41, No. 3, July 2011. For a related—although less optimistic—account, see Peter Liberman, *Does Conquest Pay? The Exploitation of Occupied Industrial Societies*, Princeton, N.J.: Princeton University Press, 1996.

<sup>24</sup> See, for instance, Joshua S. Goldstein, *Winning the War on War: The Decline of Armed Conflict Worldwide*, New York: Penguin Group, 2011; Mark W. Zacher, “The Territorial Integrity Norm: International Boundaries and the Use of Force,” *International Organization*, Vol. 55, No. 2, 2001; and Kenneth W. Abbott and Duncan Snidal, “Why States Act Through Formal International Organizations,” *Journal of Conflict Resolution*, Vol. 42, No. 1, 1998.

has occurred rarely, if ever. While academic disputes remain regarding the relative influence of these factors, these characteristics may reduce conflict by increasing the transparency and interconnectedness of such states, lowering the potential for misperceptions and miscalculations that can lead to war. They may also curtail public support for conflicts with other similar states.<sup>25</sup> The prevalence of such characteristics has expanded greatly in recent decades. Moreover, once a state achieves these levels of development and interconnectedness, it is rare for them to be lost. The assumption that such trends are likely to continue, further expanding the circle of advanced states among whom war has all but disappeared, undergirds much of the optimism of proponents of the “decline of war” thesis.

Through the early 1990s, no similar decline in intrastate conflict could be observed. In fact, the weakening of many postcolonial states in the decades after decolonization and the superpower rivalries of the Cold War helped fuel an enormous increase in civil conflict even as historians wrote of a “long peace” among the major powers of the international system. Yet by the later 1990s, as the aftershocks of the Soviet Union’s collapse slowly died down, declines in intrastate conflict also began to become visible. For much of the past two decades, new incidences of civil war have occurred almost exclusively as renewed conflicts in states that had already suffered from previous wars, with a gradually expanding number of other states freed completely from large-scale domestic political violence.<sup>26</sup>

The principal contributor to domestic peace is likely the capacity of the state governing a given territory and population. Strong, capable states can administer justice, alleviate suffering, and punish those who would use violence to threaten the state itself (or, alternatively, offer concessions or side payments to “buy off” potential malcontents rather

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<sup>25</sup> See, for instance, Bruce M. Russett and John R. Oneal, *Triangulating Peace: Democracy, Interdependence, and International Organizations*, New York: W. W. Norton, 1999; and Erik Gartzke, “The Capitalist Peace,” *American Journal of Political Science*, Vol. 51, No. 1, 2007.

<sup>26</sup> Barbara F. Walter, “Why Bad Governance Leads to Repeat Civil War,” *Journal of Conflict Resolution*, Vol. 59, No. 7, 2015.

than fighting them).<sup>27</sup> Levels of economic development and growth are similarly important. Wealthy, growing economies offer many opportunities for licit livelihoods, and they provide the resources necessary to support the state apparatus.<sup>28</sup>

Paralleling analyses of interstate conflict, many observers of intrastate conflict also argue for the central importance of institutions in managing social conflict peacefully. Democracy, many observers claim, is at its root a form of peaceful conflict resolution; as such, its rise and diffusion around the world is responsible for a considerable reduction in violence at the intrastate level.<sup>29</sup> Similarly, the role of international institutions – particularly the increasing use of multilateral peace operations – and norms has also been credited with declines in intrastate violence.<sup>30</sup>

Taken together, these analyses suggest that the decades-long global trend toward stronger, wealthier, more interdependent, and more democratic states is likely to be accompanied by a broad-based decline in violent conflict.

### **Arguments for the Persistence of Violent Conflict**

In contrast to those who claim war has declined, proponents of the persistence thesis claim that any apparent declines in violent conflict

<sup>27</sup> For an argument asserting the primary importance of state capacity – especially state capacity for targeted coercion – see James D. Fearon and David D. Laitin, “Ethnicity, Insurgency, and Civil War,” *American Political Science Review*, Vol. 97, No. 1, February 2003.

<sup>28</sup> See, for instance, Edward Miguel, Shanker Satyanath, and Ernest Sergenti, “Economic Shocks and Civil Conflict: An Instrumental Variables Approach,” *Journal of Political Economy*, Vol. 112, No. 4, August 2004; Edward Miguel, “Poverty and Violence: An Overview of Recent Research and Implications for Foreign Aid,” in Lael Brainard and Derek Chollet, eds., *Too Poor for Peace? Global Poverty, Conflict, and Security in the 21st Century*, Washington, D.C.: Brookings Institution, 2007.

<sup>29</sup> See, for instance, R. J. Rummel, “Democracy, Power, Genocide, and Mass Murder,” *Journal of Conflict Resolution*, Vol. 39, No. 1, March 1995. For a more ambivalent assessment, see Håvard Hegre, Tanja Ellingsen, Scott Gates, and Nils Petter Gleditsch, “Toward a Democratic Civil Peace? Democracy, Political Change, and Civil War, 1816–1992,” *American Political Science Review*, Vol. 95, No. 1, March 2001.

<sup>30</sup> See, for instance, Michael W. Doyle and Nicholas Sambanis, *Making War and Building Peace*, Princeton, N.J.: Princeton University Press, 2006.

are only brief interludes between periods of violence. This perspective is generally associated with the realist school of thought, which contends that in the absence of a “Leviathan” — an overwhelmingly powerful authority capable of enforcing order on all parties — all actors will turn to violence in the last resort to protect their interests.<sup>31</sup>

Criticisms of the apparent trend toward lower levels of violent conflict have generally taken one of two forms: either finding fault with the statistical arguments being advanced or more generally questioning the ability of observers to discern broad, clear-cut trends in forms of social behavior as complex and contingent as war. The persistence of war over millennia, after all, places a high burden of proof on those who claim it is declining.

Those who dispute the statistical basis of the decline thesis do so either by arguing that alternate specifications of the data on violent conflict suggest conclusions opposite to those the optimists are attempting to draw, or by arguing that the statistical significance of many of these patterns is suspect.

One of the strongest challenges to the decline thesis was made using data from a longer time period than that used by many advocates of the decline thesis. Drawing on the Correlates of War data set, Meredith Reid Sarkees, Frank Whelon Wayman, and J. David Singer argued that trends in violent conflict since 1816 demonstrate “a disquieting constancy in warfare and hint at patterns of interchangeability or substitutability among the types of war.”<sup>32</sup> These authors claim

<sup>31</sup> John J. Mearsheimer, *The Tragedy of Great Power Politics*, New York: W. W. Norton, 2001.

<sup>32</sup> Meredith Reid Sarkees, Frank Whelon Wayman, and J. David Singer, “Inter-State, Intra-State, and Extra-State Wars: A Comprehensive Look at Their Distribution over Time, 1816–1997,” *International Studies Quarterly*, Vol. 47, 2003, p. 49. Others have also claimed that the alleged decline in the incidence of violent conflict is an artifact of specific quantitative indicators of conflict; were other indicators adopted, these critics argue, the observed decline would either disappear or in fact become an increase. Using an alternative specification of interstate conflict, for instance, Mark Harrison and Nikolaus Wolf claim to find that the incidence of war has been increasing; see Mark Harrison and Nikolaus Wolf, “The Frequency of Wars,” *Economic History Review*, Vol. 65, No. 3, 2012. This article, however, relies on a highly misleading indicator of “war” — see Kristian Skrede Gleditsch and Steve Pickering, “Wars Are Becoming Less Frequent: A Response to Harrison and Wolf,” *Economic History Review*, Vol. 67, No. 1, 2014. Tanisha Fazal also questions the decline thesis,

that the 20th century was more war-prone than the 19th, and that the 1990s (at least according to the data available at the time they were writing their article) appeared to be the most war-prone decade since the Congress of Vienna. They also acknowledge, however, that much of the increase in the number of wars reflects the fact that there are more states in the international system now than there were in the 19th century: Accounting for this fact, the likelihood that any given state is involved in a war appears to have declined. Finally, these authors show that the number of people killed in wars has also increased; even if the enormous increase in global population is taken into account by normalizing deaths by population totals, the odds of dying in battle have not shown any clear trend either upward or downward over the past two centuries, at least according to their data. The descriptive data presented by these authors reveal a complex picture, but certainly not one that reveals any unambiguous decline in violent conflict.<sup>33</sup>

Other critics of the decline thesis highlight problems in aspects of the statistical analysis. Ohio State University professor Bear Braumoeller, for instance, points out that the absence of war among the major powers since 1945 should not be particularly surprising. “Systemic wars,” such as the two World Wars or the Napoleonic Wars, are extremely rare events. Based on Braumoeller’s analysis, there is approximately a one-in-four chance that the “long peace” since the end of World War II is simply the result of luck—a happy coincidence that would look like just the latest in a long history of lulls between

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arguing that advancements in medical technology, not broader social trends, are responsible for the declining death rates in modern war (see Tanisha M. Fazal, “Dead Wrong? Battle Deaths, Military Medicine, and Exaggerated Reports of War’s Demise,” *International Security*, Vol. 39, No. 1, Summer 2014). Fazal’s thesis, however, generalizes improvements in medicine among advanced industrialized countries to all countries, despite the fact that the vast majority of violent conflict in the past several decades has taken place in developing countries with vastly lower access to medical care.

<sup>33</sup> It is important to note that the claim by Sarkees, Wayman, and Singer, 2003, regarding the relative constancy of warfare has been disputed specifically by other scholars. See Bethany Lacina, Nils Petter Gleditsch, and Bruce Russett, “The Declining Risk of Death in Battle,” *International Studies Quarterly*, Vol. 50, No. 3, 2006.

conflagrations if a new systemic war breaks out in the next couple of decades.<sup>34</sup>

Finally, some advocates of the persistence thesis adopt a more profound skepticism of the alleged decline in violent conflict. These critics—who often adopt a non-social science approach—tend to have a general skepticism about projections about the future, frequently pointing out that the current iteration of the decline thesis is not the first time optimists have claimed to discern the growing obsolescence of war. Some point to the alleged constant of human nature, which allows for variations in the way war is conducted but not in its essential nature or the fact of its recurrence across cultures throughout human history.<sup>35</sup>

### **The Role of the United States**

Advocates of the persistence and decline theses seek to explain global trends, often over a span of two centuries or more. Consequently, they typically rely on broad, structural explanations for the changes they observe rather than focusing on the role of individual countries.

However, because of the dominant position the United States has held since the end of the Cold War, and in some ways since the end of the Second World War, debates over the decline or persistence of war have come to intersect debates about the United States' position in the world and its implications for international security. The United States' preponderance of power after the collapse of the Soviet Union in particular makes it unique among all countries in the past two centuries: The United States has led the only "unipolar" system (i.e., one dominated by a single major power) since the formation of the modern state system in the aftermath of the Napoleonic Wars.<sup>36</sup>

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<sup>34</sup> Bear Braumoeller, "Is War Disappearing?" paper presented at the annual conference of the American Political Science Association, Chicago, Ill., August 27, 2013. See also P. Cirillo and N. Taleb, "On the Statistical Properties and Tail Risk of Violent Conflicts," *Physica A: Statistical Mechanics and Its Applications*, No. 452, 2016.

<sup>35</sup> See, for instance, Colin S. Gray, *Another Bloody Century: Future Warfare*, London: Phoenix, 2006, p. 33.

<sup>36</sup> William C. Wohlforth, "The Stability of a Unipolar World," *International Security*, Vol. 24, No. 1, Summer 1999.



Scholars differ on the implications of U.S. predominance. Some have argued that unipolarity helps to explain the extremely low levels of interstate conflict since the end of the Cold War. U.S. military dominance has been so overwhelming that no other power is willing to bear the costs of challenging the United States directly. Moreover, the United States can help regulate strategic competition among other states through its backing of security institutions that minimize the risk of inadvertent war and by threatening to punish aggressors (such as in Operation Desert Storm).<sup>37</sup> Outside of the military realm, the U.S. sponsorship of such institutions as the United Nations and the World Trade Organization that give all states a voice (albeit unequal ones) reduces incentives for other states to challenge the status quo.<sup>38</sup> Moreover, the long-term U.S. commitment to such institutions since the end of the Second World War has been a crucial factor in the development of an international system that is increasingly interconnected and prosperous, further reducing the risk of interstate war.<sup>39</sup>

U.S. predominance may also help explain the lower levels of intrastate conflict since the end of the Cold War. On the one hand, the end of the rivalry between the United States and Soviet Union cut off the resources that had helped to fuel “proxy wars” between the superpowers in developing countries around the world. On the other hand, greater consensus in such international institutions as the United Nations (enhanced by the lack of rivals to the U.S. position) and fewer constraints on the exercise of military power by the United States and its partners have made numerous peace operations possible, from Bosnia and Kosovo in Europe, to Sierra Leone and the Democratic Republic of Congo in Africa, to Cambodia and East Timor in Asia.

Others make the opposite argument. Unipolarity might instigate conflict by reducing constraints on military “adventurism” by the dominant power (the United States) and by creating incentives for middle-

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<sup>37</sup> Wohlforth, 1999. See also William C. Wohlforth, “Unipolarity, Status Competition, and Great Power War,” *World Politics*, Vol. 61, No. 1, January 2009.

<sup>38</sup> See, for instance, G. John Ikenberry, *After Victory: Institutions, Strategic Restraint, and the Rebuilding of Order after Major Wars*, Princeton: Princeton University Press, 2000.

<sup>39</sup> Russett and Oneal, 1999; Gartzke, 2007.

tier powers to invest in capabilities and actions to protect themselves from intervention by the hegemon – activities that in turn can inflame regional tensions.<sup>40</sup>

If U.S. predominance indeed reduces levels of violent conflict, this fact has important implications for future conflict trends. Many argue that U.S. relative power is declining, for a number of reasons: as a consequence of fiscal retrenchment in the wake of the 2008 financial crisis, the costly wars in Iraq and Afghanistan, and broader fiscal pressures associated with seemingly inexorable increases in mandatory federal spending; as a result of war weariness after more than a decade of continuous war; and as a consequence of rapid, sustained economic growth in such developing states as China.<sup>41</sup> If U.S. preponderance is in decline and if the world order the United States created was indeed more pacific due to its dominant position, then we might witness an increase in violent conflict as U.S. hegemony recedes.

Other observers offer a different interpretation of the consequences of the potential decline of U.S. relative power. Just because a state becomes capable of aggression against its neighbors or of undertaking a challenge to the dominant power does not mean that it will do so. The United States itself did not mount a violent challenge to British hegemony in the late 19th century as its own power increased, and contemporary European states such as Germany have forgone opportunities for aggression in favor of a focus on regional economic integration. What matters most is the rising state's degree of satisfaction with the existing international order and the willingness of declining powers to accommodate legitimate demands for revisions to that order.<sup>42</sup> According to this interpretation, even if U.S. relative capabilities are declining, the United States and its partners may be able to manage the implica-

<sup>40</sup> See, for instance, Nuno P. Monteiro, "Unrest Assured: Why Unipolarity Is Not Peaceful," *International Security*, Vol. 36, No. 3, Winter 2011/12.

<sup>41</sup> For an account of the United States' relative decline, see, for instance, Charles Kupchan, *No One's World: The West, the Rising Rest, and the Coming Global Turn*, New York: Oxford University Press, 2012. For a contrary view, see Robert Kagan, "Against the Myth of American Decline," *The New Republic*, January 11, 2012.

<sup>42</sup> See, for example, Charles F. Doran, *Systems in Crisis: New Imperatives of High Politics at Century's End*, Cambridge, UK: Cambridge University Press, 1991.

tions through deft diplomacy and the accommodation and integration of rising powers within the existing order. The relatively inclusive international institutions that the United States helped to erect in the wake of the Second World War should help to facilitate such accommodation.<sup>43</sup>

### **Taking Stock of the Academic Debate**

Within the social science community, advocates of the persistence thesis are in the minority. Their challenges to the thesis that war is declining, however, deserve serious consideration. While the bulk of data suggest long-term declines in the incidence of conflict, the data are hardly unambiguous (a point that will be explored in more detail in the following chapter). Moreover, the deadliest events — systemic wars among the world’s great powers — are such rare events that it is difficult to model them statistically, yet a single such war could quickly reverse the recent observed declines in violent death. Finally, if U.S. preponderance has been a major factor in the decline of conflict, and that preponderance is now beginning to wane (as many contend), both interstate and intrastate conflict might be expected to rise unless other, more favorable, factors offset the higher risk posed by declining U.S. power.

The debate between proponents of the two theses has become a rich one, and it is not our intention to parse the complexities of that debate here. Rather, we want to highlight a number of areas of agreement and debate between the two camps and their implications for this report.

First, although there is debate about which of the various drivers of conflict matters most or which should be emphasized by actors working for peace, there is substantial agreement about the importance of the dozen or so “key factors” used in the models at the center of this report — factors such as economic development, growth, and interdependence; state capacity; mature democracy; balances of military capabilities; and international organizations and norms.

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<sup>43</sup> The classic statement of this thesis remains Robert O. Keohane, *After Hegemony: Cooperation and Discord in the World Political Economy*, Princeton, N.J.: Princeton University Press, 1984. See also Ikenberry, 2000.

Second, both sides agree that the recent decline in conflict is much more pronounced among interstate conflicts than among intra-state conflicts. However, the most-destructive interstate conflicts — wars among great powers — are rare events, making it more difficult to determine whether the “long peace” observed since the end of World War II heralds a permanent change in the likelihood of conflict between major powers or is simply the result of randomness.

Third, the time period selected for analysis exercises considerable influence on the conclusions that scholars draw. Proponents of the persistence thesis criticize many who observe a decline in war for starting their analyses immediately after World War II, without acknowledging that this war was the deadliest conflict in human history and one that followed World War I, another of humanity’s bloodiest episodes. On the other hand, many proponents of the persistence thesis themselves begin their analysis immediately after the Napoleonic Wars and compare the record of the 20th century to that of the post-Napoleonic 19th — a period often noted as one of the most peaceful in modern history and thus a particularly unfavorable point of comparison with recent history. Some scholars who have extended their analyses back yet further, notably Steven Pinker, observe an even longer-running trend toward lesser levels of violence. Unfortunately, the further back in time one goes, the murkier the historical record becomes, making it difficult to make definitive statements about conflict trends over many centuries, particularly when assessing the world outside of Europe. Moreover, the longer the historical period covered by an analysis, the more different contextual variables must be incorporated. How much do wars among medieval lords resemble those between advanced industrialized states? Are such comparisons even meaningful? Those who perceive a single, invariant human nature answer in the affirmative; those who see human beings as profoundly shaped by their circumstances often find such comparisons of limited use.

Fourth, interpretations of battle-death data are challenging. Analysts who examine violent deaths as a *proportion* of total population have found that such deaths show clear evidence of decline over time. Those who look only at the *absolute* number of deaths point out that the two world wars represent the worst violence in human history.

The historical record also poses challenges: The further back in time and the farther from Europe a scholar extends his or her analysis, the less reliable the data on battle deaths become. It is therefore unclear whether an apparent increase in the absolute number of deaths in war is entirely the product of ever-deadlier conflict — or at least in part the result of better record-keeping.

We note the ongoing academic debates for purposes of setting the context for our report. Although our research approach is explained in detail in Chapter Four, here we highlight three ways in which the research reported in this volume seeks to deal with the uncertainties raised in this review of the academic literature. First, to the extent that data permit, it uses a number of different time periods and thresholds of violence to show whether the results it presents are dependent upon a narrow range of times and conflict intensities. Second, recognizing the nonlinearities inherent in human history, we project multiple possible futures, including ones representing extreme circumstances. To the extent that the conflict trends projected in each of these scenarios point in the same general direction, we have strong reason to believe that we have found a robust trend — one unlikely to be reversed by any but the most extraordinary events. Even with these efforts, however, we acknowledge that our conflict projections are limited by the data available to us. We cannot, therefore, address all of the concerns raised by potential skeptics. Consequently, the third way in which we attempt to address the uncertainties inherent in such research is through transparency. We have sought to explain each of the steps in our research in such a way as to be understandable even to nonspecialists. We present considerable descriptive statistics to help readers visualize the data on which we are relying. We also use scenarios based on narratives as well as statistical analyses to help readers understand the robustness of our models' projections. In this way, readers can make their own judgments regarding our findings and the likelihood of divergent future conflict trends.

Before attempting to build models to project the future incidence of conflict, however, it is important to understand historical trends. Chapter Three therefore reviews the historical record, placing current world crises and our expectations about the future in a broader context.



## Historical Trends in Conflict and War

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The frequency and intensity of armed conflict have generally declined in recent decades before the spike in violence over the past two years. This is the consensus position of the academic literature, as was discussed in Chapter Two, and was also the finding of prior RAND research on the subject.<sup>1</sup> The record of generally declining conflict in the recent past provides important context for our attempts to project future conflict trends.

In this chapter, we provide a brief overview of recent trends in conflict and war at both the global and regional levels. Prior research has had less to say about regional trends in conflict and war. Potential regional divergences in conflict trends may also be important for policymakers, as conflicts in some regions are disproportionately likely to affect vital U.S. interests and lead to U.S. military involvement. Our analysis focuses on a small number of metrics, including the incidence of armed conflict, the type of actors involved in each conflict, and the intensity of these conflicts. These metrics provide the reader with a summary of the historical record on trends in armed conflict and provide context to current events. They also provide important background for interpreting the projected future levels of armed conflict that are the focus of the subsequent chapters.

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<sup>1</sup> Szayna et al., 2017. This RAND research undertook an exhaustive review of different data sources on armed conflict and assessed that this finding was largely borne out regardless of the specific metric selected.

## Data Sources and Definitions

The trends in armed conflict we used are drawn from two main data sources, the Correlates of War (COW) project and the UCDP.<sup>2</sup> The UCDP data provide a useful source to illustrate trends in armed conflict since 1946. The UCDP data set defines conflict as “a contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths.”<sup>3</sup> The data set further divides the armed conflicts identified by their level of intensity, marking those that exceed a higher casualty threshold of 1,000 battle-related deaths per year. In our analysis, we make a distinction between armed conflicts that exceed the threshold of 25 battle deaths per year, which we refer to as “conflicts,” and the more-limited set that also exceeds the threshold of 1,000 battle deaths per year, which we refer to as “wars.”<sup>4</sup>

However, looking only at trends in armed conflict since 1946 can be problematic, particularly for considering trends in interstate conflict. While intrastate conflict has been quite frequent since 1946, wars between states have been comparatively rare, making an understanding of their historical trajectory correspondingly difficult. As a result, we also provide figures showing the trends in warfare back to 1900 using data from the COW project.

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<sup>2</sup> Additional conflict data sources we considered are discussed in the appendix at the end of this report.

<sup>3</sup> The UCDP data set defines *battle-related deaths* as any death “caused by the warring parties that can be directly related to combat” (UCDP, *UCDP Battle-Related Deaths Dataset Codebook*, Uppsala, Sweden: Uppsala University, 2014). Included are deaths resulting from traditional battlefield fighting, guerilla warfare, urban warfare (bombs, assassinations), and attacks on military bases, cities, and villages. It also includes civilians killed in crossfire during attacks on military targets or personnel. Individuals who are wounded in battle and die later on are also included in battle death totals. The only civilian deaths that are included in the analysis are those that occur during crossfire or as collateral damage in an attack on a military target. Civilians who die of starvation, one-sided attacks by militants on civilian populations, or other conditions brought on by war are not counted as battle deaths.

<sup>4</sup> Additional details related to the use of the battle death metric are discussed in the appendix at the end of this report.



The COW data include a record of all wars between 1816 and 2007, where a war is defined as a conflict with at least 1,000 battle-related deaths per year.<sup>5</sup> Due to the declining reliability and availability of historical data the further back in time one goes, we limit our consideration to the period after 1900, which is sufficient to show a much wider range of the frequency of warfare. The primary advantage of the COW data for the purpose of our analysis is therefore that they include wars that occurred prior to 1946, the cutoff for most other conflict data sets, such as the UCDP and the Major Episodes of Political Violence (MEPV). The COW data do not include incidences of lower-intensity conflict, between 25 and 1,000 battle-related deaths per year, which are available from later conflict data sources. While some lower-intensity data sources are available for interstate conflict prior to 1946, most notably the Militarized Interstate Dispute (MID) data set, such sources are not directly comparable to UCDP armed conflicts, and we judged that their inclusion would therefore be more likely to confuse than enlighten.<sup>6</sup> Prior to 1946, therefore, we limited our investigation to consideration of higher-intensity forms of armed conflict, interstate and intrastate war.<sup>7</sup>

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<sup>5</sup> The COW data define *battle deaths* as including “not only those personnel killed in combat but those who subsequently died from combat wounds or from diseases contracted in the war theater. It should also be noted that these figures include not only personnel of the system member but native troops from the colonies, protectorates, and dominions who fought alongside them.” Joel David Singer and Melvin Small, *The Wages of War, 1816–1965: A Statistical Handbook*, New York: Wiley, 1972. Singer and Small are cited in Meredith Reid Sarkees, *The COW Typology of War: Defining and Categorizing Wars*, Version 4 of the Data, Correlates of War Project, 2010. Notwithstanding the apparent precision of this definition, COW battle death figures should be considered to be approximate values only. Particularly for wars that took place outside of Europe and North America prior to 1945, historical sources may simply not be available to reliably record the precise number of battle deaths.

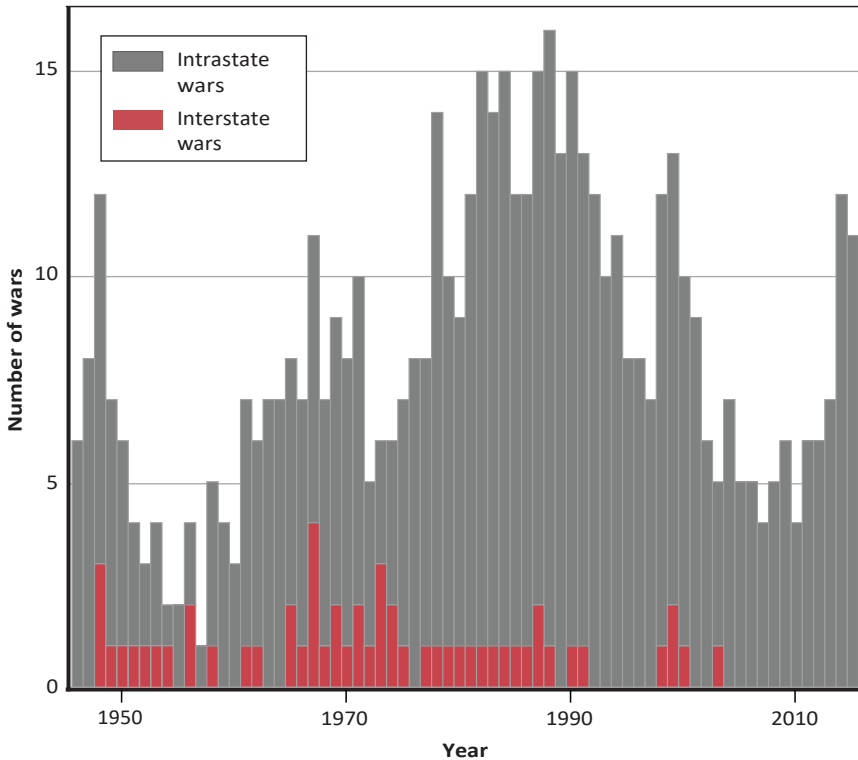
<sup>6</sup> MIDs can be either violent or nonviolent. They can denote troop movements or similar events, as well as low-intensity conflicts or even major wars. Glenn Palmer, Vito D’Orazio, Michael Kenwick, and Matthew Lane, “The MID4 Data Set, 2002–2010: Procedures, Coding Rules and Description,” *Conflict Management and Peace Science*, Vol. 32, No. 2, 2015.

<sup>7</sup> The difficulty in identifying lower-intensity conflicts further back in the historical record also argues for such a focus. While high-intensity conflicts are likely to be recorded even in the remote past, lower-intensity conflicts may easily be missed. Comparing the incidence of lower-intensity conflicts between, say, the 19th century and the present will therefore tend to make the present appear more violent and the past more peaceful than was likely the case. Our focus only on higher-intensity conflicts, or wars, helps limit the scale of this problem.

## Global Trends

The incidence of war at the global level declined markedly since the early post-Cold War period, only to spike again in the past couple of years. As shown in Figure 3.1, in the post-Cold War period, the incidence of wars – involving more than 1,000 battle deaths per year – had reached levels not seen since the 1950s before the large uptick in the past few years. Interstate wars have become particularly infrequent, with most years since the early 1990s lacking them entirely. This stands

**Figure 3.1**  
**Number of Interstate and Intrastate Wars, 1946–2015**



SOURCES: Erik Melander, Therése Pettersson, and Lotta Themnér, “Organized Violence, 1989–2015,” *Journal of Peace Research*, Vol. 53, No. 5, 2016; Gleditsch et al., 2002.

in contrast to the Cold War period, when interstate wars – while still small in number – were a more regular occurrence.

The length and extent of the post-Cold War decline in war may or may not be notable by historical standards. Periods of declining war have occurred several times throughout history, as have their subsequent reversals. A brief assessment of trends in warfare over a longer time period may therefore be helpful in providing a useful perspective.

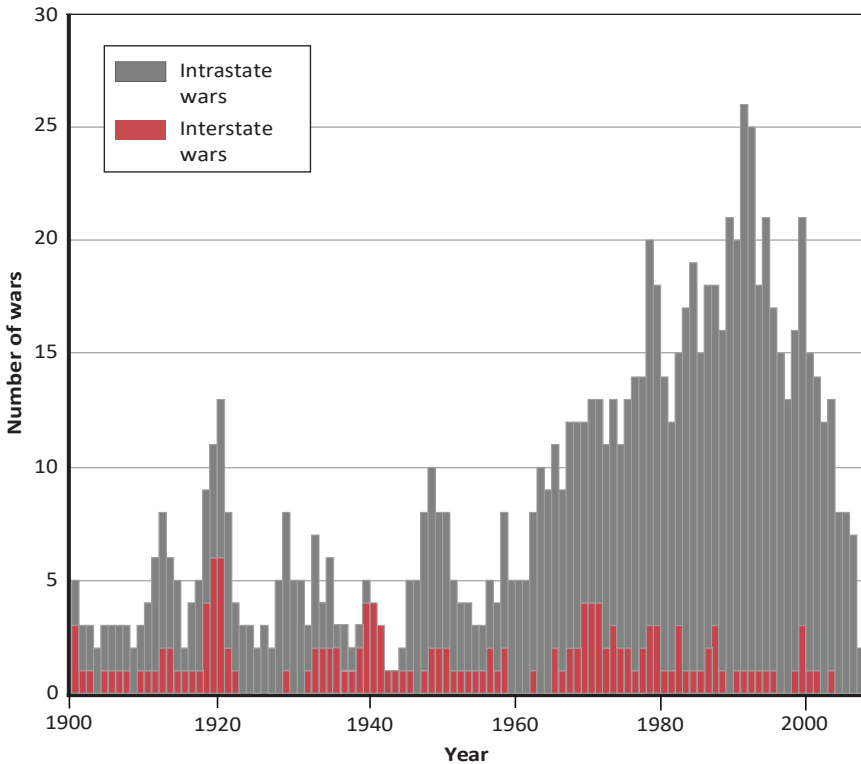
Figure 3.2 covers a longer period of time by using the COW database, which catalogs wars back to the 1800s (although it is not updated as regularly as UCDP data, and does not yet include the past nine years of wars). By extending our analysis to cover a longer period of time, we can note two things. First, the growth in intrastate wars that occurred throughout the 1970s and 1980s was indeed dramatic compared with any previous period of the past century. The incidence of interstate wars was also relatively high throughout this period, although at levels that had been seen in earlier historical eras, such as the 1930s. It is important to note, however, that both of these trends occurred during a period in which the number of independent states increased dramatically – by more than 150 percent from 1950 to 2000.<sup>8</sup> While this helps to contextualize the sharp increase in the number of intrastate wars during the Cold War, it also helps to make the declines in both intrastate and interstate wars since the 1990s more remarkable, given the much greater number of states and dyads (i.e., pairs of states) that could become involved in warfare in comparison with earlier historical eras.

Second, the data shown in Figure 3.2 are notable for the way in which they treat the two World Wars. Each of these massive conflagrations is counted as a single war. Wars of any intensity level were also counted as single events in the UCDP data in Figure 3.1, but the range of intensity experienced in the post-1945 era has been comparatively narrow, and the focus on counting the number of conflicts and wars within this period less problematic. As we extend our analysis back in time to cover periods with much wider ranges of intensity, however, this approach can be increasingly misleading. Indeed, in

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<sup>8</sup> RAND calculations. For data on the roster of independent states over time, see Correlates of War Project, “State System Membership List, v2011,” 2011.

**Figure 3.2**  
**Number of Interstate and Intrastate Wars, 1900–2007**



SOURCE: Meredith Reid Sarkees and Frank Whelon Wayman, *Resort to War: 1816–2007*, Washington, D.C.: CQ Press, 2010.

NOTE: The COW data identify wars other than interstate and intrastate wars, including those between two nonstate actors and wars of colonial conquest and rebellion that pit states against nonstate actors occurring somewhere other than the homeland territory of the state. However, these wars have historically been relatively few in number and lower in intensity. They are therefore omitted from this figure to allow for an easier comparison with the interstate and intrastate conflict trends.

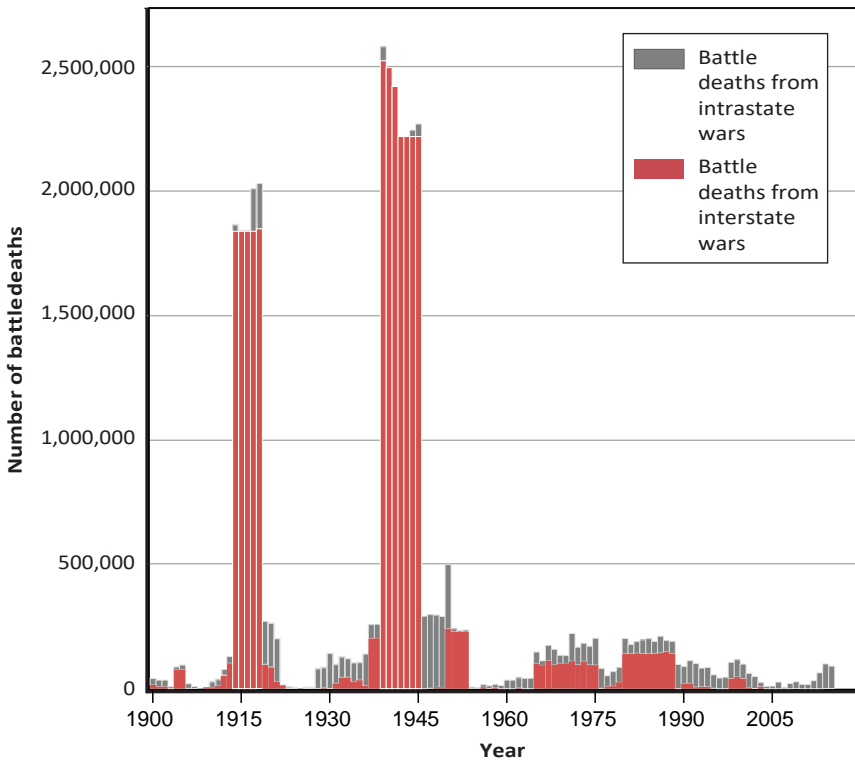
RAND RR1177-3.2

Figure 3.2, the early 1940s – the period of the worst organized violence in human history – appear to be relatively peaceful. Additional metrics are clearly needed.

If we instead look at the total number of battle deaths that occurred in different types of warfare, as shown in Figure 3.3, the entire post-

1945 period – and the post-Cold War period in particular – begin to appear increasingly pacific. The recent period of low battle deaths has also occurred despite a global population explosion – from roughly 1.6 billion people in 1900 to roughly 7 billion people in 2012 – sug-

**Figure 3.3**  
**Number of Battle Deaths from Interstate and Intrastate War, 1900–2015**



SOURCE: Sarkees and Wayman, 2010; UCDP, *UCDP Battle-Related Deaths Dataset v.5*, Uppsala, Sweden: Uppsala University, 2016.

NOTE: COW does not provide annual battle death data, only an aggregate number of battle deaths that occurred throughout the entire duration of the war. To generate this figure, we therefore assumed that battle deaths for each war were evenly distributed throughout each year in which it was fought. The UCDP battle death figures count deaths from internationalized intrastate wars as part of the intrastate war category.

gesting that people now have a much lower risk of being killed in war than in any other recorded period.<sup>9</sup>

Figure 3.3 also highlights the fact that while interstate wars have historically been much less frequent, they have also been responsible for the large majority of battle deaths. In the post-1945 period, battle deaths from the Korean War (1950–1953), Vietnam War (1965–1975), and the Iran-Iraq War (1980–1988) stand out, particularly given that intrastate wars throughout the period were so much higher in number, as shown in Figures 3.1 and 3.2.<sup>10</sup>

Perhaps the most notable feature of the data featured in Figure 3.3, however, is how dramatically different in scale the battle deaths from the two World Wars are in comparison with the battle deaths from all other wars over the past century. While it is not surprising that these sorts of large-scale, systemwide wars are also the most destructive, their clearly outsized importance in determining trends in battle deaths also presents a concern for analyses such as ours. Much of the empirical literature on violent conflict, upon which the current study is based, is concerned with the occurrence of all types of war and conflict, and it generally does not treat such large-scale wars as different in kind, or systematically explore the possibility that they may be driven by different factors than wars in general. Indeed, a statistically based analysis of events that occur once a century would not be meaningful given their rarity. As such, it is important to take seriously the possibility that wars on the scale of the two World Wars are not driven by the same factors

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<sup>9</sup> For a more thorough analysis of this issue, see Lacina, Gleditsch, and Russett, 2006. Global population figures are from World Bank, *World Development Indicators 2016*, Washington, D.C., 2016; and Vaclav Smil, "Global Population: Milestones, Hopes, and Concerns," *Medicine and Global Survival*, Vol. 5, 1998.

<sup>10</sup> It should also be noted that these data, along with all of the data sets discussed in this report, include only battle deaths between organized political groups. Deaths from one-sided violence, such as massacres or genocide, are not reflected, and neither are deaths from criminal or other types of nonpolitical violence. Figure 3.3 therefore should not be taken to represent a complete picture of violent deaths over the past century, merely that portion that occurred during interstate and intrastate wars.

as other wars, and that their likelihood may be unrelated to broader conflict trends.<sup>11</sup>

However, numerous qualitative or historical volumes have been written about the genesis and prosecution of systemwide wars, and the factors that are typically identified as driving such wars have much in common with the key factors that the literature highlights as driving wars in general.<sup>12</sup> The relative balance of power, the degree of hegemony, and highly salient territorial issues are, for example, common to both sets of analyses, and metrics operationalizing them are also included in our models. It therefore seems likely that systemwide wars are associated with factors similar to those of high-intensity interstate wars. Also suggestive of this similarity is the fact that we performed a supplementary analysis of wars that involved a substantially higher number of battle deaths, greater than 100,000. As we will discuss in Chapters Four and Five, the performance of the model, as well as the performance of each of the key factor metrics within the model, did not materially differ from the statistical model that included all interstate wars. Very high-intensity wars appear to be associated with the same factors as wars in general.

What therefore may be most notable about the post-1945 period, then, is not only that interstate wars have become increasingly infrequent, but that when they have occurred they have typically not pitted major powers directly against one another.<sup>13</sup> Even if wars between major powers are associated with the same factors as other wars, their incidence is likely to have much greater effects on overall trends in war

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<sup>11</sup> Given the rarity of such wars – prior to 1914 one had not occurred for more than a century, but then two such wars occurred within 30 years of one another – assessing whether the lack of these systemwide wars since 1945 is meaningful or not also cannot be done simply by noting that it has now been almost 70 years since the conclusion of the last such war.

<sup>12</sup> The list of key factors will be discussed in detail in Chapter Three. For qualitative assessments of the origins of the two World Wars, see, for example, Paul Kennedy, *The Rise and Fall of the Great Powers*, New York: Random House, 1987; Barbara Wertheim Tuchman, *The Guns of August*, New York: Random House, 1962; William L. Shirer, *The Rise and Fall of the Third Reich*, New York: Random House, 1991; and A. J. P. Taylor, *The Origins of the Second World War*, Vol. 2128, London: Penguin UK, 1991, among many, many others.

<sup>13</sup> This excepts the Korean War, which was fought in large part between U.S. and Chinese forces.

and battle deaths, given their greater capacity to inflict destruction and greater likelihood of drawing other states into the conflict.

An investigation into the likelihood of war between specific pairs of states, such as non-allied major powers, is beyond the scope of this study, which is designed to focus on long-term aggregate trends. One area where this study may nonetheless be helpful is projecting the likelihood of shifts in the regional distribution of power between major powers, a metric that we calculate as part of our interstate war projections and which is discussed in detail in Chapter Six and in the appendix. Dramatic or rapid shifts in the regional balance of power have historically been associated with a greater likelihood of major-power war, although such conflicts cannot be projected from a single metric in isolation from other factors. The potential for war between specific major powers remains a topic for future study.

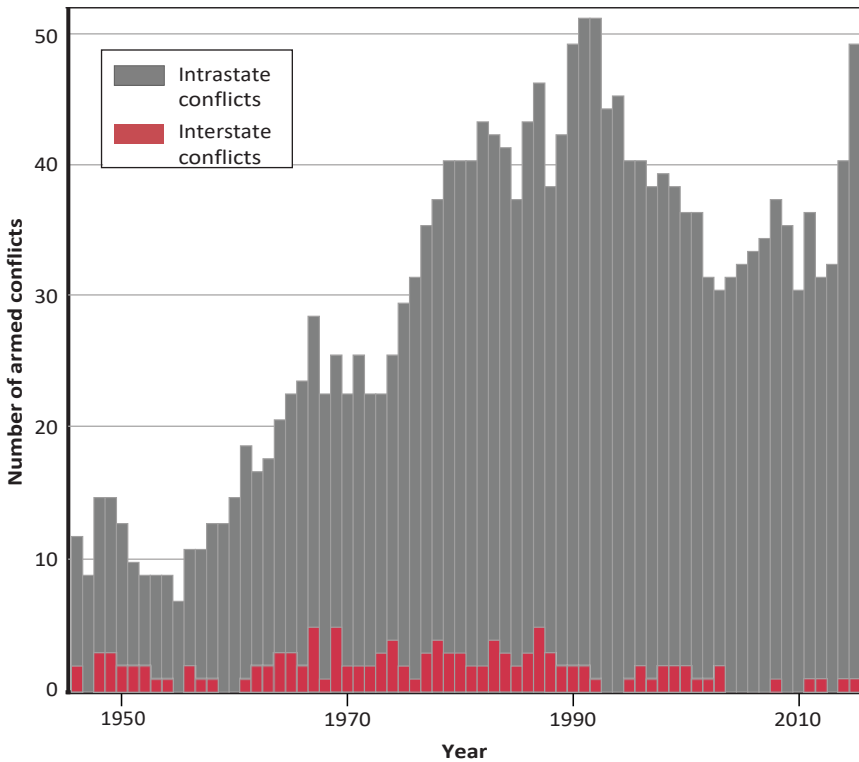
The metrics presented so far have focused on relatively high-intensity conflicts, wars involving more than 1,000 battle deaths per year. However, it is also important to review trends that incorporate lower-intensity armed conflicts. Even conflicts of relatively modest intensity may still greatly affect U.S. security interests, depending on where they are located. In addition, the greater number of such lower-intensity conflicts allows us to take a meaningful look at regional conflict trends.

The incidence of lower-intensity armed conflicts, involving 25 or more battle deaths in a given year, largely follows the trends in the incidence of war shown in Figure 3.1. As shown in Figure 3.4, the incidence of such conflicts grew steadily throughout the Cold War period, particularly those that were intrastate in nature, before entering a notable decline through approximately 2013. Over the past two years, however, they have spiked to among the highest levels recorded, and the trend in the incidence of intrastate armed conflict over the entire post-1945 period does not even appear to be downward, although interstate conflicts have continued to be rare events.

However, there are at least two important reasons why looking only at the incidence of such conflicts is misleading or unhelpful. First, some of the coding rules used by UCDP lead to double-counting. UCDP identifies conflicts between armed groups, and when such groups change allegiance or structure, a new conflict is identified. For



**Figure 3.4**  
**Number of Interstate and Intrastate Conflicts, 1946–2015**



SOURCES: Melander, Pettersson, and Themnér, 2016; Gleditsch et al., 2002.

RAND RR1177-3.4

example, over the past two years many armed groups outside Syria and Iraq have pledged allegiance to ISIS, leading UCDP to identify new conflicts between ISIS and the government of the state where these armed groups were operating. If this shift in allegiance occurs during a calendar year, then UCDP will identify two different conflicts in that country, even if no additional forces have joined the fight. This leads to the potential for annual data, such as shown in Figure 3.4, to “double-count” conflicts in that year. While this methodology is used in the identification of wars in Figure 3.1, the effect of this “double-counting” on the number of lower-intensity conflicts appears to be more pro-

nounced, at least in recent years, as smaller armed groups appear to change organization and allegiance more frequently.

Second, not all geographic regions are of equal interest to U.S. policymakers. Spikes in conflict that occurred in East Africa have historically received less attention and induced fewer military responses than those that have occurred in Europe. Disaggregating regional trends in conflict, to the extent that the data allow, is the focus of the following section.<sup>14</sup>

## Regional Trends

While considering global trends is one important way to understand historical patterns in the incidence of wars and conflicts, attention to regional conflict trends may be as important (or even more important) a way to understand how the distribution of conflict and war has changed over time and where conflict may be most likely in the future. Global trends may disguise important differences and anomalies in conflict incidence at the regional level. Conflict in certain regions may be rising even as the total number of conflicts globally falls. In addition, conflicts in some regions may be more strategically important for the United States than others and may, as a result, be more likely to draw in U.S. forces or money than conflicts in other regions. As discussed in more detail in Chapter Eight, the United States has been more likely to become militarily involved in conflicts in Central America, the Middle East, and East Asia than it has been in conflicts in other areas of the world. As a result, U.S. security analysts may be most interested in possible future trends in conflict in these regions.

### Identifying Regions for Analysis

As a first step in evaluating conflict at the regional level, we considered how to organize countries into geographic regions.<sup>15</sup> We identified two

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<sup>14</sup> As is discussed in detail in Chapter Four, certain types of conflict and war may simply be too infrequent in certain regions to allow for an empirical analysis to be conducted.

<sup>15</sup> The many alternative regional divisions used by the U.S. government and other organizations are noted briefly in the appendix.

important factors for identifying cohesive regions – geographic continuity and countries’ economic, political, and social ties – and used network analysis to identify regional clusters based on these factors.<sup>16</sup>

Our current project used the same approach as the foundation for our regional analysis. We also mandated that regions had to contain a relatively substantial number of states to ensure that the number of conflicts assigned to each region would give us sufficient explanatory leverage to assess patterns in interstate and intrastate conflict. The results suggested nine regions for our analyses:

- Central America and the Caribbean
- South America
- Europe
- Eurasia
- Mideast and North Africa
- West Africa
- East and southern Africa
- South Asia
- East and Southeast Asia.

We excluded the United States and Canada from our statistical analyses, and as a result, did not include them in our regions.<sup>17</sup> The regions used in our analyses are shown in Figure 3.5.

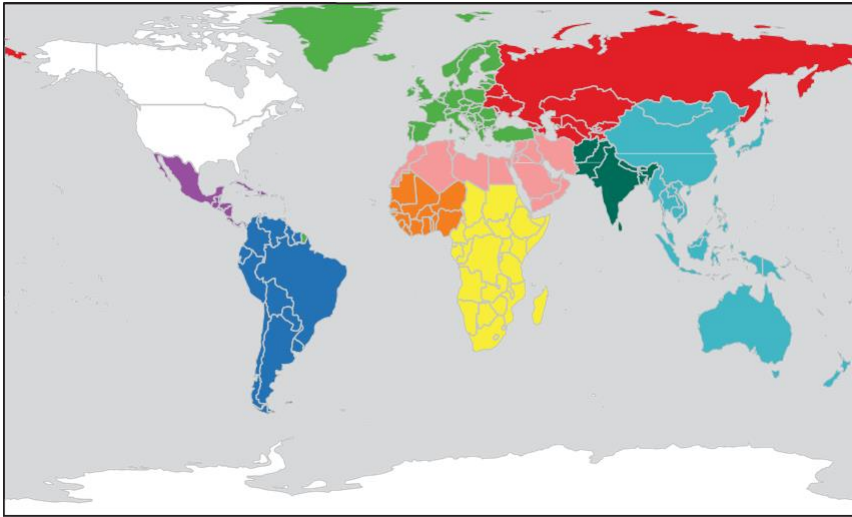
It is also important to note that these regions are not all the same size, either geographically – as can be seen visually in Figure 3.5 – or in the number of states that they contain. These differing sizes are important to keep in mind when interpreting our data, which focus on the incidence of conflict and war in each region. Generally speaking, the larger the number of states in a region, the more opportunities that region has to experience events that will be recorded in the COW or UCDP data as

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<sup>16</sup> This approach builds on previous RAND work. See Thomas S. Szayna and William Welser IV, *Developing and Assessing Options for the Global SOF Network*, Santa Monica, Calif.: RAND Corporation, RR-340-SOCOM, 2013.

<sup>17</sup> The likelihood of conflict within or between the United States and Canada was not judged to be significantly likely by 2040, and thus did not merit further study.

**Figure 3.5**  
**Nine Regions for Analysis**



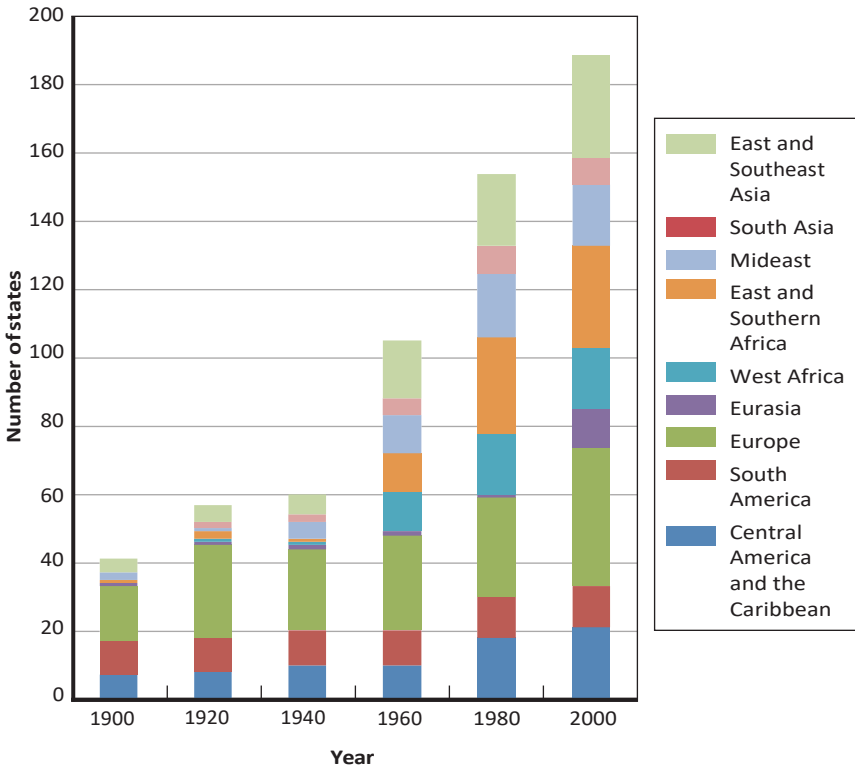
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interstate or intrastate conflicts or wars.<sup>18</sup> Figure 3.6 details the number of independent states in each of our identified regions over time.

Europe stands out as the largest region as measured by the number of independent states, followed since decolonization by East and southern Africa and East and Southeast Asia. South Asia and Eurasia generally have been the smallest regions by this measure. These data will be important to bear in mind in the analyses that compare the relative frequency of conflicts and wars across each of the different regions. For example, a handful of conflicts in South Asia may be much more indic-

<sup>18</sup> It is possible for a single state to be involved in multiple interstate or even intrastate conflicts or wars in a given year, so the number of potential conflicts or wars is not theoretically limited by the number of states in a region. Further, interstate conflicts can occur in a region with no independent states, as shown by the British and German extension of the First World War to their colonial possessions in Africa. In practice, however, conflicts that occur at the same time in the same location are likely to be merged together, both in the behavior of the participants and in how the different conflict databases count them. While not exact, the number of states does represent a rough proxy measurement for the potential opportunities for conflicts or wars that exist in each region.

**Figure 3.6**  
**Number of States in Each Region over Time**



SOURCE: Sarkees and Wayman, 2010.

RAND RR1177-3.6

ative of widespread conflict at the regional level than the same number of conflicts in a larger region, such as East and southern Africa.

**Regional Trends in Conflict and War**

This section provides an overview of regional trends in interstate and intrastate conflict and war. We present these trends using both COW and UCDP data in order to cover a wide range of years and conflict intensities, as well as to illustrate the fact that both data sets present broadly similar trends despite their somewhat different definitions of conflict.

Figure 3.7 shows trends in interstate and intrastate conflict since 1946 using the UCDP data. Several observations are worth making. First, the frequency of interstate conflict is substantially less than that of intrastate conflict across all regions. Over the period since 1946, interstate conflict has occurred most often in the Mideast, South Asia, and East and Southeast Asia. Since the end of the Cold War, however, interstate conflict has become extremely infrequent in every region except South Asia and East and southern Africa, with the decline in interstate conflict in East and Southeast Asia being particularly pronounced.

Intrastate conflicts have occurred with greater frequency in all regions. As Figure 3.7 suggests, however, these conflicts have been and continue to be concentrated in four regions: East and southern Africa, the Mideast, South Asia, and East and Southeast Asia. Intrastate conflict in all these regions has decreased since its peak (varying between the 1970s and early 1990s), but remains relatively high in comparison with other regions. The high incidence of intrastate conflict in South Asia is particularly notable, given the small number of states in that region, as will be discussed in greater detail.<sup>19</sup>

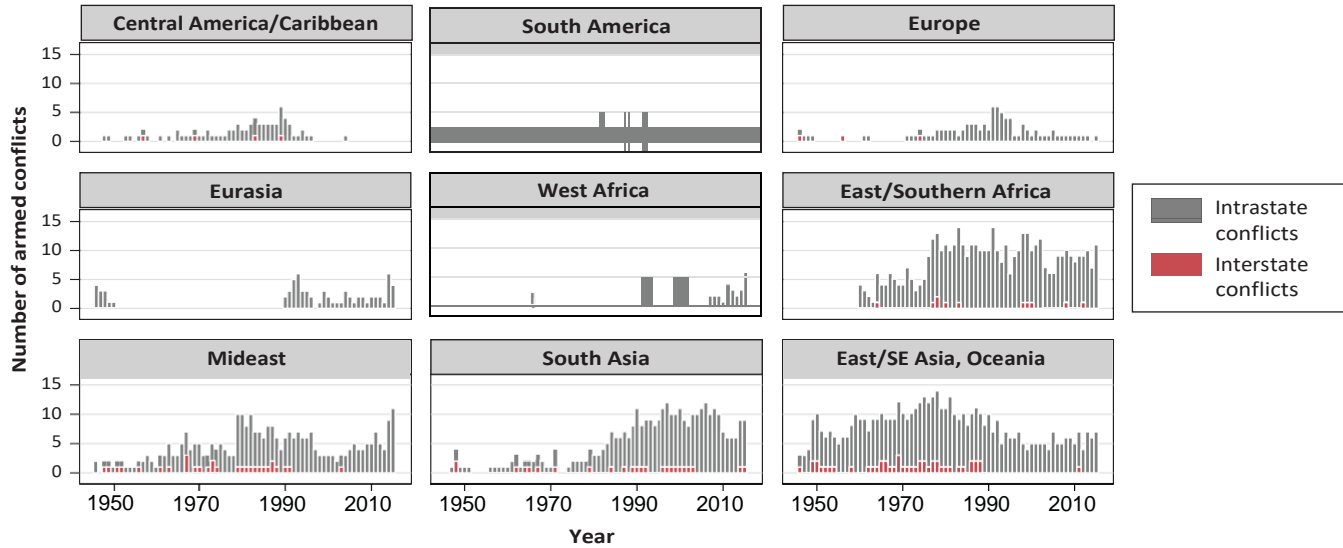
Intrastate conflict has been lower in other regions, but no region has been without such conflict. Furthermore, conflict in some of these regions seems to be rising in frequency. For example, intrastate conflict in Eurasia remains relatively low, the war in Ukraine and “frozen conflicts” in Azerbaijan, Georgia, and Moldova notwithstanding. Similarly, intrastate conflict in West Africa may have increased in frequency in recent years. In other regions, however, conflict has more clearly been in decline. Intrastate conflict in Central America virtually disappeared after the mid-1990s,<sup>20</sup> and intrastate conflicts in Europe have declined in recent years after reaching a peak in the immediate aftermath of the Cold War.

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<sup>19</sup> As discussed, the number of states provides only a rough proxy measurement of the “size” of a region. India, for example, is a large country with a large population, and while it is only one state, it has been the site of multiple intrastate conflicts in many years. See the previous footnote above for further discussion of this issue.

<sup>20</sup> This decline may have been limited to political violence. For a discussion of trends in criminal violence in this region, see Chapter Six.

**Figure 3.7**  
**Number of Interstate and Intrastate Conflicts by Region, 1946–2015**



SOURCES: Melander, Petterson, and Themnér, 2016; Gleditsch et al., 2002.

RAND RR1177-3.7

To allow for a more direct comparison of the relative frequency of conflicts across regions, Figure 3.8 adjusts the number of conflicts observed by the number of independent states in that region in each year. The high prevalence of conflict in South Asia is clearly highlighted, as is the rarity of conflict in Europe. The Mideast is also shown to be more similar in conflict prevalence to East and southern Africa and East and Southeast Asia than would be suggested by an analysis of only the number of conflicts.

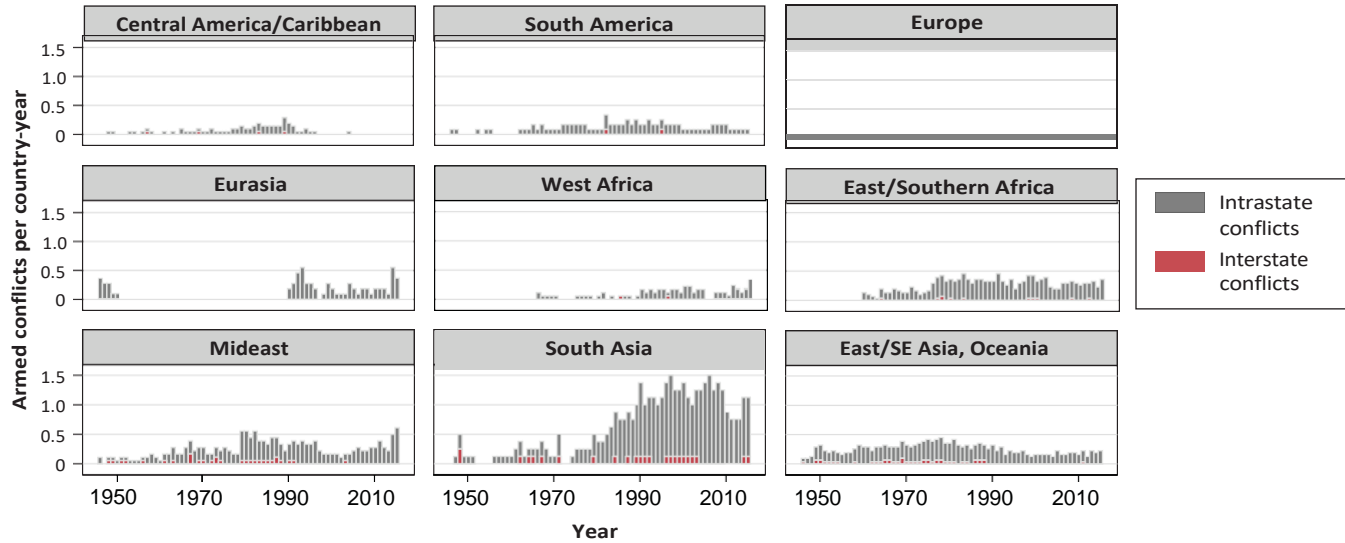
Intrastate conflicts, therefore, continue to be prevalent or even increasing in many regions. However, as shown in Figures 3.1 and 3.4, this persistence of such violence at the global level had largely been confined to lower-intensity conflicts until the past couple of years. This pattern is borne out at the regional level as well. Figure 3.9 shows regional trends in interstate and intrastate war since 1946, using the UCDP data. As expected from the global analysis, interstate war has been infrequent since 1946, and it has become even less frequent in recent years.

When interstate wars have occurred since 1946, they have most frequently been in the Mideast, especially in the 1970s and 1980s, and in East and Southeast Asia prior to 1980. In both regions, however, interstate wars have occurred with great rarity since the end of the Cold War. In South Asia and East and southern Africa, interstate wars have occurred only sporadically, making clear patterns difficult to discern. In other regions, such as Europe and Central America, interstate war has been even less frequent, while it has not occurred at all since 1946 in some regions. Overall, the recent global decline in interstate war has been broadly felt, with no region continuing to experience it with any noticeable frequency since the early 1990s.

Turning to intrastate war, Figure 3.9 shows that, as was true for intrastate conflict, intrastate war has historically been concentrated in specific regions. East and southern Africa, South Asia, and East and Southeast Asia experienced the majority of intrastate wars since 1946. East and Southeast Asia has experienced the sharpest decline, as intrastate war has all but disappeared in the region since the end of the Cold War. East and southern Africa also experienced a notable decline, but much more recently and with greater annual variation. In South Asia, meanwhile, any recent decline appears to have been modest, and levels



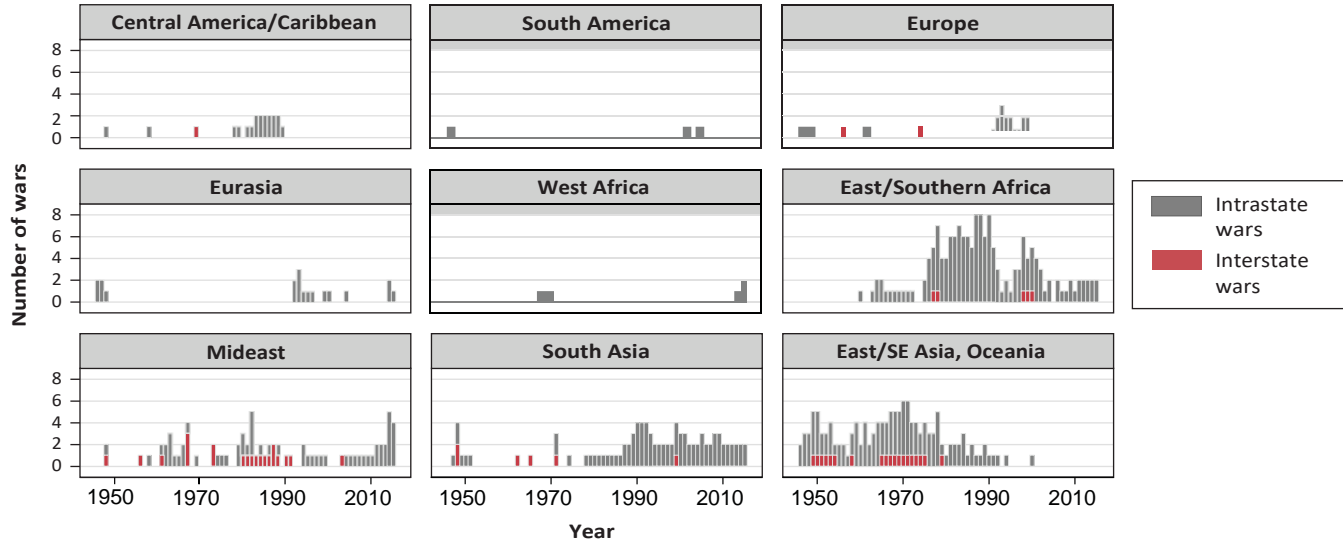
**Figure 3.8**  
**Relative Prevalence of Conflicts by Region, 1946–2015**



SOURCES: Melander, Pettersson, and Themnér, 2016; Gleditsch et al., 2002.

RAND RR1177-3.8

**Figure 3.9**  
**Number of Interstate and Intrastate Wars per Region per Year, 1946–2015**



SOURCES: Melander, Petterson, and Themnér, 2016; Gleditsch et al., 2002.

RAND RR1177-3.9

of intrastate war still remain higher than they were in the early Cold War period. Given the small number of countries in South Asia, this persistence highlights a region that continues to experience intrastate war with great frequency. In the Middle East, intrastate war persists as well, returning in recent years to rates last seen in the late 1970s and early 1980s.

In other regions, intrastate war has been and continues to be relatively infrequent. Intrastate war has not occurred in Central America since the early 1990s (although, as Chapter Seven makes clear, criminal violence has reached levels of intensity similar to many intrastate wars), and it has occurred only sporadically in South America, West Africa, and Europe. Taking into account the large number of states in Europe helps to further emphasize that the region has largely been at peace since 1946. Intrastate war in Eurasia was rare until the end of the Cold War, but since then it has occurred with greater frequency.<sup>21</sup>

## Summary

The data presented in this chapter highlight that conflict and war had generally become less frequent and less intense in recent years, although this trend has clearly been interrupted by high levels of violence since 2014. Interstate war has declined the most notably, while lower-intensity intrastate conflicts remain relatively prevalent and some regions (notably the Middle East and South Asia) suffer from historically high levels of conflict. The next three chapters assess whether future trends in conflict and war are likely to continue or reverse the patterns already observed.

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<sup>21</sup> The appendix includes an alternative assessment of the frequency of war over time that relies on COW data to extend the considered time frame back to 1900.



## **Methodology for Projecting the Incidence of Conflict and War**

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As the review of historical data in Chapter Three highlighted, the incidence and intensity of conflict and war appear to have been trending downward globally and in most regions before the recent spike in the prevalence of armed conflict. This chapter describes how we investigated whether the violence of the past couple of years represents a long-term reversal to previous trends or is likely to prove short-lived. History is replete with instances of temporary declines in conflict giving way to even more violent periods – and, alternatively, spikes in levels of violence (such as that observed in the immediate aftermath of the Cold War) representing only brief detours from long-standing trends. Without a deeper understanding of the forces behind these patterns, we have only a limited ability to speculate as to their future direction.

Our analysis aims to use the academic literature on armed conflict reviewed in Chapter Two and the data reviewed in Chapter Three to construct statistical models that can be used to project the incidence of conflict through the year 2040. This chapter details how we constructed such models by exploring the links between the historical incidence of conflict and war and several potential key factors identified through a review of the academic literature. It also details how we estimated trends in these key factors into the future. The following chapter then combines our statistical models of conflict with the projections of these key factors to project future levels of conflict and war.

## **Building the Conflict and War Models**

The process of building our statistical models for conflict and war included two main steps. First, we identified key factors that the academic literature has shown to affect the likelihood of conflict or war. Once these were identified, we constructed specific metrics to translate these concepts into measurable variables. Second, we used statistical analysis to evaluate the relationship between the historical incidence of conflict and war and the historical prevalence of the identified key factor metrics. On the basis of this analysis, we then built models that can be used to project the likely incidence of conflict and war over the next 25 years.

### **Operationalizing the Key Factors**

Drawing on an extensive review of the academic literature on interstate and intrastate conflict that RAND had conducted previously, we identified 11 key factors as those most likely to shape trends in conflict and war going forward.<sup>1</sup> The list of key factors is intended to include all factors supported by a large body of academic research establishing their relationship with the incidence of armed conflict. We eliminated potential key factors from consideration only if the literature supporting them was relatively limited or contradictory or if they were judged to be unlikely to change substantially over time.<sup>2</sup>

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<sup>1</sup> Watts et al., 2017.

<sup>2</sup> The descriptions of the first nine of the factors in this list are quoted from Szayna et al., 2017, pp. 42–44. The final two key factors came out of the greater regional focus of this study in comparison with previous RAND research on the topic. This prior research, for example, had a similar key factor called “degree of U.S. preeminence” that we adapted to “degree of regional hegemony” on the grounds that in different regions the United States may not necessarily be the dominant power. The degree of territorial contestation was considered as a potential key factor in the previous research but not included because global trends in the key factor were not judged to be as likely to vary as other identified key factors. However, clearly divergent trends in this key factor remain at the regional level, justifying its addition to our analysis. Examples of potential key factors eliminated from consideration for these reasons include the empowerment of women and the effect of aging populations, which are not yet backed by exhaustive bodies of literature, and the geographic distance between states, which is doubtless important in providing greater opportunities for conflict but unlikely to change significantly over time. Control variables incorporating such geographic considerations, however, will be incorporated into the statistical models, as will be discussed.

- *The capacity of state institutions.* Institutional capacity affects a state's ability to provide public goods, such as infrastructure or security, to their populations and to maintain effective and disciplined security services.
- *The prevalence of consolidated democracies.* The distribution and nature of political regime types around the world have varied over time. Consolidated democracies are those that have successfully implemented a range of effective institutional rules and legal procedures constraining the executive, mandating popular election of political leaders, and ensuring civil, political, and minority rights.
- *The degree of ethnic and sectarian polarization.* Almost all of the world's states are composed of multiple ethnic and sectarian groups, but ethnic and religious identities do not always act as societal cleavages. Societies become polarized along ethnic or sectarian lines as ethnicity and/or religion becomes an important factor for group identification and forms the basis for political organization and the lens through which societal grievances are framed.
- *The rate of economic growth.* Economies grow at different rates. Expressing the rate of growth in percentage terms from one period to another allows for a calculation of the change in the state's economy in an overall sense and allows for a comparison of rate of growth to other states. High growth rates lead to faster attainment of a developed economy. Highly developed states are less prone to internal conflict. Low economic growth or differential growth rates across groups in a society can fuel grievances that may lead to conflict.
- *The extent of economic interdependence.* Economic interdependence refers to how interrelated states' economies are with each other in particular and with the global economy in general. There are two key characteristics of economic interdependence that influence countries' likelihood of conflict. First, countries' economic outcomes are affected by external conditions, such as demand in another country or a global economic shock. Second, economic interdependence means that disrupting a country's ties to the international economy would hurt its domestic economy.
- *The capabilities of international organizations.* International organizations can undertake key tasks in the international system,

including developing solutions to cross-border problems, mediation of disputes, shaping and enforcing of international norms, disseminating information, and generating shared interests and potentially aligning states' preferences. The capabilities of international organizations to undertake these tasks depend on the amount of authority and resources states delegate to them.

- *The strength of international norms.* International norms represent collective expectations for the proper behavior of state actors. Strong international norms are ones that are relatively universally held and for which there is relatively universal consensus for the need for norm enforcement. Weaker norms may only be held by (or applied to) some states, or may be held more broadly but attract little support when it comes to punishing states that violate the norm.
- *The diffusion of lethal technology.* Diffusion of lethal technology refers to greater access by states and nonstate actors to the technologies necessary to build and deploy lethal weapons, including nuclear, chemical, biological, radiological weapons, precision munitions, or disruptive cyber technology.
- *The extent of resource stress due to population pressures.* Resource stress arises from the scarcity of renewable resources, such as water and arable land, to support the population living in the area. Resource scarcity increases environmental insecurity. The main sources of resource scarcity include: (1) supply-induced scarcity, in which resources are consumed at a faster rate than they can be regenerated; (2) demand-induced scarcity, in which previously stable resource consumption increases through an increase in population or increased consumption per capita; and (3) structural scarcity, in which the distribution of resources is uneven and some groups have limited access to resources.
- *The degree of regional hegemony.* Regional state systems can be characterized by hierarchy. The share of power of the dominant state within that system in comparison to potential challengers to that state's position expresses the degree of hegemony that the dominant state enjoys. Hegemony can be built on a preponderance of military power, a large share of the regional economy, a



central role in regional governance, or the country's position as a supporter and enforcer of international or regional norms.<sup>3</sup>

- *The degree of territorial contestation.* Territory has consistently been found to be the issue over which states most frequently fight. Territory may have major intrinsic or symbolic value to one or both parties, and political or practical difficulties might hinder compromise. By contrast, states that have accepted the border between them and settled all of their competing territorial claims are historically much less likely to come into conflict with one another.<sup>4</sup>

To incorporate these key factors into a statistical model, each needed to be operationalized using one or more metrics. In some cases, this process was relatively straightforward, as scholars had previously invested a great deal of effort in constructing data sources to reflect certain key factors.<sup>5</sup> In other cases, however, the existing academic literature attesting to the importance of these key factors tended to be more qualitative in nature, and robust metrics operationalizing them quantitatively were not available. In these cases, we constructed new metrics to operationalize these key factors, either through additional primary data collection or through construction of composite metrics derived from other existing data sources. The metrics we used or constructed to operationalize each key factor are listed in Table 4.1.

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<sup>3</sup> See, for example, A. F. K. Organski and Jacek Kugler, *The War Ledger*, Chicago, Ill.: University of Chicago Press, 1981; Paul K. Huth, "Extended Deterrence and the Outbreak of War," *The American Political Science Review*, Vol. 82, No. 2, 1988; Keohane, 1984; and Gilpin, 1981.

<sup>4</sup> See for example: John A. Viquez, *The War Puzzle*, Cambridge Studies in International Relations Series Vol. 27, Cambridge, UK: Cambridge University Press, 1993; Paul R. Hensel, "Charting a Course to Conflict: Territorial Issues and Interstate Conflict, 1816–1992," *Conflict Management and Peace Science*, Vol. 15, No. 1, 1996; John A. Viquez and Marie T. Henehan, *Territory, War, and Peace*, New York: Routledge, 2011; and Douglas M. Gibler, *The Territorial Peace: Borders, State Development, and International Conflict*, Cambridge, UK: Cambridge University Press, 2012.

<sup>5</sup> The operationalization of the prevalence of consolidated democracies is a good example. Metrics in the Polity IV data set have been widely used for years throughout the academic literature as proxies for democracy.

**Table 4.1**  
**Key Factor Metrics Assessed**

Key Factor Name	Interstate Metric(s)	Intrastate Metric(s)
Degree of regional hegemony	Number of U.S. troops forward deployed in region <sup>a</sup> Ratio of capabilities between first- and second-most powerful states in region <sup>b</sup> Whether aforementioned regional capabilities ratio crossed 2:1 threshold within prior 5 years	
Degree of territorial contestation	Whether states in dyad contest a territorial claim of medium or high salience <sup>c</sup>	
Diffusion of lethal technology	Whether both states in dyad fall under a nuclear umbrella <sup>d</sup>	

<sup>a</sup> Michael J. Lostumbo, Michael J. McNerney, Eric Peltz, Derek Eaton, David R. Frelinger, Victoria A. Greenfield, John Halliday, Patrick Mills, Bruce R. Nardulli, Stacie L. Pettyjohn, Jerry M. Sollinger, and Stephen M. Worman, *Overseas Basing of U.S. Military Forces: An Assessment of Relative Costs and Strategic Benefits*, Santa Monica, Calif.: RAND Corporation, RR-201-OSD, 2013. We also conducted additional supplementary research to extend these data on U.S. forward presence to cover a longer period of time.

<sup>b</sup> A detailed discussion of the construction of this metric is provided in the appendix.

<sup>c</sup> Bryan A. Frederick, Paul R. Hensel, and Christopher Macaulay, "The Provisional ICOW Territorial Claims Data: Procedures and Description," 2014, unpublished manuscript, currently under review; Paul R. Hensel, Sara McLaughlin Mitchell, Thomas E. Sowers II, and Clayton L. Thyne, "Bones of Contention: Comparing Territorial, Maritime, and River Issues," *Journal of Conflict Resolution*, Vol. 52, No. 1, February 2008. The threshold for identifying a medium- or high-salience territorial claim is a score of 6 or higher on the 12-point scale used in this data set to identify the salience of territorial claims.

<sup>d</sup> Data on nuclear possession from Erik Gartzke and Matthew Kroenig, "A Strategic Approach to Nuclear Proliferation," *Journal of Conflict Resolution*, Vol. 53, No. 2, 2009. Data on which states fell under a nuclear umbrella provided by another state from International Law and Policy Institute, "The Nuclear Umbrella States," ILPI Nuclear Weapons Project Nutshell Paper No. 5, 2012. Additional information on membership in the Collective Security Treaty Organization from Ministry of Foreign Affairs of the Republic of Belarus, "Collective Security Treaty Organization," undated.

Table 4.1—Continued

Key Factor Name	Interstate Metric(s)	Intrastate Metric(s)
Extent of economic interdependence	The prior year's minimum ratio of bilateral trade to gross domestic product (GDP) in the dyad <sup>e</sup> Whether both states in dyad are members of the same trading bloc <sup>f</sup> Whether both states in dyad are members of different trading blocs	
Strength of international norms	Percentage of states in region that have ratified multiple multilateral treaties requiring the pacific settlement of international disputes <sup>g</sup>	
Capabilities of international organizations	Number of multilateral peacekeepers deployed in region conducting interstate peacekeeping missions <sup>h</sup>	Number of multilateral peacekeepers deployed in region conducting intrastate peacekeeping missions

<sup>e</sup> Bilateral trade data from Katherine Barbieri and Omar Keshk, *Correlates of War Project Trade Data Set Codebook*, Version 3.0, 2012. GDP data from International Futures (IFs) modeling system, version 7.0, undated. IFs was initially developed by Barry B. Hughes and is based at the Frederick S. Pardee Center for International Futures, Josef Korbel School of International Studies, University of Denver.

<sup>f</sup> Trading bloc data collected by RAND. Sources included Barry Eichengreen and Douglas A. Irwin, "Trade Blocs, Currency Blocs and the Reorientation of World Trade in the 1930s," *Journal of International Economics*, Vol. 38, No. 1, 1995; Joanne Gowa and Soo Yeon Kim, "An Exclusive Country Club: The Effects of the GATT on Trade, 1950–94," *World Politics*, Vol. 57, No. 4, 2005; and Joanne Gowa and Raymond Hicks, "The Most-Favored Nation Rule in Principle and Practice: Discrimination in the GATT," *Review of International Organizations*, Vol. 7, No. 3, 2012. The relevance of membership in trading blocs to the likelihood of interstate conflict has previously been explored in Timothy H. Peterson, "Insiders Versus Outsiders: Preferential Trade Agreements, Trade Distortions, and Militarized Conflict," *Journal of Conflict Resolution*, Vol. 59, No. 4, June 2015.

<sup>g</sup> Paul R. Hensel, *Multilateral Treaties of Pacific Settlement (MTOPS) Data Set*, Version 1.4, 2005.

<sup>h</sup> Data on numbers of multilateral peacekeepers compiled from several sources by RAND. Sources included Birger Heldt and Peter Wallensteen, *Peacekeeping Operations: Global Patterns of Intervention and Success, 1948–2004*, Printgraf, Sweden: Folke Bernadotte Academy, 2004; International Peace Institute, "IPI Peacekeeping Database," undated; Mark J. Mullenbach, "Third-Party Peacekeeping in Intrastate Disputes, 1946–2012," *Midsouth Political Science Review*, Vol. 14, 2013.

**Table 4.1—Continued**

Key Factor Name	Interstate Metric(s)	Intrastate Metric(s)
Capacity of state institutions	Whether either state changed from low to medium state capacity, as measured by the ratio of the density of paved roads to the state's population density <sup>j</sup>	The natural log of the ratio of the density of paved roads to the state's population density <sup>i</sup>
Prevalence of consolidated democracies	Whether both states in dyad are established democracies <sup>k</sup>	Whether state is an established democracy Whether state has experienced a democratizing regime transition within prior five years <sup>l</sup>
Rate of economic growth	The minimum natural log of each state in the dyad's GDP per capita <sup>o</sup>	The prior year's rate of annual GDP growth <sup>m</sup> The natural log of the state's GDP per capita <sup>n</sup>
Degree of ethnic and sectarian polarization		Percentage of the state's population that faces formal discrimination <sup>p</sup>
Resource stress due to population pressures		Whether the percentage of the population between the ages of 15 and 29 exceeds 45% of the total <sup>q</sup>

<sup>i</sup> IFs, version 7.0, undated.

<sup>j</sup> The values to identify the change from low to medium on this metric were selected to reflect crossing from below to above roughly the 50th percentile of all state-years from 1963 to 2011.

<sup>k</sup> Monty G. Marshall, Ted Robert Gurr, and Keith Jagers, *POLITY IV Project: Political Regime Characteristics and Transitions, 1800–2015 Dataset Users' Manual*, Center for Systemic Peace, 2016. In keeping with the most commonly used standard in the literature, established democracies were identified when a state had a Polity value of 6 or higher on the scale that ranges from -10 to +10.

<sup>l</sup> Identified by a change in the state's Polity value of +3 or more from the previous year.

<sup>m</sup> IFs, version 7.0, undated.

<sup>n</sup> IFs, version 7.0, undated.

<sup>o</sup> IFs, version 7.0, undated.

<sup>p</sup> Andreas Wimmer, Lars-Erik Cederman, and Brian Min, "Ethnic Politics and Armed Conflict: A Configurational Analysis of a New Global Dataset," *American Sociological Review*, Vol. 74, No. 2, 2009.

<sup>q</sup> This metric is intended to reflect the presence of a "youth bulge." IFs, version 7.0, undated.

Some of these metrics better operationalize their intended key factors than others. For example, the metrics for economic interdependence, consolidated democracy, territorial contestation, and economic growth are widely used in the literature and correspond relatively clearly to their intended key factors. In other cases, the metrics we used relied on data that we had to collect or construct ourselves, such as for the capabilities of international organizations or membership in trading blocs, but the theoretical fit between the metric and the key factor appear sound. In still other cases, we relied on existing data that were already available, but where there was not a clear prior consensus in the literature regarding the use of these metrics to operationalize the intended concepts.<sup>6</sup>

In one case in particular, however, the metric chosen reflects the substantial difficulties we encountered in identifying usable data sources. Our metric for the diffusion of lethal technology, whether both states fell under a “nuclear umbrella” (through either the development of their own nuclear weapon or the provision of such security guarantees by a close ally), captures only one aspect of this key factor, and perhaps not the most important one. While perhaps helpful for explaining patterns of conflict among major powers, the metric tells us little about the role that technology may play in relations between minor powers, and it does not address the proliferation of conventional

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<sup>6</sup> Two such metrics deserve particular note: paved road density as a proxy for state capacity and youth bulges as a proxy for resource stress due to population pressures. Metrics to operationalize state capacity are often contested. The most widely used such metric, GDP per capita, has been frequently criticized as measuring wealth (which can be generated through many means unrelated to state capacity, such as resource extraction), but may only reflect control of a few targeted areas such as the capital or oil refineries. We argue that the density of paved roads, controlled for population density, provides a better measure of a state’s capacity throughout its territory, as such roads require significant investments and maintenance across wide geographic areas.

The presence of a youth bulge to operationalize resource stress due to population pressures is also not an ideal metric. We experimented with a number of possible metrics for this key factor, but insufficiently comprehensive historical data meant that we were not able to use alternatives we would otherwise have considered, such as the share of the population that receives insufficient nutrition. Youth bulges, which can reflect demographic pressures on available resources, are a less direct metric, but one for which data were available and one that can be projected into the future with a relatively high degree of confidence.

weapons that may enable or intensify intrastate conflicts. Unfortunately, reliable data on small arms, anti-access/area-denial weapons, cyber capabilities, chemical or biological capabilities of nonstate actors, or other such metrics were simply not available for a sufficient range of countries and years to be included in our model.

Almost all of the metrics we used are transparent in their construction, relying on either existing “off-the-shelf” variables, publicly available data sources, or straightforward uses of data we collected ourselves.<sup>7</sup> One notable exception was the metric we used for the degree of regional hegemony, which was highly complex to construct.<sup>8</sup> Details regarding the construction of this metric are therefore provided in the appendix at the conclusion of this report.

Finally, there was one particular driver of conflict that appears in the literature on conflict that we were not able to incorporate at all: the funding of factions in a civil war by external powers. Such “proxy wars” are frequently cited as a cause of the increased incidence and intensity of conflicts during the Cold War era.<sup>9</sup> Reliable data on instances and the extent of foreign funding for warring factions, however, is extremely difficult to obtain, and we were not able to identify robust and rigorous theories about the circumstances under which such proxy dynamics are likely. We therefore did not include this potential driver of intrastate conflict, although we acknowledge its importance.

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<sup>7</sup> As mentioned, we undertook original data collection to produce the metrics for the number of multilateral peacekeepers and the membership in trading blocs. We also undertook limited additional research to extend the scope of existing data sources giving the number of forward deployed U.S. military personnel.

<sup>8</sup> This metric was then also used to calculate the presence and timing of a “power transition,” intended to reflect when the most powerful state crosses an important threshold between being first among relative equals and becoming truly dominant at the regional level. This threshold may be passed in either the rise or fall of that state’s relative power.

<sup>9</sup> See, for instance, Stathis N. Kalyvas and Laia Balcels, “International System and Technologies of Rebellion: How the End of the Cold War Shaped Internal Conflict,” *American Political Science Review*, Vol. 104, No. 3, August 2010.

### Building the Conflict and War Models

Having operationalized each of the key factors, we then constructed statistical models of the relationship between historical trends in conflict and war and these key factor metrics. We attempted to build six different models to assess both different types of conflict and different levels of intensity:<sup>10</sup>

- interstate war (higher-intensity armed conflicts between states involving at least 1,000 battle deaths per year)
- interstate conflict (all armed conflicts between states involving at least 25 battle deaths per year)
- large interstate war (major armed conflicts between states involving a total of at least 200,000 battle deaths)
- intrastate war (higher-intensity armed conflicts within states involving at least 1,000 battle deaths per year)
- intrastate conflict (all armed conflicts within states involving at least 25 battle deaths per year)
- large intrastate war (major armed conflicts within states involving a total of at least 200,000 battle deaths).

As we will discuss, data issues prevented us from constructing either an interstate conflict model or a large intrastate war model, leaving us to focus on the four remaining models for our analysis. The process of constructing these models required that we address six main issues:

- *Unit of analysis:* Our intrastate models used a state-year level of analysis. That is, for each state in each year, we included data both on the incidence of intrastate conflict and war, and on each of the key factor metrics. Our interstate model, meanwhile, used a dyad-year level of analysis. We used a dyadic analysis rather than a state-level analysis because interstate war necessarily requires the involvement of at least two states, and the characteristics of either state may be relevant in affecting the likelihood of war between

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<sup>10</sup> As discussed in Chapter Two, our primary data source for these dependent variables was the UCDP armed conflict data. For reasons that will be discussed later, our interstate war model is based on data from the COW project.

them. Building models using this level of analysis required that we identify the set of dyads, or pairs of states, that had some potential for conflict in each year. Rather than assume that any state could realistically come into conflict with any other state each year, we restricted the set of dyads in our model to those where at least one of the states could plausibly have used force against the other, given their capabilities.<sup>11</sup> We did so by limiting the set of dyads to those that were contiguous with one another,<sup>12</sup> or included a major power in the same region.<sup>13</sup> Given its unique power projection capabilities in the post-1945 system, dyads involving the United States and every other state over this time period were also included in our model. The interstate war model therefore includes war and key factor data for each such dyad-year.

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<sup>11</sup> Mongolia and Bolivia, for example, would have a great deal of difficulty fighting a war against one another even if they were somehow motivated to do so. Restricting the number of dyads in our sample also helps to address some of the potential statistical concerns with very large dyadic models; see Robert S. Erikson, Pablo M. Pinto, and Kelly T. Rader, "Dyadic Analysis in International Relations: A Cautionary Tale," *Political Analysis*, Vol. 22, No. 4, 2014. However, it should be noted that the decision to limit the number of dyads did come at the cost of some dyads that were involved in interstate wars not being reflected in our model. The large majority of the omitted cases involved pairs of minor powers that were on opposite sides in the Second World War, and to a lesser extent the First World War and the Korean War. While there is potential value in investigating these dyads even though they may be driven to war by different factors than great powers or states that are contiguous to one another, we felt that the costs associated with the vast expansion in the number of observations required to incorporate them would have outweighed the potential benefits for the reasons noted.

<sup>12</sup> Contiguity was identified if states directly shared a land border or if they were separated from one another by less than 400 miles of open water. The contiguity data used were produced by Correlates of War Project, "Direct Contiguity Data, 1816–2006, version 3.1," undated-a; and Douglas M. Stinnett, Jaroslav Tir, Philip Schafer, Paul F. Diehl, and Charles Gochman, "The Correlates of War Project Direct Contiguity Data, Version 3," *Conflict Management and Peace Science*, Vol. 19, No. 2, 2002.

<sup>13</sup> The roster of major powers was determined by data from Correlates of War Project, 2011. From 1900 to 2007, the time period considered in our interstate war model, only the United States and the United Kingdom qualified as major powers in every year under the Correlates of War data. Russia/USSR and France have also been major powers for nearly the entire period, with brief interruptions for the Russian Revolution (1917–1922) and the German occupation of France (1940–1945). Five other major powers have qualified more intermittently, including Austria-Hungary from 1900 to 1918; Germany from 1900 to 1918, 1925 to 1945, and 1991 to 2007; Italy from 1900 to 1943; China from 1950 to 2007; and Japan from 1900 to 1945 and 1991 to 2007.



- *Temporal scope of model:* The years that our models were able to cover were restricted by the availability of both conflict and key factor data. For our intrastate conflict and war models, data for all of our key factor metrics were only available for the 1964–2009 period, and these are therefore the years upon which these models are based. Over this period, there have been no large intrastate wars that exceeded the threshold of 200,000 battle deaths already noted, so constructing a model for this metric was not possible.<sup>14</sup> For the interstate models, we faced a similar set of challenges. For the post-1945 era, interstate conflict and war have been too rare to allow us to construct sufficiently robust statistical models.<sup>15</sup> To compensate, we extended the temporal scope of our interstate models back to 1900 to incorporate a historical period with a much greater incidence of interstate conflict and war. While necessary, this decision had two implications that limited our interstate models. First, it was only possible to construct an interstate war model; we could not produce an interstate conflict model due to data availability issues.<sup>16</sup> In addition, data for the interstate metric for state capacity noted in Table 4.1 could not be collected for the 1900–1945 period, and had to be dropped from our model. The full specification of our statistical models is discussed later.
- *Regionally tailored models:* We also faced a choice regarding whether to build one statistical model that covered all intrastate and interstate conflict and wars or separate statistical models for

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<sup>14</sup> Only a handful of intrastate wars over the past two centuries have exceeded this threshold, including the Chinese, Russian, Spanish, and U.S. Civil Wars. See: Correlates of War Project, “Intra-State War Data, v. 4.0,” undated-b; Sarkees and Wayman, 2010.

<sup>15</sup> For example, our models include 1,277 state-years involving intrastate conflict from 1946 to 2009, but only 120 dyad-years involving interstate conflict over the same period. Similarly, 429 state-years from 1946 to 2009 involved intrastate war, while only 56 dyad years in our model involved interstate war.

<sup>16</sup> The UCDP data that include records of interstate conflicts (25 or more battle deaths) only extend back to 1946. While the COW data on interstate wars (1,000 or more battle deaths) allowed us to cover the 1900–2007 period, this data source contains no record of lower-intensity conflicts that fall in the 25–1,000 battle death range. Lacking data on these lower-intensity interstate conflicts from the 1900–1945 period, we were unable to construct a sufficiently robust statistical model of interstate conflict.

each type of conflict in each region. In principle, we preferred to construct regional models, as they would allow for the possibility that key factor metrics may not affect conflict and war the same way in every region, potentially increasing the fit and performance of the models. However, regional models for both interstate and intrastate war proved to be impossible to construct given the rarity of these events. Not all regions had experienced a sufficient number of wars to allow them to be robustly modeled.<sup>17</sup> Intrastate conflicts, however, have been relatively frequent in each of our regions in the 1964–2009 period. We were therefore able to construct regionally tailored models for intrastate conflict, which form the basis of our analysis of that type of conflict.

- *Control variables:* In addition to the key factor metrics noted in Table 4.1, our review of the literature suggested a number of control variables that would be helpful to include in our statistical models. These variables, such as the distance between states and their terrain and size, are detailed in the full model specifications.
- *Model composition:* While the set of variables we selected for consideration were each based on a substantial body of academic literature, we still needed to assess whether the specific operationalizations of these variables that we constructed were, in fact, appropriate for inclusion in our statistical models. To do so, we undertook three steps. First, we assessed all of the potential variables in each model for the possibility that they were highly correlated with one another.<sup>18</sup> Second, we explored different variable transformation options, such as lagging a variable by one or more

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<sup>17</sup> For example, while our model included 136 state-years involving intrastate war in East and southern Africa from 1946 to 2009, it included only 14 in South America.

<sup>18</sup> Highly correlated variables perform unpredictably in statistical models when included together. This check did not reveal significant concerns. The highest pair-wise correlation between variables in the intrastate models was a 0.701 correlation between the GDP per capita and paved road density metrics, not typically considered a problematic level. All other correlations were at the 0.5 level or below. The highest pair-wise correlation between variables in the interstate war model was a 0.495 correlation between the number of forward deployed U.S. military personnel in the region and whether both states in the dyad fell under a “nuclear umbrella.”

years or taking the natural log of its value.<sup>19</sup> Third, we conducted a series of statistical tests to identify the best performing models, and eliminated variables that were not statistically significant.<sup>20</sup>

- *Independence of observations:* Armed conflicts are not randomly distributed throughout the international system. Instead, they tend to cluster in time and space. They may therefore exhibit spatial dependence – including conflicts that spill over from one country to its neighbors, or expand to draw in additional combatants through alliance networks – or temporal dependence – including conflicts that persist from one year to the next at a higher frequency than new conflicts begin or that recur in the same locations repeatedly. However, statistical methods – including the logistic regression models we developed and used in this report – assume that observations of the dependent variable of interest (in our case, the incidence of various types of armed conflict) are independent of one another. The clustered nature of the conflict data used by social scientists for statistical analysis violates this assumption to varying degrees. This violation may lead these models to present a higher degree of confidence in their results than warranted, particularly with regard to the performance and statistical significance of individual variables. This issue is endemic to all quantitative analyses of armed conflict, and we cannot fully eliminate it as a concern.<sup>21</sup> However, in keep-

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<sup>19</sup> Lagged variables can be appropriate if the onset of conflict is expected to strongly affect the level of the variable. For example, bilateral trade may decline if two states go to war with one another, producing a correlation between trade flows and conflict, but one with the opposite direction of causation as we hypothesized. Lagging variables by one or more years allows us to minimize this problem. Taking the natural log of variables can be appropriate when the variables have large ranges and are not expected to have linear effects on conflict probabilities.

<sup>20</sup> The tests performed included a combination of looking for the highest  $R^2$ , and the lowest Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) scores. These tests were intended to assess the “fit” of the model, or how well it predicted historical levels of conflict or war. We eliminated individual variables if they were not statistically significant; that is, if their  $p$  values were greater than 0.1.

<sup>21</sup> For context on this issue, see: Richard Tucker and Nathaniel Beck, “Conflict in Time and Space,” Weatherhead Center for International Affairs Working Paper Series, 97-08, November 1997.

ing with the best practices in the literature, we took several steps either to minimize the effect that the lack of independence of observations has on our models or to highlight those models most substantially affected by issues for which we are notable to correct. To address issues of spatial dependence – the fact that conflicts may tend to cluster geographically – we explored adding variables to our models to control for geographic proximity or other relationships. Our investigation, while necessarily limited in scope, suggested that spatial dependence was unlikely to be a substantial concern for our models.<sup>22</sup> The issue of temporal dependence – the fact that conflicts tend to cluster in time – was of greater concern. To investigate this issue, we first tested how the addition of two different types of time variables affected the results of our conflict models that were built on historical data.<sup>23</sup> While we could not incorporate these temporal variables into our models used for projecting future levels of conflict – because we would need to know when and where future conflicts are going to occur for these variables to be meaningful – we were able to use these investigations to assess which of our models appeared to be substantially affected by the issue of temporal dependence, and which did not. While most of our models – and particularly those at the global level – appeared to be relatively unaffected by their inability to properly account for temporal dependence, this was not the case for all of the regional intrastate conflict models. Therefore, we highlight the regional models that our analysis suggests may be notably less reliable on these grounds. The appendix at the end of this report contains

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<sup>22</sup> The details of this investigation are provided in the appendix at the conclusion of this report.

<sup>23</sup> Specifically, we tested models with half-decade dummy variables and models with variables incorporating the number of years prior that the state or dyad has been at peace, with this “peace year” term also added as squared and cubed terms, intended to account for the possibility that the relationship between peace years and conflict may be nonlinear. A complete discussion of the rationale for these “peace polynomials” can be found in David B. Carter and Curtis S. Signorino, “Back to the Future: Modeling Time Dependence in Binary Data,” *Political Analysis*, Vol. 18, No. 3, 2010.

a more detailed discussion of this issue, including the presentation of the full logistic regression results from both our baseline models and the two different temporal variable test models.

The interstate and intrastate models we constructed as a result of this process are detailed later.<sup>24</sup> Each model employs a logistic regression, a regression that takes the presence of conflict or war in a state or dyad as the dependent variable, and the set of identified key factor metrics and controls as the independent variables. As shown in Table 4.2, the interstate war model performed well, with the included variables generally exhibiting a high degree of statistical significance and the model as a whole capturing a relatively high degree of the observed variation.<sup>25</sup> In addition, the direction of the effects of each variable on the likelihood of interstate war corresponded with our theoretical expectations, as already outlined in the discussion of each key factor.<sup>26</sup>

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<sup>24</sup> These models were constructed with one additional limitation in mind: They excluded the metrics for the capabilities of international organizations key factor (the number of deployed peacekeepers on interstate and intrastate conflict prevention missions). While these variables were statistically significant, we determined that we had no way to reliably project them into the future, as will be discussed in greater detail. As such, they would not be helpful for our main task: projecting the future incidence of conflict or war, and we removed them from our models. It should be noted that the inclusion of these variables did not appreciably alter the output of the statistical models over the periods in which they could be tested.

<sup>25</sup> A Pseudo  $R^2$  of 0.285, estimating the degree of correspondence between the actual and predicted values of interstate war, should be considered relatively high by the standards of the literature. Further, the impact of not controlling for temporal dependence appears to be quite limited in both interstate war models. Full results for these models, including variable coefficients and standard errors, are included in the appendix.

<sup>26</sup> The one apparent exception to this was the performance of the control variable for whether the two states were contiguous over a land border. Significant academic research has suggested that contiguity greatly increases the likelihood of conflict between states, which could make the finding that sharing a direct land border is actually associated with a decreased likelihood of an interstate war. However, it is important to remember how we limited the set of dyads assessed in our model. The large majority of dyads that did not share a land border were those between a state and a major power to which it was not contiguous (the others being states that were contiguous over up to 400 miles of water). The performance of the land border variable should perhaps therefore better be interpreted as a finding that dyads involving major powers are more likely to experience interstate war than other dyads, a finding that is common throughout the literature.

**Table 4.2**  
**Interstate War Model Specification**

Variable	Effect on Interstate Wars	Effect on Large Interstate Wars
Number of U.S. troops forward deployed in region	–	–
Ratio of capabilities between first- and second-most powerful states in region	–	–
Power transition: whether aforementioned regional capabilities ratio crossed 2:1 threshold within prior five years	+	+
Whether states in dyad contest a territorial claim of medium or high salience	+	+
Whether both states in dyad fall under a nuclear umbrella	–	–
Prior year's minimum ratio of bilateral trade to GDP in the dyad	–	–
Whether both states in dyad are members of the same trading bloc	–	–
Whether both states in dyad are members of different trading blocs	+	+
Percentage of states in region that have ratified multiple multilateral treaties requiring the pacific settlement of international disputes	–	–
Whether both states in dyad are established democracies	–	–
Land border: whether states are directly contiguous over land	–	–
Number of observations	37,421	37,421
Pseudo R <sup>2</sup> <sup>a</sup>	0.285	0.312

NOTE: Black cells denotes statistical significance at  $p < 0.01$ , and dark gray at  $p$  between 0.01 and 0.05. White cells indicate  $p > 0.1$ , and were not judged to be statistically significant. A plus sign indicates that the variable had a positive relationship with the likelihood of intrastate conflict or war; a minus sign indicates that the variable had a negative relationship with the likelihood of intrastate conflict or war. Complete results for these models, including coefficient values and standard errors, are included in the appendix.

<sup>a</sup> The specific Pseudo R<sup>2</sup> used throughout this report is McFadden's Pseudo R<sup>2</sup>.

For a useful summary of this and other terms that allow for the comparison of the relative value of different models, see: "FAQ: What Are Pseudo R-Squareds?" UCLA Statistical Consulting Group, October 20, 2011.

It is worth noting that the threshold for identifying an interstate war is relatively low, only 1,000 battle deaths per year, while interstate wars in the past have killed hundreds of thousands or even millions. Models to project these more-destructive wars may be of particular interest for purposes of defense planning, as the likelihood of such large-scale con-

flicts has greater implications for force structure decisions than smaller wars. We therefore also assessed the performance of a logistic regression model with a dependent variable of interstate wars that were particularly destructive in nature in order to determine whether these more-destructive wars might be driven by different factors. The results for the statistical model including only interstate wars that in aggregate had more than 200,000 battle deaths are also shown in Table 4.2.<sup>27</sup>

The resulting model is highly similar to the one that considered all interstate wars. The nuclear umbrella variable had to be dropped from the model, as there were no instances of dyads that had been involved in these highly destructive interstate wars both falling under a nuclear umbrella. Otherwise, however, all variables had the same degree of statistical significance and the same direction of effect, and the overall performance of both models was also quite similar. The factors that correlate with interstate war in our model are the same as those that correlate with interstate wars of much higher magnitude. Given the similarity between these two models, we will provide only the baseline projections for the model including all interstate wars in the interests of brevity.

The intrastate models, detailed in Table 4.3, also generally performed well, with some exceptions among the regionally tailored intrastate conflict models. The variables included in the intrastate war model were generally highly statistically significant and their effects on the likelihood of intrastate war were in the direction expected. However, our metrics for three key factors prominent in the literature – state capacity, youth bulges, and established democracy – were not statistically significant, and the overall performance of the model in predicting intrastate war was not as strong as the model for interstate war.<sup>28</sup>

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<sup>27</sup> Limiting the interstate wars considered in this way reduced the number of dyads involved in interstate war from 455 to 296. Most dyads that have been involved in interstate wars have, in fact, been involved in wars that were highly destructive. The wars that exceed this threshold of 200,000 battle deaths include the two World Wars, the Korean War, the Vietnam War, and the Iran-Iraq War.

<sup>28</sup> As noted, the intrastate war model had a Pseudo  $R^2$  of 0.148, roughly half the Pseudo  $R^2$  value of the interstate war model. The intrastate war model did not appear to be substantially affected by its inability to account for temporal dependence. Full results for these models, including variable coefficients and standard errors, are included in the appendix.

**Table 4.3**  
**Intrastate Conflict and War Model Specification**

Variable	Effect on Intrastate Conflict, Regionally Tailored Models									
	Effect on Intrastate War	Central America	South America	Europe	Eurasia	West Africa	East and Southern Africa	Mideast	South Asia	East and Southeast Asia
State capacity		-	-	-	-		-			-
Established democracy		-	+	+	+		-	+		+
Democratizing transition	+	+			+					+
Lagged GDP growth rate	-	-		-	-					
GDP per capita	-	+				-	-			-
Formal discrimination	+						+			+
Youth bulge							+		-	
Mountainous terrain <sup>a</sup>	+		+	-	+	+				
State size <sup>b</sup>	+	-	+	+	+		+	+		
Number of observations	5,796	461	514	1,103	199	695	969	849	246	723
Pseudo R <sup>2</sup>	0.148	0.557	0.308	0.325	0.31	0.019	0.365	0.238	0.198	0.222

NOTE: Black cells denotes statistical significance at  $p < 0.01$ , dark gray at  $p$  between 0.01 and 0.05, and light gray at  $p$  between 0.05 and 0.1. White cells indicate  $p > 0.1$ , and were not judged to be statistically significant. A plus sign indicates that the variable had a positive relationship with the likelihood of intrastate conflict or war; a minus sign indicates that the variable had a negative relationship with the likelihood of intrastate conflict or war. Complete results for these models, including coefficient values and standard errors, are included in the appendix.

<sup>a</sup> The natural log of the percentage of the state's territory that is mountainous. Data from Fearon and Laitin, 2003.

<sup>b</sup> The natural log of the size of the state's territory. Data from David A. Lake and Angela O'Mahony, "The Incredible Shrinking State Explaining Change in the Territorial Size of Countries," *Journal of Conflict Resolution*, Vol. 48, No. 5, 2004.



The performance of the regionally tailored intrastate conflict models, meanwhile, raises three issues. First, while most of the models performed well overall, with relatively high Pseudo  $R^2$  values, the model for predicting intrastate conflict in West Africa performed poorly. Very few of the variables were statistically significant in the West Africa model, and only weakly so for those that were. We do not appear to have identified good metrics for predicting the incidence of intrastate conflict in that region. Why West Africa might differ so notably from other regions in this regard is an important question and worth investigating further. For now, we will note that our projections for intrastate conflict in West Africa should be treated with a greater degree of uncertainty than those for other regions.

Second, our investigation into issues of temporal dependence again highlighted that the West African model appeared to be the least reliable.

The results associated with it should therefore be treated with caution.<sup>29</sup>

Third, while the direction of the effects of each variable in the interstate and intrastate war models was consistent with our expectations from the literature, the direction of the effects of these same variables in the regionally tailored intrastate conflict models varied frequently across regions.<sup>30</sup> Only the metrics for state capacity, democratizing transitions, lagged GDP growth, and state size were consistent in the direction of their effects across all regionally tailored models in which they were statistically significant, while other variables increased the likelihood of intrastate conflict in some regions, while decreasing

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<sup>29</sup> While much less dramatically so, four other regional intrastate conflict models appeared to be affected by issues of temporal dependence: Eurasia, the Middle East, South Asia, and East and Southeast Asia. While we assessed that these regional models continue to offer substantial value, the results of these models should be viewed with somewhat greater caution than the remaining regional intrastate conflict models, such as those covering Central America or East and southern Africa, or any of the global intrastate or interstate war models.

<sup>30</sup> The fact that no variables were statistically significant in every regional model is less surprising, given that each region's model was constructed using a relatively small number of observations, and that not all variables had data available for every state in each region in every year. The lack of statistical significance might therefore reflect either relatively weaker relationships between independent and dependent variables or a regional pattern of missing data for the affected independent variable. It could also be the case that some relationships only existed in certain regions.

it in others. Established democracy, for example, was associated with a decreased likelihood of intrastate conflict in Central America and East and southern Africa, but an increased likelihood of such conflict in Europe and East and Southeast Asia.

There are several potential reasons for these divergent relationships.<sup>31</sup> They could reflect systematic differences across regions in what the variables are measuring. For example, established democracy, as operationalized by our metric, could in fact be quite different in some regions than in others because of the presence or absence of some additional factor that is not picked up by our metric. These differences could also be reflecting nonlinear relationships, where increases in a metric at very low levels produce a different effect from increases in the same metric at high levels.<sup>32</sup> The range of values observed in each region for a given variable may remain within a relatively narrow band, isolating such differing effects in specific regions. Finally, the differences might also suggest that different key factors affect the likelihood of conflict in specific and distinct ways in region. This may be due to the interaction of individual key factors and the dynamics or characteristics in the regions themselves.

More broadly, however, the diversity of these findings should emphasize that the understanding in the academic literature of regionally specific relationships between intrastate conflict and the key factors is quite nascent. While we have strong expectations regarding how variables should behave in our global models because of the tremendous number of empirical studies that have been conducted at that level of analysis, we should not have similar prior expectations of how these variables might perform at the regional level. A sufficient volume of empirical studies has not yet been conducted. We therefore do not know whether our divergent regional findings are to be expected or not.

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<sup>31</sup> It should be noted that, generally speaking, these divergent relationships tended to persist even after our temporal dependence variables were introduced, as can be seen in the logistic regression results provided in the appendix.

<sup>32</sup> We investigated the GDP per capita variable in particular for potential nonlinearity by testing the incorporation of a squared term in the regional models where a positive relationship between GDP per capita and conflict was identified. This term was statistically significant and negatively associated with conflict in some of the regional models but not others. A full investigation of this issue remains an area for potential future research.

These caveats are not meant to suggest that projections based on regional models whose component variables differ in their effects from those observed at the global level should be considered less reliable than projections from regional models where the effects of component variables tend to mirror their effects at the global level. Indeed, reflecting these divergent effects in different regions could represent an important improvement over the application of the global model to all regions. The purpose of this discussion is to highlight that this divergence exists, and that while each regional model has a sound empirical basis, the theoretical explanation for the effects of each variable in the model remains relatively underdeveloped in the academic literature, and represents an important area for future research. As a result, it is also important to emphasize that the conflict projections from all of the regional models should be treated with greater caution than those from the global models, where a great number of prior studies do exist to confirm the direction of the effects of our included variables.

As it relates to assessing the historical performance of these models, these issues are less important. As we turn to the projection of future regional trends in conflict, however, this issue becomes quite important. For example, GDP per capita levels are generally projected to rise in all regions over the next 25 years. Based on the composition of the regional models shown in Table 4.3, this trend would be expected to lead to a decline in intrastate conflict in some regions, such as East and Southeast Asia. However, the same trend would be expected (all else equal) to lead to an increase in intrastate conflict in other regions, such as South Asia. The differing direction of the effects of these variables may lead to differing projections of the direction of future regional conflict trends. We discuss this issue in greater detail in Chapters Five and Six.

## **Projecting the Key Factor Metrics to 2040**

Having constructed statistical models for interstate war and intrastate conflict and war, we then needed to project future values for the key factors that drive conflict in order to be able to project future conflict levels themselves. We estimated future levels of conflict or war by sum-

ming the predicted probability of conflict or war in every state or dyad in each year or region-year. For example, four states with a 0.25 probability of becoming involved in an intrastate war would lead to the prediction of one war. This method builds on the insight that while it may be difficult for us to identify where exactly specific wars will occur in the future, we have a greater ability to say when these wars are becoming more or less likely to occur overall.

To project future values for our key factor metrics, we relied in large part on the IFs tool, a project of the University of Denver's Pardee Center.<sup>33</sup> The IFs tool projects future values for a range of variables by modeling the interaction of a series of dynamic, thematic modules incorporating economic, demographic, sociopolitical, educational, health, international political, agricultural, energy, and infrastructure variables for 186 countries, drawing on a baseline of 40 years of historical data.<sup>34</sup> The IFs tool has been widely used in the policy and academic communities, including by the U.S. National Intelligence Council and the United Nations.<sup>35</sup>

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<sup>33</sup> The IFs tool, as well as general information about the project, can be accessed at University of Denver, Frederick S. Pardee Center for International Futures, home page, undated-a.

<sup>34</sup> Although quite complex, the IFs tool is transparent. A disclosure of the equations and assumptions that underlie the functioning of the IFs tool and its baseline scenario can be found at University of Denver, "Understand the Model," International Futures at the Pardee Center, undated-c.

<sup>35</sup> Moreover, as already highlighted, interested analysts can assess the statistical models the IFs tool employs for themselves at University of Denver, undated-c. For notable examples of prior work that employs the IFs tool, see U.S. National Intelligence Council, *Global Trends 2025: A Transformed World*, Washington, D.C.: USGPO, 2008; Barry Hughes, "Development-Oriented Policies and Alternative Human Development Paths: Aggressive but Reasonable Interventions," United Nations Development Programme, Human Development Report Office, 2013; United Nations Environment Programme, "Global Environment Outlook (GEO-4): Environment for Development," 2007; Gregory F. Treverton and Seth G. Jones, *Measuring National Power*, Santa Monica, Calif.: RAND Corporation, CF-215, 2005; George Modelski, Tessaleno Devezas, and William R. Thompson, eds., *Globalization as Evolutionary Process: Modeling Global Change*, New York: Routledge, 2007; Barry Hughes, "World Models: The Bases of Difference," *International Studies Quarterly*, Vol. 29, 1985; Barry Hughes, "Global Social Transformation: The Sweet Spot, the Steady Slog, and the Systemic Shift," *Economic Development and Cultural Change*, Vol. 49, No. 2, 2001; and Devin Joshi, Barry B. Hughes, and Timothy Sisk, "Improving Governance for the Post-2015 Sustainable Development Goals: Scenario Forecasting the Next 50 Years," *World Development*, Vol. 70, 2015.

Future projections for many of the key factor metrics we used, such as GDP per capita and youth bulges, were drawn directly from the IFs tool's baseline future. Projections for other metrics, such as economic interdependence and the degree of regional hegemony, were calculated using proxy or component metrics derived from the IFs tool.<sup>36</sup> There were, however, four metrics that we could not derive directly from the IFs tool. These four metrics include the percentage of the population facing formal discrimination, whether both states in a dyad had the security of a nuclear umbrella, the extent to which the states in a region have adopted international norms of pacific dispute settlement, and whether states in a dyad are contesting a medium- or high-salience territorial claim.

Projections for these remaining four metrics were produced using models that we developed based on previous empirical work in the academic literature.<sup>37</sup> These models relied on some projected inputs from the IFs tool, but also incorporated data from other sources. For example, the model for projecting the percentage of the population facing formal discrimination incorporated a measure of the ethnic fractionalization of the country, in addition to IFs projections of the country's regime type, level of GDP per capita, state capacity (paved road density), and demography (presence of a youth bulge).<sup>38</sup>

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<sup>36</sup> For example, while the IFs tool does not project bilateral trade flows, it does project the ratio of overall trade to GDP for each state. To project the ratio of future bilateral trade to GDP, we therefore assumed that the pattern of trade among states (that is, how much of a state's trade was conducted with each trading partner) would remain constant going forward, but that its level in relationship to a state's GDP could rise or fall depending on IFs projections. For our regional hegemony projections, most components of state capabilities could be drawn directly from the IFs tool. For those that could not, such as the number of patent applications, we identified a relevant proxy variable and applied its growth or decline to our projections of that component. (For patent applications, for example, we assumed that they would correlate with trends in the value added to the economy from the technology sector.)

<sup>37</sup> Research that was particularly helpful included Michael C. Horowitz, *The Diffusion of Military Power: Causes and Consequences for International Politics*, Princeton, N.J.: Princeton University Press, 2010; Bryan A. Frederick, *The Sources of Territorial Stability*, dissertation, Washington, D.C.: Johns Hopkins University School of Advanced International Studies, OCLC: 814397500, 2012; and Wimmer, Cederman, and Min, 2009.

<sup>38</sup> The ethnic fractionalization data came from Alberto Alesina, Arnaud Devleeschauwer, William Easterly, Sergio Kurlat, and Romain Wacziarg, "Fractionalization," *Journal of Economic Growth*, Vol. 8, No. 2, 2003.

Unfortunately, as already noted, the metrics reflecting the capabilities of international organizations could not be reliably projected into the future, and as a result they had to be dropped from our conflict and war models. The number of peacekeepers deployed to deter either interstate or intrastate conflict has generally shown a strong upward trend since the end of the Cold War. However, annual fluctuations are substantial and do not appear to be driven by structural factors present in the region or state. The construction of a satisfactory statistical model to predict them was therefore correspondingly difficult.<sup>39</sup>

The uncertainty surrounding the projections for each key factor metric is difficult to assess, but likely varies substantially from metric to metric. Some projections, such as those for youth bulges, are likely to be relatively accurate, as most of the people that would make up any potential future youth bulge have already been born. Other projections, such as for the percentage of the population facing formal discrimination, likely have much higher levels of uncertainty, as the models underlying them rely on the projection of a number of other political and economic factors that may themselves be accompanied by considerable uncertainty.

Of greatest concern, however, are the projections of two metrics taken directly from the IFs tool: the annual GDP growth rate and the experience of a democratizing transition. The IFs tool, at least in its baseline scenario, generally assumes that the changes it models will occur gradually, avoiding sharp fluctuations from year to year. This might be the most logical assumption for projecting long-range trends, given the extensive difficulties that accompany any attempt to project the timing of specific year-to-year fluctuations, but it is problematic for our purposes, given these two metrics are designed specifically to

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<sup>39</sup> We did, however, test the inclusion of the international organization metric in our statistical models based on historical data. The metric was not statistically significant at the  $p < 0.1$  level in the interstate war, intrastate war, or intrastate conflict models, and even if left in the models it did not substantially alter the historical levels of conflict or war that they would project. The omission of the variable is therefore not likely to be problematic for our effort. Future research could helpfully explore why our results for this metric appear to differ from prior research that has argued that international organizations have played a substantial role in reducing levels of conflict and war in recent years. For example, see Goldstein, 2011.

reflect the importance of such fluctuations. In its baseline scenario, the IFs tool essentially projects that sharp fluctuations in GDP growth or regime type will not occur out to 2040. This is, in turn, likely to understate the incidence of intrastate conflict and war projected by our models, and represents an important caveat that should be applied to our baseline projections.<sup>40</sup>

An additional limitation of our projections arose because the latest year for which historical data were available for all of the key factors was 2009. It is for this reason, as discussed above, that our projections are based on data from that year and before. However, some of the key factor data, particularly for the intrastate models, have been updated more recently, with many series available through 2015. To take advantage of these updates, and to better understand how our models would perform over the 2010–2015 period when we do have historical conflict data against which to assess them, we also conducted a “best available data” projection for these years, relying on updated historical data where available, and projections based on the IFs project where necessary.<sup>41</sup> This alternative intrastate conflict and intrastate war projection will be presented and discussed in the following chapter alongside our baseline projections that rely solely on projected key factor data after 2009.

The concerns regarding the potential uncertainty of these projections emphasize the importance of conducting additional analyses to assess how sensitive our baseline conflict and war projections may be to different key factor projections. If our conflict and war projections

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<sup>40</sup> To assess the potential scale of the concern that this issue represents, we conducted a supplementary sensitivity analysis. In this analysis, we assumed that states that passed the threshold to become democracies (that is, with a Polity value of 6 or greater) sometime between 2015 and 2040 also would have experienced a democratizing regime transition in that year and the four years prior. Adding this change to our baseline projections, which will be discussed in detail in the next chapter, had only a very limited effect on our conflict projections, largely because IFs projects that only a handful of states will pass the threshold to become democracies over this period. This was only a single analysis, however, and we believe that the effective omission of democratizing transitions from our baseline projections is likely to represent some under-projecting of intrastate conflict.

<sup>41</sup> Specifically, key factor data were available to update the series for established democracies, recent democratic transitions, GDP growth, and the size of populations facing formal discrimination.

remain similar even after relatively major changes in the key factor projections that appear to have the greatest degree of uncertainty, our confidence in the likelihood of our baseline conflict and war projections should increase. Likewise, if these conflict and war projections vary wildly given even only modest changes in the projection of these key factors, our confidence in their likelihood should decline. This issue is discussed in greater detail in Chapters Five and Six.



## Projecting the Future Incidence of Conflict and War

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This chapter presents the results of our conflict and war projections over the next 25 years. Our baseline, or “no surprises” future – in which conditions continue to evolve as expected – suggests a world that will become more peaceful, although these trends may not hold in all regions. Such a future is in line with the general trends discussed in Chapter Three and suggests that the current spasm of violence we are witnessing in Syria, Ukraine, and elsewhere does not portend a long-term increase in the prevalence of war. However, the future is bound to surprise to one degree or another. We therefore also explore several alternative future projections that reflect how trends in conflict and war would shift under sharply divergent conditions.

Wherever the data permit, our results include models of both interstate and intrastate violence at various intensity levels ranging from small-scale conflicts to large wars. For each of these models, our results show the incidence of conflict or war predicted by our model both historically and into the future using projected data. They also show the actual historical incidence of conflict and war, thus allowing readers to compare the degree of “fit” between the models and historical episodes of violence.

In the first section of this chapter, we analyze the baseline future with no extreme events or shifts in underlying conditions. In the second section, the analysis expands to include four alternative futures in which the key factors that drive the incidence of armed conflict take on extreme (albeit still plausible) values. These alternative futures illustrate how some radically different future conditions would be likely to

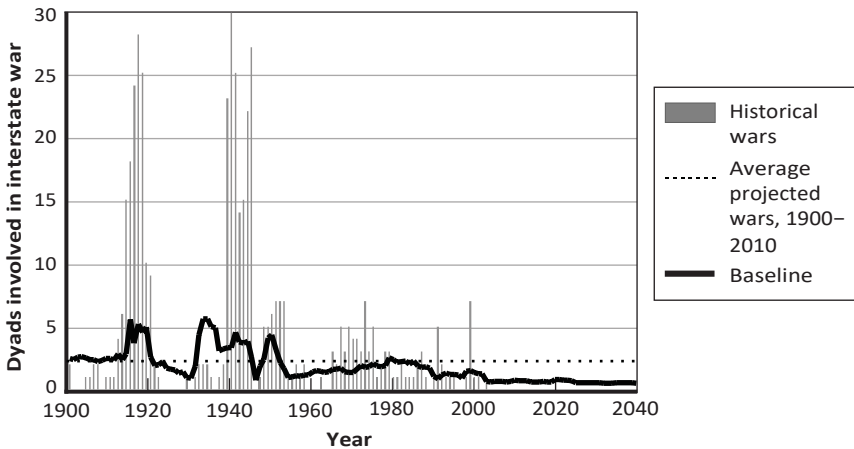
translate into enduring increases in the prevalence of conflict or war, providing policymakers with a better understanding of the types of changes that would be necessary to place the world or specific regions on a different, more violent trajectory.

## Baseline Conflict and War Projections: The “No Surprises” Future

### Interstate War Baseline Projections

As discussed in Chapter Three, the incidence of interstate war has declined in recent decades. Our baseline projections for the number of wars between pairs of states (dyads), shown in Figure 5.1, suggest that interstate war is likely to remain a relatively rare event out to 2040 in the baseline scenario.<sup>1</sup>

**Figure 5.1**  
**Historical and Projected Baseline Levels of Interstate War, 1900–2040**



SOURCE: Sarkees and Wayman, 2010.  
 NOTE: Black line denotes RAND analysis of data.  
 RAND RR1177-5.1

<sup>1</sup> Although not included here in the interests of brevity, projections based on the interstate war model that considered only wars with more than 200,000 battle deaths, shown in Table 4.2, were highly similar.

Our model shows sharp upticks in interstate war in the 1910s and 1930s, as well as the late 1940s.<sup>2</sup> It then shows a gradual increase throughout the early Cold War period, followed by a gradual decline since about 1980. The model projects a low, although not zero, incidence of interstate war going forward, with a potential modest uptick after 2020 following a projected power transition in East and Southeast Asia.<sup>3</sup>

The historical performance of the model does not precisely follow the observed historical trends – notably, the model does not correctly predict the “height” of the major spikes associated with the two World Wars, when alliance structures pulled states with little prior animosity into direct conflict with one another. It does, however, track the main historical trends in interstate war (the slope of the lines for predicted and actual levels of war usually have the same sign). Moreover, there is remarkable congruence between the spikes in the levels of war predicted by the model and those that actually occurred. The periods in which the predicted incidence of war spiked above the average (that is, periods in which the solid baseline exceeded the dotted horizontal line) are almost precisely those periods in which the world experienced the greatest levels of interstate war – World War I, the period following the onset of the Great Depression through the end of World War II, and the early Cold War. These results suggest that future potential spikes in interstate war may also be greater in scale than would be predicted by this model, but the overall trends predicted by the model represent the single most likely future.<sup>4</sup>

### **Intrastate War and Conflict Baseline Projections**

The incidence of intrastate conflict and war increased throughout the Cold War, before beginning a decline that continued until the past few

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<sup>2</sup> We explored the possibility of graphically including confidence intervals on our projections. However, these intervals tended to be narrow, adding little additional information and making the figures more difficult to interpret. On this basis, they are omitted from our conflict and war projection figures.

<sup>3</sup> This power transition will be discussed in greater detail later in this chapter and in Chapter Six.

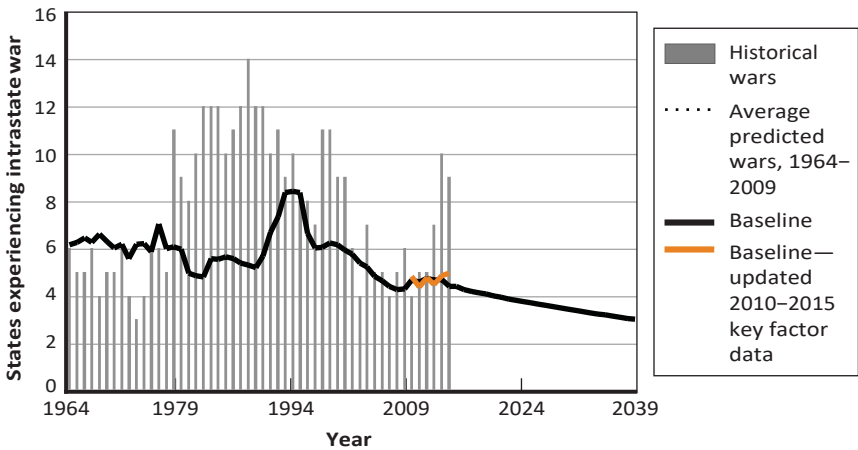
<sup>4</sup> The potential sensitivity of this baseline projection to changes in our key factor projections will be discussed later in this chapter and in Chapter Six.

years. This decline was more pronounced for intrastate war than for lower-intensity intrastate *conflicts*. In general, our intrastate models do a better job of reflecting this later decline than the earlier rise in conflict and war.

As shown in Figure 5.2, our baseline projections showed a clear spike in intrastate war in the immediate post-Cold War period, followed by a pronounced decline until 2008, and then a modest but sustained increase through 2015. Relying on available updated key factor data in the 2010–2015 period, rather than projected data, indicates a more consistent upward trend in conflict over the past five years, albeit to a modest degree. Intrastate wars are then projected to gradually decline out to 2040. The levels of intrastate war projected in the future are low by historical standards, although they remain higher than the baseline projections of interstate wars.

As discussed earlier, our intrastate war model generally performed less well than either our interstate war model or most of our regionally tailored intrastate conflict models, and this weaker performance can be seen most notably in the failure to predict the spike in intrastate war

**Figure 5.2**  
**Historical and Projected Baseline Levels of Intrastate War, 1964–2040**



that accompanied the late Cold War period.<sup>5</sup> Further, as discussed in the previous chapter, the baseline projections of the future incidence of intrastate war may be understated due to the manner in which democratizing transitions and annual GDP growth are projected by the IFs tool.

Our regionally tailored intrastate conflict models project a similar pattern, as can be seen in Figure 5.3. This figure aggregates the projections from each regionally specific model to show the projected global trend in intrastate conflicts. These models collectively appear to more accurately reflect historical intrastate conflict trends, capturing some, though not all, of the increase throughout the Cold War period, as well as capturing more of the increase in intrastate conflict seen since the mid-2000s. Using available updates to key factor data for the 2010–2015 period yields broadly similar results, though with somewhat higher levels projected in the most recent years. Intrastate conflicts are then projected to decline gradually out to 2040. The individual regional projections of each of these models can be seen in Figure 5.4.

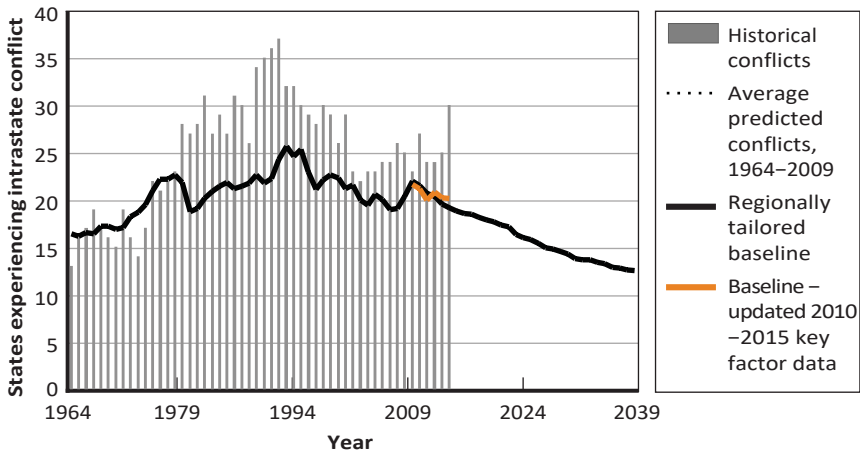
The regional projections of future intrastate conflict levels diverged widely. Projections in two regions, East and southern Africa and East and Southeast Asia, show a large decline from current levels out to 2040. In other regions, most notably the Mideast, Eurasia, and Europe, future projections are expected to be relatively flat, albeit at quite different baseline levels. While the overall global trend in intrastate war suggests a generally more peaceful future, these regional projections suggest that some regions, including some of major strategic value to the United States, may not share this experience.

As noted earlier, one of our regional intrastate conflict models – that for West Africa – was assessed to have significant concerns related to both temporal dependence and overall model reliability. To allow analysts to judge the utility of these models for themselves, however, we present the intrastate conflict projections for this region in Figure 5.4, with the projected trend line depicted in gray to indicate the lower reliability

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<sup>5</sup> This may reflect the omission of a variable to capture the effects of proxy warfare, often cited as an important feature of conflicts in that period as the United States and Soviet Union fed intrastate wars throughout the developing world as an indirect means of pursuing their own competition. Our initial efforts to develop sound quantitative indicators of such proxy warfare were unsuccessful; this area would be a fruitful one for future research.

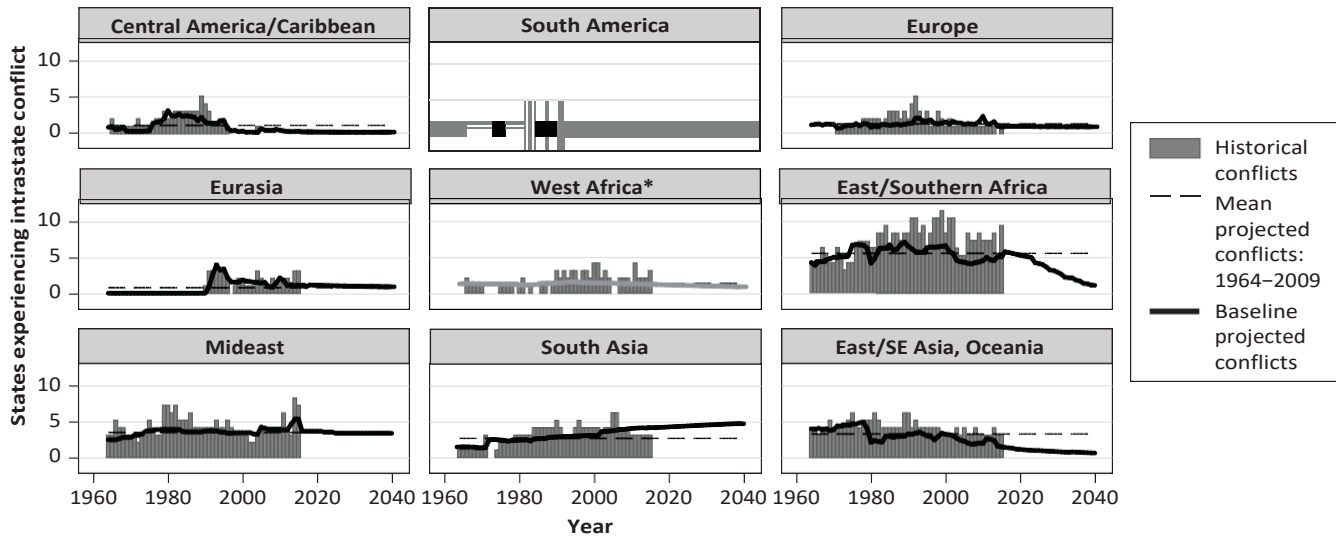
**Figure 5.3**  
**Historical and Projected Baseline Levels of Intrastate Conflict, 1964–2040**



SOURCES: Melander, Pettersson, and Themnér, 2016; Gleditsch et al., 2002.  
 NOTES: The main baseline projection (black line) is RAND analysis that relies on projected key factor data for all years following 2010. This is the latest year for which historical data are available for every key factor metric, and this projection therefore avoids mixing historical with projected data. The updated baseline projection (orange line, also RAND analysis), by contrast, incorporates updated key factor data from 2010 to 2015 for individual metrics whenever they are available. While not all key factor data have been updated since 2010, many have (including metrics for regime type, economic growth, and youth bulges), allowing us to get a sense for how changes in key factor data may be shifting our baseline conflict projections. We include the updated series (orange line) only as a point of interest, to show how our projections might have shifted in recent years if updates to all key factor data through 2015 had been available. We did not undertake the same exercise for the interstate war projections, shown in Figure 5.1, as fewer of the key factor metrics have been updated in recent years, and there have in any event been no new interstate wars since 2003.

It should be noted that this regionally tailored baseline incorporates projections from all nine regional intrastate conflict models. As noted elsewhere, the models for one of these regions (West Africa) were determined to be substantially affected by issues of temporal dependence. Their projections are incorporated into this figure, however, to allow for this summary of intrastate conflict projections to remain a global metric that can more easily be compared with our other metrics. But it should be understood to be subject to somewhat greater caveats as a result of these issues.

**Figure 5.4**  
**Historical and Projected Baseline Regional Levels of Intrastate Conflict, 1964–2040**



SOURCES: Melander, Petterson, and Themné, 2016; Gleditsch et al., 2002.

\* As noted in the presentation of our baseline projections, the projected levels of intrastate conflict in West Africa should be considered less reliable than the projections for other regions. The trend lines for this region are depicted in lighter shades to indicate their lower reliability. For details, see section entitled “Building the Conflict and War Models” in Chapter Four and the appendix.

NOTES: Projections in the 2010–2015 period rely on available updated key factor data. Conflict projections that do not rely on these updated data were highly similar in most regions, with the exception of the Mideast. In that region, the projections that did not take advantage of available updated key factor data were relatively flat in the 2010–2015 period and did not show the “spike” in conflict that can be seen here.

of the results in this region. In addition, and although accompanied by substantial caveats, it is worth noting that in South Asia, intrastate conflict levels are projected to notably increase, the only region where this is the case.<sup>6</sup> While we judge it to be generally the least reliable of our models, the model for West Africa projects a modest decline in intrastate conflict over time, similar to the expected trend in most other regions.

Together with this overall expectation of declining intrastate conflict, the caveats discussed above with regard to the projection of democratizing transitions and annual GDP growth rates should be kept in mind. The projections for Central America, Eurasia, and East and Southeast Asia are particularly likely to be understated due to the absence of projected democratizing transitions in the baseline scenario, and the projections for Central America, Europe, and Eurasia may be understated as a result of the IFs tool's gradual projections of annual GDP growth rates. In the second half of this chapter, we assess how trends in these regions may change in alternative scenarios where variation in these key factor metrics does occur.

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<sup>6</sup> This projection is driven in part by the positive relationship between levels of GDP per capita and intrastate conflict found in our regionally tailored model for South Asia, as summarized in Table 4.3. This finding contrasts with global-level analyses in the academic literature (as well as our own global analysis for intrastate wars, summarized in Table 4.3) that generally find a negative relationship between levels of GDP per capita and armed conflict. This could suggest that the positive relationship found in the South Asia model is in fact an artifact of some other variable that has historically correlated with levels of GDP per capita in South Asia, but is not included in our model, and whose future trajectory we do not know. If that is the case, then the projection of higher levels of intrastate conflict in South Asia should be treated with skepticism. It is also possible, however, that our regional analysis is allowing us to observe a nonlinear relationship between levels of GDP per capita and armed conflict. Very high levels of economic development might significantly depress conflict – while at the same time, the beginnings of industrialization and the move away from subsistence agriculture might be disruptive events that lead to conflict within societies. As South Asia does not contain any wealthy states, an analysis only of this region may be allowing us to see this latter part of a nonlinear relationship between economic development and intrastate conflict. We are not able to resolve this question within the scope of the present report, and as a matter of prudence we suggest that this upward projection of intrastate conflict in South Asia be treated with caution. For an interesting take on the complexities of the relationship between economic growth and armed conflict, see, for example, Oeindrila Dube and Juan F. Vargas, “Commodity Price Shocks and Civil Conflict: Evidence from Colombia,” *Review of Economic Studies*, Vol. 80, No. 4, 2013.



### **Summary of Baseline War and Conflict Projections**

Our baseline projections of interstate war, intrastate war, and intrastate conflict suggest that the downward trend in armed conflict observed in recent decades will continue into the future, and this constitutes our “no major surprises” baseline projection. This finding, however, comes with several important caveats. Some regions may experience persistent or even potentially increasing levels of conflict, in contrast with the overall global trend. In addition, while all such projections should be understood to come with considerable uncertainty, our method of projecting key factor metrics 25 years into the future appears more likely to understate future levels of intrastate conflict and war than to overstate them, although we would not expect the overall direction of our projections to be affected by these issues. For example, while the unrealistically low frequency of democratizing transitions in our baseline projections would be expected to lower projected levels of intrastate conflict throughout the entire period out to 2040, a sharp (and unanticipated) upward trend in the incidence of such transitions throughout this period would be necessary to affect the direction, rather than the level, of our conflict projections.

The next section is intended to help address and explore the implications of these caveats, including an analysis of how robust these projections are to changes in different key factor metrics and how dramatically our conflict and war projections may shift in alternative future scenarios that reflect different assumptions about the trends in our identified key factors.

### **Potential ‘Reversing Events:’ Alternative Future Scenarios**

Up to this point, the analysis has emphasized a baseline or “no surprises” future in which the future incidence of conflict is determined by the most likely projections of key factors that drive conflict. This baseline is a relatively optimistic one: The incidence of conflict has generally been declining for decades, and further declines can be anticipated if the future unfolds as expected. As the brief literature review in

Chapter Two suggested, there are powerful secular trends driving the decline in conflict that has been observed in recent years.<sup>7</sup>

If viewed in isolation, however, this baseline projection could also be misleading. Radical changes in underlying key factors are rarer than continuity, but it is often the sharp changes from past trends that we care about most. The end of the Cold War or the attacks of September 11 would not have been anticipated in the baseline projections of their time, but each had a dramatic effect on trends in conflict and U.S. interventions. “Uncertainty-sensitive planning” frameworks seek to deal with such discontinuities by examining alternative futures – ways in which the future might diverge from the past in ways both anticipatable and unexpected.<sup>8</sup>

This section seeks to cope with the inherent uncertainty of the long-term future by exploring alternative futures using the conflict models already developed. We used a review of official U.S. government long-term futures analyses (particularly from the intelligence community) and the academic literature to develop narrative-based scenarios that we then translated into values on the key factors that drive conflict propensity. These scenarios by no means exhaust the possible futures that might occur, nor are they the most likely scenarios. Rather, they were chosen to represent frequently discussed cases with extreme values on the key factors that drive conflict propensity. Consequently, they offer a useful test of the robustness of the trend toward declining levels of violent conflict by illustrating under what future conditions this projected decline would be expected to reverse. These alternative futures are *worst-case scenarios*; many other alternative futures could be imagined, including ones that would be more peaceful than the baseline. Other alternative futures – ones that are more probable than the scenarios outlined in this section but still challenging – should be considered “lesser included cases,” occupying a space somewhere between the baseline and the scenarios

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<sup>7</sup> Philip E. Tetlock, *Expert Political Judgment: How Good Is It? How Can We Know?* Princeton, N.J.: Princeton University Press, 2006.

<sup>8</sup> On long-range and uncertainty-sensitive planning, see Paul K. Davis, “Uncertainty-Sensitive Planning,” in Stuart E. Johnson, Martin C. Libicki, and Gregory F. Treverton, eds., *New Challenges, New Tools for Defense Decisionmaking*, Santa Monica, Calif.: RAND Corporation, MR-1576-RC, 2003.

presented here. The alternative futures examined here are intended as “stress tests” of the trend toward lower levels of violence: low probability futures that lie near the outer bound of plausible levels of future conflict that would be projected by our model.

Such an approach is not intended to predict wars within or between specific countries — nor could it. Nor can it predict conflict intensity (beyond our thresholds for conflict and war). Moreover, it cannot account for entirely new sources of conflict that are not related to the key factors we derived from the social science literature. Rather, this approach is intended to help us understand how sharply future conditions would need to diverge from our expectations to substantially alter the projected trend towards declining levels of violent conflict, as well as the key factors and metrics that we should monitor to give us advance warning that conflict trends might be reversing. The first of these issues is discussed in the remainder of this chapter, while the second is assessed in Chapter Six.

### **Scenario 1: Global Depression—The World Economy Fractures**

#### ***Scenario Description***

For years, a generalized confidence in fiscal and monetary policy tools had pervaded advanced industrialized economies. Economists spoke of a “great moderation,” and some suggested that a collapse of similar magnitude to the Great Depression was highly unlikely.<sup>9</sup> The financial crisis of 2008 shook this confidence and revealed the limits of these tools. With the levels of public debt that most advanced industrialized states now hold, a massive fiscal stimulus may no longer be possible even today. Worse, such indebtedness is likely to increase as populations in North America, Europe, China, and Japan continue to age and retirement costs place an ever-greater burden on these economies. Moreover, as recent crises have revealed, when faced with intense and persistent deflation, central banks may exhaust their monetary policy remedies. A variety

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<sup>9</sup> On the “great moderation,” see Ben S. Bernanke, “The Great Moderation,” remarks delivered at the meetings of the Eastern Economic Association, Washington, D.C., February 20, 2004; James H. Stock and Mark W. Watson, “Has the Business Cycle Changed and Why?” *NBER Macroeconomics Annual 2002*, Vol. 17, Cambridge, Mass.: MIT Press, 2003.

of prognosticators have recently suggested the possibility that the global economy might be entering an extended period of extreme volatility.<sup>10</sup>

In this scenario, an economic crisis on the scale of the 2008 financial crisis erupts in the year 2025, but governments and central banks no longer have the means with which to combat the sharp contraction in demand and plummeting of investor confidence. Faced with grave economic dislocations, economic nationalists come to the fore in many of the Organization for Economic Cooperation and Development states and China, working to undo much of the globalized economy. Rival economic blocs form in North America, Europe, around China, and around Japan and its major trading partners. At the same time, under severe fiscal pressure, the United States sharply reduces defense spending and its forward posture around the world.

The economic catastrophe reverberates in a series of political crises, toppling many democratic governments and posing legitimacy crises for many authoritarian regimes. China is particularly beset by turmoil, with its massive income inequalities, severe environmental degradation, and demographic imbalances (both an aging population and a substantial number of men in excess of women) creating explosive conditions.<sup>11</sup>

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<sup>10</sup> See National Intelligence Council, *Global Trends 2030: Alternative Worlds*, Washington, D.C.: Office of the Director of National Intelligence, December 2012; Lawrence H. Summers, "U.S. Economic Prospects: Secular Stagnation, Hysteresis, and the Zero Lower Bound," *Business Economics*, Vol. 49, No. 2, 2014; Coen Teulings and Richard Baldwin, eds., *Secular Stagnation: Facts, Causes and Cures*, London: Centre for Economic Policy Research, August 15, 2014.

<sup>11</sup> It is easy to exaggerate the extent of the challenges posed by these conditions and to underestimate the ability of the regime to adjust its policy to mitigate them. For years, some observers have been predicting severe crises for China – thus far incorrectly. See, for instance, Jack A. Goldstone, "The Coming Chinese Collapse," *Foreign Policy*, No. 99, Summer, 1995; and Gordon G. Chang, *The Coming Collapse of China*, New York: Random House, 2001. For a discussion of the regime's ability to adapt to these challenges, see Michael Pettis, "Will China's Economy Crash?" CNN, July 29, 2013. It is not unreasonable to believe, however, that a severe global economic crisis could eventually exceed the regime's resilience. Again, these scenarios are not offered as predictions of what is likely to happen but only as plausible possibilities.

Similar conditions prevail in Russia and many other authoritarian and quasidemocratic regimes.<sup>12</sup>

### ***Changes in Key Factors***

This scenario parallels the Great Depression that began in 1929 and the ensuing tumult of the 1930s. Consequently, we used historical parallels to estimate the values that many of the key factors in our model might assume in such a scenario:

- *Rate of economic growth*: Sharp declines occur in projected annual GDP growth rates, based on shifts comparable to the Great Depression.<sup>13</sup>
- *Extent of economic interdependence*: Rapid declines occur in global trade, paralleling those experienced during the Great Depression.<sup>14</sup>
- *Chinese turmoil*: Chinese growth rates stagnate as the country experiences two decades of lost growth, similar to the Japanese experience of the 1990s and early 2000s.<sup>15</sup> China's major trading partners also suffer as China is no longer able to act as an engine for global economic growth.<sup>16</sup>
- *Exclusive economic trading blocs*: Leading economies create their own trading blocs, centered on the United States, China, the

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<sup>12</sup> This scenario resembles the Crisis of Globalization scenario in William H. Overholt, *Asia, America, and the Transformation of Geopolitics*, New York: Cambridge University Press, 2008, pp. 287–290.

<sup>13</sup> Specifically, a 4-percent reduction in projected annual GDP growth rates for each country for five years, starting in 2025.

<sup>14</sup> A reduction in global trade flows of 55 percent over four years starting in 2025, followed by a subsequent recovery in trade back to originally projected levels starting in 2034.

<sup>15</sup> China experiences no growth from 2020 to 2040, which is also reflected in flat levels of military spending and industrial activity. Given the high rates of growth projected for China in the baseline scenario, this stagnation represents a sharper relative deterioration of economic conditions than that experienced by other countries.

<sup>16</sup> Modeled as an additional 1-percent reduction in GDP growth rates from 2020 to 2040 in China's major trading partners, including the United States, Japan, South Korea, Russia, South Korea, Taiwan, Australia, and most of the Association of Southeast Asian Nations (ASEAN).

European Union, and Japan.<sup>17</sup> This development mirrors the establishment of different trading blocs around the United Kingdom, France, and Germany during the 1930s.

- *Prevalence of consolidated democracies:* Many weak democracies falter and revert to autocratic governance, similar to the experience of many European states in the 1920s and 1930s.<sup>18</sup>
- *U.S. forward presence:* The United States dramatically reduces its number of forward deployed troops in response to fiscal constraints and growing isolationism.<sup>19</sup>

### Results

The conditions specified in “Global Depression” would be expected to increase projections of interstate war and intrastate war and conflict. Of these changes, those projected for interstate war are the most modest. As indicated in Figure 5.5, this scenario would be expected to increase the incidence of interstate war substantially over baseline projections, to levels that would have been average for the past century, roughly on par with the 1980s.

By contrast, the projected increases in the incidences of intrastate war and conflict in this scenario are more dramatic. Figure 5.6 shows a sharp increase in the projected levels of intrastate war, to a level that approaches the peak values projected by our model during the early post-Cold War period. This finding suggests that while economic and political trends are (and have been) quite positive, many states still have a substantial potential for experiencing intrastate war in the event that these trends were to dramatically reverse.

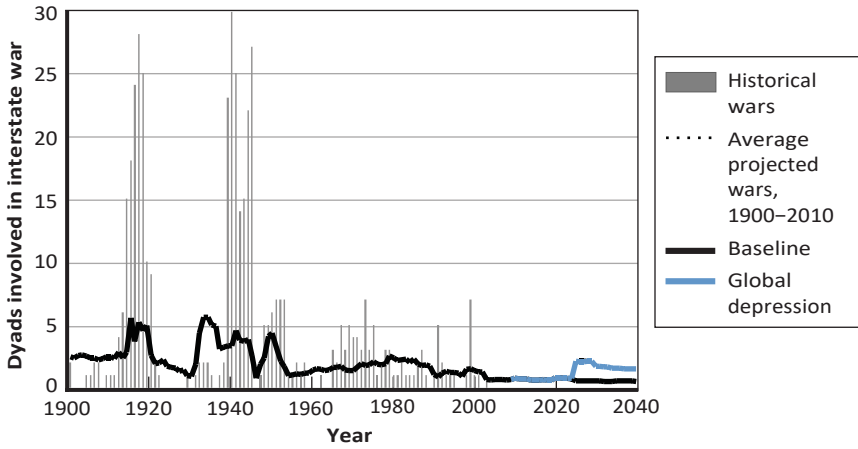
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<sup>17</sup> The blocs begin in 2025. The U.S. bloc includes the United States, Canada, and Mexico, the China bloc of China and North Korea, the EU bloc of the existing EU member states, and the Japanese bloc of Japan, South Korea, and the ASEAN states.

<sup>18</sup> A 4-point drop on the Polity scale (-10 to +10) for all states excluding those that are well-established democracies (Polity = 9 or 10) beginning in 2025. In 2030, the effect is removed, and these states revert to their baseline projections.

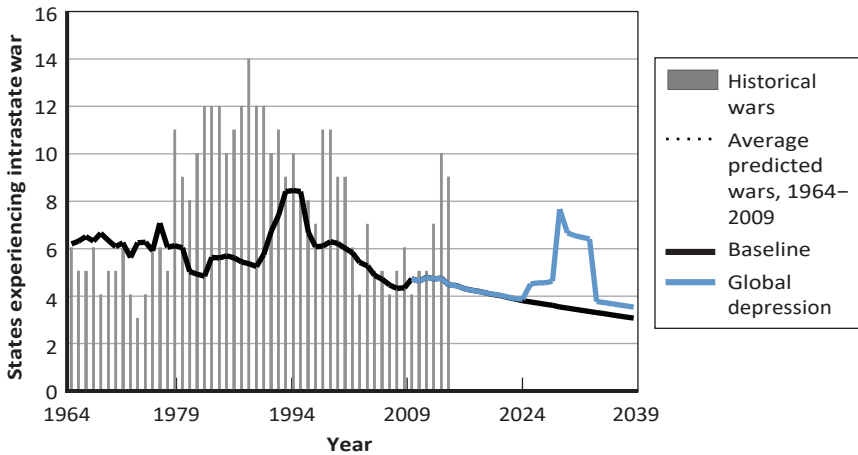
<sup>19</sup> While the United States does not withdraw from any countries where troops are already present, it reduces the number of troops in each location by 50 percent.

**Figure 5.5**  
**Historical and Projected Interstate Wars: Global Depression Scenario**



SOURCE: Sarkees and Wayman, 2010.  
 NOTE: Black and blue lines denote RAND analysis of data.  
 RAND RR1177-5.5

**Figure 5.6**  
**Historical and Projected Intrastate Wars: Global Depression Scenario**



SOURCES: Melander, Petterson, and Themnér, 2016; Gleditsch et al., 2002.  
 NOTE: Black and blue lines denote RAND analysis of data.  
 RAND RR1177-5.6

This increase in violence is likely to be felt more strongly in some regions than in others. As shown in Figure 5.7, East and Southeast Asia and Eurasia appear to be particularly at risk of greater intrastate conflict in this scenario, with Central America also experiencing an increase over its baseline projections. Other regions, meanwhile, are not notably affected. The conditions specified in this scenario are not sufficient to increase markedly the likelihood of intrastate conflict in states in Europe and South America, for example, and neither do they appear to target the potential vulnerabilities of most states in Africa.

## **Scenario 2: Revisionist China**

### ***Scenario Description***

In contrast to the previous scenario, in which a Chinese economic and social crisis is one source of conflict, this scenario is predicated on Chinese success in managing its internal challenges. The Chinese government is able to handle the various strains associated with its growth model, leading to only a mild reduction in the astronomically high growth rates of the past three decades in China.

As China continues to grow much more rapidly than the United States, Japan, and other major powers, its influence similarly expands. Its continued strong economic performance permits the government to continue its military build-up, fueling increasing Chinese assertiveness throughout the Asia-Pacific region, manifested in part in additional or more aggressively contested territorial claims.<sup>20</sup> China is hailed as a model for managed growth by many developing countries throughout the world, leading Beijing to use its newfound diplomatic weight to demand numerous changes in international institutions.

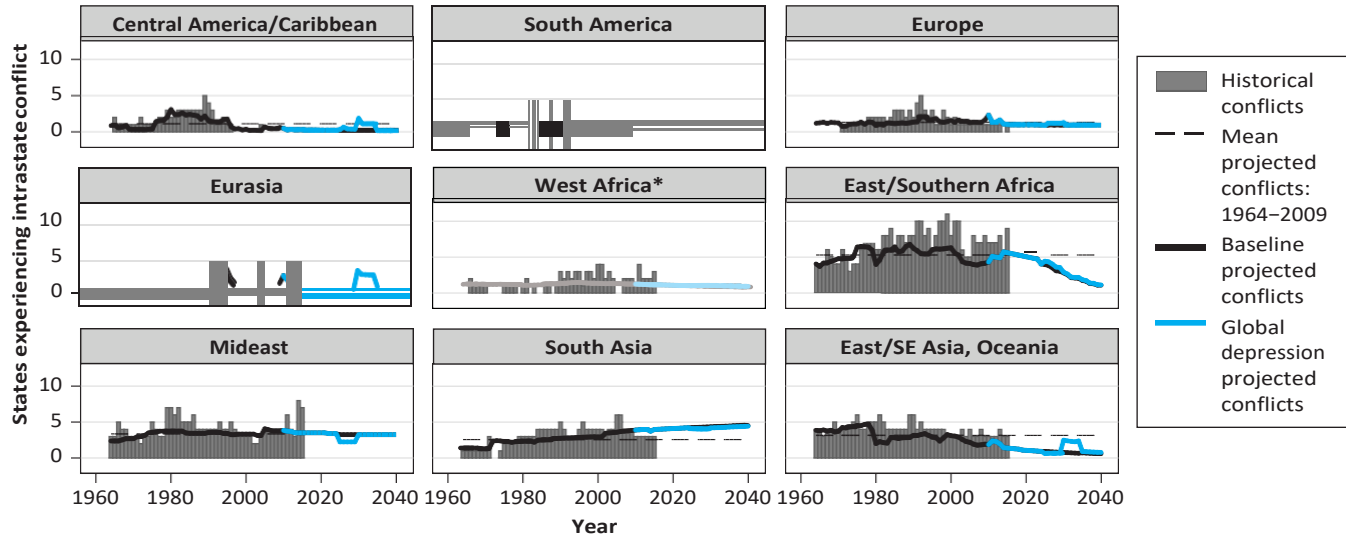
Increasing tensions between the United States and China lead the United States to undertake measures to reduce its economic interdependence with China. Similarly, China's concerns about its economic vulnerabilities (including, among others, its dependence on foreign energy sources and the enormous investments it has made in U.S.

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<sup>20</sup> As China becomes more powerful, it asserts its claims more aggressively, as per Fareed Zakaria, *From Wealth to Power: The Unusual Origins of America's World Role*, Princeton, N.J.: Princeton University Press, 1999.



**Figure 5.7**  
**Historical and Projected Regional Levels of Intrastate Conflict: Global Depression Scenario**



SOURCES: Melander, Petterson, and Themnér, 2016; Gleditsch et al., 2002.

\* As noted in the presentation of our baseline projections, the projected levels of intrastate conflict in West Africa should be considered less reliable than the projections for other regions. The trend lines for this region are depicted in lighter shades to indicate their lower reliability. For details, see section entitled “Building the Conflict and War Models” in Chapter Four and the appendix.

NOTE: Black and blue lines denote RAND analysis of data.

RAND RR1177-5.7

bonds and other dollar-denominated assets) lead China to reduce its interdependence with the United States and the West. It slowly shifts toward a more diversified investment portfolio and seeks to create energy and other supply chains that it can control and protect from outside interference.<sup>21</sup>

Initially, each side seeks to avoid a decisive break with the other because of the economic costs, yet neither is willing to make the sorts of concessions that the other sees as its due. A rupture occurs in 2030. There are many possible precipitants of such a rupture: a specific territorial conflict (e.g., Taiwan), a major clash over the rules of the global economy, and so on. The result, however, is that the emerging split between these powers and their partners becomes formalized in the emergence of rival trading and military blocs roughly analogous to the U.S.-Soviet Cold War. The United Nations and similar intergovernmental organizations become paralyzed by the stand-off. Meanwhile, the diplomatic and economic clashes between these two blocs begin to spill over into confrontations over political and security issues, where partners of each of the major powers – and potentially the United States and China themselves – no longer accept peaceful conflict resolution as the only legitimate way to resolve disputes between members of the two blocs. By 2035, a highly unstable U.S.-Sino Cold War has taken shape.

### ***Changes in Key Factors***

Similar to the “Global Depression” scenario, this scenario roughly parallels an historical period, the early U.S.-Soviet Cold War, although Chinese influence begins from a much broader geographic base than did the early Cold War Soviet system. As with the previous scenario, this scenario uses historical analogues to project values on the key factors of our conflict models.

- *Exclusive economic trading blocs:* Two trading blocs develop, one centered on the United States and consisting of the bulk of the existing World Trade Organization, and the other centered on

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<sup>21</sup> This scenario somewhat resembles the Cold War II scenario in Overholt, 2008, pp. 270–271, and the National Intelligence Council, 2012.

China, including its close trading partners and other states dissatisfied with the U.S. system.<sup>22</sup>

- *Extent of economic interdependence*: All states experience a moderate decline in trade flows as a result of the bifurcation of the international economic system.<sup>23</sup>
- *U.S. forward presence*: Fiscal constraints and diplomatic pressures force the withdrawal of U.S. troops from East Asia in 2030, excepting those in Japan, which are maintained.
- *Regional hegemony*: China is already projected to achieve clear hegemony in East and Southeast Asia by 2020 in the baseline model, but the degree of its hegemony increases somewhat after 2030 in this scenario due to the decline in U.S. forward presence.
- *Degree of territorial contestation*: The likelihood of a contested territorial claim between states increases to levels seen during the Cold War.<sup>24</sup>
- *Strength of international norms*: Support for international norms of peaceful conflict resolution declines to levels last seen in the early Cold War era, reflecting the loss of consensus regarding how disputes should be settled.<sup>25</sup>
- *Prevalence of consolidated democracies*: The process of democratization halts, as states that have not yet democratized no longer feel pressured to do so.<sup>26</sup>

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<sup>22</sup> Membership in the China bloc in this scenario grows gradually between 2030 and 2034, including parts of ASEAN, Central Asia, South Asia, the Mideast, and Eurasia, including notably Russia and Iran. At its height, the bloc contains 30 states in all.

<sup>23</sup> A decrease of 14 percent in economic interdependence, mirroring the difference between the early 2000s and the 1980s.

<sup>24</sup> An increase of 26.5 percent starting in 2025, paralleling the difference in the likelihood of such claims between the early 2000s and the 1980s.

<sup>25</sup> A 12-percent decline in the measure of the strength of international norms, the percentage of states in each region that have committed themselves to multiple treaties mandating the pacific settlement of disputes, back to levels of this measure seen in the 1950s.

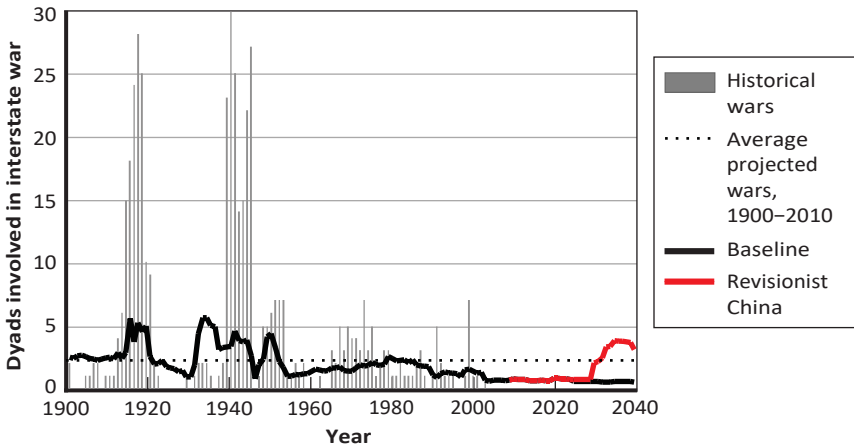
<sup>26</sup> Polity values for all states remain static from 2031 to 2040.

**Results**

This scenario has a substantial effect on the likelihood of interstate war. As shown in Figure 5.8, the levels of interstate war projected in this scenario are roughly on par with some of the most violent periods of the past century. While not reaching the projected levels of the two World Wars, these levels do parallel the early Cold War period, which most notably included the Korean War. Furthermore, the changes modeled in this scenario appear to lead to an increased level of interstate war that is fairly persistent, rather than a short one- or two-year spike. The risk of interstate war under these conditions appears to be substantially higher than it has been for some time.

While this scenario yields a sharp increase in the risk of interstate war, the accompanying risk of intrastate war and conflict are not strongly affected in our models. It is possible that the economic dislocations produced by the formation of a rival Chinese trading bloc would have a more dramatic effect on global levels of economic growth and regime stability than are modeled here, taking on elements of the above Global Depression scenario as well. As constructed, however, the

**Figure 5.8**  
**Historical and Projected Interstate Wars: Revisionist China Scenario**



SOURCE: Sarkees and Wayman, 2010.  
 NOTE: Black and red lines denotes RAND analysis of data.

“Revisionist China” scenario primarily poses a risk for substantially higher levels of interstate war.

### **Scenario 3: State Decay and Highly Empowered Nonstate Actors**

#### ***Scenario Description***

One of the most commonly forecast changes in the coming three decades is the further empowerment of individuals as politically – and internationally – relevant actors. The National Intelligence Council’s assessment is typical and worth quoting at length:

Individual empowerment will accelerate substantially during the next 15–20 years owing to poverty reduction and a huge growth of the global middle class, greater educational attainment, and better health care. The growth of the global middle class constitutes a tectonic shift: for the first time, a majority of the world’s population will not be impoverished, and the middle classes will be the most important social and economic sector in the vast majority of countries around the world . . . On the one hand, we see the potential for greater individual initiative as key to solving the mounting global challenges over the next 15–20 years. On the other hand, in a tectonic shift, individuals and small groups will have greater access to lethal and disruptive technologies (particularly precision-strike capabilities, cyber instruments, and bioterror weaponry), enabling them to perpetrate large-scale violence – a capability formerly the monopoly of states.<sup>27</sup>

The combination of better organized networks of individuals with the increasing availability of sophisticated lethal and nonlethal technologies is a threat frequently invoked in military documents on future operating environments. The U.S. Army Training and Doctrine Command, for instance, warns, “Given the widespread and rapid dissemination of technology, non-state actors are more able to challenge state-based militaries. Access to such technology is leveling the playing field. The likeli-

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<sup>27</sup> National Intelligence Council, 2012, p. iii.

hood that the U.S. Army will find itself operating with or against a technologically sophisticated non-state actor is extremely high.”<sup>28</sup>

While nonstate actors are becoming stronger, many observers of current trends warn that states may be weakening. The potential reasons for this are varied: increasing income inequalities that lead to crises of government legitimacy and highly contentious politics; the proliferation of “megacities” with teeming populations in states that are poorly prepared to govern them; the inability of states to cope with increasingly consequential transnational flows of people, capital, and pollution; and the second-order effects of trends explored in other scenarios in this chapter, including global economic volatility and potential catastrophic environmental degradation.<sup>29</sup>

The combination of these two factors potentially sets the stage for increased conflict. Economic inequalities become infused with ethnic and sectarian rivalries. States that are overburdened with multiple governance crises find it difficult to maintain growth rates, which in turn increases the likelihood of fiscal crisis and even weaker state capacity. Such states also find it difficult to police violent nonstate actors effectively — particularly those able to use new technologies to organize and launch highly effective attacks on the state (for example, through social media and the acquisition of advanced weaponry). In such circumstances, regimes are highly susceptible to being toppled, either from within (that is, coups) or without (both violent and nonviolent revolutions and revolts). In the wake of such transitions, politics becomes even more unstable as new authorities scramble to assemble the requisite coalitions to govern and as public confidence in the durability of the new regime weakens.

In this scenario, many of the wealthier and more-established democracies in the world are able to muddle through despite these challenges. For poorer and weaker states, however, these stressors can generate a self-perpetuating conflict cycle, in which a weakening state

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<sup>28</sup> U.S. Army Training and Doctrine Command, 2012, p. 45.

<sup>29</sup> National Intelligence Council, 2012.

succumbs to violent conflict, which in turn further weakens the state and its ability to prevent yet more conflict.<sup>30</sup>

### **Changes in Key Factors**

- *Capacity of state institutions:* State capacity declines, with deterioration most pronounced in already weaker states, which return to levels of state capacity seen in the early postcolonial period.<sup>31</sup>
- *Rate of economic growth:* This scenario incorporates a substantial decline in economic growth rates, similar to the worst period of economic performance in the postcolonial era.<sup>32</sup>
- *Degree of ethnic and sectarian polarization:* Societies become much more polarized, with formal discrimination returning to levels last seen in the postcolonial period.<sup>33</sup>
- *Prevalence of established democracy:* Weaker democracies are harder to sustain, with many reverting to autocracies. More-established democracies are better able to handle the pressures that result.<sup>34</sup>

<sup>30</sup> On such conflict cycles, see Paul Collier, V. L. Elliott, Håvard Hegre, Anke Hoeffler, Marta Reynal-Querol, and Nicholas Sambanis, *Breaking the Conflict Trap: Civil War and Development Policy*, Washington, D.C.: World Bank and Oxford University Press, 2003; and Barbara F. Walter, "Conflict Relapse and the Sustainability of Post-Conflict Peace," World Development Report 2011 Background Paper, September 13, 2010.

<sup>31</sup> This change reflects the mean difference in state capacity between the 2005–2010 period and the 1960–1964 period. This is operationalized by a 24-percent change in the raw measure we use to proxy state capacity — paved road density — which is then transformed by taking its natural log such that the changes in the final metric are more pronounced at lower ends of the spectrum. These changes phase in gradually between 2025 and 2030.

<sup>32</sup> The worst period for global economic growth was from 1985 to 1989, which is contrasted with the early 2000s. Based on this difference, we modeled a 3-percent decline in projected annual GDP growth rates between 2025 and 2029, which then phased out, reducing to 2 percent from 2030 to 2034, and then to 1 percent from 2035 to 2039 as states gradually adjusted.

<sup>33</sup> Reflects the difference between levels of formal discrimination in the early 2000s and the early 1970s, a 265-percent increase that phases in gradually between 2025 and 2030.

<sup>34</sup> States that are near democracies or weaker democracies (between a 4 and an 8 on the Polity scale) see reduced Polity values beginning in 2025, although the effect gradually weakens over time as these states adjust. This involves a 3-point reduction from their projected values from 2025 to 2029, a 2-point reduction from 2030 to 2034, and a 1-point reduction from 2035 to 2040.

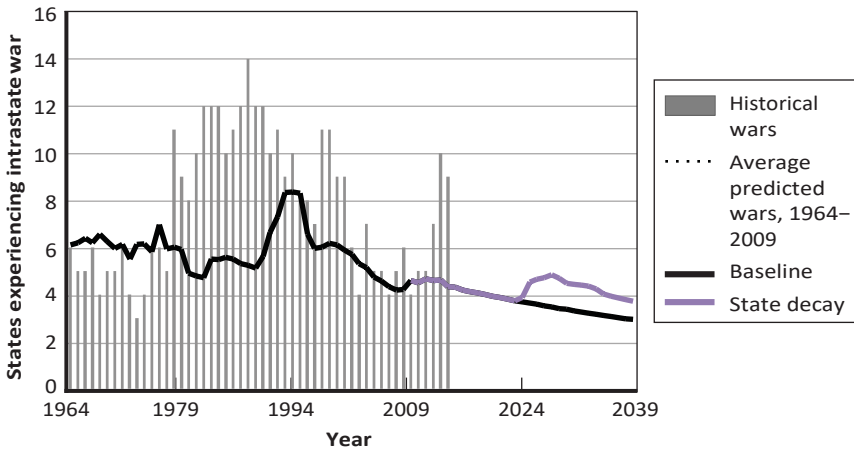
- *Extent of economic interdependence:* States experience a moderate decline in trade flows as a result of greater instability and the increased ability of nonstate groups to disrupt trade.<sup>35</sup>

**Results**

The conditions described above would be expected to have a modest increase on the likelihood of intrastate war and conflict. As shown in Figure 5.9, the conditions we have described lead to projected increases in intrastate war that are sufficient only to return projected levels roughly to where they are today.<sup>36</sup> They still fall well below average levels from the postcolonial period as a whole.

The regional trends in projected intrastate conflict can help to illustrate why these changes are relatively modest. As indicated in Figure 5.10, the increase in the likelihood of intrastate conflict in this

**Figure 5.9**  
**Historical and Projected Intrastate Wars: State Decay Scenario**



SOURCES: Melander, Petterson, and Themnér, 2016; Gleditsch et al., 2002.

NOTE: Black and purple lines denote RAND analysis of data.

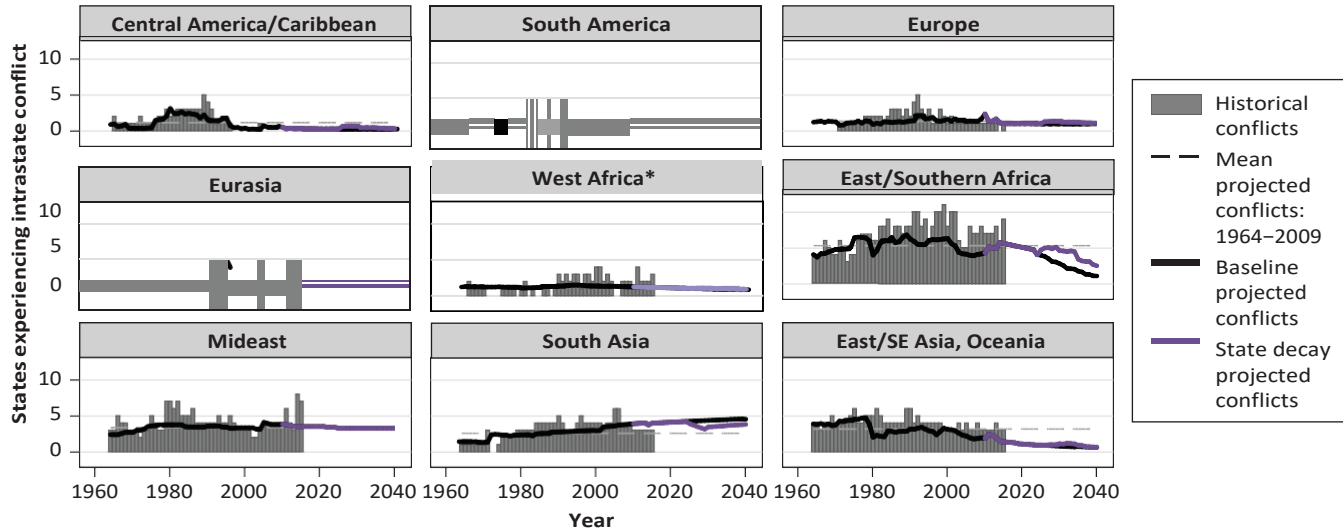
RAND RR1177-5.9

<sup>35</sup> A decrease of 14 percent in economic interdependence, similar in scale to the changes in this metric modeled in Scenario 2.

<sup>36</sup> Projected levels of interstate war are not notably different in this scenario and for the sake of brevity are therefore not reproduced.



**Figure 5.10**  
**Historical and Projected Regional Levels of Intrastate Conflict: State Decay Scenario**



SOURCES: Melander, Pettersson, and Themnér, 2016; Gleditsch et al., 2002.

\* As noted in the presentation of our baseline projections, the projected levels of intrastate conflict in West Africa should be considered less reliable than the projections for other regions. The trend lines for this region are depicted in lighter shades to indicate their lower reliability. For details, see section entitled “Building the Conflict and War Models” in Chapter Four and the appendix.

NOTES: Black and purple lines denote RAND analysis of data.

RAND RR1177-5.10

scenario is generally confined to regions with numerous already weak states. Most of the increase is concentrated in East and southern Africa, with smaller upticks in East and Southeast Asia and Central America. Other regions with more well-developed states, meanwhile, including Europe, South America, and even the Mideast, are not notably affected. This finding suggests that the conditions specified in this scenario are not sufficient to increase the risk of intrastate conflict in relatively well-established states, which appear to be equipped to handle these sorts of disruptions without a greater incidence of armed conflict.

#### **Scenario 4: Global Environmental Catastrophe**

##### ***Scenario Description***

Various scholars have suggested that extreme environmental degradation can lead to violent conflict as groups compete for scarce critical resources such as water and arable land.<sup>37</sup> Others have been more skeptical, arguing that the relationship is at best a more tentative one.<sup>38</sup> It is possible, however, that climate change – particularly if the most dire predictions come to pass – could impose levels of social strain that have not previously been observed. Violent conflict might surge as a result.

The Defense Science Board offered a measured assessment of the security threats posed by climate change: “Climate change is more likely to be an exacerbating factor for failure to meet basic human needs and

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<sup>37</sup> Thomas Homer-Dixon, “Environmental Scarcities and Violent Conflict: Evidence from Cases,” *International Security*, Vol. 19, No. 1, 1994; Thomas Homer-Dixon, *Environment, Scarcity and Violence*, Princeton, N.J.: Princeton University Press, 1999; Wenche Hauge and Tanja Ellingsen, “Beyond Environmental Scarcity: Causal Pathways to Conflict,” *Journal of Peace Research*, Vol. 35, No. 3, 1998; Colin Kahl, *States, Scarcity, and Civil Strife in the Developing World*, Princeton, N.J.: Princeton University Press, 2006.

<sup>38</sup> For overviews of these debates, see Intergovernmental Panel on Climate Change (IPCC), *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation*, New York: Cambridge University Press, 2012, p. 297; Ole Magnus Theisen, “Blood and Soil? Resource Scarcity and Internal Armed Conflict Revisited,” *Journal of Peace Research*, Vol. 45, No. 6, 2008; Drago Bergholt and Päivi Lujala, “Climate-Related Natural Disasters, Economic Growth, and Armed Civil Conflict,” *Journal of Peace Research*, Vol. 49, No. 1, 2012; Halvard Buhaug, “Climate Not to Blame for African Civil Wars,” *Proceedings of the National Academy of Sciences*, Vol. 107, No. 38; Marshall Burke, John Dykema, David Lobell, Edward Miguel, and Shanker Satyanath, *Climate and Civil War: Is the Relationship Robust?* Cambridge, UK: National Bureau of Economic Research, Working Paper No. 16440, October 2010.

for social conflict, rather than a root cause.”<sup>39</sup> Others are less sanguine. One report warned that “constraints in energy, water, and other critical natural resources and infrastructure, together with socio-economic shifts, will bring new and hard-to-manage instabilities. There will be an increasing risk of discontinuous and systemic shocks to 2040 as a consequence of these factors.” It further noted that “[n]o one knows whether today’s domestic and transnational institutions, market systems, and multinational arrangements will be able to cope with these rising resource stresses.”<sup>40</sup> Similarly, the Department of Defense recently concluded, “Rising global temperatures, changing precipitation patterns, climbing sea levels, and more extreme weather events will intensify the challenges of global instability, hunger, poverty, and conflict.”<sup>41</sup>

In this scenario, we accept the more-extreme possible consequences of climate change as the basis for predicting future levels of violent conflict.<sup>42</sup> According to the IPCC, risks include (but are not limited to):

- Risk of severe ill-health and disrupted livelihoods for large urban populations due to inland flooding in some regions
- Systemic risks due to extreme weather events leading to breakdown of infrastructure networks and critical services such as electricity, water supply, and health and emergency services. . . .

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<sup>39</sup> Defense Science Board, *Trends and Implications of Climate Change for National and International Security*, Washington, D.C.: Department of Defense, 2011, p. xi.

<sup>40</sup> Chatham House, Strategic Futures Group, *Natural Resources in 2020, 2030, and 2040: Implications for the United States*, National Intelligence Council Report, NICR 2013-05, July 25, 2013.

<sup>41</sup> U.S. Department of Defense, *2014 Climate Change Adaptation Roadmap*, Washington, D.C.: Department of Defense, 2014a.

<sup>42</sup> For an overview of the range of projected changes in climatic conditions and the associated social and economic risks, see IPCC, “Summary for Policymakers,” in C. B. Field, V. R. Barros, D. J. Dokken, K. J. Mach, M. D. Mastrandrea, T. E. Bilir, M. Chatterjee, K. L. Ebi, Y. O. Estrada, R. C. Genova, B. Girma, E. S. Kissel, A. N. Levy, S. MacCracken, P. R. Mastrandrea, and L. L. White, eds., *Climate Change 2014: Impacts, Adaptation, and Vulnerability, Part A: Global and Sectoral Aspects, Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, New York: Cambridge University Press, 2014.

- Risk of food insecurity and the breakdown of food systems linked to warming, drought, flooding, and precipitation variability and extremes, particularly for poorer populations in urban and rural settings
- Risk of loss of rural livelihoods and income due to insufficient access to drinking and irrigation water and reduced agricultural productivity, particularly for farmers and pastoralists with minimal capital in semi-arid regions.<sup>43</sup>

These disruptions can lead to widespread population displacement, increased intercommunal tensions over scarce critical resources, plummeting rates of economic growth, and fiscal and political crises in the governments hardest hit by the economic consequences of climate change. Each of these effects, in turn, might be expected to increase the incidence of violent conflict, particularly if they are severe.

### ***Changes in Key Factors***

To model the effects of severe climate change, we relied on a scenario operationalization developed by the International Futures project to support work undertaken by the United Nations Environment Program.<sup>44</sup> This operationalization is intended to reflect the economic, social, and other consequences of severe environmental degradation resulting from climate change. As a result, this scenario differs from the previous ones in that it relies on changes to the much wider range of variables included in the IFs module. This module assumes changes of 10 to 40 percent in variables such as costs of traded goods and services, foreign direct investment, fertility rates, military spending, extent of political and economic freedoms, and international migration.<sup>45</sup>

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<sup>43</sup> IPCC, 2014, p. 13.

<sup>44</sup> United Nations Environment Program, *Global Environmental Outlook (GEO) 4: Environment for Development*, New York, 2007, Chapter 9.

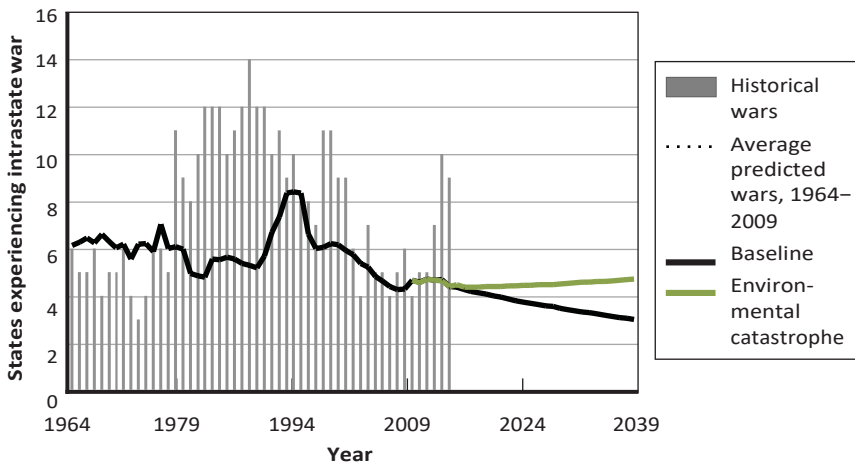
<sup>45</sup> A full list of the variables altered in this scenario can be retrieved from University of Denver, "Main Menu: IFs Version 7.23 Final," undated-b.

**Results**

The Environmental Catastrophe scenario increases projected levels of intrastate war above the baseline scenario, to levels at or slightly above those experienced in the present. As shown in Figure 5.11, the modeled environmental degradation and its corresponding effects on economic and social systems appears to counteract the further progress that our model anticipates in the areas of economic and political development. The result, however, is a flattening or gradual increase in conflict trends, rather than a sharp reversal.

At the regional level, increases in projected intrastate conflict are concentrated in East and southern Africa, as shown in Figure 5.12. This geographic concentration may reflect both a generally greater vulnerability of states in this region to economic and social disruptions, as well as potentially a greater direct vulnerability to environmental degradation, such as the loss of fresh water and arable land. Even in

**Figure 5.11**  
**Historical and Projected Intrastate Wars: Environmental Catastrophe Scenario**

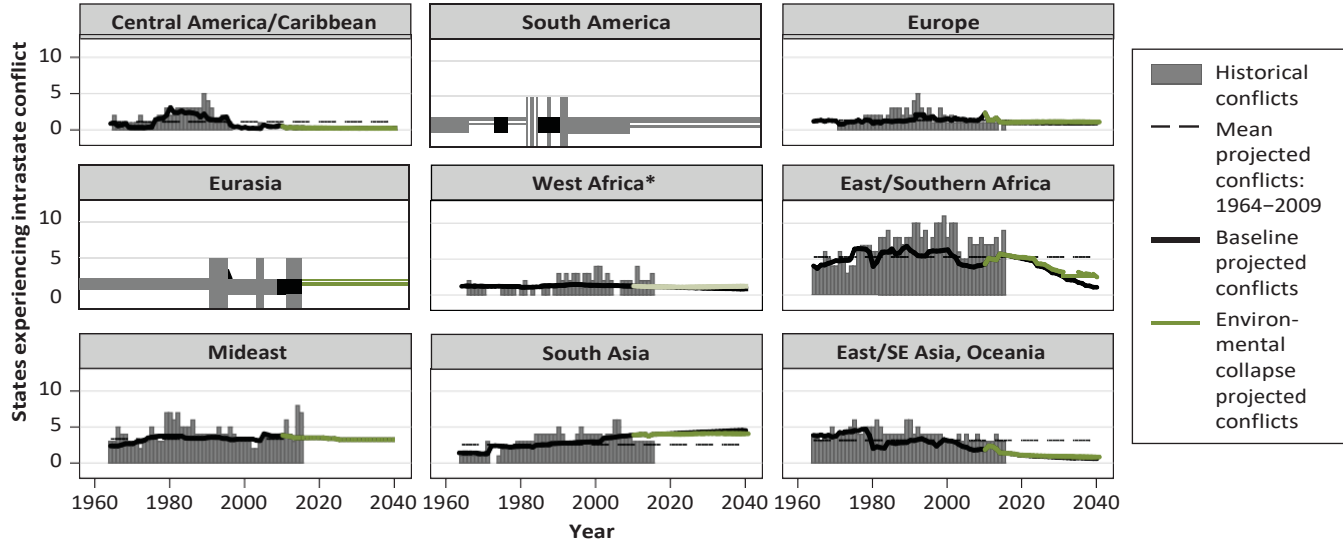


SOURCES: Melander, Petterson, and Themnér, 2016; Gleditsch et al., 2002.

NOTE: Black and green lines denote RAND analysis of data.

RAND RR1177-5.11

**Figure 5.12**  
**Historical and Projected Regional Levels of Intrastate Conflict: Environmental Catastrophe Scenario**



SOURCES: Melander, Petterson, and Themné, 2016; Gleditsch et al., 2002.

\* As noted in the presentation of our baseline projections, the projected levels of intrastate conflict in West Africa should be considered less reliable than the projections for other regions. The trend lines for this region are depicted in lighter shades to indicate their lower reliability. For details, see section entitled “Building the Conflict and War Models” in Chapter Four and the appendix.

NOTES: Black and green lines denote RAND analysis of data.

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this region, however, these changes are sufficient only to moderate the projected decline in intrastate conflict, not to reverse it.<sup>46</sup>

## Summary

Our baseline projections (“no major surprises” future) indicate that the current spike of violence in places like Syria and Ukraine is unlikely to portend a long-term, secular trend toward rising levels of war and armed conflict. Instead, current events most likely represent a short-term divergence from long-standing trends – not substantially different from the early years following the end of the Cold War, when some observers warned of a “coming anarchy” and heightened levels of violence that never emerged.<sup>47</sup> However, any number of reversing events could intervene to alter these anticipated trends. This chapter consequently explored four alternative futures – worst-case scenarios designed to “stress test” our conflict projections. The results suggest that substantially higher levels of interstate and intrastate war and conflict are indeed possible over sustained periods of time, but that the changes in underlying conditions needed to produce them appear to be quite dramatic; even many of these worst-case scenarios did not produce levels of violent conflict substantially higher than those we observe today. Further, increases in intrastate conflict that occur even under these challenging conditions are likely to be concentrated in regions of the world with relatively weaker states, suggesting that armed conflict in regions such as Europe and the Americas remains unlikely even under radically different conditions.

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<sup>46</sup> It is important to note that while Figure 5.11 shows a relatively substantial increase in projected intrastate wars relative to the baseline, Figure 5.12 appears to show a more modest increase in intrastate conflicts. Projections of intrastate conflicts and intrastate wars are driven by many of the same factors, as shown in Table 4.3, but not uniformly so, and one type of violence may therefore be more greatly affected by changes in certain key factors than the other. Figure 5.12 should thus not be interpreted as presenting a “regional breakdown” of the data in Figure 5.11, but a separate set of results.

<sup>47</sup> Robert D. Kagan, *The Coming Anarchy: Shattering the Dreams of the Post-Cold War*, New York: Penguin Random House, 2001.

The alternative scenarios that do produce higher projected levels of conflict and war are, by themselves, merely illustrative. The precise basket of changes in each scenario is unlikely to occur as specified, and certain aspects of each scenario may be more likely to come to pass than others. It will therefore be helpful to understand which metrics in our model have the greatest effect on trends in conflict and war. The next chapter addresses this issue, and identifies those metrics that may be most useful as signposts that future conflict trends may be moving in a less pacific direction than is currently anticipated.



## Identifying Signposts of Changing Conflict Trends

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Our baseline projections described in Chapter Five indicate that continued declines in the incidence of conflict and war are likely, with important exceptions in certain regions. These baseline projections reflect only one possible future, however, and deviations from it in some manner are all but certain to occur. This chapter assesses which key factors have the greatest potential to reverse these trends and identifies which key factor metrics may have the greatest value as signposts in the future to signal whether and in which direction conflict trends may be diverging from these baseline projections.

This chapter consists of two main sections. The first assesses which key factor metrics were most important in our conflict and war models. The second evaluates which of these metrics would be most useful as signposts that trends in conflict or war may be diverging notably from our baseline projections, and how such signposts might be interpreted.

### Identification of Important Key Factor Metrics

The baseline conflict and war models described in Chapter Five were built using a number of metrics intended to operationalize the key factors identified by our literature review.<sup>1</sup> As discussed in the previous chapter, our models were built using those metrics that were

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<sup>1</sup> Szayna et al., 2017; Watts et al., 2017.

shown both individually and in combination to have statistically significant relationships with conflict or war. While each metric was statistically significant in its effects, this is not to say that each metric was equally important for determining the levels of conflict and war projected by our models. The magnitude of a metric's effect might diverge substantially from our confidence simply because it has had one. Some metrics may therefore be more valuable than others for helping to identify whether the future is diverging from our baseline projections. The utility of different metrics as signposts is particularly likely to diverge, given our differing levels of confidence in our projection methods, as discussed in greater detail in Chapter Four. Overall, metrics that are both highly important to our models and whose future projection may be particularly difficult would be especially important to track going forward, while metrics that have little effect on our models and in which we are highly confident in our projections would not.

#### **Method for Assessing the Relative Importance of Different Metrics**

Here, we assess the extent to which each of the different metrics in our models is important to determining projected levels of conflict or war. We will conduct this assessment for the interstate war, intrastate war, and intrastate conflict models.<sup>2</sup> There are several potential statistical methods that could be used to assess the importance of different variables within a model. Typically, these methods involve holding the other variables in the model constant while changing the variable of interest in some manner and then observing how the output of the model varies in response.<sup>3</sup> The method we used to assess the importance of each variable in our models builds on this approach.

To determine the relative importance of each metric in our models, we first calculated a measure of the amount of variation — a standard

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<sup>2</sup> As discussed in Chapter Three, there were not a large enough number of interstate conflicts in the available data sources to construct a statistical model to project them.

<sup>3</sup> Examples include changing the variable from its minimum to its maximum observed values, changing binary variables from 0 to 1, and changing the variable by an amount proportionate to its standard deviation.

deviation — that each state or dyad has experienced in that metric over the historical period on which our models are based.<sup>4</sup> We then modified the projected values of the metric for each state or dyad in a future year by plus or minus one standard deviation, while holding all other metrics constant at their initially projected values. We then observed the difference in the number of wars or conflicts that resulted.<sup>5</sup>

The decision to calculate the amount of historical variation based on the experience of each individual state or dyad has advantages and disadvantages. On the positive side, this approach helps to ensure that wildly unrealistic futures are not being assessed. For example, while this method does assess the potential effects of substantial changes in the level of democracy in states such as Russia or Pakistan (states that have experienced considerable historical variation in this metric), it does not similarly assess the potential effects of similar changes in regime type in states that have been consistently democratic (such as the United States or the United Kingdom). The variation that this method assesses remains historically grounded.

On the other hand, some variables, such as membership in rival trading blocs, may historically have been confined to a very small number of states or dyads. As such, most states or dyads never have experienced any variation on this metric, and our approach will not assess the potential effects that they might do so in the future. This creates the potential to understate the effects that changes in such metrics may have on trends in conflict and war in the future. We employ two partial solutions to address this issue. First, as described in the previous chapter, we constructed alternative scenarios that explicitly model changes in historically rare variables, such as trading blocs, so that they

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<sup>4</sup> 1900–2007 for the interstate war model, and 1964–2009 for the intrastate war and conflict models.

<sup>5</sup> Specifically, we calculated the difference in global conflict or war projections in 2040 between an addition of one standard deviation to the variable in question for each state or dyad and a subtraction of one standard deviation from the variable in question for each state or dyad, while maintaining all other variables at their initially projected levels. The results were then finally adjusted to account for differences in the prevalence of states or dyads that experienced any historical variation on the metric in question.

occur in states that do not happen to have experienced them before.<sup>6</sup> Second, in Figures 6.1–6.3, we adjust the observed importance of each metric to account for how prevalent historical variations in the metric have been across states or dyads.<sup>7</sup>

### ***Importance of Metrics in the Interstate War Model***

As discussed in Chapter Four, our interstate war model incorporates ten different metrics – excluding control variables – that reflect six of the key factors identified in our literature review. The effect of changes in these metrics on interstate war can be seen in Figure 6.1. In this figure, metrics with a positive relationship with the incidence of interstate war are marked in red, while those with a negative relationship are marked in blue.

As Figure 6.1 indicates, three key factor metrics stand out for their importance in affecting interstate war projections: the presence of a power transition in the region, the extent of economic interdependence in the dyad, and the presence of a medium- or high-salience territorial claim between the two states in the dyad. Other key factor metrics, such as U.S. forward presence and dyadic democracy, also had notable effects on interstate war projections but the scale of the effect was much lower. In addition, the importance of trading blocs may not be fairly reflected in this analysis for the reasons discussed above.<sup>8</sup> Based on this

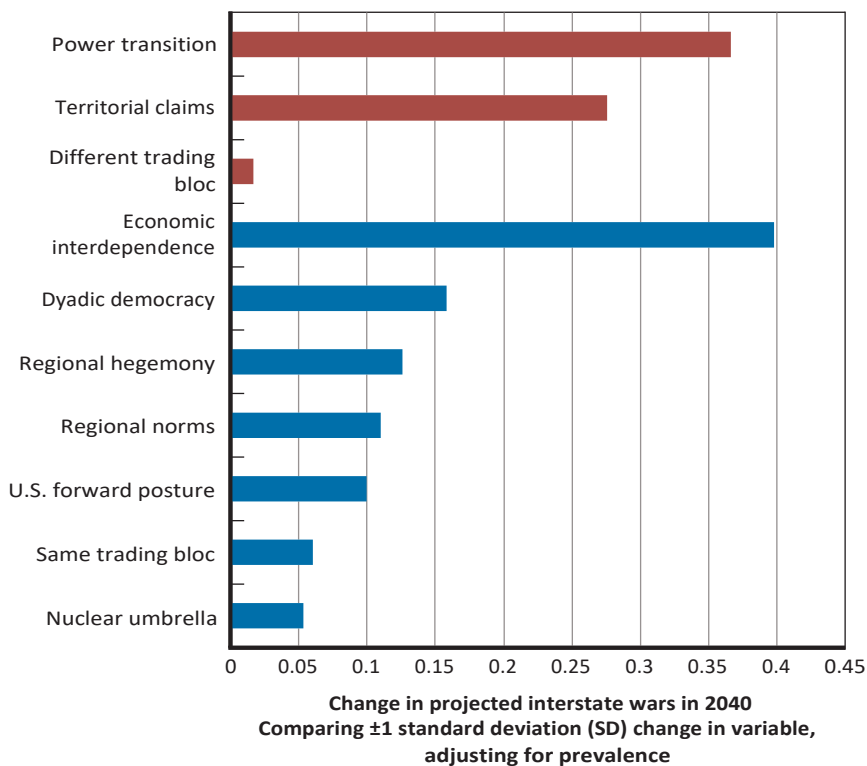
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<sup>6</sup> A full discussion of our methodology and rationale for doing so is included in that chapter.

<sup>7</sup> For example, if changes in variable X were found to lead to a difference of 0.1 wars, but any variation in variable X was only recorded in 50 percent of states or dyads, we divide the initially observed difference by the prevalence of observed variation (in this case, 0.5) to produce an adjusted difference of 0.2 wars.

<sup>8</sup> We also note that while the variable identifying pairs of states where both fell under a nuclear umbrella showed only a limited effect in reducing the likelihood of interstate war, the effect of this variable may be difficult to assess properly because of its rarity, similar to the issues involved in assessing the effect of the trading bloc variables that we discussed. Further, while in Chapter Five we did consider alternative futures in which significant changes in the membership of different trading blocs occurred, we did not consider an alternative scenario that involved a significant expansion or reduction in the number of states falling under a nuclear umbrella. Such a scenario was not widely considered in the alternative futures literature that we reviewed, and the scope of this effort limited the number of different scenarios we could consider. Nonetheless, future research that assesses additional alternative scenarios

**Figure 6.1**  
**Importance of Metrics in Interstate War Model**



NOTE: Metrics with a positive relationship with the incidence of interstate war are marked in red; those with a negative relationship are marked in blue.

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analysis, however, power transitions, economic interdependence, and territorial claims were the most important metrics in our interstate war model.<sup>9</sup>The potential value of each of these key factor metrics as signposts will be discussed in detail.

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involving dramatic changes in the possession of nuclear weapons would be helpful for providing a more robust assessment of the importance of this key factor.

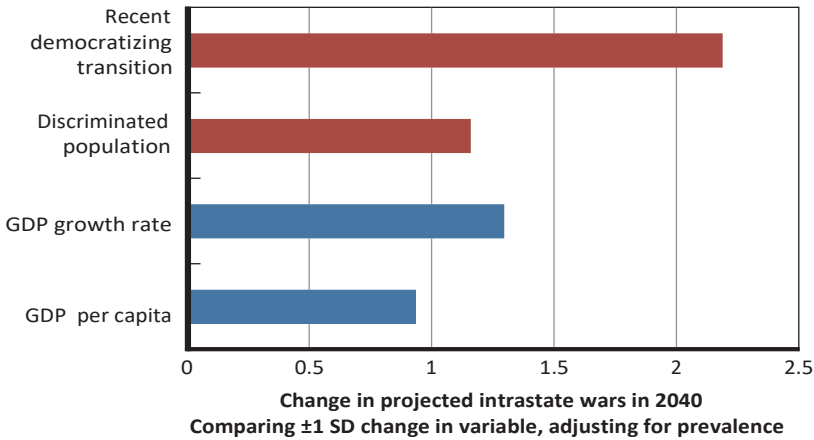
<sup>9</sup> The importance of two of these metrics, power transitions and economic interdependence, is accompanied by an additional note of caution. In our investigations into potential temporal dependence, these metrics were no longer statistically significant in our half-decade

**Importance of Metrics in the Intrastate War and Conflict Models**

Our intrastate war model incorporates four different metrics – excluding control variables – that reflect three of the key factors identified in our literature review. Our measure of the relative importance of these different metrics is shown in Figure 6.2, with metrics that have a positive relationship with intrastate war in red, and those with a negative relationship in blue.

The presence of a recent democratizing transition was the most important metric in our intrastate war model, with variation in GDP growth rates, the percentage of the population facing formal discrimination, and the state’s GDP per capita also having a notable impact on intrastate war projections. While recent democratizing transitions did appear to have the largest effect on the incidence of intrastate war, it is

**Figure 6.2**  
**Importance of Metrics in Intrastate War Model**



NOTE: Metrics with a positive relationship with the incidence of interstate war are marked in red; those with a negative relationship are marked in blue.

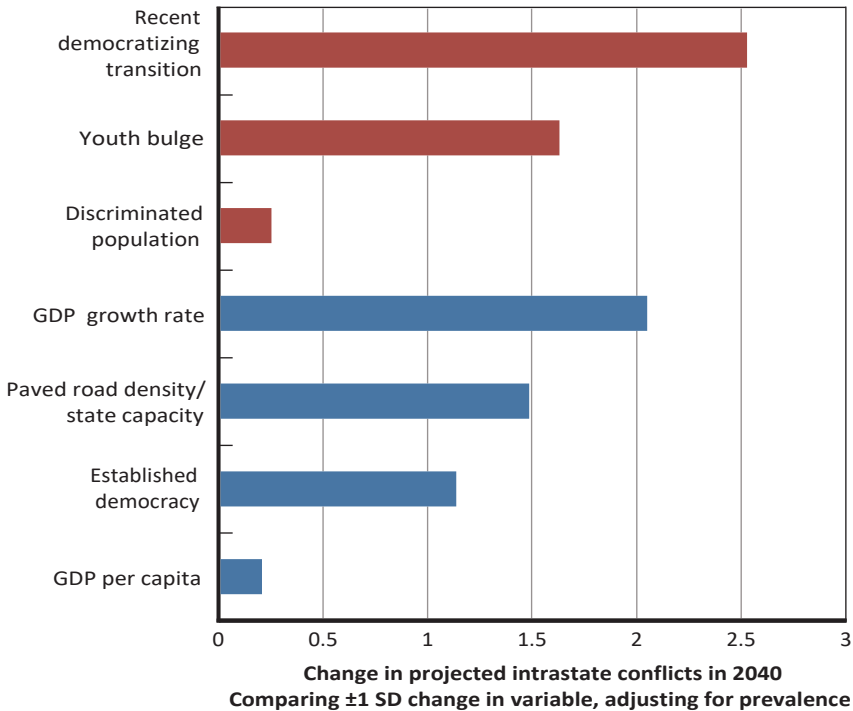
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dummy test model. These variables retained very high degrees of statistical significance in both our baseline model and the peace polynomial model. Our assessment of these disparate results is that these two variables be relied upon with a somewhat greater degree of caution, but we continue to assess that they remain among the most likely variables to exercise a strong influence on the incidence of interstate war.

important to reiterate that all key factor metrics included had statistically significant effects in our models.

These key factor metrics may also vary in their importance at different levels of conflict intensity. Our regionally tailored intrastate conflict models incorporate seven metrics – excluding control variables – that reflect five different key factors identified in our literature review. The importance of each metric in affecting projected levels of intrastate conflict can be seen in Figure 6.3, again with metrics with a positive relationship with intrastate conflict shown in red, and those with a negative relationship in blue.

**Figure 6.3**  
**Importance of Metrics in Regionally Tailored Intrastate Conflict Mode**



NOTE: Metrics with a positive relationship with the incidence of intrastate war are marked in red; those with a negative relationship are marked in blue.

Variations in GDP growth rates and the experience of a recent regime transition continue to be important factors in determining projected levels of intrastate conflict, but three additional factors also emerge as having important effects. Whether the state is an established democracy, whether the state is experiencing a youth bulge, and the capacity of the state's institutions also had important and roughly similar effects. By contrast, the state's level of GDP per capita and percentage of population facing formal discrimination had notably smaller effects.

The experience of a recent regime transition and annual GDP growth rates were notably important in both the intrastate war and intrastate conflict models, and their potential to serve as signposts will be discussed. As was discussed in Chapter Four, however, our model has difficulty projecting these particular metrics into the future. The fact that these metrics appear to be among the most important metrics in the intrastate conflict and war models suggests that our baseline projections are likely understating the future incidence of intrastate conflict and war. The alternative scenarios we assessed in Chapter Five were designed in part to address this shortcoming, by bounding our expectations for the potential increase in intrastate conflict or war that variations in the recent regime transition and annual GDP growth rate metrics may produce.

## **Identifying Potential Signposts of Changing Trends in Conflict or War**

This section details our projections for the most-important key factor metrics identified and discusses which metrics may be most useful for analysts to track as signposts that trends in conflict and war may be diverging from our baseline projections. It will close with a discussion of how such signposts could be constructed and interpreted.

### **Potential Signposts for Interstate War**

As already discussed, our analysis highlights three key factor metrics as having the most important effects on levels of interstate war:



power transitions, economic interdependence, and territorial claims. Power transitions – intended to indicate the rise of a new regional hegemonic power or the decline of the previous regional hegemon – have historically occurred relatively infrequently.<sup>10</sup> As indicated in red in Figure 6.4, most regions have experienced only a handful of power transitions over the past century, although when and how close together these have occurred have varied widely.

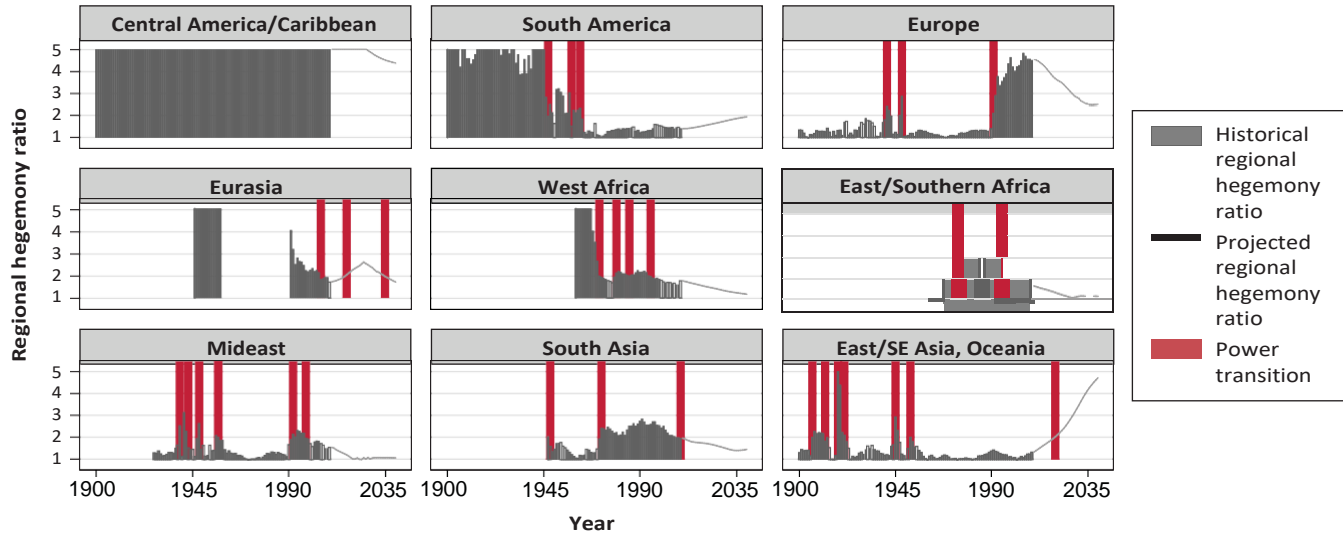
Going forward, our baseline projections – the methodology for which is discussed in detail in Chapter Four – indicate that three power transitions will occur between 2014 and 2040. One is in East Asia, where a rising China is projected to become a clear regional hegemon around 2020, and two are in Eurasia, where increasing Russian power is projected to exceed this threshold around 2017, before being pushed back below it around 2035 by continued Chinese growth. In many regions, major changes in our projections of relative capabilities would need to occur to produce an unexpected power transition. Regions such as the Mideast and East and southern Africa have relatively even distributions of power among their leading states, and the prospects for a single state to achieve unexpected levels of hegemony appear to be limited. In Central America, there is no likely alternative to continued U.S. regional hegemony out to 2040. In other regions, however, additional power transitions beyond those we project are more plausible. In East Asia, for example, a collapse in Chinese growth could produce an additional period of power transition if China’s projected strong position relative to its neighbors erodes. Similarly, a fracturing of NATO combined with a revived Russia could produce an unexpected power transition in Europe as Russian relative capabilities rise.

Assessing the likelihood of these or other specific eventualities is beyond the scope of this report. However, Figure 6.4 does demonstrate that a greater number of power transitions than we project could occur by 2040, and that if additional power transitions do occur, they are

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<sup>10</sup> Specifically, we calculated power transitions as occurring when the ratio between the capabilities of the most powerful state in a region and the capabilities of the second-most powerful state in the same region first either exceed or fall below a ratio of two to one, with the capabilities of close treaty allies counted together with the state in question. Full details on the methodology and rationale for calculating this metric are included in Chapter Three.

**Figure 6.4**  
**Historical and Projected Regional Power Transitions, 1900–2040**



SOURCES: Data from David J. Singer, "Reconstructing the Correlates of War Dataset on Material Capabilities of States, 1816–1985," *International Interactions*, Vol. 14, 1987; World Intellectual Property Organization, IP Statistics Data Center, last updated June 2014; IFs, version 7.0, undated.

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likelier to take place in some regions than others. Continuing to monitor trends in regional hegemony in regions such as East Asia, Europe, Eurasia, and South Asia could be a valuable signpost in assessing the potential for greater levels of interstate war in the future.<sup>11</sup>

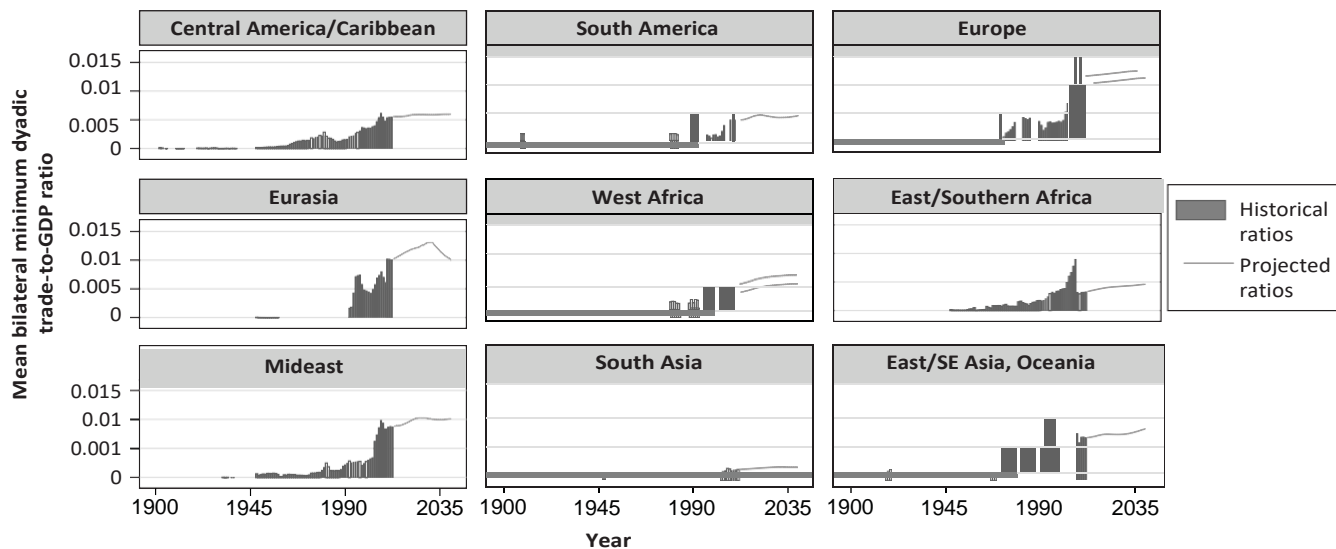
Levels of economic interdependence, as shown in Figure 6.5, have risen sharply in most regions over the past 20 years. Our projections suggest that further increases in economic interdependence are likely, although the model projects that the pace of growth is likely to level off in comparison with the meteoric rise seen in most regions since the end of the Cold War.

Regardless of their precise trajectory, however, levels of economic interdependence are projected to remain very high by historical standards in all regions, with the notable exception of South Asia. Their effect in depressing the likelihood of interstate war is therefore likely to remain substantial. Even drops of as much as 50 percent in this measure of bilateral economic interdependence in regions such as Europe or the Mideast would only return such economic interdependence to levels seen in the 1990s. A return to levels of economic interdependence seen in the early 20th century — the last period when interstate war was considerably more common — would require unprecedented levels of decline in bilateral trade. Given the historically high levels of economic interdependence expected in most regions and dyads, watching for modest fluctuations as a potential signpost for a greater risk of interstate war is likely to have limited utility, generally speaking. What may be of greater use is watching for leading political indicators of pressure to reorganize fundamentally international trade patterns, such as the influence of antiglobalization ideologies or calls to avoid trade with potential future adversaries. Although difficult to capture in quantitative metrics, such political analysis may provide advanced warning of a greater risk of sharp reductions in bilateral trade.

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<sup>11</sup> It is worth noting that not all historical power transitions have been problematic. Rising Brazilian power in South America, for example, did not lead to war with the United States. The nature of the relationship between the leading states in the region can determine the likelihood that a power transition will bring an elevated risk of war. Further research into the characteristics of different power transitions that make them more or less likely to lead to war may help to refine the usefulness of power transitions as a signpost.

**Figure 6.5**  
**Historical and Projected Levels of Economic Interdependence, 1900–2040**



SOURCE: Katherine Barbieri, Omar Keshk, and Brian Pollins. “TRADING DATA: Evaluating Our Assumptions and Coding Rules,” *Conflict Management and Peace Science*, Vol. 26, No. 5, 2009; IFs, version 7.0, undated.

NOTE: A full discussion of methodology and data sources for this metric is included in Chapter Three.

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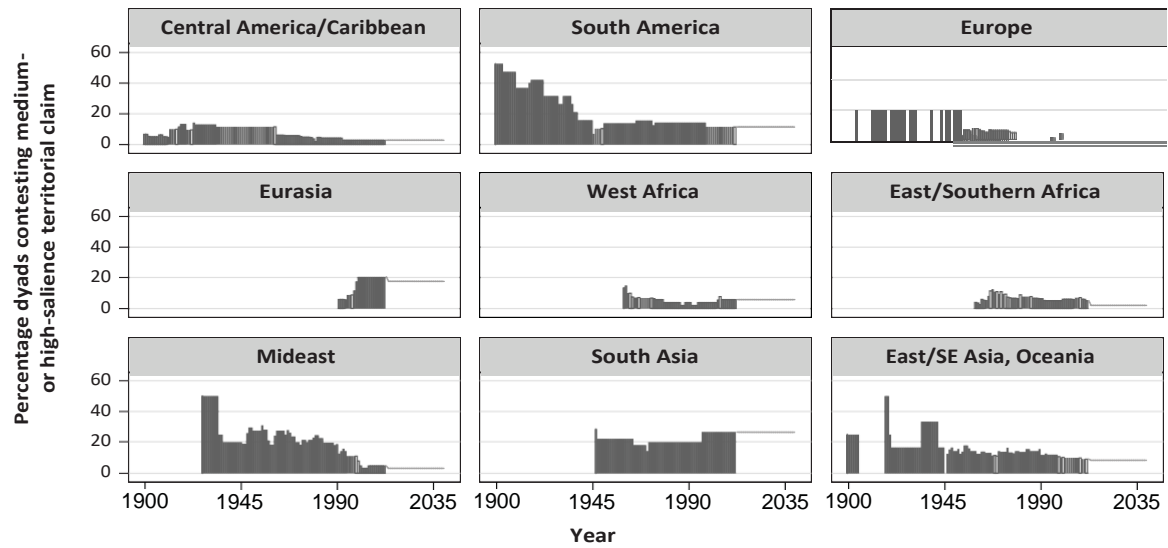
In addition, for regions and dyads that are not yet highly economically integrated, the value of short-term changes in economic interdependence as a signpost may be greater. For example, states in South Asia remain economically segregated to a degree not currently seen in other regions. Changes in the extent of economic integration in this region may therefore have much more notable effects on the likelihood of interstate war. Major increases in trade between India and Pakistan above their current extraordinarily low levels, for example, may reduce the likelihood of war between them. If reversals in any such increases occur, they could similarly increase the risk of war. The quantitative metric we have identified for economic interdependence may therefore be most useful as a signpost of a greater risk of interstate war for regions and dyads where levels of bilateral trade remain relatively low.

The frequency of higher-salience territorial claims between states may be more broadly useful as a signpost of an increased risk of interstate war. As shown in Figure 6.6, in recent decades, higher-salience territorial claims have declined in frequency in most regions of the world, save in South Asia and Eurasia.<sup>12</sup> This decline has generally come about because of a sharp decline in the incidence of new territorial claims, while existing territorial claims are not necessarily settled with any greater ease or frequency than in previous historical eras. As such, the start of new claims over high-salience territory may serve as a particularly important signpost in identifying a heightened future risk of war between particular states, even in regions that had previously experienced a notable decline in the prevalence of such claims. Large-scale territorial issues have been widely considered settled in many regions, and the start of new claims that call this consensus on existing territorial arrangements into question have the potential to be destabilizing anywhere.

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<sup>12</sup> The reasons for this decline continue to be debated in the academic literature, with potential explanations ranging from the spread of an international norm guaranteeing the territorial integrity of states to changes in economic systems that allow for economic growth to become decoupled from territorial expansion to the restructuring of economic and political incentives that accompanies greater economic interdependence. See, for example, Zacher, 2001; Gilpin, 1981; and Frederick, 2012.

**Figure 6.6**  
**Historical and Projected Prevalence of Territorial Claims, 1900–2040**



SOURCE: Frederick et al., 2016.

NOTE: A full discussion of methodology and data sources for this metric is included in Chapter Three.

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### **Potential Signposts for Intrastate Conflict and War**

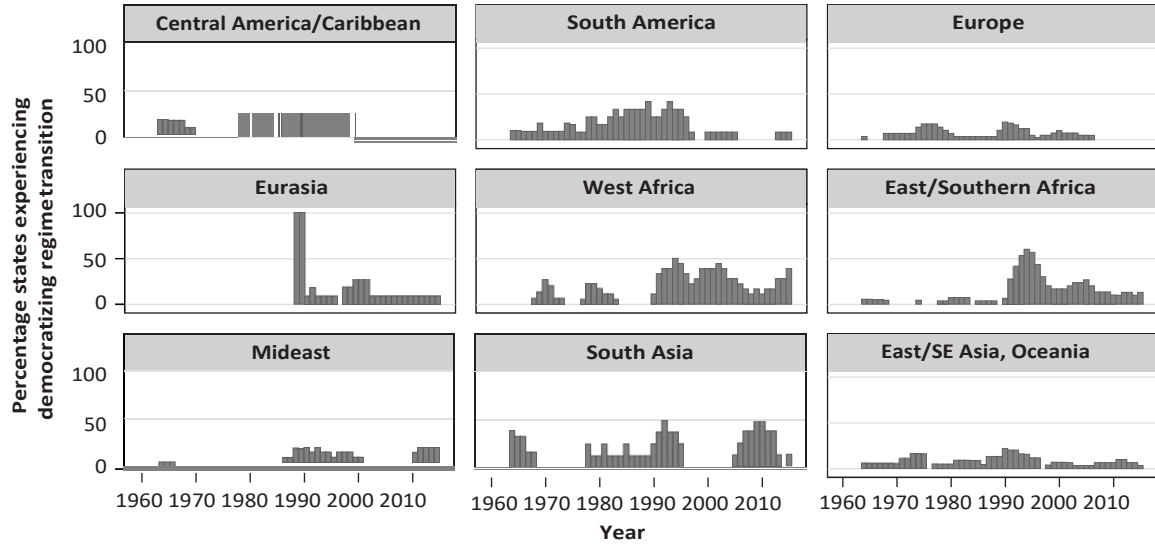
As already discussed, our analysis suggests that many key factors have had important effects on levels of intrastate war and conflict. These key factors, and the metrics that operationalize them, can generally be divided into two categories: those that reflect levels of economic or institutional development, such as GDP per capita, and those that reflect the rate of change in those levels, such as the annual rate of economic growth. The metrics that fall into these two categories (hereafter referred to as “level-focused” and “rate-focused”) diverge both in the difficulty with which they can be projected into the future and the utility that they may offer as signposts of changing trends in intrastate conflict and war.

#### ***Rate-Focused Key Factor Metrics***

Two key factor metrics that have important effects on the incidence of intrastate war and conflict reflect the rate of change in a country’s economic or political development: the annual change in the country’s GDP and whether the state has recently experienced a major transition in its regime type. Both of these metrics are extremely difficult to project into the future. The IFs tool that we use for the projection of each of these metrics assumes that changes in such factors as economic development and regime type will occur gradually over time. This is a sensible assumption for a forecasting tool; the alternative – identifying precisely when and where sharp discontinuities will occur – is extraordinarily difficult. Nonetheless, the IFs assumption of gradual changes in these key factor metrics stands in stark contrast with their historical record of volatility.

As shown in Figure 6.7, for example, regime transitions have been quite prevalent in many regions over the past 50 years. The historical rate of annual GDP growth shows a similar degree of volatility. By relying on IFs projections that effectively assume that such volatility will cease and future changes will be made gradually, our model likely understates future levels of intrastate conflict and war. As the conflict projections in the Global Depression and State Decay scenarios in Chapter Five suggest, high degrees of volatility in these measures could produce substantial increases in intrastate conflict and war, although

**Figure 6.7**  
**Historical Prevalence of Regime Transitions, 1964–2015**



SOURCES: Marshall, Gurr, and Jagers, 2016.

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they may be sufficient to raise the level of such violence above historical averages only in worst-case scenarios.

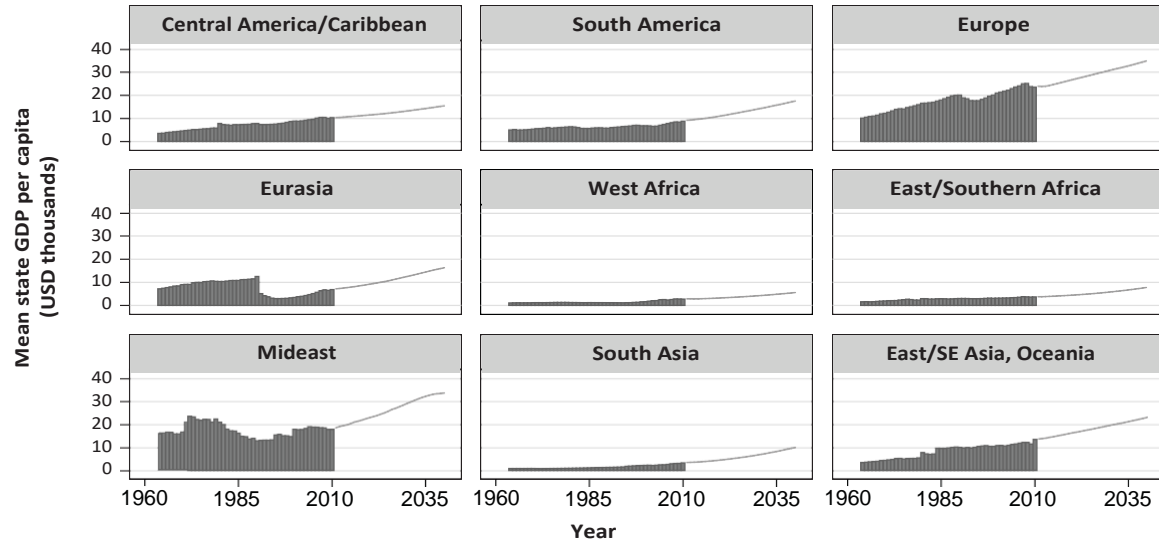
While difficult to project into the future, both these rate-focused key factor metrics may be useful as signposts of a greater risk of intrastate conflict or war. Indeed, the fact that they indicate a heightened risk of intrastate conflict or war within a very narrow period of time enhances their potential utility as signposts. By contrast, changes in level-focused key factor metrics may indicate an increased risk of such violence over periods of decades, without necessarily indicating when in that period violence is more likely to occur. The extent of volatility in economic growth rates or regime transitions at both the state and regional levels are therefore likely to be among the most useful signposts of a changing likelihood of intrastate conflict or war going forward.

#### ***Level-Focused Key Factor Metrics***

Several key factor metrics that have important effects on the incidence of intrastate conflict or war reflect a state's level of economic, political, or social development. These include the state's level of economic development (GDP per capita), institutional development (state capacity, as operationalized by our paved road density metric), political development (whether the state is an established democracy or not), and demographic age structure (operationalized by our youth bulge metric). While the rate-focused metrics already discussed may identify more precisely when the risk of such violence is elevated, these level-focused metrics represent longer-term structural conditions in states that make intrastate conflict or war more or less likely.

They are also generally less likely to fluctuate rapidly from year to year. As shown in Figure 6.8, for example, it typically takes a dramatic economic disruption, such as occurred in Eurasia following the collapse of the Soviet Union, or a sharp change in commodities prices for economies that are highly dependent on them, such as the Middle East, to produce notable changes in GDP per capita. In general and in most regions, economic development historically has tended to be "sticky" – deeper recessions may cause levels of economic development to stagnate, but sharp reversals are comparatively rare.

**Figure 6.8**  
**Historical and Projected Levels of GDP per Capita, 1964–2040**



SOURCE: IFs, version 7.0, undated.

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In part because of this lower degree of volatility, plausible future projections of these “level” metrics, at least in a baseline scenario, can be made with a greater degree of confidence than would be possible with the “rate” metrics discussed above. For example, the projection of a youth bulge, as shown in Figure 6.9, can be made with a high degree of confidence because most of the individuals that will compose such youth bulges in our projection window have already been born.<sup>13</sup>

This combination of lower degrees of volatility and greater confidence in our future projections make these level-focused metrics important components of our intrastate conflict and war models. However, these characteristics also reduce the likely value of these metrics as signposts to monitor in comparison with the rate-focused metrics discussed. While long-term trends in level-focused metrics remain important, annual fluctuations are less likely to be noteworthy.<sup>14</sup> Changes in these key factor metrics are therefore less likely to be useful as signposts of a greater risk of intrastate conflict or war than the other metrics discussed.

### **Interpreting Potential Signpost Metrics**

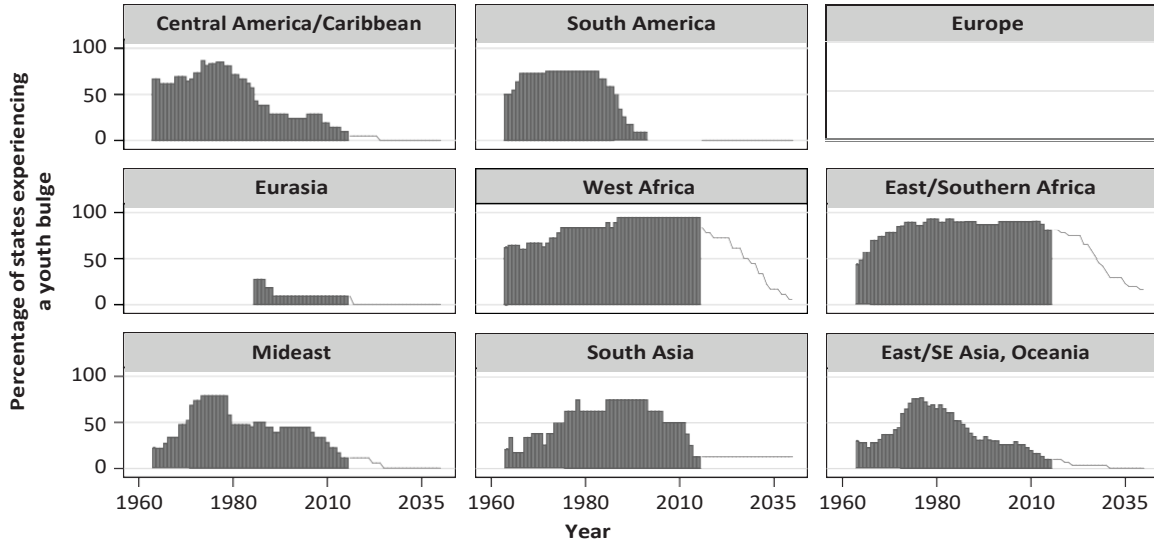
Analysis of our models suggests that numerous key factor metrics have had an important effect on levels of conflict and war. Despite their importance, these metrics may not be equally useful as signposts that trends in conflict and war are diverging from our baseline projections. Differences in the likelihood of future volatility suggest that some metrics should be monitored more closely than others, although dramatic changes in long-term trends in any of these metrics may be important.

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<sup>13</sup> Youth bulges are likely the metric we can project with the highest degree of confidence, although even there future changes in mortality levels could still alter the picture. Other metrics may diverge more widely from our projections, with projections of discriminated population perhaps the most uncertain. However, the uncertainty in these projections is still much lower than it is for our “rate” metrics, where we do not have a means of making plausible future projections of sharp annual changes.

<sup>14</sup> An exception to this would apply to changes in whether a state is democratic, which could indeed change rapidly. However, a signpost designed to identify such changes would overlap with the regime transition rate-level metric.

**Figure 6.9**  
**Historical and Projected Prevalence of Youth Bulges, 1964–2040**



SOURCE: IFs, version 7.0, undated.

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Table 6.1 summarizes the five key factor metrics identified as most likely to be useful for analysts to monitor according to these criteria.

In addition to identifying relevant metrics to track, however, we also need to have a sense for how large a change in these metrics we would need to see to substantially shift our expectations for future conflict and war trends. While there are numerous potential ways to look at this issue, the final column in Table 6.1 provides one possibility. This column describes the type of change in each key factor metric that we would need to observe in our models to increase the projections for either interstate or intrastate war by one additional war over the decade following 2025, while holding all other metrics constant. For example, our model suggests that roughly eight additional regime transitions would need to occur over a decade to increase our projected incidence

**Table 6.1**  
**Summary of Highlighted Signpost Metrics**

Key Factor Name	Suggested Metric	Type of Conflict or War	Suggested Regional Focus	Change Needed to Increase Projections by One War over a Decade
Degree of regional hegemony	Recent power transition	Interstate war	East Asia, Eurasia, Europe, South Asia	0.4 power transitions (2.5 wars per transition)
Degree of territorial contestation	New higher-salience territorial claim	Interstate war	—	7 new territorial claims
Extent of economic interdependence	Ratio of bilateral trade to GDP	Interstate war	South Asia	4 dyads change from 0.5 (the mean value) to 0 ratio of bilateral trade to GDP
Prevalence of consolidated democracies	Recent democratizing transition	Intrastate conflict/ intrastate war	—	8 regime transitions
Rate of economic growth	Annual GDP growth rate	Intrastate conflict/ intrastate war	—	16 states go from consistent 2% growth to consistent 2% decline

of intrastate war over the same period by one. These numbers should be understood to be rough estimates. On the one hand, our conflict and war models generally underpredict levels of violence, as can be seen by looking at the historical performance of the models in Figures 5.2, 5.3, and 5.4. As such, the changes specified in Table 6.1 may well be associated with somewhat greater increases in the number of wars than suggested. On the other hand, the figures in this column were calculated based on historical data, and our baseline projections suggest that most structural key factors, such as GDP per capita and democracy, are likely to continue to move in a more pacific direction in the years to come. As such, the changes in individual metrics that are needed to increase the number of projected wars in the future would need to be proportionately greater than they needed to be in the past.

These concerns notwithstanding, it is important to note that the changes specified in this column are generally substantial. While certainly within the range of observed historical variation, changes such as eight democratizing regime transitions would be noteworthy historical events, somewhere in scale between the end of the Cold War and the recent Arab Spring. This suggests that our baseline projections are relatively robust to all but major changes in individual metrics.

However, this analysis should also serve as a reminder that individual metrics are unlikely to move independently of one another. If regime transitions were to increase substantially, it is quite unlikely that GDP growth rates, for example, would not also be adversely affected. This highlights the importance of tracking multiple signposts for evidence that trends in conflict or war may be diverging from our expectations. It also suggests that assessing how simultaneous changes in multiple key factor metrics affect our conflict and war projections — such as the analysis of alternative futures undertaken in the previous chapter — may be a more realistic and helpful exercise than focusing only on the changes that one metric taken in isolation can induce.

This report has thus far focused on assessing and projecting future trends in armed conflict. While such trends have important implications for the United States, and the U.S. Army in particular, viewed in isolation, there are at least two ways in which they have the potential to be misleading. First, armed conflicts do not represent the only type of

violence or instability to which the Army may be called on to respond. Criminal, nonpolitical violence represents another potential area for concern, and its prevalence is generally not reflected in the data upon which the foregoing analysis is based. Second, the incidence of armed conflict, including even quite intense interstate wars, may not necessarily correlate with demands for the U.S. military. The incidence and scale of U.S. military interventions may be driven by other factors, or occur only under specific circumstances. These two issues are the focus of the remainder of this report.





## **Assessing Criminal Violence: State of the Field and Implications for the Army**

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The majority of this report has focused on political violence – violence driven by political, ideological, and territorial motives – and its implications for international security and U.S. military strategy. However, while political violence in the form of wars and conflicts has generally been decreasing in frequency, certain other forms of violence remain extremely high in certain regions. Chief among these is criminal violence, which includes homicide, kidnapping, and assault. Criminal violence may be directly associated with organized crime and transnational (or cross-border) criminal activity, such as drug and human trafficking, smuggling, and money laundering. This chapter focuses on organized criminal violence, but because organized criminal violence overlaps with transnational criminal activity and criminal activity at the domestic level, it deals with these related concepts as well.

This chapter begins with definitions of key concepts, including the distinction between criminal and political violence, the types of criminal violence, and the activities of transnational criminal organizations. Importantly, while criminal violence includes several interrelated concepts, from the perspective of this report, we are most interested in collective, organized, political violence that is widespread and pervasive, and that, as a result, undermines the integrity and efficacy of state institutions. The next section reviews relevant literature on organized criminal violence, including the drivers of this violence and the links between it and both political instability and political economy. The third section discusses quantitative data sources on criminal violence and summarizes recent trends in criminal violence and activity at the

regional and transnational levels. This is followed by a summary of the contributions of the qualitative case literature to the study of transnational and organized criminal violence. Finally, the chapter concludes with a discussion of the security implications of transnational and organized criminal violence, including whether and how this violence poses a threat to U.S. national security and whether it has direct implications for the operational environment of the Army.

The goal of this chapter is to describe what is currently known about criminal violence by focusing on existing literature and quantitative data. However, it faces some limitations that are worth noting at the outset. First and most importantly, there is limited quantitative data on most types of criminal violence, especially if one wishes to provide a historical perspective. This makes a discussion of trends in criminal violence or a rigorous quantitative assessment of criminal violence difficult. In our discussion, we rely heavily on data on homicide rates and drug trafficking. Neither is a comprehensive proxy for criminal violence writ large, but each has the advantage of offering relatively more complete data. Relying only on these two proxies to study criminal violence could be misleading because trends in homicide or the drug trade may not mirror trends in criminal violence more broadly and may have unique characteristics (such as their relationship with conflict) that other forms of criminal violence do not share. Moreover, the lack of good historical data on even these two measures means that although we can say that criminal violence may have increased in the past five or so years, it is hard to know if criminal violence has changed over the past 25, 50, or 100 years. Finally, the lack of a single, clear definition of what constitutes criminal violence and the close overlap between criminal violence and violence committed by terrorists and other violent nonstate actors also complicate a clear analysis of trends in, and the state of, criminal violence on a global level. We attempt, in this chapter, to investigate trends in criminal violence despite these limitations. However, the chapter should be read as a survey of existing data sources and literature, rather than an attempt to complete new analysis on the phenomenon.

In general, criminal violence and organized criminal activity are seen as problems for law enforcement. However, as this violence

has become transnational and widespread in scope, it has garnered additional attention from policymakers and analysts who have asked whether the U.S. military can or should play a larger role in fighting transnational criminal violence and activity.

There are several reasons for recent concern about the effects of transnational and organized criminal violence. First, the cost of criminal violence and criminal activity has reached high levels in certain regions and countries. In some places, the toll in lives lost to this violence approaches that of major conflicts and even wars. According to the *Global Study on Homicide*,<sup>1</sup> intentional homicide accounted for 437,000 deaths in 2012. More than 150,000 of these occurred in the Americas alone. While not all homicide results from organized crime, criminal activity is one of the major drivers behind homicide, particularly in certain areas. As a comparison, according to data in the UCDP battle-related deaths database, total deaths at the global level from political conflict in 2012 amounted to about 38,000.<sup>2</sup> In economic terms, the Federal Bureau of Investigation estimates that global organized crime brings in about \$1 trillion in profit each year.<sup>3</sup>

Second, many criminal syndicates now have transnational footprints and diversified operations in a variety of criminal activities. Globalization and the spread of new technology have created new opportunities for profit and criminal activity while also facilitating the geographic spread of criminal organizations.<sup>4</sup> This diversification and global diffusion makes transnational crime and criminal organizations more relevant to a wider number of actors and governments while also complicating efforts to interrupt the activities of these groups.

Finally, many of these criminal organizations now have ties to terrorist and rebel organizations and help to fund terrorist and insur-

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<sup>1</sup> United Nations Office on Drugs and Crime (UNODC) Research and Trends Analysis Branch, *Global Study on Homicide*, 2013.

<sup>2</sup> Lotta Themner and Peter Wallensteen, "Armed Conflicts, 1946–2013," *Journal of Peace Research*, Vol. 51, No. 4, 2014.

<sup>3</sup> Federal Bureau of Investigation, "Organized Crime-Overview," undated.

<sup>4</sup> John Rollins and Liana Sun Wyler, *Terrorism and Transnational Crime: Foreign Policy Issues for Congress*, Congressional Research Service Report, June 11, 2013.

gent activities. This activity has raised the profile of these groups and explains why they are often seen as posing a national security threat.

Importantly, while political violence, conflict, and war appear to be declining, transnational criminal violence may not be, especially in certain regions such as the Americas and southern Africa, where it remains widespread. As a result, some scholars have even speculated that rather than declining over time, political violence in certain areas is simply morphing into a new criminal form. To further evaluate this claim and to explore what is known about criminal violence, this chapter discusses recent trends, provides a survey of existing literature and data, and identifies some of the implications of this violence on the operational environment of the Army.

## Definitions

### Organized Criminal Violence

This chapter focuses on *organized criminal violence*, defined as violence that is collective (rather than individual) and, in the simplest terms, motivated by profit. Because it is collective, however, it may also pose a threat to governments and other political or state institutions. This profit motive is the key difference separating political and criminal violence. Political violence is driven primarily by a political objective or intention (for example, to depose a leader, to seize territory, or to forcibly resolve a trade dispute). In contrast, although criminal organizations may ally opportunistically with groups that have political motives, criminal violence lacks the “political” motive that typically drives political violence, and almost always has profit as its primary driver, or at least is associated with another activity (such as drug trafficking or smuggling) that is driven by profit. However, because criminal and political organizations often work together, it is often better to think of the distinction between criminal and political violence as a sliding scale and to recognize that the distinction is a blurry one that groups may cross at many points. This has become increasingly true

as transnational criminal groups have begun to partner with and fund terrorist organizations.<sup>5</sup>

Organized criminal violence may come in many different forms, including murder, kidnapping, and assault, and may be associated with many different types of activities, including theft, smuggling of goods or people, drug trafficking, money laundering, and others. It may also take very different forms in different environments. For example, in Central and South America, drug trafficking, kidnapping, and murder are some of the most serious forms of violence. In other areas, such as sub-Saharan Africa, kidnapping, smuggling, and human trafficking are the greatest threats, with the drug trade only recently becoming more active. In places like Europe, murder and kidnapping are somewhat less common, but money laundering and other financial activities are still prevalent. While these activities are not violent in themselves, they sometimes lead to and fund violence; thus, they are still relevant to a study of organized criminal violence. This environmental variation highlights the diversity of transnational criminal activity and violence. However, it is also worth noting that in some cases, it may be the same groups engaging in very different activities in different markets.<sup>6</sup>

Within the category of organized criminal violence, there are several interrelated concepts: domestic criminal violence, transnational criminal violence (criminal violence that occurs across borders), and widespread and sustained criminal violence. From the perspective of this project, it is widespread and sustained criminal violence which is of greatest concern. Sustained criminal violence typically grows out of increasing domestic criminal violence, eventually tends to include mergers and acquisitions with transnational criminal violence, and may be funded and fueled by transnational criminal activity. At these sustained levels, criminal violence can have a similarly corrosive effect on the functioning of institutions of the state as the political violence discussed elsewhere in this report. Furthermore, criminal violence of

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<sup>5</sup> John Sullivan and Robert Bunker, "Drug Cartels, Street Gangs, and Warlords," *Small Wars and Insurgencies*, Vol. 13, No. 2, 2002; Jeremy M. Weinstein, *Inside Rebellion: The Politics of Insurgent Violence*, New York: Cambridge University Press, 2006.

<sup>6</sup> UNODC, "What Is Transnational Organized Crime?" undated-c.

this sort may be even more difficult to reverse than political violence because of the powerful profit motive that fuels it.<sup>7</sup> This chapter emphasizes widespread and sustained criminal violence in the discussion of trends in criminal behavior, but to provide insight into the drivers of this consistent violence, we include a discussion of existing literature on transnational criminal violence and organized criminal activity as well. It is important to recognize at the outset that these concepts are directly interwoven, but also fundamentally distinct in their importance from a national security perspective.

### **Transnational Criminal Organizations**

Much of the organized criminal violence of interest in this chapter is perpetrated by transnational criminal organizations. According to the National Security Council, *transnational criminal organizations* are “self-perpetuating associations operating across national borders that use violence and corruption, and exploit transnational commerce and communications, to protect and disguise their illicit, profit-driven activities.”<sup>8</sup> Transnational criminal organizations may come in many different forms, sizes, and organizational structures, including hierarchies, clans, networks, and cells. While some are tied together by ethnicity, others are organized based on personal relationships or involvement in specific types of activities.<sup>9</sup> There are several major transnational criminal organizations, but these organizations are subdivided at the regional and local level into many smaller groups. The major groups include the Italian Mafia, the Russian mob, the Japanese *Yakuza*, the Chinese Triads, the Colombian cartels, and Mexican criminal organizations.<sup>10</sup> In addition to these major groups, however,

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<sup>7</sup> We return to this point at the end of the report when we discuss the implications of criminal violence for the Army.

<sup>8</sup> National Security Council, “Strategy to Combat Transnational Organized Crime: Definition,” White House, undated.

<sup>9</sup> Kamala Harris, *Gangs Beyond Borders: California and the Fight Against Transnational Organized Crime*, California Attorney General’s Office, March 2014.

<sup>10</sup> Edgardo Rotman, “The Globalization of Criminal Violence,” *Cornell Journal of Law and Public Policy*, Vol. 10, No. 1, 2000.

there are myriad smaller groups and participants in transnational criminal activities and violence. These groups operate in every geographical region of the world.<sup>11</sup>

Criminal organizations are far from static and have evolved over time. The first criminal organizations tended to be locally focused and hierarchically organized, focusing on a single activity or market. Gradually, criminal organizations grew in size and scope, taking on more activities and enlisting more individuals into more traditional mafia-style organizations. As law enforcement became more effective against these types of organizations, however, criminal organizations changed again, adopting network-style structures. Most recently, criminal organizations have taken advantage of globalization to spread across borders, linking up with organizations in other locations or simply expanding their own organization into new areas, and to enter into new, more lucrative markets like smuggling, cybercrime, and more sophisticated financial crimes committed in global economic markets.<sup>12</sup>

## Review of Existing Literature

Although still nascent compared with the literature on the drivers of interstate and intrastate conflict, research exploring and documenting the causes, motivations, and implications of transnational criminal violence has become more extensive in recent years. Literature has tended to focus on a number of key themes, including the evolution of transnational criminal violence, motivations of transnational criminal violence at the individual and group level, factors that make transnational criminal violence more likely, variations by environment, the relationship between transnational criminal violence and political instability, and the relationship between criminal violence and political economy. Importantly, many of the themes discussed in the existing literature

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<sup>11</sup> Rotman, 2000.

<sup>12</sup> Paula Miraglia, Rolando Ochoa, and Ivan Briscoe, "Transnational Organized Crime and Fragile States," Organization for Economic Cooperation and Development working paper, WP 3/2012, October 2012.

on transnational criminal violence are similar to those highlighted in the literature on the drivers of intrastate war. For example, horizontal inequality and the drive for profit are highlighted as some of the reasons that individuals choose to join criminal organizations. These same factors are also emphasized in literature on intrastate war as well as in arguments about whether greed or grievance explains the motivations of rebel groups and insurgents, and about the effect of poverty and relative deprivation on the drivers of civil war onset. These overlaps are important and underscore the close relationship between criminal and political violence and the extent to which the two forms of violence operate along a flexible continuum rather than as distinct phenomena.

### **Evolution of Criminal Violence**

While criminal violence and even organized crime are not new phenomena, the dynamics and scope of today's transnational criminal violence, as was described in detail above, are different in a number of important ways. Recent literature has emerged to document and remark on some of these differences, as well as to describe the general evolution of criminal violence from a small-scale domestic occurrence to a cross-border threat involving networked groups and crimes ranging from money laundering to contract killing. Literature on criminal violence suggests that early organized criminal groups were focused on small-scale criminal activities, relied on conventional technology, and had limited geographic reach and few transnational links. Over time, these organizations developed farther-reaching organizational and transnational links, an enterprise-like structure and set of operating procedures, and diversified operations. They also acquired more-advanced technology, more-sophisticated practices with regard to violence (use of mercenaries and discriminate violence), and even came to be seen as criminal challengers to the legitimate state and to legitimate economic enterprises as they infiltrated state and local governments, police forces, and businesses.<sup>13</sup> Literature focused on the evolution of criminal violence also identifies a number of important trends in its scope and nature, including the overall magnitude of criminal vio-

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<sup>13</sup> Sullivan and Bunker, 2002.



lence, the corrosive effect of organized criminal violence on political institutions, the increase in transnational organized crime and violence that spills across borders, the relationships between criminal organizations and government, diversification of criminal activities, cooperation between criminal organizations, and the ability of criminal organizations to infiltrate business operations.<sup>14</sup>

There appear to be several key drivers of the evolution of transnational criminal violence, including globalization, the spread of new technologies, industrialization, and the fall of the Soviet Union. Globalization and the emergence and spread of new technology are identified as important catalysts of the shift from domestic toward transnational criminal violence. Both globalization and technology have made national borders more fluid and have facilitated the rapid transit of goods, money, and information. They have also made it harder to track and thwart criminal groups by allowing these groups to develop networked structures that diffuse key pieces of the organization across national borders. Transnational criminal organizations then have more resources at their disposal, easier access to transportation and communication, and a wider net of support and operations.<sup>15</sup> Globalization is also associated with dislocation and unemployment, which may create a group of ready recruits for transnational criminal organizations.<sup>16</sup> Technology and its rapid advance has changed the nature of transnational criminal organizations and their violence by enabling more communication and making it easier for these groups to keep their identities and operations secret.<sup>17</sup>

Research focused on explaining cross-national differences in transnational criminal violence identifies different levels of economic development and the processes associated with industrialization as additional drivers of criminal violence and regional variation in the

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<sup>14</sup> Phil Williams and Roy Godson, "Anticipating Organized and Transnational Crime," *Crime, Law, and Social Change*, Vol. 37, 2002.

<sup>15</sup> Rotman, 2000.

<sup>16</sup> Rollins and Wyler, 2013.

<sup>17</sup> Rollins and Wyler, 2013.

levels and severity of this violence.<sup>18</sup> Specifically, this work finds that criminal violence appears to be a more serious problem in industrializing states compared with industrialized ones.<sup>19</sup> This result may suggest that if economic development continues to the point where all states achieve higher levels of economic development, criminal violence may decrease. It also finds that many of the consequences of modernization and urbanization — such as dislocation, high-population density, and unemployment — may be associated with higher rates of criminal activity. Finally, literature focused on economic drivers of criminal violence note that criminal activity often rises with levels of inequality and relative deprivation, which occurs when one group in a country finds itself much worse off than other groups. This effect is particularly strong when lines of inequality correspond with racial groups.<sup>20</sup>

A third driver of recent trends in criminal violence was the collapse of communism and the fall of the Soviet Union. The disintegration of the Soviet Union may have altered the nature of criminal violence in a number of ways. First, it contributed to the emergence of many weak but newly autonomous states in Eurasia, and weakened the formerly Soviet client states in Europe whose regimes were underwritten by the Soviet Union. In these areas, rule of law was weak and the incentives for crime often high. Organized criminal organizations and transnational criminal violence emerged to fill these power vacuums.<sup>21</sup> The effect of the fall of the Soviet Union on transnational criminal violence was particularly severe in the former Communist states, where groups were able to enter both black markets and legitimate areas of the economy as well as

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<sup>18</sup> Steven Messner, "Understanding Crossnational Variation in Criminal Violence," in Wilhelm Heitmeyer and John Hagan, eds., *International Handbook of Violence Research*, Dordrecht, Netherlands: Kluwer Academic Publishers, 2003, pp. 701–718; Gary Lafree and Kriss Drass, "Countering Crime Booms Among Nations: Evidence for Homicide Victimization Rates, 1956 to 1998," *Criminology*, Vol. 40, 2002.

<sup>19</sup> Messner, 2003; Lafree and Drass, 2002.

<sup>20</sup> Messner, 2003; Lafree and Drass, 2002.

<sup>21</sup> Louise Shelley, "Transnational Organized Crime: The New Authoritarianism," in H. Richard Friman and Peter Andreas, eds., *The Illicit Global Economy and State Power*, Lanham, Md.: Rowman & Littlefield Pub., 1999.

eroding political institutions and any state capacity that existed.<sup>22</sup> At the same time, the end of the competition between the Soviet Union and the United States also decreased great power involvement in proxy states and other less-developed regions of the world. The resulting vacuum created new space for criminal groups that had the freedom to operate more openly with limited oversight or interdiction. In addition, the loss of great power financing made organized crime a more attractive option for rebel groups looking for financing. This new demand increased the appeal of organized crime and provided the impetus for the strong link between terrorism and organized crime that adds to the security threat posed by transnational criminal organizations.<sup>23</sup> Finally, with the end of the Cold War, there was also a proliferation of cheap weapons that flooded the global arms market, making it easier for criminals to perpetrate consistent acts of violence.<sup>24</sup>

These changes in the international infrastructure, the fall of the Soviet Union, and the industrialization and globalization of the economy and of technology have changed not only criminal violence, but also more traditional types of conflict. Those conflicts that remain also seem to have changed in nature and scope. This shift has sparked a debate about whether we need to consider a distinction between “new” and “old” wars, as well as some discussion of whether the criminal violence is not itself a distinct phenomenon but rather a symptom of the new civil war. Those who champion the “new wars” argument identify a number of changes in the nature of war that may suggest the shift to a new paradigm, including a shift to intrastate war, increasing involvement of nonstate actors, deliberate attacks on civilians, increasing importance of ethnic and religious drivers of conflict, the spread of criminality, an increase in economic motives, and a blurring of the lines between combatants and civilians

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<sup>22</sup> Rotman, 2000.

<sup>23</sup> Svante E. Cornell, “The Interaction of Narcotics and Conflict,” *Journal of Peace Research*, Vol. 42, 2005.

<sup>24</sup> Kalyvas and Balcells, 2010.

during the conflict.<sup>25</sup> However, those on the other side of the debate suggest that these changes, while important, are not so fundamental as to require an entirely new conception of war and conflict. In this view, many of the so-called new wars are really not all that new, and reflect patterns that have endured throughout history.<sup>26</sup> However, it is worth noting that while military activities have sometimes been effective in slowing political violence and preventing its spread, military instruments appear particularly ill-suited to addressing the drivers of criminal violence discussed in this section.

### **Individual and Group Motivations**

Another key theme in the literature identifies some of the motivations for criminal violence at both individual and group levels. Understanding these motivations is important because it highlights some drivers of criminal violence and some reasons such violence is so difficult to stop. Fundamentally, criminal violence is about profit. The drug trade, human trafficking, kidnapping for ransom, money laundering, and most other criminal acts are driven by a desire to maximize monetary gain. At the group level, violence may be used to increase or secure access to new markets and trafficking routes or to eliminate competitors. In this sense, criminal violence is also about control. Organized criminal violence is difficult to stop or control because unlike political violence, which can sometimes be resolved by addressing political grievances, violence spurred by financial gain is difficult to appease. This is one place where the literature on criminal violence and that on civil war overlap. Literature on the drivers of civil wars emphasizes the dual motives of “grievance” and “greed” or, more generally, ideology and profit. Literature on criminal violence similarly suggests that greed plays a major role in driving violence, but notes that even criminal

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<sup>25</sup> Mary Kaldor, *New and Old Wars: Organized Violence in a Global Era*, Cambridge, UK: Polity, 2001; Edward Newman, “The ‘New Wars’ Debate: A Historical Perspective Is Needed,” *Security Dialogue*, Vol. 35, No. 2, 2004; Stathis Kalyvas, “‘New’ and ‘Old’ Civil Wars: A Valid Distinction?” *World Politics*, Vol. 54, No. 1, 2001.

<sup>26</sup> Newman, 2004.

groups may operate with other, nonmonetary motives, underscoring the blurring of the dividing line between the two forms of violence.<sup>27</sup>

At the individual level, membership in transnational criminal groups is also about profit, but may also be motivated by a desire for belonging and membership or protection. This is as true of transnational groups as it is for domestic ones. For example, drug cartels in some Central American countries have become integral parts of local communities – providing basic services, such as health care and education, and becoming involved in local governments and businesses. In this context, a decision to join and support these groups may be driven by the need for self-preservation or to gain access to the services the group provides, and can even be viewed as part of being a member of the community more broadly.<sup>28</sup> Similarly, drug gangs in large American cities, even those with transnational connections, can provide opportunities for membership, socialization, and employment where other such opportunities are lacking.<sup>29</sup> The decision to enter into criminal activities may also be driven by economic factors, such as inequality, relative deprivation, and associated frustration. In fact, several studies have found that when economic inequality is tied to racial groupings, it increases the rate of criminal activity and the individual propensity to join these groups.<sup>30</sup>

### **Transnational Criminal Violence and Political Instability**

Another key focus of the literature on transnational criminal violence is the relationship between transnational criminal activity and violence and political instability. This literature looks both at how transnational criminal violence contributes to political instability and how political instability can foster new or intensified transnational criminal violence.

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<sup>27</sup> See, for example, Paul Collier and Anke Hoeffler, "On the Incidence of Civil War in Africa," *Journal of Conflict Resolution*, Vol. 46, No. 1, 2002; and Fearon and Laitin, 2003.

<sup>28</sup> Michael Shifter, *Countering Criminal Violence in Central America*, New York: Council on Foreign Relations Press, Special Report No. 64, April 2012.

<sup>29</sup> Rotman, 2000.

<sup>30</sup> Messner, 2003.

Existing research and a survey of relevant cases suggest that the existence of weak and failed states contributes directly to the emergence and intensification of transnational criminal violence. In failing and failed states, the government often lacks the ability to govern and control its territory and to enforce or maintain the rule of law. In this environment, criminal groups are able to function, flourish, and use violence to achieve their objectives. They are also able to grow stronger because they do not have to divert many resources toward hiding from authorities and law enforcement. As noted, criminal organizations are likely to emerge in the power vacuum left by a weak government and become especially strong when they are able to take part in both black-market economic activity and legitimate economic enterprises.<sup>31</sup>

Transnational criminal organizations also contribute to new and worsened political instability in nations where they form and operate, especially at sustained and enduring levels where criminal violence may erode and destroy state institutions and capacity. In many countries in Central America, criminal organizations and their violence have pervaded and polluted all levels of government, law enforcement, and the judiciary, reducing government capacity to the point where state institutions barely function. At the same time, criminal organizations, their activities, and related corruption reduce tax revenues received by the government, which limits the resources the government has available to invest in strengthening the state and its infrastructure. In this sense, criminal organizations behave like Olson's "roving bandits," destroying the incentive to invest and produce, undermining and limiting economic growth, and destroying tax revenues as they extract profit for themselves and their operations.<sup>32</sup> This ability of sustained and pervasive criminal violence to destroy state capacity is perhaps its greatest security implication, especially if low state capacity and associated instability in one country spills over to other countries in the region. Importantly, the existence of weak or failed states could also contribute

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<sup>31</sup> Rotman, 2000.

<sup>32</sup> Shifter, 2012; Mancur Olson, "Dictatorship, Democracy, and Development," *American Political Science Review*, Vol. 87, No. 3, 1993.

to the spread of transnational criminal violence across borders as it may facilitate trafficking and smuggling along new or existing trade routes.

Another way that political instability might lead to the spread of criminal violence is through the existence of conflict and the dynamics of postconflict societies. In fact, this overlap between conflict and criminal violence is an important security implication of organized criminal violence from the U.S. perspective. A number of United Nations (UN) reports have remarked on the rapid growth and spread of violence in conflict zones such as Iraq, Afghanistan, and South Sudan.<sup>33</sup> The link between criminal violence and conflict has many facets, including easy access to weapons, reduced policing and law enforcement, and preexisting violence that lowers the threshold for new, additional violence.<sup>34</sup> Criminal groups in conflict zones can also form valuable alliances with terrorist or guerilla groups that increase the strength of the criminal groups, giving them access to additional resources — including arms, money, technology, and, sometimes, protection. Criminal violence can also arise in the aftermath of conflict. For example, in Guatemala and El Salvador, counterinsurgency campaigns were supported by paramilitary units and strong intelligence organizations. When conflict ended, these groups were not effectively dismantled and they gradually evolved into illicit organizations involved in drug and arms trafficking, human smuggling, and other illegal activities.<sup>35</sup> At the same time, it is important to recognize that criminal violence and conflict may overlap. For example, much of the violence in Somalia that is cast as clan warfare is actually conflict between rival organizations over access to natural resources. Similarly, violence in Sri Lanka and Pakistan that

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<sup>33</sup> UNODC, 2014a.

<sup>34</sup> UNODC, 2014a.

<sup>35</sup> Douglas Farah, "Organized Crime in El Salvador: Its Homegrown and Transnational Dimensions," in Cynthia J. Arnson and Eric L. Olson, eds., *Organized Crime in Central America: The Northern Triangle*, Washington, D.C.: Woodrow Wilson International Center for Scholars, September 2011.

has been described as religious or ethnic in nature is also about drug trafficking and revenues.<sup>36</sup>

### **Transnational Criminal Violence and Political Economy**

A final topic within the literature on transnational criminal violence considers the interaction between transnational organized crime and the political economy. The UNODC calls transnational organized crime a “globalized illegal economy” because so much transnational criminal activity is economic in nature and driven by profit.<sup>37</sup> In fact, in 2009, transnational organized crime was expected to generate \$870 billion, an amount equal to 1.5 percent of global GDP.<sup>38</sup> Many sources focus on this link between transnational criminal violence and the political economy, some going so far as to argue that transnational organized crime is fundamentally about illegal markets and trading.<sup>39</sup> The literature also describes transnational organized crime as being characterized by rationality and driven by economic competition.<sup>40</sup> These organizations also respond to world markets – and changes in them – in ways that are similar to legitimate enterprises.<sup>41</sup> The literature casts criminal organizations as firms that make an investment in violence as a way to increase their own profitability. In other words, transnational “organized crime has created a market in violence, sub-

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<sup>36</sup> James Mittleman and Robert Johnston, “The Globalization of Organized Crime, the Courtesan State, and the Corruption of Society,” *Global Governance*, Vol. 5, No. 1, January-March 1999.

<sup>37</sup> UNODC, “Transnational Organized Crime – The Globalized Illegal Economy,” undated-a.

<sup>38</sup> UNODC, *Estimating Illicit Financial Flows Resulting from Drug Trafficking and Other Transnational Organized Crimes: Research Report*, 2011.

<sup>39</sup> Michele Polo, “Organized Crime and Political Economy,” in Gianluca Fiorentini and Sam Peltzman, eds., *The Economics of Organized Crime*, Cambridge, UK: Cambridge University Press, 1995.

<sup>40</sup> Dick Hobbs, “Organized Crime and Violence,” in Wilhelm Heitmeyer and John Hagan, eds., *International Handbook of Violence Research*, Dordrecht, Netherlands: Kluwer Academic Publishers, 2003.

<sup>41</sup> Rotman, 2000.



contracted to and perpetrated by local criminals.”<sup>42</sup>In this conception, transnational criminal violence allows criminal organizations to increase profits in several ways by increasing their control of and access to markets, trafficking routes, funds, goods, and other resources. Violence may also be a profitable act in and of itself, in the form of murder or kidnapping for hire, money laundering, or other financial crimes.<sup>43</sup> Other literature conceives of transnational criminal organizations as kleptocracies that compete with weak or middling states. In this view, gangs and other criminal organizations function as primitive states that emerge out of conditions of anarchy and act like states in that they develop a membership and group of followers, participate in a range of economic activities, and then provide goods and services to their supporters. These groups use coercion and profit activities to attract members and to remain viable as organizations. In this way, they become active participants in the local, national, and even international political economy.<sup>44</sup>

Because of its scope, diversity, and prevalence, transnational organized crime has considerable implications for the global political economy as well as the local economies of affected areas. Literature that explores these implications casts transnational criminal violence as an “essential market force.”<sup>45</sup>At the local level, organized crime can contribute to extortion, racketeering, violence, and other financial crimes. It can undermine governmental and developmental assistance and investment made into local economies. It also increases the amount of money that governments have to spend on security and policing, again diverting valuable public money from other, more-profitable investments. At the global level, the effects may be even more severe. The

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<sup>42</sup> Rotman, 2000.

<sup>43</sup> Polo, 1995.

<sup>44</sup> Herschel Grossman, “Rival Kleptocrats,” in Gianluca Fiorentini and Sam Peltzman, eds., *The Economics of Organized Crime*, Cambridge, UK: Cambridge University Press, 1995; Stergios Skaperdas and Constantinos Syroponlos, “Gangs as Primitive States,” in Gianluca Fiorentini and Sam Peltzman, eds., *The Economics of Organized Crime*, Cambridge, UK: Cambridge University Press, 1995.

<sup>45</sup> Rotman, 2000.

existence of black markets may interfere with development of legitimate markets and may divert investment and other resources from more-productive investment. Transnational organized crime can also distort market mechanisms, such as pricing, and contribute to market instability.<sup>46</sup>

### **Summary**

The literature on transnational criminal violence covers a range of topics, including the evolution of criminal violence, the characteristics of transnational criminal organizations, the motivations of these groups and the individuals who join them, and the links between transnational criminal activity and political instability and political economy. However, existing literature has some important limitations from the perspective of strategic planners and policymakers. First, there is no final consensus on the drivers and causes of transnational criminal violence. While certain economic characteristics, such as poverty and inequality, appear to encourage the emergence of transnational criminal violence, and while globalization and conflict also appear to facilitate its spread, there is still disagreement and debate over even these factors and the magnitude of their impact. Future research should focus on nailing down those key factors that serve as catalysts for this type of criminal activity and violence; understanding and identifying these factors will be a crucial first step in developing effective plans to counter and combat transnational criminal violence. Second, existing literature does not provide meaningful forecasts or predictions about where this violence is likely to occur next, whether it is likely to increase or decrease in scope and severity, and the types of national security threats it is likely to pose in the future. These are the types of forward-looking predictions that policymakers and strategic planners need in order to develop anticipatory operational plans and preventative initiatives. While difficult, developing these types of forecasts may also be an important next step for literature in this area.

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<sup>46</sup> UNODC, undated-a.

## **Quantitative Data Sources and Trends in Criminal Violence**

One of the major challenges associated with studying transnational criminal violence and transnational organized crime more generally is the lack of high-quality and complete quantitative data on the topic. The lack of data has important implications for analysts seeking to study the evolution of organized criminal violence because without longer-term time-series data, it is difficult for researchers to say whether organized criminal violence has increased or decreased over the past 25, 50, or even 100 years. In part, this is due to the difficulty in collecting data on this type of violence. First, much of transnational criminal violence is clandestine and hard to detect. Illicit criminal networks often try to cover up their crimes such as drug trafficking and money laundering, hide their violence, and disguise their criminal activity and funding. Furthermore, it is sometimes difficult to distinguish between organized, transnational criminal violence and ordinary, domestic criminality. Researchers interested in collecting data on transnational criminal violence are also often dependent on local law enforcement personnel who are typically the primary source of records and information on the amount and types of violence crime perpetrated in a given country. However, these individuals may have incentives to underreport violence in their home district or state to avoid frightening off prospective tourists or attracting attention from international organizations such as the United Nations. Local and even national officials also may not keep good records about criminality in their district or state, and some of the places with the highest crime rates are those with little technological sophistication. This means that they may not have organized, computerized records of crimes committed, thus complicating the construction of comprehensive databases of criminal violence. Second, the lack of a clear and consistently applied definition of criminal violence complicates the creation of cross-national databases on the topic. Different countries have different legal standards and may define and document criminal activity in very different ways, making it difficult to effectively study criminal violence as a transnational phenomenon or to compare rates of crime across countries. Furthermore,

because this violence and crime is transnational and crosses state lines, it is sometimes difficult to catch and record.<sup>47</sup>

However, despite the difficulty of collecting data on criminal violence and a dearth of data on this topic notwithstanding, there are some data sources that can be used to study criminal violence in more detail. While none of these sources is comprehensive and while all have shortcomings, each provides a valuable window into criminal violence. There are three primary types of data on transnational criminal violence: data from international and government sources (for example, national governments and such organizations as the UN and the World Health Organization); data collected in victimization surveys; and data collected through self-report by perpetrators themselves. This section will discuss these three data sources and then provide a summary of trends using the most comprehensive of these, international and governmental data.

### **International and Governmental Sources**

The most consistent and comprehensive source of data on criminal violence is that produced by national governments and that collected by international organizations. Probably the best source of governmental data on criminal violence is the UNODC. This office produces the Survey on Crime Trends and the Operations of Criminal Justice Systems,<sup>48</sup> a data set that includes time-series data on crimes committed in a sample of countries going back to 1970. Each wave of the survey is administered to a different set of countries, ranging from 78 in 1970 to more than 100 in more recent years. However, in no year are all countries in the world sampled (one of the major shortcomings of this data set). These missing observations prevent a true assessment of how criminal violence has changed over time. The data set includes a number of different categories, but all the data are based

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<sup>47</sup> Rosemary Barberet, "Measuring and Researching Transnational Crime," in Phillip Reichel and Jay Albanese, eds., *Handbook of Transnational Justice*, Thousand Oaks, Calif.: Sage, 2014.

<sup>48</sup> UNODC, "United Nations Surveys on Crime Trends and the Operations of Criminal Justice Systems (UN-CTS)," 2015.

on what the states themselves report, making the quality of the data completely dependent on the quality of national statistics agencies and the reporting bias noted above. Categories recorded in the data include crimes recorded by the police, intentional and nonintentional homicide, assault, drug crimes, rape, kidnapping, robbery, theft, fraud and embezzlement, and bribery and corruption.

The data set is a valuable source of information on criminal violence at the domestic level for countries included in the data, but there are also a good number of shortcomings. First, as already noted, the UNODC data are limited as a source of information for studying transnational criminal violence because they do not cover all countries and are missing many years even for the countries that are included. Furthermore, the countries it omits are often those where criminal violence is likely to be most severe. Second, while the data capture a large amount of criminal violence, it still may be difficult to extract information from these data about which crimes are domestic and which are the types of transnational criminal violence that may have the most important security implications for the United States. For all these reasons, using only this data set to study transnational criminal violence would likely undercount the magnitude of this violence. Furthermore, because the data comes from national self-reporting, it is likely of better quality in some cases than others. In general, more well-developed and advanced countries may have better and more complete data, which may create the appearance that they have more criminal violence than less well-developed countries with poor data, even if in reality the opposite is the case.<sup>49</sup>

The UNODC also produces a number of other data sets on criminal violence that may be useful for scholars studying the phenomenon, although, for the most part, these data sets are subject to the same limitations already described. These include data on homicide (1995–2008) and data on crimes including rape, kidnapping, robbery, theft, murder,

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<sup>49</sup> This relates to a larger problem with police-recorded data as a source of information on criminal violence. Specifically, any increase in reported crime can be interpreted in one of two ways. First, it could be attributed to a rise in crime. Second, it could be the result of improved law enforcement. It will be difficult for analysts to distinguish between the two causes of any change in the level of violence.

sexual violence, and drug use. The time periods covered by these data sets vary. Some cover the period since 1970, while others start only in 1995 or 2003. Finally, the UNODC also has a data set on drug seizures that goes back to 1980. The *Report on Organized Crime* published in 2010 and annual reports on transnational criminal violence in specific regions provide additional summary statistics on organized crime and violence.<sup>50</sup>

In addition to the UNODC, there are additional sources of governmental data. First, many states have their own centralized sources of data on criminal violence. These data are typically based on police databases and are often the same data cited in UN reports. The quality and consistency of these data vary widely from country to country. Second, there are international organizations, such as the World Health Organization and Interpol, that also collect data on a subset of specific crimes, including murder and sexual assault. Finally, there are U.S. government agencies interested in tracking certain types of transnational crimes, especially those that are financial in nature.

### **Victimization Surveys**

A second major source of data on criminal violence is collected through victimization surveys. Victimization surveys ask respondents about their experiences with criminal violence, including murder, assault, and other crimes. Usually the respondent is asked to respond for their entire household. The most notable of these is the International Crime Victims Survey, which has been carried out six times between 1989 and 2010. The survey has been conducted in more than 80 countries since it started, although it has not been completed in every country for every year that the survey has been run. The survey covers a range of crimes, including theft, sexual offenses, assault, murder, and bribery, and survey respondents are asked about both personal experiences and the experience of the household.<sup>51</sup> Victimization surveys are not subject to one concern when using police-reported data; specifically, the concern that a

<sup>50</sup> UNODC, *Report on Organized Crime*, 2010; for annual reports see UNODC, "Transnational Organized Crime Threat Assessments," undated-b.

<sup>51</sup> John van Kesteren, Jan van Dijk, and Pat Mayhew, "The International Crime Victims Surveys: A Retrospective," *International Review of Victimology*, Vol. 20, No. 1, 2014.

rise in the amount of crime captured is not due to an increase in crime, but rather an improvement in law enforcement techniques.

Victimization data has several advantages compared with data gathered and reported by police, but it also has some disadvantages. One advantage is that the data are not dependent on local and national government organizations, and so may be less likely to be subject to some of the biases that plague national self-reports. Victimization surveys can also be useful for drawing cross-national comparisons when administered internationally because the same questions are asked of all respondents across nations.<sup>52</sup> Victimization surveys can also be used to collect data on the composition of the offender population by asking respondents about the characteristics of the perpetrator.<sup>53</sup>

On the other hand, there are some drawbacks to the use of victimization surveys. One of the primary limitations is the potential for bias in the data reported by victims themselves. An analysis that compared rates of victimization with criminality as recorded by police figures found that there is limited correlation between victimization rates and police-reported criminality.<sup>54</sup> This correlation tends to be higher for “unambiguous” types of crimes, such as murder or shooting, and lower for less clearly defined crimes, such as assault.<sup>55</sup> In addition, there is the issue of how different individuals define specific crimes. For example, what one person considers an assault may not be an assault by a formal police definition or according to another respondent. This can interfere with the collection of accurate data on the incidence of crime.

Importantly, there are few victimization surveys focused explicitly on transnational crime. Even questions that ask about characteristics of the perpetrator do not ask whether the perpetrator was of a different

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<sup>52</sup> James Lynch, “Problems and Promise of Victimization Surveys for Cross-National Research,” *Crime and Justice*, Vol. 34, No. 1, 2006. Of course, this is only the case if all respondents have the same interpretation of the question and the same basic definitions of what constitutes a given crime or set of crimes.

<sup>53</sup> David Cantor and James Lynch, “Self-Report Surveys as Measures of Crime and Criminal Victimization,” *Measurement and Analysis of Crime and Justice*, Vol. 4, 2000.

<sup>54</sup> van Kesteren and Mayhew, 2014.

<sup>55</sup> Lynch, 2006.

nationality and the victim could not reasonably be expected to know whether the perpetrator has ties to other nations or to other transnational criminal activity. Furthermore, there are certain transnational crimes which are dealt with only peripherally in typical victimization surveys. Certainly, some transnational criminal behavior may be captured in victimization surveys, but even where the survey does capture this violence, it will be difficult to separate these criminal activities from other types of crime based on the survey data alone.

### **Self-Report Data**

A final source of data on criminal violence is the self-reports of the offenders themselves. This is probably the least widely used source, although self-report data are becoming more robust and useful for analysts. Self-report data is collected by asking respondents to report on instances in which they have perpetrated criminal violence, including homicide, assault, and other crimes. The surveys also often ask about the frequency with which these crimes have been committed.<sup>56</sup> Self-report surveys are or have been carried out in a number of countries, including Denmark, the United Kingdom, Sweden, Spain, and the Netherlands. Questions about delinquency have also been included in large youth surveys conducted in the United States,<sup>57</sup> and an International Self-Report Delinquency Study, which began in 1990, is administered to Western countries.<sup>58</sup>

There is considerable debate over whether these surveys provide a valid estimate of the incidence of criminality. Self-report surveys are subject to many of the same concerns as victimization surveys already discussed. These include the issues of collecting a representative sample, ensuring honest self-reports of criminal behavior, and addressing concerns about failure or misrecall of past behavior.<sup>59</sup> Concerns

<sup>56</sup> Terence Thornberry and Marvin Krohn, "The Self-Report Method for Measuring Delinquency and Crime," *Measurement and Analysis of Crime and Justice*, Vol. 4, 2000.

<sup>57</sup> Josine Junger-Tas and Ineke Haen Marshall, "The Self-Report Methodology in Crime Research," *Crime and Justice*, Vol. 25, 1999.

<sup>58</sup> Junger-Tas and Marshall, 1999.

<sup>59</sup> Junger-Tas and Marshall, 1999.



about a social desirability bias may be particularly important in this case because respondents may be reluctant to reveal their participation in criminal acts for fear of being apprehended and punished for them. Comparison of self-report, victimization, and police-reported data suggest that self-report data can be a useful source of information on rates of criminality despite evidence that self-reports can be subject to underreporting.<sup>60</sup> However, there is also evidence that more-serious crimes are subject to more self-censorship than less serious ones and that certain populations are less open about their past behavior and more subject to self-censorship. This evidence suggests a problem for a study of transnational criminal violence, which may involve a number of very serious criminal acts.<sup>61</sup>

Self-report data does provide a number of advantages for the study of criminality. For example, it can provide insight into age of onset, frequency, diversity, and recidivism. As a result, self-report data have been extremely valuable to researchers interested in understanding the demographic and economic correlates of crime.<sup>62</sup> However, self-report data is of less use to researchers studying transnational criminal violence. First, these surveys are conducted in a small number of countries. Second, self-report surveys do not explicitly demarcate transnational criminal violence from other forms of criminal violence. In addition, self-report surveys do not capture all the types of crimes that researchers of organized criminal violence are interested in – for example, money laundering, fraud, or other types of corruption.<sup>63</sup> Finally, many of the individuals who participate in transnational criminal organizations and violence are unlikely to be captured in a survey of criminality.

### **Recent Trends in Criminal Violence**

While the limitations of existing data make it difficult to rigorously assess historical trends in the levels of organized criminal violence,

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<sup>60</sup> Junger-Tas and Marshall, 1999.

<sup>61</sup> Junger-Tas and Marshall, 1999.

<sup>62</sup> Junger-Tas and Marshall, 1999.

<sup>63</sup> Junger-Tas and Marshall, 1999.

having some sense of these trends is still extremely important for developing a better understanding of the security implications of transnational and organized criminal violence. To provide some insight into recent trends, we use data provided by the UNODC in its most recent summary reports. We chose to use these data in our presentation of trends as they are the most reliable and comprehensive and provide the most-direct insight into recent trends in different types of violence. However, because of data limitations, we are only able to focus on a narrow set of trends, specifically in homicide and drug trafficking. As noted, trends in these specific types of criminal violence may not match those in other types of criminal violence and may be unique in certain ways, so generalizing from trends in these types of crime to all crime may be misleading and readers are cautioned to consider the trends as markers of two specific types of organized criminal activity which *may be* representative of criminal violence writ large.

Putting aside questions about data quality, what is important about the trends in transnational criminal activity and organized criminal violence presented in this section is that they consistently show the same general patterns: the spread and strengthening of transnational criminal groups, the diffusion of criminal activity into new markets and trade routes, and the rising toll (in human lives and money) of these industries. A review of recent trends also highlight regions where this violence is particularly severe and regions where it is becoming more of a problem, namely the Americas, southern Africa, and (to some extent) Eurasia. Further, each of these illegal activities can be directly linked to violence. Homicide is by its very nature violent; the drug trade frequently turns violent, with deals gone awry and turf wars; and human trafficking sometimes results in the death of victims, either intentionally or unintentionally. The trends also show that transnational crime and violence do appear to have increased in the last several years, over the period from 2008 to 2015, and that this violence does seem to have reached corrosive levels in certain regions. However, the lack of data prevents us from verifying the perception that organized criminal violence has increased substantially over longer periods of time. It is also possible that transnational criminal groups are strengthening at the expense of smaller, localized groups, while the

aggregate level of criminal activity and violence at the global level are remaining roughly the same.

Global homicide rates and trends provide some insight into the regions of the world most affected by this violence. Of course, not all homicide is caused by transnational organized criminal violence, but since data in this area are scarce, we will use international homicide rates as a proxy to explore the level and scope of transnational criminal violence at the international level. The UNODC's *Global Study of Homicide* provides substantial details on international homicide rates and trends. The report notes that the global homicide rate in 2012, the most recent year of published UNODC data, was 6.2 per 100,000 people, but that rates were more than four times higher in southern Africa and Central America. Homicide rates in parts of South America, central Africa, and the Caribbean are also much higher than the global rate, while homicide rates in Eastern Asia and Europe are much lower than the global average.<sup>64</sup> Looking at regional trends, homicide rates in the Americas appear to have risen in recent years after falling between 1993 and 2007. While the current rate is not as high as the 1993 peak, there is a clear upward trend over the past seven years.<sup>65</sup> Importantly, the very different homicide rates in different regions highlight the fact that transnational criminal violence may be a regionally concentrated phenomenon and of greater concern in some regions than others. Even within specific regions, crime rates may vary considerably, being much higher in some countries and cities than in others.

The UNODC also collects some data on the percentage of homicides attributed to organized violence. These data are incomplete, but does provide some insight into the relationship between organized crime and homicide rates. Countries with particularly high percentages of homicide linked to organized crime include Belize, El Salvador, Mexico, and Honduras. Homicide attributed to organized criminal violence appears to have increased in the past several years in Central America and the Caribbean.<sup>66</sup> Importantly, however, there is little

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<sup>64</sup> UNODC, 2014a.

<sup>65</sup> UNODC, 2014a.

<sup>66</sup> UNODC, 2014a.

existing data on the relationship between violence and organized crime going back 25 or even 50 years, so it is difficult to say whether current rates of organized criminal violence are truly different from previous decades. In addition to violence linked to gangs, violence to control drug trafficking routes or between criminal organizations is also to blame for the relationship between organized crime and homicide.<sup>67</sup> Notably, there are data for only two African countries and limited data on other regions (for example, Russia is not included). Furthermore, as is discussed in a later section, much of the data are self-reported and may be skewed intentionally for political or other reasons.<sup>68</sup>

In exploring the relationship between homicide and conflict, the *Global Study of Homicide* finds that homicide rates do tend to be higher in conflict zones and to rise in formerly peaceful countries when conflict starts. For example, the report cites rising homicide rates in Iraq and Afghanistan, as well as a jump in homicides in Haiti linked to violence and gang activity in Port-au-Prince. This may be because of a gradual diffusion of violence, ease of access to weapons once a conflict begins, or a collapse of rule of law that makes criminal violence more appealing to perpetrate and easier to get away with.<sup>69</sup> This finding that conflict and criminal violence are related provides some evidence of the national security importance of criminal violence, and any escalation in the violence might warrant attention from defense policymakers.

Another activity in which transnational criminal organizations are active is the drug trade. While not violent in and of itself, the transnational drug trade does seem to be inherently linked to criminal violence. Most obviously, violence consistently erupts between competing organizations over control of trade routes and markets. Because the drug trade is often linked with violence and can even become a source of profit for terrorist and insurgent groups, the shift in trafficking routes may also have implications for trends in conflict and organized crimi-

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<sup>67</sup> UNODC, 2014a.

<sup>68</sup> UNODC, 2014a.

<sup>69</sup> UNODC, 2014a.

nal violence.<sup>70</sup> As a result, attention to patterns in the drug trade may identify regions where transnational and domestic criminal violence is likely. Attention to recent changes in drug production and trade routes is also valuable because it highlights the dynamic, evolving nature of transnational criminal activities and the illicit markets in which they operate. The 2014 *World Drug Report* notes an increase in the production and trafficking of a number of different types of illegal drugs. For example, opium poppy cultivation has been increasing in Afghanistan and Myanmar, and there is evidence that heroin produced in Afghanistan is now reaching new markets. While sales from Afghanistan have been increasing, the Balkan route remains a lucrative trafficking route for criminal groups supplying Europe, but its use has been decreasing somewhat due to better enforcement and a decline in opiate use in some of these markets. Instead, the report cites the emergence of a southern route, with heroin being smuggled through the area south of Afghanistan, through the Middle East and Africa, and into Europe.<sup>71</sup>

In contrast with the general increase in the cultivation and flow of heroin, there are some signs that the cultivation of coca has fallen recently. However, the trafficking of cocaine continues to spread to new areas – a diffusion that again reflects the role that transnational criminal organizations play in the drug industry. Cocaine use is concentrated in the Americas, Europe, and Oceania, and production occurs almost exclusively in South America. However, an increase in drug trafficking through Africa has contributed to the more-recent emergence of some cocaine use in Africa and Asia. In addition, the cocaine market appears to be expanding in South America, Europe, and Oceania.<sup>72</sup>

Finally, the global manufacture and sale of amphetamine-type stimulants appears to be rising. The number of methamphetamine laboratories dismantled increased, as did the quantity of drugs of this type seized. Large quantities of this drug are reportedly sold in North America, East and Southeast Asia, and the Middle East, with Central

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<sup>70</sup> UNODC, *World Drug Report*, 2014b.

<sup>71</sup> UNODC, 2014b.

<sup>72</sup> UNODC, 2014b.

and Southwest Asia emerging as new markets and West and Central Africa as new centers of production.<sup>73</sup>

There are certainly other activities that involve transnational criminal organizations that we could review and investigate for evidence of the widening reach of transnational criminal groups, including money laundering and the sale of countless goods on domestic and international black markets. The expansion of criminal activity in these areas is also likely to lead to an increase in criminal violence on a transnational level. While the United States is insulated from some of this violence, it is not immune to it, or safe from it. Drug violence and use, gang wars, and kidnapping all occur in the United States and exact a high toll. The United States also suffers indirectly from much of this transnational criminal violence. For instance, high murder and crime rates in Mexico may be dangerous for the United States because violence can easily spill over the border and because Mexico is an important economic partner. Similarly, transnational crime in other areas could pose threats to U.S. national security, in the form of terrorist safe havens, threats to economic markets, and sources of instability that lead to new conflicts in the future.

### **Summary**

Recent trends in transnational criminal violence and activity highlight the high and persistent level of this violence in certain countries and regions, and the spread and diversification of transnational criminal groups. While direct measures of transnational criminal violence are limited, trends in related criminal activity, because they do seem to lead to violence between and within groups as well as between criminal groups and law enforcement, can provide a reasonable proxy for the level of this violence. A survey of trends in transnational criminal activity also highlights the flexibility of this activity and the rising toll (in human lives and money) of these industries. There is some evidence in homicide rate trends to suggest that organized criminal violence has increased over the past five years or so, particularly in such regions as the Americas and southern Africa. There is also evidence that crimi-

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<sup>73</sup> UNODC, 2014b.

nal violence has emerged and flourished in conflict zones, including Afghanistan, Haiti, Somalia, and South Sudan. However, at the same time, the discussion of data availability and quality suggests that we cannot reliably compare current levels of violence to transnational criminal violence in previous decades.

The paucity of good quantitative data on transnational criminal violence poses a challenge for policymakers and U.S. Department of Defense planners because it complicates the task of developing strategies to deal with this violence or defining the implications and threats posed by this violence. We relied in this section on the best data available, but noted the many limitations of these data and how they affected our ability to discuss long-term trends. Importantly, the lack of historical data also makes it difficult to generate meaningful predictions about what organized criminal violence may look like in the future. The lack of data on transnational criminal violence and the problems this poses for researchers also suggests the urgent need for efforts to build new and improved databases of transnational criminal activity and violence.

### **Qualitative Case Study Research**

Partly because of the limited data on transnational criminal violence, a large percentage of the work on this topic has taken the form of qualitative case studies focused on one or several countries where criminal violence is prevalent. Case studies provide a number of valuable insights into the nature, patterns, and trends in transnational criminal violence and have a number of advantages for researchers working in this area. First, given the lack of quantitative data on the topic, they provide an alternative way to study a topic of growing importance. Second, case studies are a way for individuals to dig deeply into the characteristics, causes, and evolution of criminal violence in a single or small number of nations. While this narrow focus does not provide the breadth that is gained from looking at a quantitative survey of many nations, it does provide a level of richness and contextual detail that will be missed by a quantitative analysis. This richness can be very

valuable for researchers in identifying important drivers of violence, as well as causal mechanisms that can be explored in other cases. This type of in-depth analysis can also be useful for policymakers who will need to understand the unique characteristics of a given case in order to develop policies capable of preventing or stopping criminal activity and violence in specific countries and regions. It is beyond the scope of this chapter to summarize all of the case study work that has been completed on transnational organized crime and criminal violence. Instead, this section will provide a brief summary of the types of case studies that exist, the information covered in them, how they are useful to a study of transnational criminal violence, the limitations of this analysis, and how this work might be improved in the future.

### **Characteristics of Existing Case Study Work**

Existing case study work on transnational criminal violence tends to focus on a single country or region and deeply investigate the characteristics of this violence, its evolution, the evolution of its perpetrators, the primary activities involved in a specific area or region, the causes and consequences of criminal activity, and, finally, recommendations for how national and international government agencies can respond to this violence.<sup>74</sup> One of the primary contributions of these case studies is

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<sup>74</sup> See, for example, Max Manwaring, *A Contemporary Challenge to State Sovereignty: Gangs and Other Illicit Transnational Criminal Organizations in Central America, El Salvador, Mexico, Jamaica, and Brazil*, Carlisle, Pa.: Strategic Studies Institute, December 2007; Douglas Farah, *Transnational Organized Crime, Terrorism, and Criminalized States in Latin America: An Emerging Tier-One National Security Priority*, Carlisle, Pa.: Strategic Studies Institute, August 2012; Jose Miguel Cruz, "Central American Maras: From Youth Street Gangs to Transnational Protection Rackets," *Global Crime*, Vol. 11, No. 4, 2010; Hal Brands, *Crime, Violence, and the Crisis in Guatemala: A Case Study in the Erosion of the State*, Carlisle, Pa.: Strategic Studies Institute, May 2010; LaVerle Berry, Glenn Curtis, Seth Elan, Rexford Hudson, and Nina Kollars, *Transnational Activities of Chinese Crime Organizations*, Federal Research Division of Library of Congress, Crime and Narcotics Center, Directorate of Central Intelligence, April 2003; and James Bosworth, "Honduras: Organized Crime Gained Amid Political Crisis," in Cynthia J. Arnson and Eric L. Olson, eds., *Organized Crime in Central America: The Northern Triangle*, Washington, D.C.: Woodrow Wilson International Center for Scholars Reports on the Americas, No. 29, 2011. See, also, UNODC, 2012; Marguerite Cawley, "Are Northern Triangle Countries 'Narco-States'?" in Steven Dudley and Jeremy McDermott, eds., "Insight Crime Game Changers 2013," InSight



the volume of data they are able to provide on the number of different types of crimes at the local and national level, as well as the detailed information they include about the groups that perpetrate these crimes. For example, one study on urban violence in Central America provided detailed information on the growth and evolution of gangs in this region and how their unique characteristics might affect attempts by the government to stop or interfere with their activity.<sup>75</sup> In terms of regional coverage, there are a large number of case studies focused on Central America and on Mexico specifically, but a brief review uncovered case studies on the Italian mafia, South Africa, Somalia, criminal groups in China, South America, gangs in the United States, and gradually strengthening criminal organizations in Europe and Russia. It is also worth noting that a large number of these case studies are published by U.S. government agencies or affiliates and that risk analysis organizations are also frequently involved, using case studies to assess the risk of travel to various countries and regions.<sup>76</sup>

Themes emphasized in case study work are varied but include the rapid growth in the scope and magnitude of this violence, the strengthening of transnational criminal organizations over time, the increasingly transnational nature of this violence, the threat it poses to political stability and rule of law in these countries, and the causes of this violence – including a large number of economic drivers, conflict, globalization, and migration, all of which have been discussed in a previous section of this chapter. Many of the case studies also provide recommendations to policymakers, military, and law enforcement organizations, using their analysis to suggest improvements upon operations to control, prevent, and eliminate transnational criminal violence. These sections of the case studies are especially valuable when

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Crime Report, December 2013; and Juan Carlos Garzón Vegara, *The Rebellion of Criminal Networks: Organized Crime in Latin America and the Dynamics of Change*, Washington, D.C.: Woodrow Wilson International Center for Scholars, 2012.

<sup>75</sup> Oliver Jutersonke, Robert Muggah, and Dennis Rodgers, "Gangs, Urban Violence, and Security Interventions in Central America," *Security Dialogue*, Vol. 40, Nos. 4–5, 2009; Cruz, 2010.

<sup>76</sup> See for example, the Verisk Maplecroft and Aon websites.

they provide ideas for ways the United States might improve its own response to these groups or contribute to the response in other nations.

### ***Strengths and Limitations of Qualitative Case Research***

The use of qualitative case research has a number of advantages for researchers studying transnational criminal violence, but also some important limitations.<sup>77</sup> On the positive side, as already mentioned, qualitative case studies can provide a level of detail about transnational criminal violence in specific countries and regions in a way that broad summary statistics and large-N statistical work cannot. Because they include rich contextual detail, researchers can use case studies to identify some of the key factors that may be contributing to or driving violence in a given region and can even trace out complicated casual pathways leading to an individual decision to join a criminal group or to the decision of a criminal group to perpetrate violence.

Another advantage of case studies is that they can be used to identify and study the effect of environmental conditions on criminal violence. By comparing several different countries or regions, each with different forms of criminal violence and transnational organized criminal activity, researchers can identify the effects of specific environmental conditions and characteristics on the development and intensity of criminal violence. Relatedly, case studies can be used to define important cross-case similarities in the nature of criminal violence. Finally, case studies can also be used to gauge the risk posed by criminal violence in different countries and regions. For example, case studies conducted by intelligence and defense agencies can serve to identify the national security risks associated with transnational criminal violence in different regions and to locate possible risk factors and warning signs for future monitoring.

However, qualitative case studies also have limitations in their utility for researchers studying transnational criminal violence. First, relying solely on qualitative case studies provides only a limited view of the

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<sup>77</sup> For more on the benefits and limitations of case studies, see Alexander George and Andrew Bennett, *Case Studies and Theory Development in the Social Sciences*, Cambridge, Mass.: MIT Press, 2005; Gary King, Robert O. Keohane, and Sidney Verba, *Designing Social Inquiry: Scientific Inference in Qualitative Research*, Princeton, N.J.: Princeton University Press, 1994.

scope of organized criminal violence because these studies capture only snapshots of violence and diverse criminal activity in specific regions and countries. While each of these snapshots is useful, there is no guarantee that the observations and lessons learned from one case study will translate and apply to others. Case studies also cannot capture widespread trends in transnational and organized criminal violence, as is possible with a large-N quantitative study. Understanding these trends is important to developing a comprehensive picture of transnational criminal violence and its drivers, characteristics, and implications. Finally, it is difficult to get a good estimate of the magnitude of transnational criminal violence from the use of case studies. Generalizing from cases where violence is prevalent and intense would lead to an overestimation of violence, while generalizing from case studies where violence is less widespread could lead to an underestimation. Since identifying the amount and intensity of violence at the transnational level is essential to a study of transnational criminal violence, this is an important drawback of relying too heavily on case study research to analyze transnational and organized criminal violence.

#### **Future Directions for Qualitative Case Research**

There are several ways qualitative case research could be improved to further the study of transnational and organized criminal violence. First, an increase in the diversity of cases studied would assist researchers in developing a more comprehensive understanding of violence in areas where it is rampant, emerging, and less prevalent. As it stands, the literature is dominated by cases focused on Central America and, to a lesser extent, Eurasia, Russia, and East and southern Africa. A more balanced distribution could provide a more complete picture of transnational criminal violence.

In addition to a greater diversity of case studies, a greater number of comparative case study analyses that use several different case studies to explore similarities and differences in criminal violence across regions and countries would advance the existing literature on transnational and organized criminal violence. Comparative case study analyses would also help identify the effects of different environmental factors on transnational criminal violence – observations that could

contribute to the development of new strategies to combat the spread of this violence.

### **Implications for the Army**

Organized and transnational criminal violence has implications for international and national security, especially when, as mentioned previously, it reaches widespread and sustained levels as it has in places like Central America and some parts of Africa. The most important security implication is the fact that, like the more traditional conflict and wars discussed elsewhere in this report, organized criminal violence, whether transnational or domestic, can weaken national governments in already vulnerable areas and contribute to a gradual descent of affected governments into poor governance. This occurs when criminal organizations and their violent activities undermine the rule of law, infiltrate governments and law enforcement agencies with corruption, and divert valuable economic resources from investment in development and social services. Some countries in Central America have been crippled by this criminal violence and associated activity, which has grown stronger and more difficult to counter as it has become transnational in nature. This erosion of state capacity can lead to political instability and could eventually contribute to the collapse of national governments. Further, instability at the national level easily spreads across regions given the transnational nature of this criminal activity and violence. This effect of organized criminal violence is probably the most important from the perspective of the U.S. military and the most relevant to the findings elsewhere in this report.

A second important security implication relevant to the study of conflict trends and to the U.S. military is that while criminal violence does not seem to have spurred new intrastate or interstate conflicts yet, it already overlaps extensively with existing conflict-related violence in conflict-prone regions, such as Somalia and Afghanistan. As noted previously, recent UN reports find that criminal violence is high in conflict zones and can emerge where it did not exist before after a conflict

starts.<sup>78</sup> Conflict can give rise to criminal violence by weakening the rule of law, proliferating weapons, and causing economic dislocation. Once it starts, criminal violence can overlap with conflict activity or may be focused on access to and control of resources, as is true in Somalia and Afghanistan.<sup>79</sup> In addition, the alliances between organized criminal groups and terrorist and insurgent organizations can pose an indirect threat to U.S. interests if nonstate actors supported by criminal groups launch violent attacks on the U.S. homeland or U.S. targets abroad. As an example, one of the most notable concerns of U.S. forces in Afghanistan was criminal groups that supplied the funds and raw materials for improvised explosive devices that were then aimed at U.S. and allied forces.<sup>80</sup> The important relationship between criminal networks and terrorism has become even more apparent with the rise of the Islamic State in Iraq and Syria, its use of illegal activities and money laundering to raise large sums of cash to fund its operations, and the recent spate of lone-wolf terrorists in countries across Europe who often have been involved in criminal activities in their pasts.

However, while organized criminal violence does have security implications, the extent of the threat it poses to the United States is not clear. Moreover, even if transnational and widespread criminal violence does pose a national security threat in certain limited areas, it remains unclear that it is a security threat best addressed by the U.S. military. First, as already noted, the greatest security implications of transnational and organized criminal violence arise when this violence becomes pervasive and enduring and cripples the political institutions of the states in which they occur. Past experience has suggested that military instruments are generally poorly suited for battling rampant criminality and associated violence. For example, U.S. military counternarcotics efforts in Colombia, which represent some of the most-

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<sup>78</sup> UNODC, 2014a.

<sup>79</sup> UNODC, 2014a.

<sup>80</sup> William F. Wechsler and Gary Barnabo, "The Department of Defense's Role in Combating Transnational Organized Crime," in Michael Miklaucic and Jacqueline Brewer, eds., *Convergence: Illicit Networks and National Security in the Age of Globalization*, Washington D.C.: Institute for National Strategic Studies, 2013.

extensive uses of military capabilities against organized crime, have not reduced the flow of narcotics from the region.<sup>81</sup> Other U.S. efforts against organized criminal violence have emphasized partner capacity building. However, while these efforts are sometimes successful in more-traditional defense settings, they have been ineffective in building local police forces able to control criminal violence and transnational criminal activity.<sup>82</sup> As an example, in Afghanistan, the United States has spent years and billions of dollars training, equipping, and partnering with the Afghan National Police to increase their capacity to stop organized criminal activity and violence associated with the drug trade and clan warfare. However, these efforts have had limited success. Audits conducted by the Special Inspector General for Afghanistan Reconstruction consistently find the Afghan police to be poorly organized and ineffective, and recent reports on organized crime show an increase in criminal violence and drug trafficking in Afghanistan in recent years.<sup>83</sup> Finally, the limited suitability of military tools for fighting crime is something that military planners and leaders have recognized in the past and may explain why historically they have often avoided these roles. In the early years of the NATO mission in Bosnia, for instance, both the United States and European partners went to great lengths to avoid accepting responsibility for fighting criminal violence and activity in the region.

<sup>81</sup> UNODC, 2014b. The *World Drug Report* emphasizes the continuing spread of cocaine production and trafficking, despite extensive U.S. involvement.

<sup>82</sup> On the difficulties that foreign actors have encountered in building policy capacity abroad, see Mike Brogden, "'Horses for Courses' and 'Thin Blue Lines': Community Policing in Transitional Society," *Police Quarterly*, Vol. 8, No. 1, 2005; Bruce Baker, "Policing Post-Conflict Societies: Helping out the State," *Policing and Society*, Vol. 19, No. 4, 2009; Mercedes S. Hinton and Tim Newburn, *Policing Developing Democracies*, New York: Routledge, 2009; and Robert Davis, Nicole Henderson, and Cybele Merrick, "Community Policing: Variations on the Western Model in the Developing World," *Police Practice and Research*, Vol. 4, No. 3, 2003. On the limitations of the military in particular as an agent of policy capacity-building, see David H. Bayley and Robert M. Perito, *The Police in War: Fighting Insurgency, Terrorism, and Violent Crime*, Boulder, Colo.: Lynne Rienner Publishers, 2010.

<sup>83</sup> For recent reports, see Special Inspector General for Afghanistan Reconstruction, *Audit Reports*, undated; for information on trends on homicide in conflict areas, UNODC, *Global Study on Homicide*, 2014a.

Even though the widespread, severe, and corrosive criminal violence that exists in some regions has some implications for U.S. security, they are implications that do not necessarily affect the current operational demands faced by the U.S. Army. Instead, the implications of this type of violence, to the extent that they do affect U.S. national interests, may be best addressed (as they are now) by other U.S. government agencies, such as the Departments of Justice and Treasury, with the U.S. military in a supporting role. That said, this situation could change if organized criminal violence continues to expand or grow in severity or starts triggering new interstate and intrastate conflicts. As a result, trends in transnational and organized criminal violence are worth watching closely.





## Analysis of U.S. Military Interventions

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An analysis of conflict trends provides a basis for assessing overall levels of violence and instability in a long-term future in which specific threats cannot be predicted with any certainty. Such an analysis is useful for providing an empirical basis for contemporary debates about U.S. grand strategy. Ideally, however, such an analysis would deliver more: It would help to inform specific policy decisions about defense investments that must be made with an eye to the long-term future—decisions about force structure, acquisitions, basing, and other investments with long lead times that cannot be adapted quickly to changing circumstances. We want to understand the relationship between conflict trends and demand for U.S. military forces.

Such demands fall into two categories. First, U.S. forces may be desired for their deterrent effects—the extent to which the size, capabilities, and posture of U.S. forces themselves influence conflict trends. These effects were assessed to some degree in previous chapters in which the consequences of U.S. regional hegemony and forward posture were highlighted. Second, U.S. forces may be dispatched where deterrence either breaks down or is irrelevant. In this chapter, we assess this second aspect of demand: demand for specific deployments of U.S. forces overseas, which we term “military interventions.”

This chapter’s analysis of military interventions seeks to answer four questions. First, what is the relationship between global and regional levels of violent conflict and the frequency, scale, and duration of U.S. military interventions? A future filled with conflict would likely imply a heightened demand for U.S. forces, but the demand for a U.S. military intervention may even be substantial in a world with declining inter-

state and intrastate conflict. Second, do interventions tend to overlap or “cluster,” and if so, what are the implications for the scale of forces necessary to sustain these various requirements simultaneously? Third, are any trends apparent in the types of military capabilities that have been required in U.S. military interventions, and is there reason to believe these trends are likely to persist? Past demands on U.S. military forces do not necessarily predict the nature and extent of future demands, but they may provide a starting point for future planning and projections. Finally, do demands for U.S. forces vary by region, and, if so, what are the implications for basing, access rights, and cultural or linguistic expertise? This chapter addresses these questions first by discussing existing literature on U.S. military interventions and then by presenting and analyzing a new database of interventions, considering trends in region, size, and type.

## Methodology

Our database of military interventions covers the period from 1900 to 2013. As such, it is one of the most comprehensive data sets of ground interventions since most similar sources of information start only in 1946. We defined a military intervention as any deployment of U.S. ground forces on the territory of another sovereign country that involved at least 100 troops, but did not include short-term transit or long-term overseas posture (such as U.S. forces stationed permanently in South Korea). We also excluded long-standing deterrent interventions, such as the presence of U.S. forces in Germany during the Cold War. We also made the decision to exclude certain types of operations in order to focus our database specifically on those interventions most likely to stress U.S. forces. Our database excludes air and naval operations, limited strike operations, short-term high-availability disaster recovery deployments, evacuations, security cooperation activities, activities within the United States, rotational and training deployments,<sup>1</sup> and covert and originally covert operations.

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<sup>1</sup> Included in this category of omitted training deployment are operations such as Operation Intrinsic Action in Kuwait, which lasted from 1992 to 2002 and involved annual, four-month

To gather the set of interventions included in our data set, we reviewed and drew from a number of existing data sets of military interventions. While none of these data sets captured the specific set of interventions that we were interested in, each was a useful source of data. The challenge that we faced when building our data set was that no two data sets use the same definition of intervention and so no two data sets contain the same list of interventions. To overcome this challenge, we carefully applied our own definition of intervention and reviewed the interventions listed in more than a half-dozen other databases using external sources to see which ones met our criteria.<sup>2</sup> We then coded the database on a number of different dimensions. First, we considered location, including country and region (using the regions identified earlier in this report). We also documented timing (start and end date), the type of capabilities involved, the type of environment, and the footprint, or number of U.S. troops involved.

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deployments for joint training with the Kuwaiti military. During this period, we only include activities in Iraq/Kuwait that occurred outside of these planned rotational training activities.

<sup>2</sup> The databases reviewed included: Jeffrey Pickering and Emizet F. Kisangani, *International Military Intervention Dataset, 1946–2005*, 2009 (see, also, Jeffrey Pickering and Emizet F. Kisangani, “The International Military Intervention Dataset: An Updated Resource for Conflict Scholars,” *Journal of Peace Research*, Vol. 46, No. 4, 2009); Patricia L. Sullivan and Michael T. Koch, *Military Interventions by Powerful States, 1945–2004*, undated (see, also, Patricia L. Sullivan and Michael T. Koch, “Military Intervention by Powerful States, 1945–2003,” *Journal of Peace Research*, Vol. 46, No. 5, 2009); James Meernik, *Use of Force*, database, undated (see, also, James Meernik, “United States Military Intervention and the Promotion of Democracy,” *Journal of Peace Research*, Vol. 33, No. 4, 1996); Patrick Regan, “Replication Data,” undated (see, also, Patrick M. Regan, “Third-Party Interventions and the Duration of Intrastate Conflicts,” *Journal of Conflict Resolution*, Vol. 46, No. 1, 2002); Sarkees and Wayman, 2010; COW, “Militarized Interstate Dispute Dataset,” undated; (see, also, Faten Ghosn, Glenn Palmer, and Stuart Bremer, “The MID3 Data Set, 1993–2001: Procedures, Coding Rules, and Description,” *Conflict Management and Peace Science*, Vol. 21, 2004; and Palmer et al., 2015); Nils Petter Gleditsch, Peter Wallensteen, Mikael Eriksson, Margareta Sollenberg, and Håvard Strand, “Armed Conflict 1946–2001: A New Dataset,” *Journal of Peace Research*, Vol. 39, No. 5, 2002; Barbara Torreon, *Instances of Use of United States Armed Forces Abroad, 1798–2013*, Washington, D.C.: Library of Congress, Congressional Research Service Report, 2013. Torreon’s work provided coverage of the earlier period in our dataset. Our database was formed through an iterative process that involved identifying interventions for inclusion, eliminating duplicates (interventions that appeared in more than one database), and then investigating each remaining intervention to ensure that it met our criteria and to collect additional information, including a short description and estimated number of U.S. troops involved.

For each of these latter three dimensions, we developed a set of coding categories and rules. For capabilities, we defined two categories, military and civil-military. Military interventions are those involving traditional military activities, while civil-military interventions are those that involve intensive interaction between military personnel and civilians. We also defined two types of environment: permissive and nonpermissive. Nonpermissive environments included those in which the United States deployed into an ongoing conflict (using conflict data sets to determine which specific interventions fall into this category), deployed into a postconflict environment with ongoing instability (United States engaged in peace operation under Chapter VII of the UN Charter),<sup>3</sup> or deployed in the context of high international tensions (engaged in a militarized interstate dispute of at least “3” magnitude captured in the MID data set with either the country into which U.S. forces deployed or one of its neighbors).<sup>4</sup> Finally, for the footprint characterization, we defined three levels: small (fewer than 2,000 but more than 100 person-years – less than roughly one augmented battalion task force deployed for one year – in each year), medium (more than 2,000 but fewer than 20,000 person-years – in very rough terms, between one augmented battalion task force and one division deployed for one year – in any single year), and large (more than 20,000 person-years – roughly one division deployed for one year – in any year of the deployment). In addition to this categorical breakdown, we also included information on the total number of U.S. troops involved in the deployment. Table 8.1 provides examples of U.S. deployments and how they would be coded according to our coding framework.

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<sup>3</sup> United Nations, *Charter of the United Nations*, October 24, 1945, Chapter VII.

<sup>4</sup> The MID data classify all disputes within the data set according to their intensity on a scale of 1 to 5. A score of ‘1’ indicates no military action, a score of ‘2’ a threat to use force, a score of ‘3’ indicates a display of force, ‘4’ a use of force, and ‘5’ war. For more details, see Palmer et al., 2015.

**Table 8.1**  
**Typology Categories and Examples**

Capability Requirements	Environment	Scale	Examples
Military	Nonpermissive	Large	Conventional warfare (e.g., Korea)
Military	Nonpermissive	Small	Limited strike (e.g., Desert Shield)
Military	Permissive	Large	Deterrent (e.g., Desert Shield)
Military	Permissive	Small	Advisory missions
Civil-military	Nonpermissive	Large	COIN (e.g., OIF), Peace enforcement (e.g., SFOR)
Civil-military	Nonpermissive	Small	Small-scale COIN (e.g., OEF-P)
Civil-military	Permissive	Large	Peacekeeping (e.g., MFO), humanitarian
Civil-military	Permissive	Small	Advisory missions, humanitarian

NOTE: COIN = counterinsurgency; OEF-P = Operation Enduring Freedom—Philippines; OIF = Operation Iraqi Freedom; MFO = multinational force and observers; SFOR = stabilization force.

## Descriptive Statistics and Trend Analysis

Our final data set contained 74 interventions over the period 1900 to 2013. In the remainder of this chapter, we summarize the findings and observations that emerge from an analysis of the database. Several important trends and observations emerge from this analysis. First, ground interventions have become increasingly frequent over this period, especially since 1990. This increase in intervention frequency has occurred even as the prevalence of conflict at the interstate and intrastate levels has declined. Second, interventions have been increasingly civil-military in nature, including activities like peacekeeping, foreign internal defense, and humanitarian assistance. Third, we observed that interventions seem to be concentrated in specific regions. These regions of high activity may also be regions of high strategic priority. Fourth, interventions are also overlapping, meaning there are frequently several interventions going at once. This has implications for force planning and the demands placed on military personnel. Finally, our analysis suggests that although most interventions are short in duration, the number of medium and large interventions has increased since 1990. At the same time, overall troop numbers in the largest interventions have declined since the 1970s, pos-

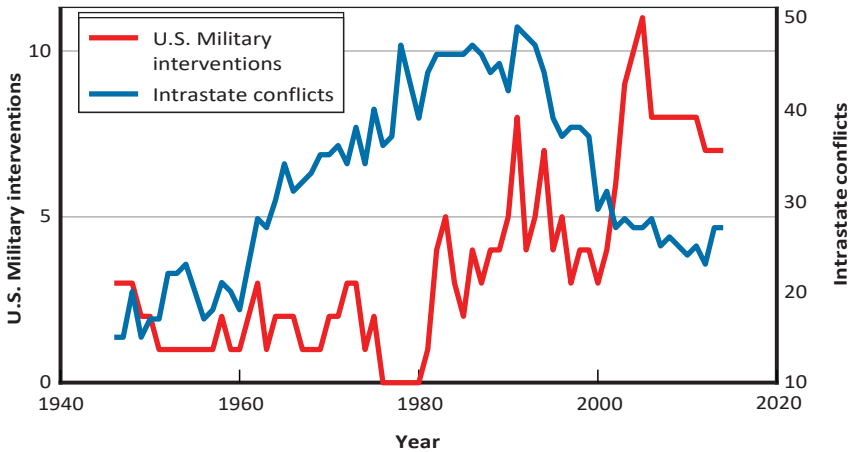
sibly due to the increasing lethality of battlefield technologies that allow today's armies to call in considerably more lethal firepower than was possible in previous eras, thus reducing troop requirements and leading to highly dispersed battlefields. The shift to an all-volunteer Army may also explain the decline in maximum troop levels. Each of these trends is described in more detail.

### **Global and Regional Trends in the Incidence of U.S. Military Interventions**

Although the incidence of interstate and intrastate conflict has declined, the number of U.S. military ground interventions has increased significantly since the 1980s. Figure 8.1 shows the number of ongoing conflicts and the number of ongoing interventions per year plotted on a single graph and clearly illustrates the two very different trends. While the trend in the number of interventions began a fairly consistent upward slope around 1980, the number of conflicts has declined consistently since about 1990. These trends make it clear that the overall incidence of conflict is not necessarily the only – or even the most important – determinant of how many military interventions occur in any one year. Instead, even as conflict has declined, demands on the U.S. military as a result of nondeterrent interventions seem to have increased. Importantly, this increase in demands created by higher numbers of ongoing interventions may not translate into an increasing number of U.S. troops deployed in overseas ground interventions at any one time. For instance, the number of troops deployed during and immediately after World War II or during the Korean War was significantly greater than the number of troops currently deployed for active nondeterrent interventions, despite the fact that there were fewer independent and ongoing operations. At the same time, the military during these years was significantly larger overall. Put together, these two trends – a rise in the number of ground interventions and a decreasing military size – can explain the significant demands that today's operational tempo places on the U.S. military, the Army in particular.

Importantly, the recent upward trend in U.S. interventions appears to be a long-standing one, predating the U.S. response to the September 11 attacks of 2001. Looking at Figure 8.1, it appears that the initial

**Figure 8.1**  
**Ongoing Conflicts and U.S. Interventions**



SOURCES: Gleditsch et al., 2002; Sullivan and Koch, 2009; Pickering and Kisangani, 2009; Melander, Pettersson, and Themnér, 2016; and Jennifer Kavanagh, *Are U.S. Military Interventions Contagious over Time? Intervention Timing and Its Implications for Force Planning*, Santa Monica, Calif.: RAND Corporation, RR-192-A, 2013.

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increase in U.S. intervention activity began in the 1980s, continued in the 1990s, paused slightly in the late 1990s, and then resumed into the 2000s. While the post-2000 increase certainly reflects greater U.S. overseas military commitments in response to 9/11, a closer look at the data shows that in addition to deployments related to U.S. counterterrorism and counterinsurgency campaigns, the U.S. military has carried out a number of other, unrelated deployments. These have included humanitarian operations in South Asia and peace enforcement in Liberia and Haiti. Thus, even without the demands created by the U.S. response to 9/11, U.S. intervention activity has continued to be more frequent and consistent in recent years than in previous decades.

One factor that may account for both the increase in U.S. interventions and the decrease in conflict is the rise of the United States as the world's sole superpower. There are several ways in which U.S. predominance may be contributing to both trends observed in Figure 8.1. First, it could be that the increase in military interventions has, in fact, facilitated

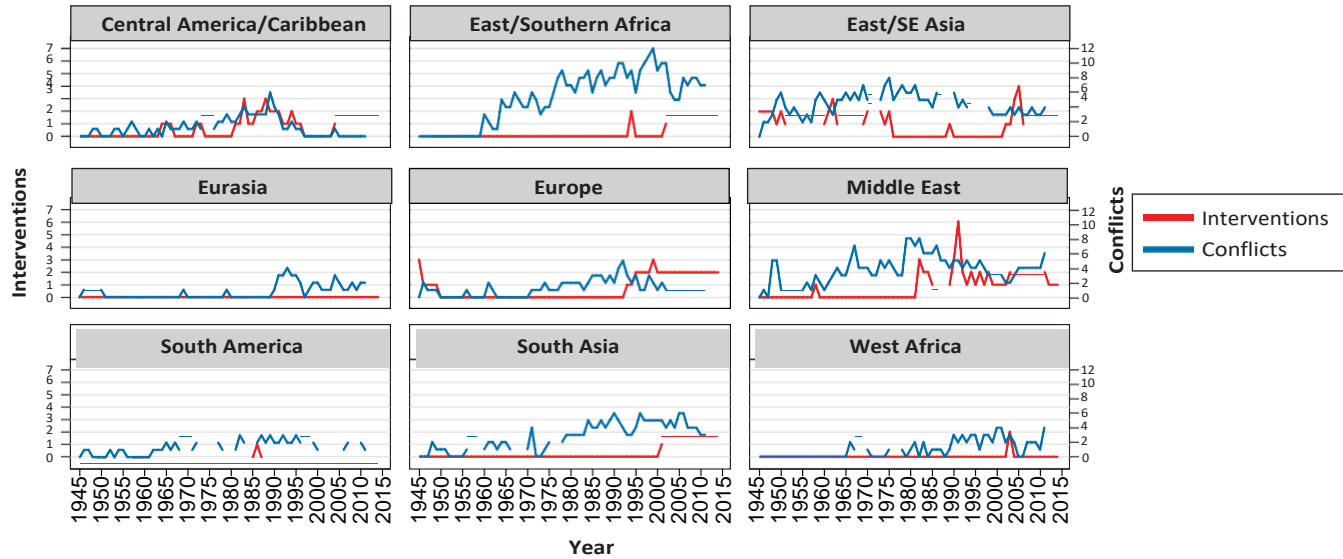
the decrease in conflict. According to this explanation, the greater U.S. military presence and U.S. military activities globally are at least partially responsible for the decrease in conflict. U.S. peacekeeping activities and greater regional stability fostered by U.S. engagement may explain how U.S. military interventions might contribute to the observed decrease in conflict. Another possibility is that overwhelming U.S. power and the lack of true peer competitors have both reduced conflict, because there are no longer rival great powers providing support for proxy wars, and increased interventions, because there are no longer rival powers able to serve as a restraint. Unfortunately, our analysis of interventions is not able to disentangle these two possibilities or say definitively if one or both of these explanations is driving the trends we observe and report here.

It is also useful to compare trends in interventions and conflicts by region. Figure 8.2 shows the incidence of conflict and the number of U.S. military interventions by region over the period from 1900 to 2013. The frequency and location of U.S. military interventions can be interpreted as a reflection of U.S. priorities, as the United States may be most likely to get involved militarily in areas of strategic importance, regions with valuable strategic resources, or areas where the United States seeks to expand its influence.<sup>5</sup> The figure makes it clear that U.S. responsiveness to conflict varies significantly across regions. In some regions – Central America and the Caribbean, East Asia in the 1960s, and the Middle East in the 1990s, for example – the number of U.S. interventions is similar to the number of ongoing conflicts at many points in time. In others, such as Eurasia, South Asia, and Africa, the number of interventions is much lower than the number of conflicts, suggesting a much lower level of responsiveness than in areas of higher activity. Regions where the United States has historically been more

<sup>5</sup> Mi Yung Yoon, "Explaining U.S. Intervention in Third World Internal Wars, 1945–1989," *Journal of Conflict Resolution*, Vol. 41, No. 4, August 1997; Frederic S. Pearson and Robert A. Baumann, "Foreign Military Intervention and Changes in United States Business Activity," *Journal of Political and Military Sociology*, Vol. 5, No. 1, 1977; Michael T. Klare, *Beyond the "Vietnam Syndrome": U.S. Interventionism in the 1980s*, Washington, D.C.: Institute for Policy Studies, 1981; Patrick James and John O'Neal, "The Influence of Domestic and International Politics on the President's Use of Force," *Journal of Conflict Resolution*, Vol. 35, No. 2, 1991; Henry William Brands, *Cold Warriors: Eisenhower's Generation and American Foreign Policy*, New York: Columbia University Press, 1988.



**Figure 8.2**  
**Number of Ongoing Conflicts and U.S. Military Interventions per Year, by Region**



SOURCES: Melander, Petterson, and Themnér, 2016; Gleditsch et al., 2002.

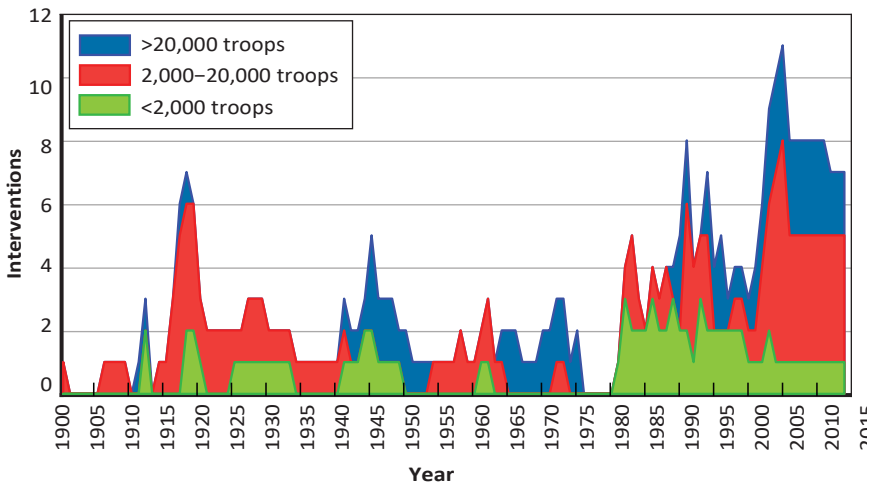
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responsive are likely those that have been of a higher priority to policy-makers. Furthermore, based on past patterns, regions where the United States has been very involved in the past may also be those where it continues to be involved in the future. Of course, it is also possible that new priorities will emerge. Much may depend on trends in conflict and security-related issues, such as terrorism, transnational criminal violence (covered in Chapter Seven), and climate change. For example, given the duration of the recent deployment in Afghanistan, we may see an increase in involvement in South Asia. In another scenario, if climate change leads to renewed conflict in Africa, the United States might find itself increasingly involved in this area of the world as well.

**Intervention Size and Duration**

Another way to study trends in interventions is to consider intervention size and duration. The post-Cold War period, and especially the period since 9/11, has seen an increasing number of military interventions. These interventions have varied in number of troops involved and the amount of time that they have lasted. Figure 8.3 shows that medium-sized inter-

**Figure 8.3**  
Ongoing Interventions per Year by Size



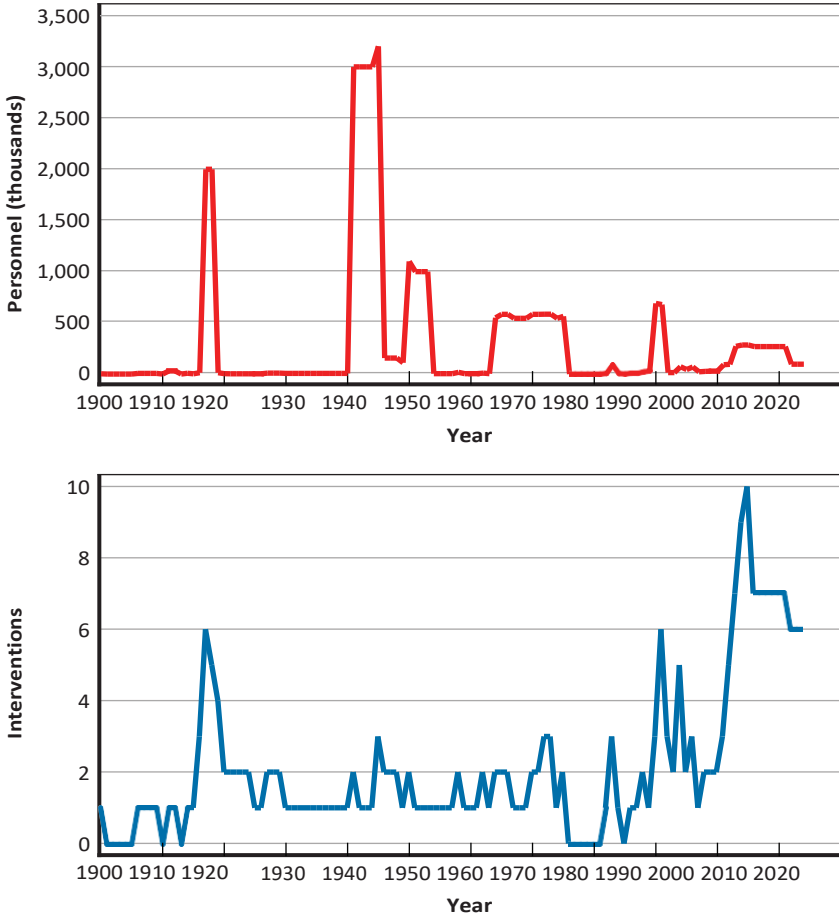
ventions have been the most common since 1900. The figure also highlights the immediate post-Vietnam era as a significant anomaly, the only period without a sizable deployment. The figure also suggests that since the end of the Cold War, the number of medium and large interventions has increased. Specifically, while the average number of medium and large interventions per year in the period from 1900 through 1989 is 1.5, this figure jumps to five medium and/or large interventions per year in the period from 1990 to 2014. In other words, not only have interventions become more frequent since 1990, but medium and even large interventions are now common. At the same time, however, as alluded to previously, the maximum number of personnel involved in even the largest recent interventions has been considerably lower since 1990 than in the world wars, the Korean War, or Vietnam, with the brief exception of Operation Desert Storm, as shown in Figure 8.4.

There are several possible reasons for these seemingly contradictory trends. First, it may be a decline in great power rivalry, which reduces the magnitude of conflicts and the number of troops required. Second, it may be the switch to an all-volunteer force, which reduces the manpower available for deployments. Finally, it may be that the increasing lethality of battlefield technology has reduced the number of personnel required to carry out a successful military campaign. Importantly, even if the maximum number of troops involved in interventions has declined in recent years, the increase in the frequency of medium and large interventions is still notable since these larger interventions are those that place the most stressful demands on military personnel and resources.

It is worth noting that these intervention trends may be driven at least in part by U.S. military predominance. As noted previously, it may be that U.S. military interventions have increased in size because of the lack of rival peer competitors to restrain U.S. military presence and activities overseas. Another possibility is that the greater frequency of larger interventions has contributed to the downward trend in conflict, either through more extensive peace enforcement operations, through the deterrence of potential aggressors, or through some other mechanism.

Large interventions are of particular interest to military planners because they place the highest strain on the force and its personnel. Our analysis suggests that this is true in terms of both size and dura-

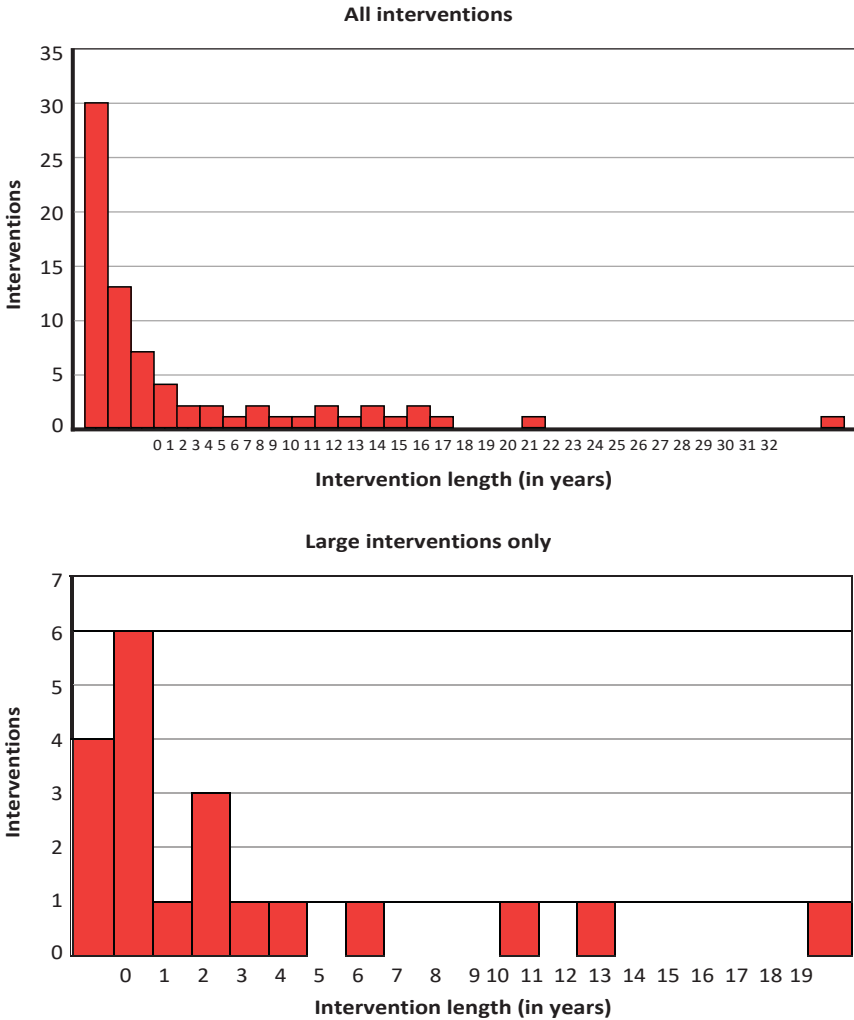
**Figure 8.4**  
**Ongoing U.S. Military Interventions per Year by Size and by Maximum Number of Troops**



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tion, as large interventions persist longer than shorter ones. As shown in Figure 8.5, although the majority of all interventions are fairly short, about 50 percent of large interventions persist two or more years and 25 percent of large interventions persist for five or more years. This is important because it suggests that the interventions that are the most demanding because of the number of personnel they require are also

**Figure 8.5**  
**Length of All Interventions and of Large Interventions**



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the most demanding in terms of the length of time they require a commitment from military forces. This may be because interventions that require the most personnel are also more complex in terms of the issues that must be resolved and the challenges that must be addressed.

Regardless of the cause, this relationship between size and duration is one that military planners may wish to take into consideration when developing plans for contingency and steady state operations.

### **Overlapping Interventions**

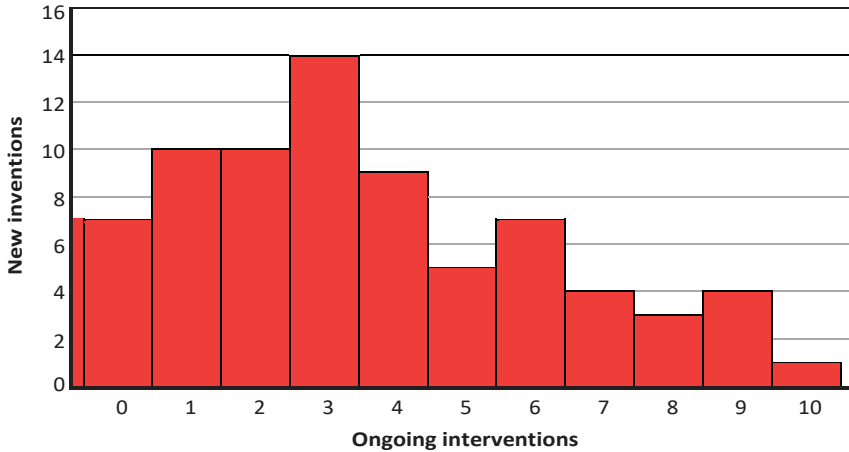
Another important characteristic of interventions is the extent to which they overlap, or the frequency with which the United States is involved in more than one intervention at the same time. This is a question of importance for military planners because overlapping interventions place high strain on military personnel and resources. Looking at past work on this topic, some research has suggested that new interventions are less likely when there are ongoing interventions, but other work has shown that clustering of interventions is actually common and probable.<sup>6</sup> Our analysis supports the latter finding, suggesting that interventions are likely to overlap and lead to aggregating demands on the U.S. military. Figure 8.6 illustrates that the existence of an ongoing intervention does not seem to impede or prevent the initiation of a new intervention, showing the number of times a new intervention occurs with a given number of ongoing interventions. For example, when there are three ongoing interventions, new interventions have been initiated 14 times. When there are six ongoing interventions, new interventions have been launched eight times. The takeaway from this figure is that although the frequency of new interventions does seem to decrease somewhat as the number of ongoing interventions increases, ongoing interventions do not prevent the initiation of additional military deployments. Instead, new interventions are possible and likely to occur while ongoing interventions endure.

In addition to understanding the frequency of overlapping interventions, we would also like to understand the types of interventions that are most likely to overlap and the reasons for overlapping interventions. A first question is whether small interventions or large ones are most likely to overlap. This is an important question because the two

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<sup>6</sup> Yoon, 1997; J. A. Rosati, "The Domestic Environment," in P. J. Schraeder, ed., *Intervention in the 1980s: U.S. Foreign Policy in the Third World*, Boulder, Colo.: Lynne Rienner, 1992; and Kavanagh, 2013.

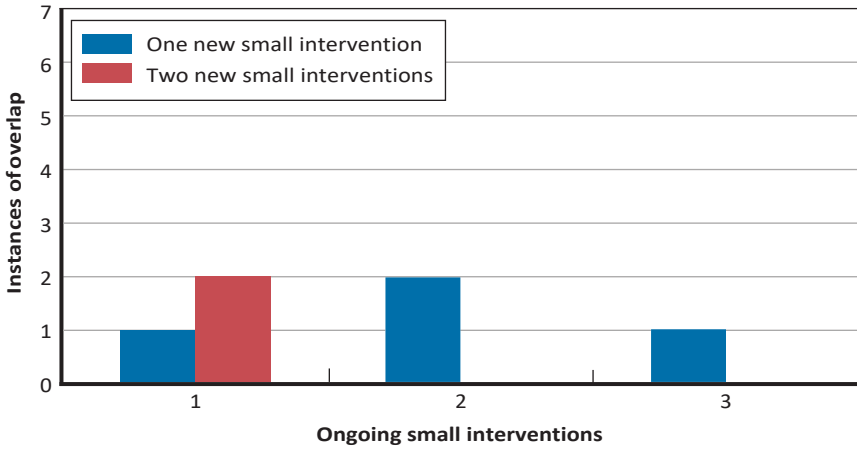
**Figure 8.6**  
**Frequency of Overlapping Interventions**



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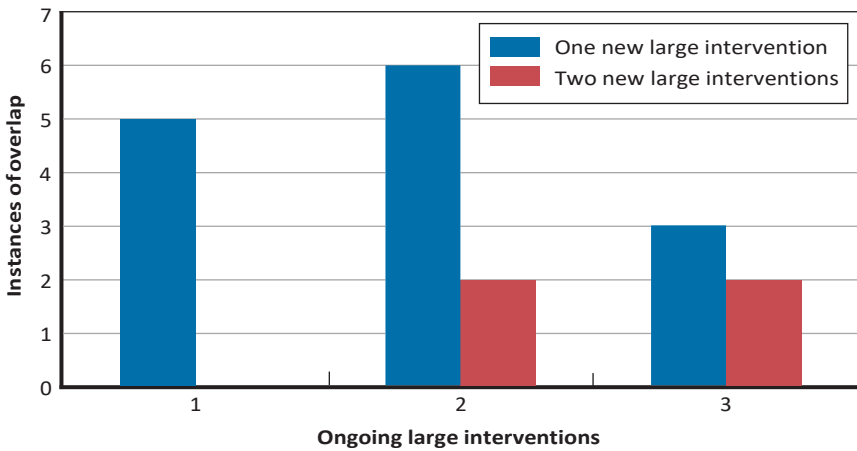
scenarios imply very different demands on military forces. If mostly small interventions overlap, forming clusters of small activities, this may not pose a major challenge to military resources. However, mostly large interventions overlapping may be of greater concern to military planners and leaders. Figure 8.7 shows the number of new small interventions that occur with ongoing small interventions. The figure shows no evidence that small interventions are likely to cluster. Figure 8.8 shows a similar figure using large interventions. This figure shows that the existence of ongoing large interventions does not preclude the initiation of new large interventions. In fact, large interventions appear to overlap more often than small ones. This trend is closely related to the trends in size and duration already noted – specifically, the observation that large interventions are becoming more frequent and appear to last longer than smaller ones. Our analysis of overlapping interventions suggests that in addition to being longer and more frequent, large interventions are also more likely to overlap with each other than smaller interventions. Figures 8.9 and 8.10 shed additional light on this observation. Specifically, these charts show the overlap between ongoing large interventions and new medium and small interventions,

**Figure 8.7**  
**Frequency of Small Overlapping Interventions**



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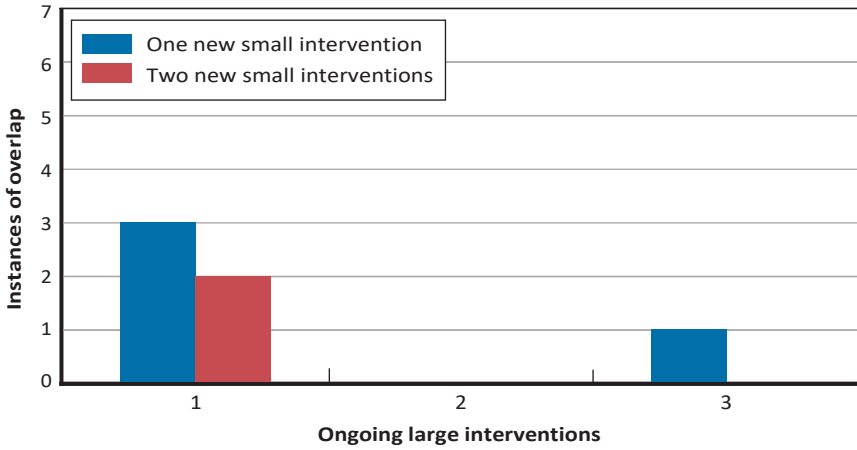
**Figure 8.8**  
**Frequency of Large Overlapping Interventions**



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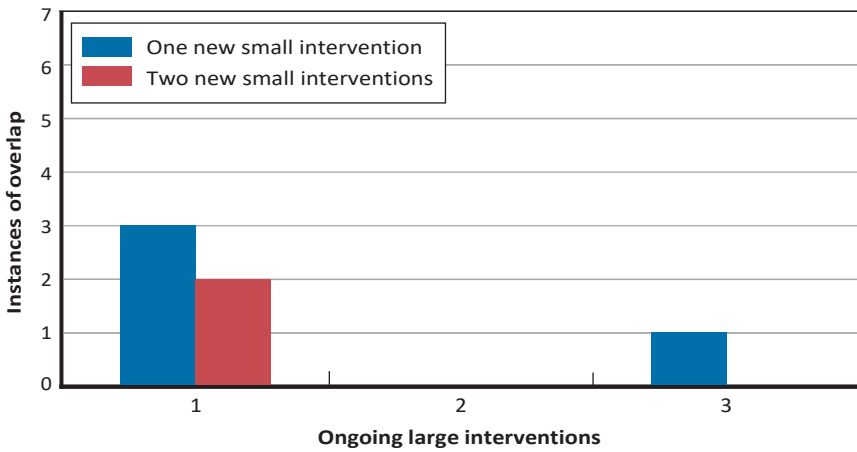


**Figure 8.9**  
**Frequency of Medium and Large Overlapping Interventions**



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**Figure 8.10**  
**Frequency of Large and Small Overlapping Interventions**



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respectively. Comparing these two figures with Figure 8.8 shows that the existence of two overlapping large interventions is equally or more common than even the overlap of a large and medium or large and small intervention. This observation is a noteworthy one for military planners as it suggests that the risks of aggregating demands from large overlapping military interventions are reasonably high and worth incorporating into military plans.

With this deeper understanding of the size of overlapping interventions, it would also be useful to understand the reasons for overlapping interventions – what explains the occurrence of these overlapping activities. In our database, about half of the cases of overlap can be explained by regional or extraregional contagion. These cases of contagion occur when a conflict or intervention in one country or region spills over into a neighboring country or region. The multiple different conflicts faced by the U.S. military in Southeast Asia in the 1960s and 1970s is one very good example of conflict contagion, as the conflict in one country in the region spilled into surrounding countries and contributed to the expanding scope of the U.S. intervention. In addition, in just about all cases, overlapping interventions share some sort of strategic objective or shared motivation that ties them together. For example, our analysis suggests that overlapping interventions reflect both international strategic concerns, such as terrorism, anticommunism, and the U.S. role as hegemon, and domestic characteristics, including presidential administration.

To further explore the relative importance of strategic goals and regional contagion in promoting overlapping interventions, we conducted additional analysis of periods of particularly high intervention activity between 1900 and 2013. Table 8.2 lists these periods of high intervention activity and identifies which appear to reflect contagion and which are tied together by a strategic priority or common goal. To complete this table, we used the observed trends in ongoing interventions per year to identify periods of particularly high intervention activity. We then considered the location of interventions during this time period. When several interventions during a period of high intervention activity occur in the same region, this is often an indication that there was some kind of regional spillover. Finally, we considered the strategic goals

**Table 8.2**  
**Reasons for Overlapping Interventions**

<b>Period of Particularly High Intervention Activity</b>	<b>Regions Involved</b>	<b>Contagion?</b>	<b>Strategic Priority</b>
1917–1919	Central America, Europe (WWI)	No	Stabilization and democracy
1945–1950	Europe, East and Southeast Asia	Some	Democracy promotion and anticommunism, post-WW2 stabilization
1960s–1970s	East and Southeast Asia, Central America	Yes	Anticommunism and democracy promotion
1990s	Middle East	Yes	Desert Storm, peacekeeping
1993–1999	Middle East, Europe, Africa	No	Peacekeeping, humanitarian, democracy promotion
2001–present	Middle East, South Asia, East and Southeast Asia, Africa	Yes	Global War on Terror, democracy promotion

or rationales for interventions during periods of high activity. Where we could identify a single overarching goal, we deemed this as evidence that interventions may be driven by an overarching strategic framework.

For example, the most recent period of high intervention activity, between 2001 and today, has involved the Middle East; South, East, and Southeast Asia; and Africa. Interventions during this period do appear to reflect some regional contagion (especially in the Middle East and South Asia) and are tied together by common goals of fighting terrorism and promoting democracy. In the period between 1993 and 1999, there were also a large number of interventions concentrated in the Middle East, Europe, and Africa. These interventions were tied together by the strategic goals of promoting democracy, peacekeeping, and humanitarian operations. There also was some evidence of regional spillover, particularly in Europe, where conflict and interventions in Macedonia and Bosnia gradually spilled into surrounding areas, leading to conflict and interventions in Kosovo. It is also worth noting that there were many repeat interventions during this period, with multiple, separate interventions in Kuwait, several in Haiti, and several in Somalia. Looking at the

1917–1919 period, however, we found evidence of a common goal (stability and democracy), but no real evidence of regional spillover.

Another factor that may contribute to overlapping interventions is the domestic context—more specifically, the attitudes and worldview of specific presidential administrations. For example, involvement in Southeast Asia in the 1960s and 1970s corresponded with the administrations of John F. Kennedy and Lyndon B. Johnson, two presidents who had a higher propensity to use U.S. force overseas.<sup>7</sup> While not always a deciding factor, these types of domestic considerations can also help explain why interventions appear likely to overlap despite the burden created by multiple, simultaneous deployments.

Overall, then, regional contagion, domestic context, and common strategic goals are all important in explaining why interventions sometimes cluster and overlap, with strategic considerations being slightly more important to a full explanation of this overlap. Understanding why and to what extent military interventions overlap is important for several reasons. First, because simultaneous interventions place high strain on military personnel and resources, military planners need to consider and account for overlapping interventions in developing force plans. Knowing why the military often ends up facing overlapping demands may also be valuable for military strategists when making decisions about where and when to send U.S. troops. For example, if regional contagion is frequently an issue, decisionmakers might wish to consider this risk when determining whether a given intervention is in U.S. interests. Further, recognizing that the U.S. military may have the tendency to overcommit and launch several operations to address a single policy goal may help military leaders prevent this type of overstretch in the future.

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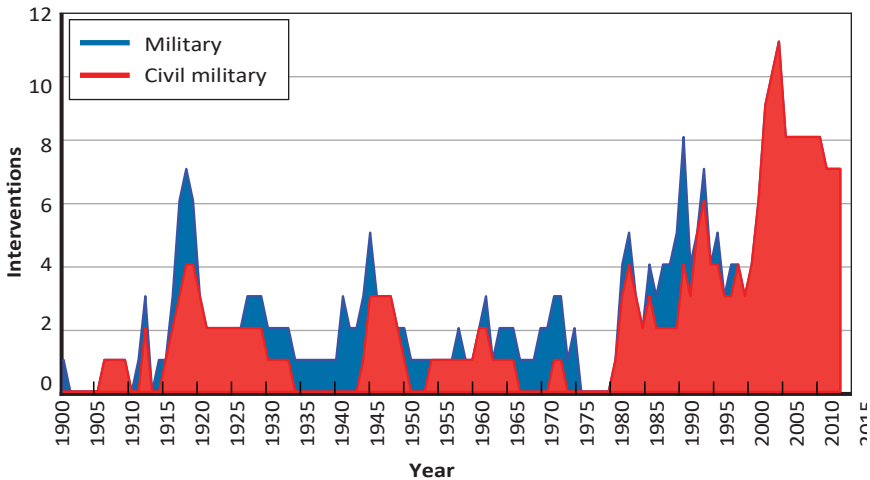
<sup>7</sup> Charles W. Ostrom, Jr., and Brian L. Job, “The President and the Political Use of Force,” *American Political Science Review*, Vol. 80, No. 2, June 1986; James Fearon, “Domestic Political Audiences and the Escalation of International Disputes,” *American Political Science Review*, Vol. 88, No. 3, September 1994; James Meernik, “Presidential Decision Making and the Political Use of Military Force,” *International Studies Quarterly*, Vol. 38, No. 1, March 1994.

### Capabilities and Activities

Interventions in our database also vary in the types of capabilities involved. As defined previously, civil-military interventions are those that involve interactions between military personnel and civilian populations. Figure 8.11 shows that the recent increase in military interventions has been primarily civil-military in nature, while conventional military operations appear to be becoming less frequent over time. These trends suggest that the Army should continue to prepare for operations that occur “among the people” – for example, counter-insurgency, humanitarian relief, and peace enforcement – and cannot focus solely on conventional military activities.

Table 8.3 takes this analysis one step further and shows interventions by type and by region. The rows in italic type are those with the most activity. Several observations are relevant. First, the United States historically has been most active in Central America and the Caribbean, East and Southeast Asia and Oceania, and the Middle East. These regions appear to be sites both of strategic priority and in which instability and conflict have occurred frequently.<sup>8</sup> Interventions in other

**Figure 8.11**  
Ongoing Interventions per Year by Capabilities



RAND RR1177-8.11

<sup>8</sup> Yoon, 1997; Pearson and Baumann, 1977; Klare, 1981; James and O’Neal, 1991; Brands, 1998.

**Table 8.3**  
**Interventions by Capabilities and Region**

<b>Region</b>	<b>Civil-Military</b>	<b>Military</b>
<i>Central America/Caribbean</i>	17	8
East and Southeast <i>Asia, Oceania</i>	8	8
East/southern Africa	5	0
Eurasia	0	1
Europe	4	3
<i>Mideast</i>	5	10
South America	1	0
South Asia	2	0
West Africa	2	0

NOTE: Rows in italic type are those with the most activity.

regions have been less frequent. Second, the regions where the United States has been most active using conventional military operations are the same as those where the United States has been most active in civil-military interventions. This suggests that the United States responds to a diverse set of issues in regions of priority, rather than using certain types of force in only one or two of these regions.

There are also some differences across regions. First, while civil-military operations are far more frequent than conventional military operations in Central America and the Caribbean, conventional military operations are more common in the Middle East. There are two possible explanations for this difference. First, it is possible that the types of incidents that the United States responds to in each region are fundamentally distinct. This might suggest differences in the interests and national priorities that dominate the security agenda and motivate military action in each region. Second, it is possible that the security conditions in the different regions are different enough that they require different types of military force and place different demands on military personnel. It is also possible, and even likely, that the difference is a combination of both different security conditions and different national priorities.

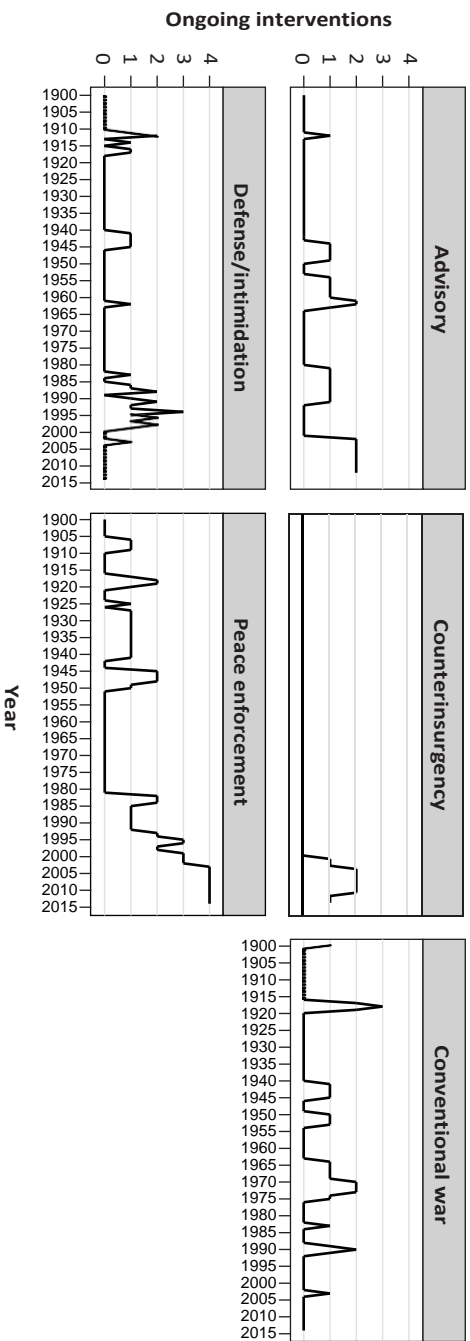
We can also study the types of activities involved in military interventions in even more detail, looking at whether a given operation primarily involves counterinsurgency, peace enforcement, advising, human-

itarian relief, defense/intimidation, or conventional warfare. While this classification may be difficult to apply in some cases as some interventions may span these more-specific intervention types, we have tried to use this more-detailed typology to further classify our interventions.<sup>9</sup> Our analysis by activity presented in Figure 8.12 suggests that counterinsurgency, peace enforcement, and advisory interventions have become increasingly common since the 1990s and appear to dominate recent interventions by the U.S. military. In addition, defense and intimidation interventions (which included interventions used to defend U.S. forces, assets, or allies; to deter aggressors; or to compel foreign actors to behave a certain way) were most common in the 1990s. In contrast, the occurrence of conventional war has been mostly episodic, occurring periodically throughout the time period under consideration. Once again, while the past is no guarantee of the future, this assessment of the types of interventions that have become increasingly common in recent years may be indicative of the types of interventions that we are likely to see in the future. At the very least, the trends described here confirm our suggestion that the military must continue to prepare for civil-military interventions. It may also be worth investing additional resources in training for activities such as counterinsurgency or peacekeeping and in linguistic and cultural training that will be relevant to civil-military operations. However, our analysis of capabilities and activities also suggests that, at the same time, the military must not stop preparing for the potential occurrence of more-conventional war.

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<sup>9</sup> It is worth noting that coding interventions according to these more detailed categories was fairly difficult and somewhat contentious, as many interventions include several different types of activities, may fall on the cusp between more than one subtype, or may start as one type of operation and then turn into another type. For example, categorizing U.S. interventions in Southeast Asia (Vietnam, Cambodia) in the 1970s was challenging because they contain elements of both conventional war and counterinsurgency. Ultimately, we decided to code these interventions as conventional war because we felt that they were a better fit in this category. However, this also means that the counterinsurgency graph in Figure 8.12 shows no counterinsurgency activity until after 2000. This is, of course, misleading as the United States was involved in counterinsurgency operations before that. Readers are encouraged to view the trends in Figure 8.12 as estimates, to focus on the general trend rather than the exact numbers of each type of deployment, and to recognize that any single intervention might fit into more than one intervention activity category.

**Figure 8.12**  
**Ongoing Intervention per Year by Primary Activity**



RAND RR1177-8.12



## Summary

To summarize the findings in this chapter, we return to the questions posed at the outset.

*What is the relationship between global and regional levels of violent conflict and the frequency, scale, and duration of U.S. military interventions?* Despite the general decline in conflict noted elsewhere in this report, past trends in military interventions suggest an increase in the frequency of interventions in the past quarter-century. This increase has included primarily civil-military operations, such as peace enforcement and counterinsurgency. These trends suggest that there is not a direct relationship between conflict levels and the frequency of military interventions; instead, interventions appear to be driven by other factors, including U.S. strategic interests and the worldview of specific presidential administrations.<sup>10</sup> While the past is not a guarantee of the future, even if the incidence of conflict continues to decline, it is likely that the military will face demands to intervene in overseas areas and will therefore need capabilities appropriate for meeting these demands. Furthermore, as highlighted in the discussion of transnational criminal violence in Chapter Seven, there may be other types of violence, not captured in traditional definitions of violence, that will require action from U.S. military forces. Past trends in intervention type suggest the military must continue to prepare for nontraditional operations. In addition, our analysis suggests that sizable interventions are becoming more common. These larger interventions also tend to be longer than smaller ones, and they commonly occur in “clusters” of overlapping contingencies. These facts suggest that the United States has, at least historically, required a force structure that can accommodate multiple simultaneous interventions, many of them for durations that have historically only been possible to source with an all-volunteer force by rotating forces in and out of theater over periods of a year or less. Of course, the fact that such operations have been common in the past does not mean that the United States will – or should – continue

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<sup>10</sup> Yoon, 1997; Pearson and Baumann, 1977; Klare, 1981; James and O’Neal, 1991; Brands, 1998; Ostrom and Job, 1986; Fearon, 1994; Meernik, 1994.

to intervene in this manner. But it implies that the United States will be accepting substantial risk by creating a force structure that cannot meet such demands.

*Are any trends apparent in the types of military capabilities that have been required in U.S. military interventions, and is there reason to believe these trends are likely to persist?* As already noted, recent trends in military interventions suggest that civil-military interventions—including peace enforcement, counterinsurgency, and advisory-type missions—will continue to be common in the future. While this recent trend does not imply that conventional warfare is a thing of the past or that interventions in the future will be solely civil-military in nature, the trends do suggest that the U.S. Army should continue to prepare and train for civil-military operations that are likely to continue to constitute an important part of military interventions in the future. Preparation for conventional military operations must also continue, however, as these types of interventions have been episodic since 1900 and may continue to be so in the future.

*Do interventions tend to overlap or “cluster,” and if so, what are the implications for the scale of forces necessary to sustain these various requirements simultaneously?* The answer to this question appears to be yes, interventions do overlap. Our analysis suggests that the existence of ongoing military interventions does not preclude the onset of new interventions, even when the ongoing interventions are large ones. Our analysis showed that interventions tend to overlap as a result of regional contagion and when common strategic priorities result in several related interventions. As noted previously, this has important implications for military planners who must build the potential for multiple simultaneous interventions into their force plans and strategies. It also has implications for force readiness, as the existence of more than one ongoing intervention is likely to drain resources and place additional strain on military personnel.

*Do demands for U.S. forces vary by region, and, if so, what are the implications for basing, access rights, and cultural or linguistic expertise?* Our analysis suggested that the frequency of interventions and the responsiveness to conflict does vary by region. As a result, it also has implications for the language, regional expertise, and culture (LREC)

capabilities that it would be prudent to build into the force. Past interventions consistently have been most frequent in the Middle East, East and Southeast Asia, and Central America. If these patterns reflect larger strategic interests that drive these interventions, then the United States should continue to invest resources in maintaining substantial LREC capabilities related to these regions. Some investment in LREC capabilities in other regions might also be prudent, as conflict in Africa or Eurasia could become more likely in the future, especially with changes in things such as resource availability or global economic stability.

The data set and analysis described in this chapter advances existing work on military interventions by considering a longer time period and digging more deeply into the actual characteristics of these interventions to draw insights about historical trends and possible future patterns. However, additional work could be done to further expand the study of military interventions and the quality of projections about likely future patterns. First, although our data set includes information on the activities involved in past interventions and the number of personnel deployed, the coding of intervention activities and the data on raw troop numbers could be refined with additional research. More-detailed information on the types of activities involved in past military interventions and better data on number of troops deployed in specific years of major conflicts would allow for additional analysis of historical trends and additional insights about possible trends in the future.



## Conclusions and Implications for U.S. Defense Policy

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The strength of the analysis in this report lies not in revealing novel threats that the United States might face or reconceptualizing the ways that the U.S. military will be forced to fight in coming decades, but in providing a rigorous empirical basis for bounding our probability estimates of different paths that the world might take and different threat environments the United States might face in the long-term future.

### Overall Conflict Projections and U.S. Grand Strategy

The broad story painted by our analysis is consistent with most of the recent academic analyses. The incidence of conflict – interstate and intrastate, low-intensity and higher-intensity – has been falling across recent decades, although the recent uptick in some forms of intrastate armed conflict stands in contrast to these decades-long trends. Our future projections of the key drivers of conflict, however, suggest that the uptick in violence over the past couple of years is more likely to be short-lived, with conflict trends returning to their decades-long pattern of slow decline. There are, however, five critical caveats to this overarching finding.

First, declines in conflict are not monotonic. Even in periods characterized by declining violence, there can easily be short stretches in which violence increases, sometimes drastically. Long-term defense planning, in other words, cannot be based only on the long-term trend, but must also consider the likelihood of short-term deviations from that trend.

Second, much of the recent and projected decline in conflict is in regions that have been historically of less strategic interest to the United

States (that is, regions in which the United States has not had forces stationed or substantial military interventions). Sub-Saharan Africa accounts for much of the recent and projected decline in conflict and war, while the strategically important region of the Middle East shows a persistently high level of violent conflict in even our baseline projections.

Third, overwhelming U.S. military superiority may have been part of the explanation for the historically low levels of conflict recently observed. Our analysis provides some evidence that U.S. military potential and U.S. forward presence can deter conflict to some degree. Were the United States to reduce its commitment to protect the international order that it helped to erect in the aftermath of the Second World War, there would likely be some increase in the prevalence of violent conflict (although our model does not at this time allow us to estimate the extent of the increase with any precision).

Fourth, demand for U.S. military forces does not correlate at all closely with the incidence of conflict. In fact, demand for U.S. forces increased sharply after 1990, just as the global incidence of conflict was beginning to decline. It is possible that the trends toward lower levels of conflict and higher levels of U.S. intervention are related; the same economic interconnectedness that helps to depress interstate war, for instance, also raises the strategic significance of an internal conflict in a country that previously might have been considered of little relevance. It is also possible that U.S. interventions helped to reduce the overall level of conflict, either by deterring leaders who might have provoked wars or by imposing peace through stability operations on regions that otherwise would have been likely to experience widespread instability. Of course, the opposite argument can easily be made – that the sources of declining violence are entirely independent of U.S. uses of force – and, indeed, that such interventions as the invasion of Iraq created higher levels of violent conflict than would otherwise have been the case. Our intention here is not to parse these contending claims, only to note that declining levels of violence globally do not necessarily correspond with declining demands for U.S. forces.

There are substantial debates about whether these deployments of U.S. forces were actually required to protect U.S. interests in this period or the United States simply had the luxury to intervene mili-

tarily in a period of unipolarity and relatively low fiscal constraints. We cannot resolve those debates. Instead, we note that U.S. presidents have perceived requirements to deploy U.S. forces that do not correspond with the overall level of violent conflict in the world. Moreover, our model projects continued substantial levels of instability in at least some of the regions that historically have been the focus of U.S. military interventions.

Finally, our projections depend on historical data that could be incorporated into statistical models. Therefore, they are subject to two limitations. First, they do not include drivers of conflict that we could not translate into our statistical models. Although the models' fit with historical patterns of conflict and war were good overall, we were not able to model the dynamics of such variables as international norms, international organizations, or – perhaps most importantly – proxy wars. Because much external support for the warring factions in civil wars is covert or otherwise poses difficulties to reliable data collection, we ultimately decided to exclude this factor from our models. If proxy conflicts were to increase in the future – especially to levels last seen during the Cold War – we may well expect to see both the incidence of intrastate conflict and its lethality rise considerably. Second, because our models rely on historical data, they do a poor job of accounting for future “shocks” that have no historical analogue (although the alternative futures we examined enable us to assess shocks that do have historical analogues). Rapid worldwide advancements in, and diffusion of, technology – particularly robotics, biotechnology, and information and communications technology – threaten to erode U.S. military superiority and to invest certain nonstate actors with military capabilities that traditionally have been the domain of states. Climate change – at least in the more-dire projections – may also pose challenges to stability without historical parallel. Our models have difficulty incorporating such changes, which might reverse the historical trend toward lower levels of violent conflict. It is important to note, however, that some forms of conflict that may increase in the future – such as those involving large-scale, transnational criminal networks – may have limited direct implications for the U.S. military, which in many cases we suspect would serve primarily to support other U.S. agencies.

Our analysis therefore paints a nuanced picture of conflict patterns in the coming 25 years. Consistent with many recent academic analyses, we project that the overall incidence of conflict is likely to continue to fall in the coming decades. But this decline is hardly inevitable, which suggests that the U.S. defense community must take actions to closely monitor leading indicators of violent conflict and that it may be prudent to make investments to hedge against the possibility that violence will escalate in the coming years.

### **Early Warning Indicators**

The most probable futures portrayed in this report suggest reasons for believing that the decline in violence will continue. How will future observers know, however, whether the world is slowly beginning to veer away from these more-probable futures toward the far more menacing threat environments portrayed in some of our alternative scenarios? Chapter Six described how the quantitative indicators assembled for our key factors, as well as related qualitative analysis, could serve as early warning indicators. It recommended using five particular indicators as the most important sources of warning:

- recent power transitions
- new, higher-salience territorial claims
- ratios of bilateral trade to GDP
- recent democratizing transitions
- annual GDP growth rates.

None of these indicators is novel; they are well represented in both the academic and policy literatures on war and conflict. The extent of the explanatory “weight” that they pull in our models, however, suggests that of the enormous number of potential “red flags” that could serve as causes of concern, declines in these factors are among the most important.



## Regions of Concern

Although conflict has been declining globally, the experience of different regions has diverged considerably and, according to our models, may be expected to continue to do so.

At the level of intrastate conflict, political violence may be expected to remain at its current – very low – levels in Europe, Eurasia, and the Western Hemisphere. Intrastate conflict levels are expected to decline considerably in the coming decades in most of sub-Saharan Africa and the Asia-Pacific region. On the other hand, political violence is expected to persist at its currently high levels in the Middle East.<sup>1</sup> The alternative futures assessed in this report generally follow a similar pattern as the baseline conflict projections. The main exception is in East and Southeast Asia, where the strong decline in conflict projected by the baseline model is reversed, at least temporarily, by the economic crises of the Global Depression and State Decay scenarios.

There are indications that violence may be migrating, at least to some extent and in some countries, from political forms to criminal ones. Evidence of this possible trend is plentiful in Central America and increasingly in southern Africa, and such forms of instability might take deeper hold in other regions – particularly regions of weaker states on the periphery of much wealthier areas.

At the level of interstate war, the story is different. Interstate wars have been so rare in the post-World War II era that no regionally disaggregated statistical analysis similar to that conducted for intrastate conflict is possible. The critical importance of power transitions for interstate wars, however, provides an indication of which regions are of particular concern in the future. China and East Asia feature prominently in future scenarios for substantially heightened risk of interstate war. Russia and its periphery also pose some cause for concern, particularly if the NATO alliance fractures or an ascendant China seeks a greater role for itself in Eurasia.

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<sup>1</sup> Moreover, our model results suggested the possibility of higher conflict in South Asia, although this result should be treated with some greater degree of caution because of the issues of temporal dependence in observations, as discussed in the appendix.

The relationship between hegemonic transition and war is by no means inevitable; hegemony passed from the United Kingdom to the United States without any violence between these powers, and Soviet power collapsed without any direct confrontation with NATO. These transitions are nonetheless fraught with sufficient peril that such situations bear watching closely.

### **Ground Force Capabilities and Capacities Required**

The research in this report was not designed to provide guidance on the specific structure in which the United States should maintain its land forces. It is useful, however, as a source of insights about the broad capabilities and capacities that the United States should seek to maintain for the long-term future.

Perhaps the most important finding that emerged from our analysis of U.S. overseas military deployments was that such interventions did not correlate at all closely with overall patterns of violent conflict (although they did more closely parallel specific areas of conflict activity at specific times). In fact, the number and scale of U.S. military interventions rose rapidly in the aftermath of the Cold War, just as conflict began to subside. Even if levels of violent conflict gradually decline over the coming decades, as we expect, this trend does not necessarily imply a decreased demand for deployments of U.S. forces. As mentioned previously, it may be that some of the same factors that are driving down overall levels of conflict (such as economic interconnectedness or norms against civilian victimization) are also pulling the United States into conflicts from which it might previously have remained disengaged.

We find little support for the assumption that war-weariness among U.S. voters means that the United States will not undertake sizable and prolonged ground operations in the short- or medium-term future. Looking back at the history of U.S. interventions over the past century, there was only one brief period – the four years immediately after U.S. withdrawal from Vietnam – during which the United States did not engage in any interventions abroad. Moreover, existing commitments of U.S. forces appears to do little to suppress decisionmakers' appetite for addi-

tional interventions; in fact, decisionmakers frequently launch new operations even while a half-dozen or more overseas operations are already under way. Finally, decisionmakers would be ill advised to assume that interventions will be short. Although the majority of interventions last less than two years, half of large interventions (those involving 20,000 or more troops at their height) persist two or more years, and a quarter of large interventions persist five or more years.

Finally, the U.S. record of interventions suggests a clear trend toward “wars among the people” — that is, conflicts in which U.S. military personnel are heavily engaged with civilians — and the results of those interactions will go a long way toward determining the ultimate success of the intervention. For more than 30 years, nearly every overseas operation the United States has undertaken has involved a substantial civil-military element. This fact alone can not be used to discount a potential return to greater levels of conventional contingencies, nor can it tell us exactly what the U.S. force structure should look like. It does, however, suggest the importance of continuing to make substantial investments in the unit types heavily stressed by such operations (including all forms of Special Operations Forces, rotary aviation, explosive ordnance disposal, military police, and military intelligence) and in training, education, and experiences that help military leaders acquire the knowledge and skills necessary to interact successfully with foreign populations. Past patterns of intervention and conflict trends also suggest that regional expertise in Central American and Caribbean, Middle Eastern, and Asia-Pacific countries will remain imperative.

## **Conclusion**

Insights into the likely trajectories of violent conflict do not yield specific recommendations about U.S. long-term defense investments. Ultimately, such decisions are about risk tolerance: How much risk should the United States take in the area of national security to help keep its fiscal house in order? Decisionmakers can have the best possible information about the future and still come to different conclusions about

the appropriate size and capabilities of the U.S. military as a result of differences in willingness to accept risk.

What this report can do is contribute to a common understanding of the extent of risk involved in high-level and long-term decisions about defense policy. In common with the outlook of those who believe war is declining, this report suggests that a continuing downward trend in violent conflict globally is the most probable future and that substantial uncertainty remains. Were major crises on a par with the Great Depression or early Cold War to strike the international community, the likelihood of war should be expected to rise well beyond recent levels and approach (although not equal) the levels the world last saw more than a half-century ago. Such scenarios are clearly extreme. Over the course of the next quarter-century, however, they are plausible.

Our findings rest on assumptions that the United States will retain a critical role in the international system in ways that continue to foster a decline in violence. Continued U.S. commitment to an open economic order and global norms of peaceful conflict resolution play important roles, but so does continued investment in the military defense of this international order.

## Details on Conflict Projection Models

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This appendix provides additional details related to the method we used to project future levels of armed conflict, as discussed in Chapters Three, Four, and Five. The appendix consists of four main sections:

1. details regarding the selection and construction of the metrics we provided in Chapter Three to assess the historical frequency and intensity of different types of armed conflict
2. an assessment of the impact of our inability to fully account for temporal or spatial dependence in our logistic regression models, including full presentation of the results from these models
3. a detailed discussion regarding how we constructed the regional hegemony metric that was a key part of our interstate war model
4. a comparison of our conflict projection model with similar models built by others in the field.

### Construction of Our Conflict Metrics

While Chapter Three provides an overview of how we identified and constructed our metrics for assessing the different types and levels of intensity of armed conflict, there are several additional points that could benefit from a more detailed explanation. These include potential alternative conflict data sources we considered, issues with relying on the metric of battle deaths to identify conflicts of different levels of intensity, alternative regional divisions we considered, and a discussion of the differences between the UCDP and COW war data.

**Conflict Data Sources Considered**

For the analysis of trends in conflict and war, we had additional data set options beyond the UCDP and COW data sources we selected. In addition to the MID data noted in Chapter Three, we also strongly considered the use of MEPV data, which are often used by academics in the study of conflict. The MEPV and UCDP data sets include essentially the same conflicts but count them in different ways: The UCDP data count discrete conflicts; the MEPV data record the intensity of political violence in a given country in a given year. While information about the intensity of violence is certainly relevant to a study of conflict trends, the MEPV approach is somewhat less transparent than the UCDP data. For example, if two wars were occurring in a country in a given year, the UCDP data would enter each conflict as a separate entry including the relevant parties and start and end dates. In contrast, the MEPV would offer one aggregate score that combines the intensity of both conflicts in a single measure. There would be no way to know from this entry how many conflicts were included in the final aggregated score. As a result, use of the MEPV data might disguise trends in the number of interstate and intrastate conflict and wars, making it less suited to our analysis, and less easily comparable with other data sources. However, it is also worth noting that the trends in all conflict data sets — the MEPV, COW, and UCDP — are nearly identical for the post-1945 period. This consistency of patterns across data sets is important because it means that our analysis would likely look similar regardless of the data set that we chose to use.

**The Battle Death Metric**

The reliance on battle deaths to determine whether a conflict or war is present — the metric used in both the UCDP and the COW data — raises several issues. First, the counting of battle deaths during an ongoing conflict is extremely difficult. Observers who are involved in the conflict may have reasons to over- or underestimate the number of deaths that occurred in a given battle, or they may simply miscount death totals during the chaotic circumstances that characterize most wars. In addition, it may be difficult to determine the number of soldiers who are wounded or become ill during a battle and then die

later on. Counting civilian casualties resulting from collateral damage may be even more difficult. Finally, battle-related death totals do not include the deaths of civilians who die of starvation or disease caused by warlike conditions or attacks by military personnel on unarmed civilians.<sup>1</sup> As a result, they likely underestimate the true toll in human lives lost as a result of any conflict. There are some alternative measures of intensity being developed to address these shortcomings. Some use indices to rate the level of violence, while others look at economic costs or disability-adjusted life years.<sup>2</sup>

For the purposes of our study, however, these concerns are likely to have only a limited effect. Vagaries in the counting of battle deaths likely limit the precision of aggregate numbers, but we focused primarily on the incidence of armed conflict at different levels of intensity. As such, any inaccuracies in the battle death data would only be relevant insofar as they push conflicts or wars above or below our identified thresholds. Most wars exceed the threshold of 1,000 battle deaths per year by large margins, suggesting that overcounting of wars is not

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<sup>1</sup> Deaths of civilians caused by states outside the context of armed conflicts are also not included and can be horrific in scale, even more so than armed conflicts, save potentially the two World Wars. The Cultural Revolution, for example, likely resulted in the deaths of between 1 million and 2 million people in China, and Stalin's purges killed millions, possibly even tens of millions. For a discussion of these estimates, see Alex J. Bellamy, *Massacres and Morality: Mass Atrocities in an Age of Civilian Immunity*, Oxford: Oxford University Press, 2012, p. 254; and Robert Conquest, *The Great Terror: A Reassessment*, New York: Random House, 2008, pp. 485–486.

<sup>2</sup> The use of battle-related deaths as the primary measure of a conflict's intensity has also been criticized by Fazal, who argues that battle-related deaths have recently been falling due to improved medical technology and better medical care. Fazal compiled her own battle-related death data for a small number of cases and suggests that existing data sets have underestimated death totals in recent years. Although she still finds a decline in the number of battle-related deaths, she attributes this decline to medical advances and argues that these medical advancements explain the downward trends noted in the frequency and intensity of war in recent studies, rather than reduction in the likelihood or intensity of conflict itself. Although medical advances have likely contributed to somewhat lower battle-related death totals, Fazal does not establish that the scale of this effect is likely to be significant. Moreover, as we show in this report, while conflict has become less prevalent, it has also been concentrated in specific areas of the world — areas that do not have the medical advances that have saved lives among the more-advanced combatants explored in Fazal's article. Fazal, 2014.

likely to be a major problem.<sup>3</sup> The threshold for identifying conflicts, meanwhile, is already quite low, at only 25 battle deaths per year, suggesting that there are unlikely to be a substantial number of near conflicts below this threshold that are being erroneously omitted. While far from ideal, these battle death thresholds are likely to be a sufficient standard to accurately convey trends in conflict and war over time, particularly when both conflict and war metrics are considered together.<sup>4</sup>

### **Alternative Regional Divisions**

While our analysis relied on our own method for dividing the world into different regions, which is discussed in Chapter Three, we did consider a number of “off the shelf” options for identifying different regions. Many regional categorizations exist, including strict geographic definitions (for example, continental divisions and political categorizations) such as those used by the Departments of Defense and State and the Central Intelligence Agency within the U.S. government, and internationally by the UN and the World Bank. Previously, RAND undertook an analysis of these diverse regional categorizations to consider the strengths and weaknesses of competing regional delineation approaches and to develop and implement criteria to use for identifying cohesive regions.<sup>5</sup> We ultimately decided that developing our own regional divisions would have the greatest analytic utility.

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<sup>3</sup> Indeed, in our interstate war model described in Chapter Three, more than 83 percent of wars (measured by the number of dyads involved) exceeded a threshold of 10,000 battle deaths.

<sup>4</sup> An analysis of the “unclear cases” that did not qualify for inclusion in the UCDP data conducted by Joakim Kreutz highlights the robustness of the identified trends in armed conflict to different measurements. Kreutz assessed the number and type of cases that were considered as potential armed conflicts but did not meet one of various criteria for inclusion, including, most frequently, the threshold of 25 battle deaths per year. Even if these unclear cases were to be included, they would not alter the overall pattern of armed conflicts since 1945 shown in Figure 3.4. Joakim Kreutz, “The War That Wasn’t There: Managing Unclear Cases in Conflict Data,” *Journal of Peace Research*, Vol. 52, No. 1, 2015.

<sup>5</sup> Szayna and Welser, 2013.



### Alternative Assessment of Historical Trends in Warfare over Time

Chapter Three relied primarily on the UCDP data to show that war has become increasingly infrequent, with its persistence confined to a small number of regions – such as South Asia, the Mideast, and East and southern Africa, with its frequency in South Asia being the most notable. However, a focus only on data since 1946 – the first year of the UCDP data – may provide too narrow an aperture to properly appreciate long-term trends. Figure A.1, therefore, shows the incidence of interstate and intrastate war using the COW data and going back to 1900.<sup>6</sup>

The COW and UCDP databases do show some differences, but the overall observations and regional trends are largely the same. The additional years of data given by COW highlight how the location and incidence of wars have shifted over time.<sup>7</sup> Interstate war has historically been most frequent in Europe and East and Southeast Asia, and relatively frequently in the Mideast and Eurasia as well.

Overall, the COW data make the decline in the incidence of interstate war in recent years appear more pronounced, due to the higher frequency of war between states in the pre-1946 period. They also help to highlight how intrastate war exploded during the Cold War in much of the developing world, becoming much more frequent after 1946 than before it.

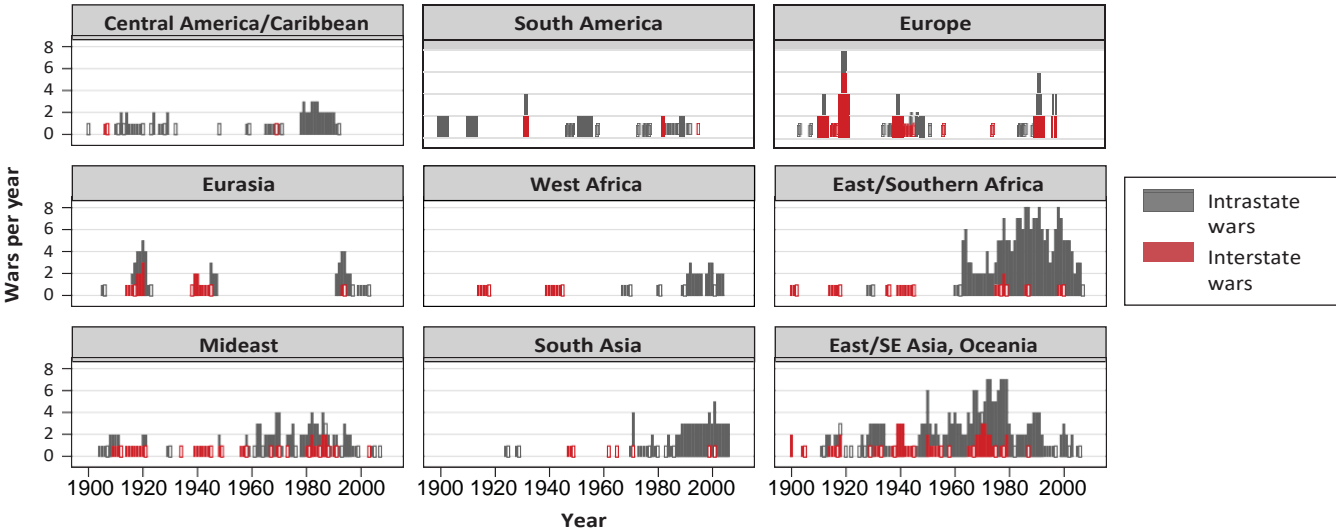
As was also suggested by the figures presented in Chapter Three that relied on the UCDP data, intrastate war has been most frequent in East and Southeast Asia and East and southern Africa, but has also occurred at a relatively high rate in the Mideast and South Asia. In East

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<sup>6</sup> The regional distribution of battle deaths cannot be easily estimated from the COW data. Complex wars, such as World War II, brought death to many regions and the COW data do not delineate where these deaths occurred. As such, a regional analogue to Figure 3.3 using the COW data is not included in this report. However, it is safe to say from observing Figure 3.3 that Europe, Eurasia, and East and Southeast Asia are the regions that have historically experienced the largest number of battle deaths.

<sup>7</sup> It is also worth noting in some regions, particularly in East and Southeast Asia and the Middle East, the number of ongoing wars appears higher at its peak using the COW data than using the UCDP data. These differences largely reflect differing standards in whether and how to divide complex wars encompassing diverse actors into single or multiple wars, although different standards for counting battle deaths also play a role. These different standards are delineated earlier in this chapter.

**Figure A.1**  
**Interstate and Intrastate Wars per Year (Correlates of War Data), 1900–2007**



SOURCE: Sarkees and Wayman, 2010.

RAND RR1177-A.1

and Southeast Asia, the incidence of intrastate war peaked in the 1970s but was high from the 1960s until almost 1990, declining substantially since that time. In East and southern Africa, intrastate war was highest in the 1980s, 1990s, and early 2000s. While it appears to have become less frequent in recent years, the COW data stop in 2007, limiting our ability to make recent observations. In the Mideast, intrastate war peaked in frequency in the 1970s and 1980s but continued at a low level for several years (its more recent spike is not visible in the COW data due to the data cut-off in 2007). Central and South America have not experienced frequent intrastate war, especially since the end of the Cold War. Central America did experience a spike of intrastate war in the 1980s that has since disappeared.

While many regions have shown a decline in intrastate war in recent years, others have not. In South Asia, intrastate war has been at its highest levels in recent years. This trend in South Asia is somewhat more apparent when using the COW data than the UCDP data. In Eurasia, intrastate war was concentrated prior to 1920 and then again after the fall of the Soviet Union.

In two regions, the COW and UCDP data present slightly differing pictures. West Africa has experienced an increase in intrastate war in recent years according to the COW data. This is different than the picture shown by the UCDP data, which showed no intrastate war in the region, but a steady number of intrastate conflicts. This difference is likely because of methodological differences between the two databases in the counting of battle-related deaths. Similarly, intrastate war in Europe since the end of the Cold War appears more prevalent in the COW data than it did in the UCDP data, again likely reflecting a difference in the classification of conflicts and wars between the two data sources.

Overall, the trends in intrastate war are largely similar regardless of whether the UCDP or COW data are used. The COW data highlight East and Southeast Asia and East and southern Africa as regions of frequent intrastate war, but also the regions responsible for most of the recent decline in such war at the global level. South Asia, West Africa, and potentially Eurasia are highlighted as areas where intrastate war appears to have been historically infrequent but may now be increas-

ing. While there were some differences between the trends shown by the UCDP and COW data, these overall observations hold constant.

### **Independence of Observations: Assessing Potential Effects on Our Statistical Models**

As discussed briefly in Chapter Four, armed conflicts are not randomly distributed. Instead, they tend to cluster in time and space. For example, the likelihood of whether a state will be involved in a conflict in any given year may be substantially affected by whether it was involved in a conflict in the previous year. However, statistical methods – including the logistic regression models used in this report – assume that observations of the dependent variable of interest, in our case the incidence of various types of armed conflict, are independent of one another, an assumption that is violated to varying degrees in the study of armed conflict. This may lead these models to present a higher degree of confidence in their results than warranted, particularly with regard to the performance and statistical significance of individual metrics.

This issue is endemic to all quantitative analyses of armed conflict, and it cannot be fully eliminated as a concern.<sup>8</sup> However, in keeping with the best practices in the literature, we did take several steps to either minimize the effect that the lack of independence of observations has on our models or to highlight those models most substantially affected by issues for which we were unable to correct. The steps we took to assess both spatial and temporal dependence will be discussed in detail.

#### **Spatial Dependence**

To address issues of spatial dependence – the fact that conflicts may tend to cluster geographically – we explored adding variables to our models to control for geographic proximity or other relationships. The first variable measured whether the two states in the dyad were directly contiguous with one another over land. This variable is included in all of our interstate war models, and we felt comfortable assuming it to be constant in

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<sup>8</sup> For context on this issue, see Tucker and Beck, 1997.

all cases out to 2040.<sup>9</sup>The second variable measured whether the two states were involved in a mutual alliance with one another. This term was statistically significant and negatively associated with the likelihood of conflict in the dyad, as shown in Table A.1. However, we did not include this alliance variable in our baseline interstate war regression models because of the difficulty of projecting which states would continue to be allied with one another out to 2040. Further, while the alliance variable itself was statistically significant, it had negligible effects on the perfor-

**Table A.1**  
**Statistical Results for Interstate War Model Incorporating Alliance Variable, 1900–2007**

Variables	Baseline Model	Alliance Variable Included
Mutual defensive alliance		-0.945*** (0.265)
Contiguous by land border	-0.750*** (0.174)	-0.664*** (0.176)
U.S. military personnel in region	-0.0107*** (0.00169)	-0.0112*** (0.00171)
Power transition	1.004*** (0.166)	1.030*** (0.166)
Dyadic democracy	-1.986*** (0.392)	-1.911*** (0.391)
Same trading bloc	-0.421* (0.245)	-0.479* (0.245)
Different trading bloc	2.913*** (0.193)	2.826*** (0.194)
Bilateral trade to GDP, minimum ratio, 1-year lag	-773.1*** (187.8)	-706.8*** (183.3)
Degree of regional hegemony	-0.245*** (0.0558)	-0.253*** (0.0562)
Pervasiveness of peaceful norms	-2.021*** (0.196)	-1.835*** (0.201)
Both states under nuclear umbrella	-2.644*** (0.739)	-2.671*** (0.741)
Higher-salience territorial claim	2.365*** (0.171)	2.355*** (0.173)
Constant	-2.754*** (0.172)	-2.776*** (0.175)
Observations	36,096	36,096
Log likelihood	-1,030	-1,022
Chi squared	805.2	820.8
Pseudo R <sup>2</sup>	0.281	0.287

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

NOTE: Numbers in parentheses represent SD.

<sup>9</sup> While radical shifts in the geographic composition of states over time is plausible, states have tended to be highly static over the past 25 years, and we feel that assuming this will continue is a reasonable – and necessary – assumption to incorporate into our models.

mance of any other variables in the model or the overall model itself. We therefore judged that its omission from our final projection models was not likely to be of substantial concern.

Overall, our investigation did not suggest that spatial dependence was likely to be a substantial concern for our interstate war models. It should be noted, however, that our investigations into spatial dependence were less extensive for our models dealing with intrastate conflict. Intrastate conflicts, while generally confined within individual states, may nonetheless also be affected by the geographic proximity of other intrastate conflicts. Our model indirectly accounts for some of this effect through the mountainous terrain variable, as mountain ranges that provide refuge for rebel groups can often span state borders. We also considered a more detailed investigation into the spillover of intrastate conflict by accounting for whether neighboring states were involved in intrastate wars in the observation year. However, we would not have been able to incorporate such a metric into our projection models, because to do so we would have needed to know in advance when and where future neighboring intrastate conflicts would occur. We therefore assessed that such an investigation, while potentially interesting, would be left outside the scope of the current effort.

### **Temporal Dependence**

The issue of temporal dependence — the fact that conflicts tend to cluster in time — was of potentially greater concern. To investigate this issue, we took several steps. First, we tested how the addition of two different types of time variables affected the results of our conflict models that were built on historical data. Specifically, we tested models with half-decade dummy variables along with models with variables incorporating the number of years prior that the state or dyad has been at peace, with this “peace year” term also added as squared and cubed terms.<sup>10</sup> While

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<sup>10</sup> For the half-decade models, we created a categorical variable where each value corresponded to a specific half-decade period, and included this variable in our logistic regression model, treating each value of the categorical variable as a different dummy variable. The utility of these approaches was suggested by Carter and Signorino, 2010; and Zeev Maoz, “Pacifism and Fightaholism in International Politics: A Structural History of National and Dyadic Conflict, 1816–1992,” *International Studies Review*, Vol. 6, No. 4, 2004.

these temporal variables could not be incorporated into our models used for projecting future levels of conflict – we would need to know when and where future conflicts are going to occur for these variables to be meaningful – we were able to use these investigations to assess which of our models appeared to be substantially affected by the issue of temporal dependence, and which did not. In cases where the statistical relationships between key factors and conflict were relatively unaffected by the inclusion of these temporal variables, we would have a relatively greater confidence that the temporal independence issue, while potentially still important, does not fundamentally undermine our projections. When these statistical relationships changed more dramatically as a result of including these temporal variables, however, we would have a higher degree of concern with the reliability of such models.

While most of our models – and particularly those at the global level – appeared to be relatively unaffected by their inability to properly account for temporal dependence, this was not the case for all of the regional intrastate conflict models. We discuss the performance of each of our models of conflict or war, both including and excluding these temporal variables; in the conclusion to this section, we discuss our relative degree of confidence in the different models on these grounds.

### ***Intrastate Conflict or War Models***

Our report provides three types of projections related to intrastate conflict or war: a global projection model for intrastate war (shown in Figure 5.2), a series of projections of intrastate conflict at the regional level (shown in Figure 5.4), and a global look at intrastate conflict that reflects the combination of the different regional conflict projections (shown in Figure 5.3). We also list the full statistical results underlying each of these projections, alongside the two alternative analyses we ran to estimate the effects of temporal dependence.

#### **Intrastate War Model Results**

Our intrastate war model was relatively unaffected by the inclusion of the two different types of temporal dependence controls, as shown in Table A.2.

All variables that were statistically significant in our baseline model were also statistically significant in the test models incorpo-

**Table A.2**  
**Statistical Results for Intrastate War Models, 1964–2009**

Variables	Base	Half-Decade Dummies	Peace-Year Polynomials
Recent democratic transition	0.585*** (0.151)	0.511*** (0.157)	0.588*** (0.179)
Discriminated population (%)	1.722*** (0.316)	1.724*** (0.324)	1.841*** (0.414)
GDP growth, 1-year lag	-3.671*** (0.832)	-3.142*** (0.859)	-1.517* (0.849)
GDP per capita, natural log	-0.633*** (0.0571)	-0.662*** (0.0584)	-0.261*** (0.0691)
Mountainous terrain (%), natural log	0.237*** (0.0461)	0.244*** (0.0464)	0.155*** (0.0584)
Territorial size, natural log	0.362*** (0.0429)	0.363*** (0.0431)	0.247*** (0.0469)
Half decade: 1965–1969		0.216 (0.391)	
Half decade: 1970–1974		0.233 (0.393)	
Half decade: 1975–1979		0.577 (0.377)	
Half decade: 1980–1984		0.915** (0.374)	
Half decade: 1985–1989		1.212*** (0.362)	
Half decade: 1990–1994		0.735** (0.372)	
Half decade: 1995–1999		0.754** (0.370)	
Half decade: 2000–2004		0.756** (0.375)	
Half decade: 2005–2009		-0.0482 (0.440)	
Peace years			-0.304*** (0.0210)
Peace years squared			0.00405*** (0.000367)
Peace years cubed			-1.46e-05*** (1.70e-06)
Constant	-3.317*** (0.681)	-3.741*** (0.756)	-2.310*** (0.771)
Observations	5,796	5,796	5,796
Log likelihood	-965.2	-949.2	-647.1
Chi squared	336.6	368.5	972.7
Pseudo R <sup>2</sup>	0.148	0.163	0.429

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.



rating our temporal dependence variables, and generally with similar coefficients as well. Two variables, GDP growth and GDP per capita, showed only minor changes in the test model incorporating half-decade dummy variables, but did show greater changes in their level of statistical significance or coefficient value in the test model incorporating peace-year polynomials.

In aggregate, however, we believe that these results support the utility of our baseline intrastate war model for our analysis. While these results do indicate that it would be preferable if we could include such variables as peace-year polynomials in our projection models, they also suggest that the scale of the effect of not being able to do so is likely to be fairly limited.

### Regional Intrastate Conflict Models

The performance of our regional intrastate conflict models varied widely when considered in light of the temporal dependence variables we incorporated. While some regional models appeared robust to concerns of temporal dependence, in other models, key relationships that drove conflict projections disappeared once temporal dependence was accounted for. In one region, West Africa, our concerns over the model's reliability were so substantial that we clearly distinguish its projections from the other models when presenting them.<sup>11</sup>

**Central America and the Caribbean:** Our results indicate that our intrastate conflict model for Central America and the Caribbean was among the models least affected by the issue of temporal dependence, shown in Table A.3.

Most of the variables that were statistically significant in our baseline model were also statistically significant, and with the same direction of effect, in our two test models. The only exception was the variable reflecting the level of GDP per capita, which ceased being

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<sup>11</sup> The composition of each of these regional models deserves an additional note. We initially built regional intrastate conflict models that incorporated all of the relevant key factor variables discussed in Chapter Three. However, in instances where a key factor metric was clearly not statistically significant ( $p > 0.1$ ), the metric was dropped from the regional conflict model. This accounts for the heterogeneous composition of these different baseline regional models, as will be shown in our results.

**Table A.3**  
**Statistical Results for Models of Intrastate Conflict in Central America and the Caribbean, 1964–2009**

Variables	Base	Half-Decade Dummies	Peace-Year Polynomials
Established democracy	-1.371** (0.570)	-2.259*** (0.813)	-3.358*** (1.057)
Recent democratic transition	2.503*** (0.517)	2.756*** (0.714)	2.119*** (0.659)
Discriminated population (%)	14.46*** (3.355)	22.97*** (8.891)	17.71*** (4.669)
GDP growth, 1-year lag	-16.18*** (4.296)	-9.234* (4.828)	-12.12*** (4.556)
GDP per capita, natural log	1.418** (0.635)	0.407 (1.081)	0.935 (0.776)
Density of paved roads to population, natural log	-0.931** (0.429)	-0.607 (0.889)	-0.967* (0.515)
Territorial size, natural log	-0.501*** (0.181)	-0.594** (0.253)	-0.506* (0.262)
Half decade: 1965–1969		-3.429 (2.266)	
Half decade: 1970–1974		-1.740 (2.012)	
Half decade: 1975–1979		0.0957 (1.380)	
Half decade: 1980–1984		0.0965 (1.439)	
Half decade: 1985–1989		1.558 (1.293)	
Half decade: 1990–1994		1.157 (1.270)	
Half decade: 1995–1999		-0.731 (1.567)	
Half decade: 2000–2004		No Obs.; Omitted	
Half decade: 2005–2009		No Obs.; Omitted	
Peace years			-0.0206 (0.0731)
Peace years squared			-0.000700 (0.00128)
Peace years cubed			4.49e-06 (5.46e-06)
Constant	-5.249 (3.258)	2.820 (5.525)	2.160 (6.066)
Observations	461	391	461
Log Likelihood	-73.51	-56.98	-56.93
Chi Squared	177.8	192.6	211
Pseudo R <sup>2</sup>	0.547	0.628	0.649

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

statistically significant. Several other variables saw their coefficients change modestly across the different models, but these changes were not dramatic, relatively speaking. These results suggest that temporal dependence is not likely to be a dramatic concern for our baseline projection model for the Central America and Caribbean region.

**South America:** Our regional intrastate conflict model for South America appears to be similarly affected by issues of temporal dependence, as shown in Table A.4 – again, not to such an extent that we believe the overall value of the model is compromised.

Most variables were consistent in their degree of statistical significance and coefficient values across the three models. The one exception was the GDP per capita variable, which was no longer statistically significant in the peace-year polynomial test model, although it was in the half-decade dummy variable model. The other variables remained highly consistent in their performance. Overall, these results do not indicate that temporal dependence is a serious concern for our baseline model for intrastate conflict in South America.

**Europe:** Our model for intrastate conflict in Europe appears to be affected by issues of temporal dependence to a similar degree, as shown in Table A.5, and not such that the overall value of the baseline model would be in question.

Most variables had the same degree of statistical significance in the two test models. The one notable exception was the GDP growth variable, which was no longer statistically significant in the half-decade dummy model, although it did remain weakly statistically significant in the peace-year polynomial model. The coefficient of the state capacity metric (density of paved roads relative to population density) also varied substantially in the half-decade dummy variable model, though not in the peace-year polynomial model. These results suggest some concerns regarding the reliability of our baseline model due to issues of temporal dependence, but we believe that these concerns are limited enough to justify the inclusion of the European intrastate conflict model in our analysis.

**Eurasia:** An assessment of the effects of temporal dependence on our intrastate conflict model for Eurasia suggests potentially greater concerns, at least based on the results of the peace-year polynomial model, as shown in Table A.6.

**Table A.4**  
**Statistical Results for Models of Intrastate Conflict in South America, 1964–2009**

Variables	Base	Half-Decade Dummies	Peace-Year Polynomials
Established democracy	1.050*** (0.349)	1.172*** (0.400)	1.668*** (0.465)
GDP per capita, natural log	1.513*** (0.538)	1.679*** (0.598)	−0.518 (0.619)
Density of paved roads to population, natural log	−2.012*** (0.332)	−2.032*** (0.338)	−1.522*** (0.330)
Mountainous terrain (%), natural log	1.384*** (0.227)	1.390*** (0.232)	0.921*** (0.223)
Territorial size, natural log	1.075*** (0.261)	1.102*** (0.267)	0.925*** (0.250)
Half decade: 1965–1969		0.175 (0.974)	
Half decade: 1970–1974		0.522 (0.965)	
Half decade: 1975–1979		0.645 (0.964)	
Half decade: 1980–1984		0.403 (0.972)	
Half decade: 1985–1989		0.515 (0.965)	
Half decade: 1990–1994		0.648 (0.943)	
Half decade: 1995–1999		0.340 (0.962)	
Half decade: 2000–2004		−0.488 (1.006)	
Half decade: 2005–2009		0.0407 (0.996)	
Peace years			−0.343*** (0.0543)
Peace years squared			0.00419*** (0.000697)
Peace years cubed			−1.38e−05*** (2.46e−06)
Constant	−27.22*** (6.358)	−29.38*** (6.844)	−4.133 (5.631)
Observations	514	514	514
Log likelihood	−152.5	−150	−112.2
Chi squared	136	141.1	216.6
Pseudo R <sup>2</sup>	0.308	0.320	0.491

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Table A.5**  
**Statistical Results for Models of Intrastate Conflict in Europe, 1964–2009**

Variables	Base	Half-Decade Dummies	Peace-Year Polynomials
Established democracy	2.057*** (0.641)	2.602*** (0.724)	1.362* (0.707)
Discriminated population (%)	14.26*** (3.286)	15.61*** (4.186)	10.13*** (3.713)
GDP growth, 1-year lag	-8.369*** (3.196)	-5.473 (3.763)	-6.417* (3.741)
Density of paved roads to population, natural log	-0.306** (0.141)	-0.835** (0.335)	-0.311** (0.152)
Mountainous terrain (%), natural log	-0.487*** (0.146)	-0.606*** (0.156)	-0.715*** (0.192)
Territorial size, natural log	1.456*** (0.275)	1.533*** (0.300)	1.545*** (0.284)
Half decade: 1965–1969		0 (0)	
Half decade: 1970–1974		-0.00392 (0.828)	
Half decade: 1975–1979		0.668 (0.720)	
Half decade: 1980–1984		1.336* (0.691)	
Half decade: 1985–1989		1.956*** (0.667)	
Half decade: 1990–1994		1.014 (0.714)	
Half decade: 1995–1999		-0.114 (0.785)	
Half decade: 2000–2004		0.125 (0.751)	
Half decade: 2005–2009		0 (0)	
Peace years			-0.349*** (0.0813)
Peace years squared			0.00396*** (0.000939)
Peace years cubed			-1.17e-05*** (2.81e-06)
Constant	-20.10*** (3.333)	-18.68*** (3.680)	-16.70*** (3.390)
Observations	1,103	956	1,103
Log likelihood	-161	-136.7	-124.9
Chi squared	155.3	185.7	227.6
Pseudo R <sup>2</sup>	0.325	0.405	0.477

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Table A.6**  
**Statistical Results for Models of Intrastate Conflict in Eurasia, 1964–2009**

Variables	Base	Half-Decade Dummies	Peace-Year Polynomials
Established democracy	1.359** (0.673)	1.160 (0.708)	1.453* (0.786)
Recent democratic transition	1.358** (0.620)	1.358** (0.632)	1.226 (0.777)
GDP growth, 1-year lag	-7.552*** (1.958)	-8.682*** (3.171)	-0.958 (2.757)
Density of paved roads to population, natural log	-1.397** (0.693)	-1.406** (0.690)	-1.138 (0.751)
Mountainous terrain (%), natural log	0.960*** (0.359)	0.895** (0.363)	1.005*** (0.390)
Territorial size, natural log	0.612*** (0.145)	0.628*** (0.147)	0.399** (0.167)
Half decade: 1995–1999		-0.428 (0.699)	
Half decade: 2000–2004		0.142 (0.981)	
Half decade: 2005–2009		0.360 (0.976)	
Peace years			-0.526** (0.226)
Peace years squared			0.0223 (0.0179)
Peace years cubed			-0.000247 (0.000303)
Constant	-5.266 (3.786)	-5.191 (3.845)	-2.079 (4.233)
Observations	199	199	199
Log likelihood	-62.77	-62.18	-55.61
Chi squared	56.44	57.62	70.76
Pseudo R <sup>2</sup>	0.310	0.317	0.389

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

While only one variable that is statistically significant in the base-line model is not so in the half-decade dummy model (established democracy), several variables are no longer statistically significant in the peace-year polynomial model. Indeed, only the geographic control variables related to state size and mountainous terrain remain strongly statistically significant in the peace-year polynomial model, while established democracy remains weakly statistically significant, although in a direction opposite to that typically argued in the academic literature.

The split between these two test models suggests caution in the presentation of our results. The peace-year polynomial model suggests that our Eurasian intrastate conflict model is greatly affected by issues of

temporal dependence, and that when these issues are accounted for, the remaining value of the model appears limited. However, the half-decade dummy model does not give us similar concerns. Indeed, most variables in this model remain statistically significant, with coefficients that are very similar to the baseline model. Further discussion regarding how to present the results for the Eurasian intrastate conflict model given the concerns raised by this analysis is in the conclusion to this section.

**West Africa:** The West African intrastate conflict model suffers from substantial issues, as can be seen in Table A.7.

**Table A.7**  
**Statistical Results for Models of Intrastate Conflict in West Africa, 1964–2009**

Variables	Base	Half-Decade Dummies	Peace-Year Polynomials
GDP per capita, natural log	-0.588** (0.268)	-0.452* (0.274)	-0.197 (0.314)
Mountainous terrain (%), natural log	0.600* (0.316)	0.635* (0.326)	0.817** (0.322)
Half decade: 1965–1969		-0.169 (0.633)	
Half decade: 1970–1974		-1.821* (1.095)	
Half decade: 1975–1979		-0.380 (0.671)	
Half decade: 1980–1984		-0.281 (0.671)	
Half decade: 1985–1989		-0.725 (0.729)	
Half decade: 1990–1994		0.817 (0.529)	
Half decade: 1995–1999		0.716 (0.536)	
Half decade: 2000–2004		1.039** (0.518)	
Half decade: 2005–2009		No Obs.; Omitted	
Peace years			-0.0219 (0.0515)
Peace years squared			0.00111 (0.00163)
Peace years cubed			-6.29e-06 (1.40e-05)
Constant	1.567 (1.842)	0.543 (1.953)	-1.493 (2.215)
Observations	724	660	724
Log likelihood	-209.9	-189.5	-203.4
Chi squared	8.160	36.79	21.22
Pseudo R <sup>2</sup>	0.0191	0.0885	0.0496

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

It is important to note first that the baseline West African intrastate conflict model is the least robust of our regional intrastate conflict models. Relatively few of the variables we initially tested were statistically significant enough in West Africa to merit inclusion in our baseline model, and the overall value of the model (as indicated by statistics such as the Pseudo  $R^2$ ) is quite low. While the half-decade dummy test model does not further challenge the value of the baseline model, the peace-year polynomial test model raises additional concerns. Only the geographic control for the extent of mountainous terrain remains statistically significant in this test model. We are therefore left with a situation where one test model suggests that the effects of temporal dependence on our baseline model are limited while the other suggests that, once accounted for, they undermine the value of the baseline model almost completely. In addition, however, the overall performance of all three West African models is substantially lower than the other regional intrastate models we assessed, increasing our concern regarding their value. Further discussion of how to handle these results is in the conclusion to this section.

**East and Southern Africa:** Our baseline intrastate conflict model for East and southern Africa, by contrast, appears to be much less affected by issues of temporal dependence, as can be seen in Table A.8.

Most variables retained the same high degree of statistical significance across all three models. The GDP per capita variable is no longer statistically significant in the peace-year polynomial model, but the other variables show few changes in statistical significance or in coefficient values across the three models. These results suggest that our inability to account for temporal dependence in our baseline model for intrastate conflict in East and southern Africa is likely to have only a limited effect.

**The Middle East:** Our intrastate conflict model for the Middle East appears to be somewhat more affected by issues of temporal dependence, as shown in Table A.9.

Most of the variables remain statistically significant across all three models, but in each of the test models, one variable changed its degree of statistical significance more substantially. In the half-decade dummy model, the youth bulge variable was no longer statistically significant, while in the peace-year polynomial model, the mountainous terrain



**Table A.8**  
**Statistical Results for Models of Intrastate Conflict in East and Southern Africa, 1964–2009**

Variable	Base	Half-Decade Dummies	Peace-Year Polynomials
Established democracy	-1.430*** (0.422)	-1.444*** (0.427)	-2.001*** (0.484)
Discriminated population (%)	4.907*** (0.492)	5.402*** (0.517)	4.189*** (0.632)
Youth bulge	1.630*** (0.373)	0.986** (0.419)	1.579*** (0.380)
GDP per capita, natural log	-0.609*** (0.168)	-0.672*** (0.169)	-0.124 (0.181)
Density of paved roads to population, natural log	-0.375*** (0.0988)	-0.420*** (0.108)	-0.388*** (0.112)
Territorial size, natural log	0.793*** (0.0928)	0.795*** (0.0974)	0.585*** (0.0960)
Half decade: 1965–1969		1.168 (0.798)	
Half decade: 1970–1974		1.199 (0.802)	
Half decade: 1975–1979		0.970 (0.802)	
Half decade: 1980–1984		1.675** (0.807)	
Half decade: 1985–1989		1.802** (0.802)	
Half decade: 1990–1994		2.400*** (0.802)	
Half decade: 1995–1999		1.760** (0.796)	
Half decade: 2000–2004		2.032** (0.802)	
Half decade: 2005–2009		2.348*** (0.809)	
Peace years			-0.302*** (0.0453)
Peace years squared			0.00672*** (0.00207)
Peace years cubed			-3.37e-05 (2.51e-05)
Constant	-7.810*** (1.508)	-8.432*** (1.727)	-6.394*** (1.686)
Observations	969	969	969
Log likelihood	-349.1	-335.6	-267.6
Chi squared	401.9	428.8	564.9
Pseudo R <sup>2</sup>	0.365	0.390	0.513

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Table A.9**  
**Statistical Results for Models of Intrastate Conflict in the Middle East, 1964–2009**

Variable	Base	Half-Decade Dummies	Peace-Year Polynomials
Established democracy	5.201*** (0.465)	5.535*** (0.503)	6.066*** (0.546)
Youth bulge	0.925*** (0.225)	0.402 (0.261)	0.938*** (0.265)
Mountainous terrain (%), natural log	0.292*** (0.0908)	0.363*** (0.0912)	0.172* (0.0964)
Territorial size, natural log	0.224*** (0.0667)	0.228*** (0.0661)	0.384*** (0.0763)
Half decade: 1960–1964		0.916 (0.626)	
Half decade: 1965–1969		1.535*** (0.578)	
Half decade: 1970–1974		1.222** (0.588)	
Half decade: 1975–1979		1.886*** (0.566)	
Half decade: 1980–1984		2.343*** (0.557)	
Half decade: 1985–1989		2.028*** (0.556)	
Half decade: 1990–1994		1.807*** (0.562)	
Half decade: 1995–1999		1.766*** (0.558)	
Half decade: 2000–2004		1.014* (0.594)	
Half decade: 2005–2009		0.845 (0.598)	
Peace years			−0.220*** (0.0272)
Peace years squared			0.00383*** (0.000619)
Peace years cubed			−1.83e−05*** (3.70e−06)
Constant	−5.747*** (0.872)	−7.144*** (0.963)	−5.462*** (0.972)
Observations	849	849	849
Log likelihood	339	−323.5	−279.5
Chi squared	212.2	243.1	331.2
Pseudo R <sup>2</sup>	0.238	0.273	0.372

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

variable became only weakly statistically significant and changed its coefficient substantially. We do not believe these fluctuations in the degree of statistical significance are sufficient to undermine the value of the baseline model overall, but the projections that result from the intrastate conflict model for the Middle East should be viewed with a somewhat greater degree of uncertainty, as discussed in the conclusion to this section.

**South Asia:** Our inability to account for temporal dependence in the South Asia intrastate conflict model appears to moderately affect the performance of the model, as shown in Table A.10.

While a number of variables remained statistically significant across both test models, there were two exceptions. The GDP per capita variable ceased to be statistically significant in the half-decade dummy model, and the youth bulge variable ceased to be significant in the peace-year polynomial model. Overall, while the lack of temporal dependence controls does appear to limit the reliability of the base model, it does not eliminate its value altogether. The implication of this concern is discussed in the conclusion to this section.

**East and Southeast Asia:** Our intrastate conflict model for East and Southeast Asia appears to suffer more modestly from our inability to account for temporal dependence, as shown in Table A.11.

While several variables remained statistically significant across all three models, there were exceptions. Our established democracy variable remained statistically significant (and positively associated with intrastate conflict) in the half-decade dummy model, but lost its statistical significance in the peace-year polynomial model. The GDP per capita and youth bulge variables, statistically significant in the baseline and half-decade dummy models, were also no longer statistically significant in the peace-year polynomial model.

These results suggest that the projections made from our baseline model should be viewed with an increased degree of caution, similar to the Middle Eastern model discussed above. We do not feel, however, that the overall value of the baseline model is eliminated by its inability to account for temporal dependence.

**Table A.10**  
**Statistical Results for Models of Intrastate Conflict in South Asia, 1964–2009**

Variables	Base	Half-Decade Dummies	Peace-Year Polynomials
Territorial size, natural log	0.346*** (0.120)	0.479*** (0.137)	0.593*** (0.174)
Discriminated population (%)	-7.788*** (2.337)	-5.364** (2.399)	-5.197** (2.244)
Youth bulge	-0.708** (0.295)	-1.586*** (0.452)	-0.432 (0.340)
GDP per capita, natural log	0.923*** (0.298)	-0.194 (0.434)	0.780** (0.388)
Mountainous terrain (%), natural log	-0.405*** (0.109)	-0.367*** (0.118)	-0.561*** (0.147)
Half decade: 1965–1969		-1.028 (0.916)	
Half decade: 1970–1974		-1.553* (0.914)	
Half decade: 1975–1979		-0.318 (0.900)	
Half decade: 1980–1984		0.482 (0.955)	
Half decade: 1985–1989		1.257 (1.018)	
Half decade: 1990–1994		0.805 (1.053)	
Half decade: 1995–1999		1.455 (1.084)	
Half decade: 2000–2004		1.189 (1.040)	
Half decade: 2005–2009		2.089** (1.059)	
Peace years			-0.0899 (0.0624)
Peace years squared			0.000456 (0.00223)
Peace years cubed			1.09e-05 (1.95e-05)
Constant	-8.963*** (2.602)	-3.251 (3.037)	-10.05*** (3.838)
Observations	246	246	246
Log likelihood	-136.7	-124.9	-125.4
Chi squared	67.69	91.17	90.22
Pseudo R <sup>2</sup>	0.198	0.267	0.265

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Table A.11**  
**Statistical Results for Models of Intrastate Conflict in East and Southeast Asia, 1964–2009**

Variables	Base	Half-Decade Dummies	Peace-Year Polynomials
Established democracy	1.168*** (0.290)	1.222*** (0.300)	0.437 (0.332)
Recent democratic transition	1.113*** (0.289)	1.154*** (0.295)	1.598*** (0.359)
Discriminated population (%)	7.620* (4.115)	7.472* (4.319)	9.297* (5.432)
Youth bulge	0.600*** (0.218)	0.588** (0.238)	0.417 (0.268)
GDP per capita, natural log	-1.011*** (0.148)	-1.048*** (0.160)	-0.250 (0.191)
Density of paved roads to population, natural log	-0.157* (0.0889)	-0.161* (0.0926)	-0.284*** (0.105)
Half decade: 1965–1969		0.495 (0.576)	
Half decade: 1970–1974		0.420 (0.586)	
Half decade: 1975–1979		0.486 (0.593)	
Half decade: 1980–1984		0.725 (0.622)	
Half decade: 1985–1989		0.192 (0.626)	
Half decade: 1990–1994		0.298 (0.614)	
Half decade: 1995–1999		0.394 (0.619)	
Half decade: 2000–2004		0.183 (0.631)	
Half decade: 2005–2009		0.715 (0.629)	
Peace years			-0.238*** (0.0286)
Peace years squared			0.00335*** (0.000547)
Peace years cubed			-1.27e-05*** (2.92e-06)
Constant	6.268*** (1.089)	6.128*** (1.184)	3.716*** (1.375)
Observations	723	723	723
Log likelihood	-286.2	-284.5	-216.1
Chi squared	163.3	166.7	303.3
Pseudo R <sup>2</sup>	0.222	0.227	0.412

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

### Summary of Regional Intrastate Conflict Model Results

Of the nine regional intrastate conflict models assessed, our results suggest that the West Africa model stands out as being the least reliable. Four other models – for Eurasia, the Middle East, South Asia, and East and Southeast Asia – were less extensively affected, but additional caveats appear warranted. The four remaining models – for Central America and the Caribbean, South America, Europe, and East and southern Africa – do not appear to be greatly affected by their inability to account for temporal independence. Table A.12 summarizes these assessments.

On this basis, we highlight in this report the fact that the projections from the West Africa intrastate conflict model are subject to additional caveats. Our analysis indicates that this model is based on few statistically significant relationships and is likely to provide more limited value. To highlight these concerns, we distinguish the projections from this model from those of the other regional models by noting that we consider them to be less reliable and changing the color of their projections in the figures presenting them in Chapter Five. We considered excluding these projections altogether from the main report, but

**Table A.12**  
**Summary of Assessments of Temporal Dependence for Regional Intrastate Conflict Models**

<b>Region</b>	<b>Additional Caveats Suggested</b>
Central America and the Caribbean	Limited
South America	Limited
Europe	Limited
Eurasia	Moderate
West Africa	Substantial
East and southern Africa	Limited
Middle East	Moderate
South Asia	Moderate
East and Southeast Asia	Moderate

decided to provide them in this context so readers are able to make up their own minds regarding their potential value.<sup>12</sup>

### ***Interstate War Model***

As discussed in Chapter Four, we built models to project interstate wars (with a threshold of more than 1,000 battle deaths per year) as well as a separate model to project large interstate wars (with a threshold of more than 200,000 battle deaths). We included this model of large interstate wars to investigate the possibility that these particularly violent, destructive wars – those with the greatest potential implications for policymakers – were driven by different factors than interstate wars in general. As can be seen in Tables A.12 and A.13, however, the differences between the two models are modest.<sup>13</sup>

#### **Interstate War Model Results**

The inability to account for issues of temporal dependence in our interstate war model does not appear to have had a dramatic effect, as shown in Table A.13.

Most variables were statistically significant and consistent in their effects across all three models, including both our baseline model and the two test models, incorporating half-decade dummy variables and peace-year polynomials, respectively. Only the variable for membership in the same trading bloc, weakly statistically significant in our baseline model, was no longer statistically significant in either test model. Two other variables, reflecting bilateral trade and the presence of a power transition,

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<sup>12</sup> It should also be noted that projections for all of the regional models are indirectly reflected in the main body of the text in Figure 5.3, which summarizes the total number of projected intrastate conflicts across all of the regionally tailored models. While it would have been possible to eliminate the data related to West Africa from this figure, we felt that doing so might be more confusing, presenting a picture of both historical and projected global conflicts that, even presented with appropriate caveats and explanations, would be artificially low and difficult to compare with other global conflict metrics.

<sup>13</sup> It is also important to reiterate that we were unable to produce a reliable model of interstate conflicts (with a threshold of more than 25 battle deaths per year). Dyadic data for such conflicts are only reliably available after 1945, but since 1945 they have occurred only rarely, making it difficult to construct statistical models to project them.

**Table A.13**  
**Statistical Results for Global Model of Interstate War, 1900–2007**

Variables	Base	Half-Decade Dummies	Peace-Year Polynomials
Contiguous by land border	−0.750*** (0.174)	−0.522*** (0.179)	−0.714*** (0.190)
U.S. military personnel in region	−0.0107*** (0.00169)	−0.00715*** (0.00175)	−0.0111*** (0.00181)
Power transition	1.004*** (0.166)	−0.193 (0.217)	0.773*** (0.177)
Dyadic democracy	−1.986*** (0.392)	−2.052*** (0.398)	−1.900*** (0.396)
Same trading bloc	−0.421* (0.245)	0.0848 (0.264)	0.0230 (0.246)
Different trading bloc	2.913*** (0.193)	2.075*** (0.216)	2.800*** (0.214)
Bilateral trade to GDP, minimum ratio, 1-year lag	−773.1*** (187.8)	−150.2 (110.4)	−268.6** (131.7)
Degree of regional hegemony	−0.245*** (0.0558)	−0.461*** (0.0658)	−0.212*** (0.0596)
Pervasiveness of peaceful norms	−2.021*** (0.196)	−2.131*** (0.484)	−1.405*** (0.223)
Both states under nuclear umbrella	−2.644*** (0.739)	−1.413* (0.754)	−2.542*** (0.760)
Higher-salience territorial claim	2.365*** (0.171)	2.068*** (0.175)	1.915*** (0.188)
Half decade: 1905–1909		No Obs.; Omitted	
Half decade: 1910–1914		2.577** (1.049)	
Half decade: 1915–1919		3.677*** (1.019)	
Half decade: 1920–1924		2.746** (1.105)	
Half decade: 1925–1929		0.921 (1.467)	
Half decade: 1930–1934		1.815 (1.207)	
Half decade: 1935–1939		3.513*** (1.123)	
Half decade: 1940–1944		6.047*** (1.114)	
Half decade: 1945–1949		4.109*** (1.138)	



Table A.13—Continued

Variables	Base	Half-Decade Dummies	Peace-Year Polynomials
Half decade: 1950–1954		3.767*** (1.131)	
Half decade: 1955–1959		2.535** (1.235)	
Half decade: 1960–1964		1.037 (1.486)	
Half decade: 1965–1969		2.061* (1.211)	
Half decade: 1970–1974		1.953 (1.215)	
Half decade: 1975–1979		2.129* (1.195)	
Half decade: 1980–1984		1.617 (1.251)	
Half decade: 1985–1989		2.527** (1.172)	
Half decade: 1990–1994		2.905** (1.175)	
Half decade: 1995–1999		1.633 (1.325)	
Half decade: 2000–2004		No Obs.; Omitted	
Half decade: 2005–2007		No Obs.; Omitted	
Peace years			–0.270*** (0.0209)
Peace years squared			0.00490*** (0.000514)
Peace years cubed			–2.44e–05*** (3.30e–06)
Constant	–2.754*** (0.172)	–5.167*** (1.010)	–1.156*** (0.201)
Observations	36,096	30,375	36,096
Log likelihood	–1030	–848.3	–860.7
Chi squared	805.2	1086	1143
Pseudo R <sup>2</sup>	0.281	0.390	0.399

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

were not statistically significant in the half-decade dummy model, but remained statistically significant in the peace-year polynomial model.

Overall, however, most relationships remained strongly statistically significant across all three models, and the value of the baseline model appears to be confirmed by this analysis. The same can also be said for the model investigating large interstate wars, as shown in Table A.14.

The performance of the large interstate war models was highly similar to the performance of the models incorporating all interstate wars. Most variables retained a high degree of statistical significance across all three models; the same two variables (bilateral trade and power transition) lost this statistical significance in the half-decade dummy model, and one variable (membership in the same trading bloc) was not statistically significant in either test model. These results suggest that our large interstate war model is also not likely to be dramatically affected by its inability to account for temporal dependence.

#### ***Assessing Differences in Projected Levels of Conflict or War Across the Tested Models***

We also present the figures showing the various conflict and war projections over the period for which we have historical data that are derived from both our baseline models and the two test models designed to better account for temporal dependence. This is intended to provide the reader with an additional tool by which to evaluate the reliability of the conflict projections presented in the main body of the report in Chapter Five.

As Figure A.2 shows, the differences in projections across the three intrastate war models surveyed are not dramatic, although the half-decade dummy model does appear to do a better job capturing the late Cold War spike in intrastate war than the others. All three models show a similar downward trajectory following the end of the Cold War.

As can be seen in Figure A.3, the differences in projected levels of intrastate conflict at the regional level across the three models tested are generally modest. While the half-decade dummy models more accurately reflect some historical spikes in conflict, such as those in the Mideast in the 1980s, all three models generally track one another fairly closely. These results suggest that while temporal dependence may have some impact on the accuracy of our projection models, the scale of this impact is likely to be limited.

**Table A.14**  
**Statistical Results for Global Model of Large Interstate War, 1900–2007**

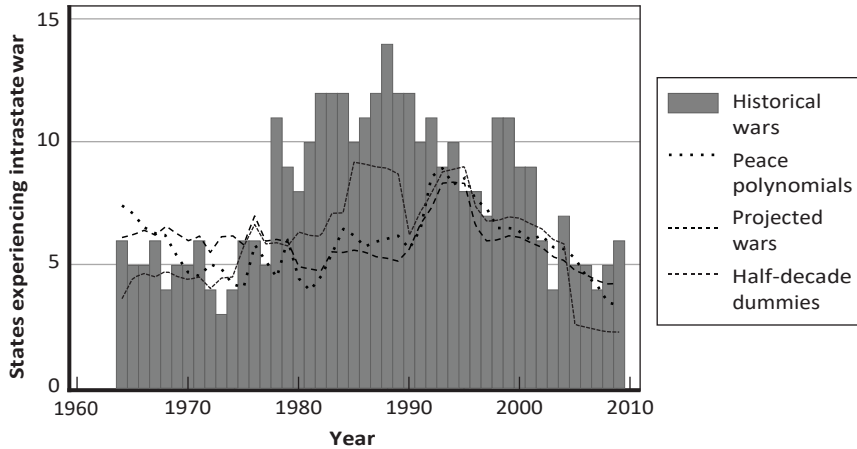
Variables	Base	Half-Decade Dummies	Peace-Year Polynomials
Contiguous by land border	−0.838*** (0.222)	−0.708*** (0.225)	−0.766*** (0.233)
U.S. military personnel in region	−0.0130*** (0.00182)	−0.00664*** (0.00196)	−0.0129*** (0.00213)
Power transition	1.317*** (0.191)	−0.342 (0.251)	0.985*** (0.212)
Dyadic democracy	−2.452*** (0.588)	−2.661*** (0.595)	−2.406*** (0.593)
Same trading bloc	−0.513 (0.316)	0.387 (0.345)	0.164 (0.318)
Different trading bloc	3.123*** (0.219)	2.088*** (0.234)	3.035*** (0.252)
Bilateral trade to GDP, minimum ratio, 1-year lag	−3,099*** (618.7)	−365.5 (308.2)	−1,183*** (447.9)
Degree of regional hegemony	−0.394*** (0.0724)	−0.601*** (0.0883)	−0.402*** (0.0787)
Pervasiveness of peaceful norms	−2.229*** (0.237)	−1.361** (0.619)	−1.299*** (0.262)
Higher-salience territorial claim	1.961*** (0.217)	1.444*** (0.222)	1.110*** (0.236)
Half decade: 1905–1909		No Obs.; Omitted	
Half decade: 1910–1914		0.650 (0.871)	
Half decade: 1915–1919		2.371*** (0.791)	
Half decade: 1920–1924		No Obs.; Omitted	
Half decade: 1925–1929		No Obs.; Omitted	
Half decade: 1930–1934		No Obs.; Omitted	
Half decade: 1935–1939		1.319** (0.582)	
Half decade: 1940–1944		4.124*** (0.564)	

**Table A.14—Continued**

Variables	Base	Half-Decade Dummies	Peace-Year Polynomials
Half decade: 1945–1949		2.332*** (0.628)	
Half decade: 1950–1954		1.965*** (0.623)	
Half decade: 1955–1959		No Obs.; Omitted	
Half decade: 1960–1964		No Obs.; Omitted	
Half decade: 1965–1969		No Obs.; Omitted	
Half decade: 1970–1974		No Obs.; Omitted	
Half decade: 1975–1979		No Obs.; Omitted	
Half decade: 1980–1984		–0.322 (0.768)	
Half decade: 1985–1989		No Obs.; Omitted	
Half decade: 1990–1994		No Obs.; Omitted	
Half decade: 1995–1999		No Obs.; Omitted	
Half decade: 2000–2004		No Obs.; Omitted	
Half decade: 2005–2007		No Obs.; Omitted	
Peace years			–0.378*** (0.0308)
Peace years squared			0.00737*** (0.000765)
Peace years cubed			–3.86e–05*** (5.03e–06)
Constant	–2.436*** (0.196)	–3.452*** (0.780)	–0.656*** (0.229)
Observations	36,096	10,066	36,096
Log likelihood	–750.5	–541.7	–589.1
Chi squared	670.6	649.4	993.4
Pseudo R <sup>2</sup>	0.309	0.375	0.457

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1.

**Figure A.2**  
**Historical and Projected Levels of Intrastate War, 1964–2009**



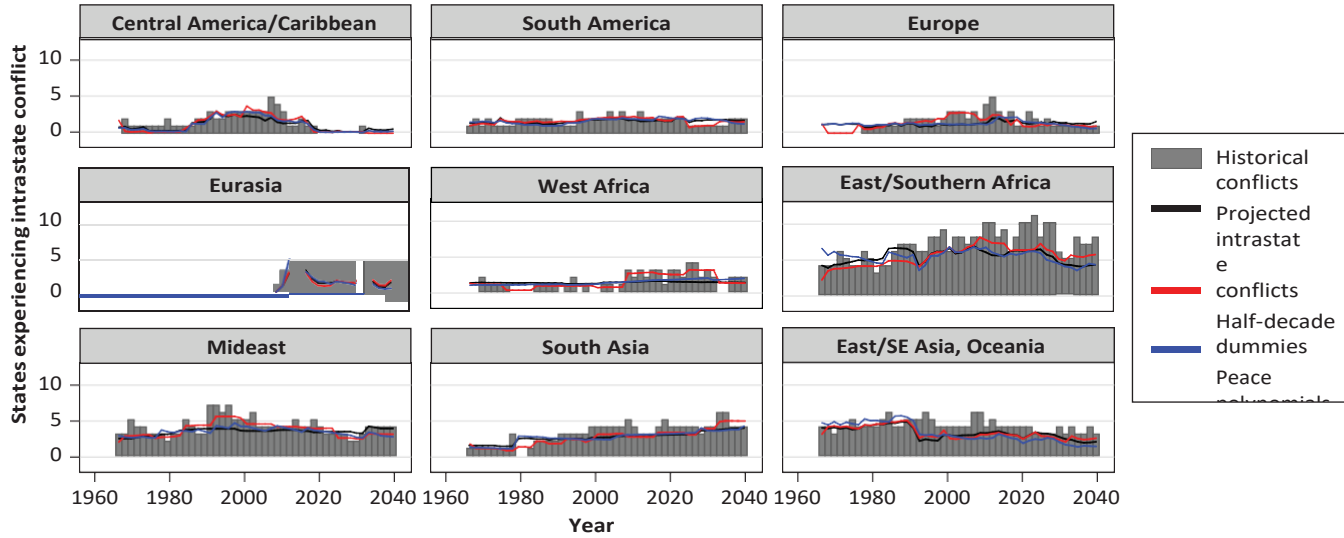
SOURCES: Melander, Petterson, and Themnér, 2016; Gleditsch et al., 2002.

RAND RR1177-A.2

The performance of the three tested interstate war models was more heterogeneous, as can be seen in Figure A.4. While these models produced relatively similar projections in the post-1945 era – though with the peace-year polynomials model coming closest to capturing the spikes in interstate war that have occurred – projections during and around the period of the two World Wars varied more substantially. The half-decade dummy model, for example, projected radically higher (and more accurate) overall levels of interstate warfare during the Second World War – and to a lesser extent during the First World War – than the other models. This result emphasizes that our baseline model tends to underpredict the number of dyads involved in interstate war during the major wars (or “spikes”) that it does more or less accurately identify. The reader should bear this caveat in mind when interpreting the potential projected future spikes noted in the alternative scenarios presented in Chapter Five; the extent of the increase in interstate war during such periods may be underpredicted.

The three models for large interstate wars shown in Figure A.5 followed a generally similar pattern to those concerned with all inter-

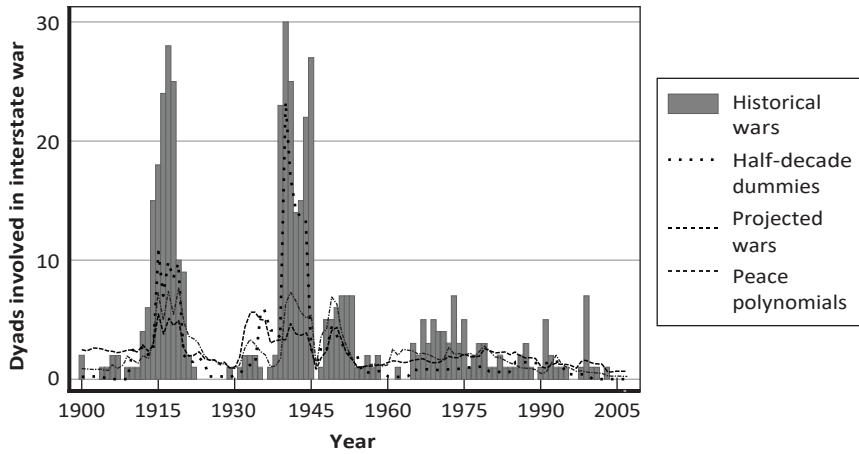
**Figure A.3**  
**Historical and Projected Levels of Regional Intrastate Conflict, 1964–2009**



SOURCES: Melander, Petterson, and Themnér, 2016; Gleditsch et al., 2002.

RAND RR1177-A.3

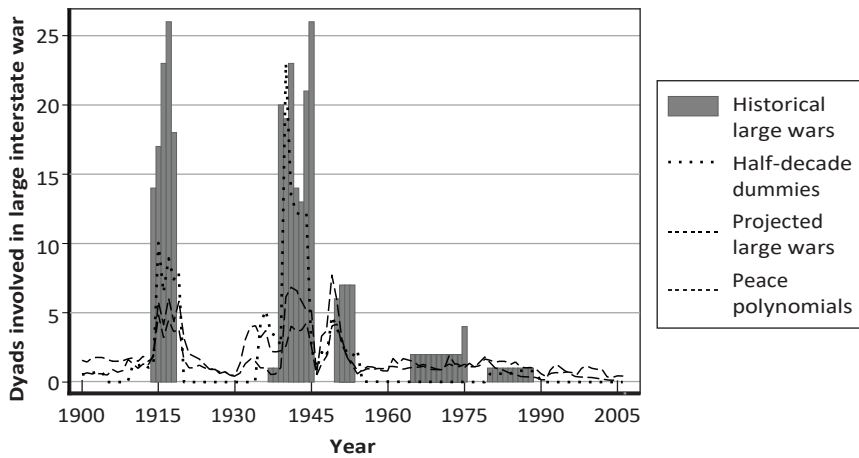
**Figure A.4**  
**Historical and Projected Levels of Interstate War, 1900–2007**



SOURCES: Melander, Petterson, and Themnér, 2016; Gleditsch et al., 2002.

RAND RR1177-A.4

**Figure A.5**  
**Historical and Projected Levels of Large Interstate War, 1900–2007**



SOURCES: Melander, Petterson, and Themnér, 2016; Gleditsch et al., 2002.

RAND RR1177-A.5

state wars in Figure A.4. The half-decade dummy model comes closest to matching the number of dyads expected to be involved in the two World Wars, although all three models do show “spikes” at roughly the right times. Of note, the half-decade dummy model underpredicts large interstate wars in the post-1945 era, projecting no large interstate wars during the early Cold War period that included the Vietnam War. The other two models do exhibit fluctuations during the post-1945 period that roughly correspond with the incidence of the few large interstate wars that did occur, and all three models project a low and declining incidence of such war in recent years.

### ***Summary of Effects of Temporal Independence***

Overall, the effects on our conflict projection models of not being able to account for temporal dependence appear to be limited. These concerns appear to be most salient in West Africa, and out of an abundance of caution we present the projections from this model separately from the others in the main body of the report. However, we do provide all of the projections so that readers can judge for themselves how much value to assign to the models. Additionally, an assessment of the varying historical projections of conflict and war using both our baseline models and our test models that attempt to correct for temporal dependence emphasizes that our baseline interstate war models tend to underpredict the number of dyads that may become drawn into major wars during “spikes” in conflict. Analysts should bear this caveat in mind when interpreting the results of our alternative scenario analysis in Chapter Five because some of these scenarios do contain projected future “spikes” in conflict whose full extent may not be accurately reflected.

## **Constructing the Regional Hegemony Metric**

As noted in Chapter Four, one of the key components of our interstate war model is a metric designed to estimate the degree of hegemony enjoyed by the most powerful state in each region. This regional hegemony metric incorporates two main types of information: the relative



capabilities of states and their differing geographic positions.<sup>14</sup> Many attempts to estimate the relative power between states rely solely on measures of their capabilities and omit these geographic considerations. Such an admission is understandable if the goal is to generate a global metric. For a regional metric, however, geographic considerations, such as distance, become especially crucial. For example, we would expect China to be better able to project power in East Asia than in the Middle East, due to the distances and geographic barriers involved.

The primary source for our data on state capabilities was the National Material Capabilities (NMC) data set, produced by the Correlates of War project.<sup>15</sup> The NMC data contain a number of components meant to reflect both actualized and potential state capabilities, such as population size, military spending, and industrial activity. These components are frequently used together in the literature to estimate state power. By themselves, however, each may provide a misleading picture of state capacity, particularly going forward. The NMC data include only industrial-era measures of economic capabilities, such as iron and steel production, that do not reflect the increasing importance of advanced technology for military capabilities. To address this issue, we added an additional metric counting the number of patent applications in each country as a proxy measurement of the state's science and technology base.<sup>16</sup>

We then estimated how effectively each state was able to translate its capabilities throughout a given region. The capabilities of states will, in general, tend to degrade the farther from their territory that they attempt to operate, a concept known as the loss-of-strength gra-

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<sup>14</sup> This approach draws inspiration, and a limited amount of data on transportation speeds, from one previously employed by Lemke. Douglas Lemke, *Regions of War and Peace*, Cambridge, UK: Cambridge University Press, 2002.

<sup>15</sup> David J. Singer, "Reconstructing the Correlates of War Dataset on Material Capabilities of States, 1816–1985," *International Interactions*, Vol. 14, 1987.

<sup>16</sup> Data on patent applications are from the World Intellectual Property Organization (WIPO) Statistics on Patents website.

dient.<sup>17</sup> To calculate the loss-of-strength gradient that would apply to each state if it were to attempt to exercise military force against another state in the region, we collected measures of the distance between pairs of states<sup>18</sup> and the effective speed with which each state's forces could travel.<sup>19</sup> We adjusted the effective speed data by taking into account forward deployments and basing infrastructure that may allow states, and the United States in particular, to translate certain military capabilities more quickly into and within a given region.<sup>20</sup> We then calculated the loss-of-strength gradient for each state in relation to every other state in the region, including major powers with a strong influence in the region even if they were geographically located outside it.

We applied the resulting loss of strength gradient to each of the components of actualized and potential state capabilities, and calculated each state's relative share of each component throughout each region. We then weighted the results and arrived at a final measure of each state's effective capabilities in each region, as shown in Figure A.6.<sup>21</sup>

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<sup>17</sup> Kenneth E. Boulding, *Conflict and Defense: A General Theory*, New York: Harper and Brothers, 1962; Bruce Bueno De Mesquita, *The War Trap*, New Haven, Conn.: Yale University Press, 1981. Specifically, the loss-of-strength gradient we employed is calculated as:  $\log(\text{distance in km} / [\text{speed of transit in km per day}] + [10 - e])$ , following the method used by both Bueno De Mesquita and by Lemke, 2002.

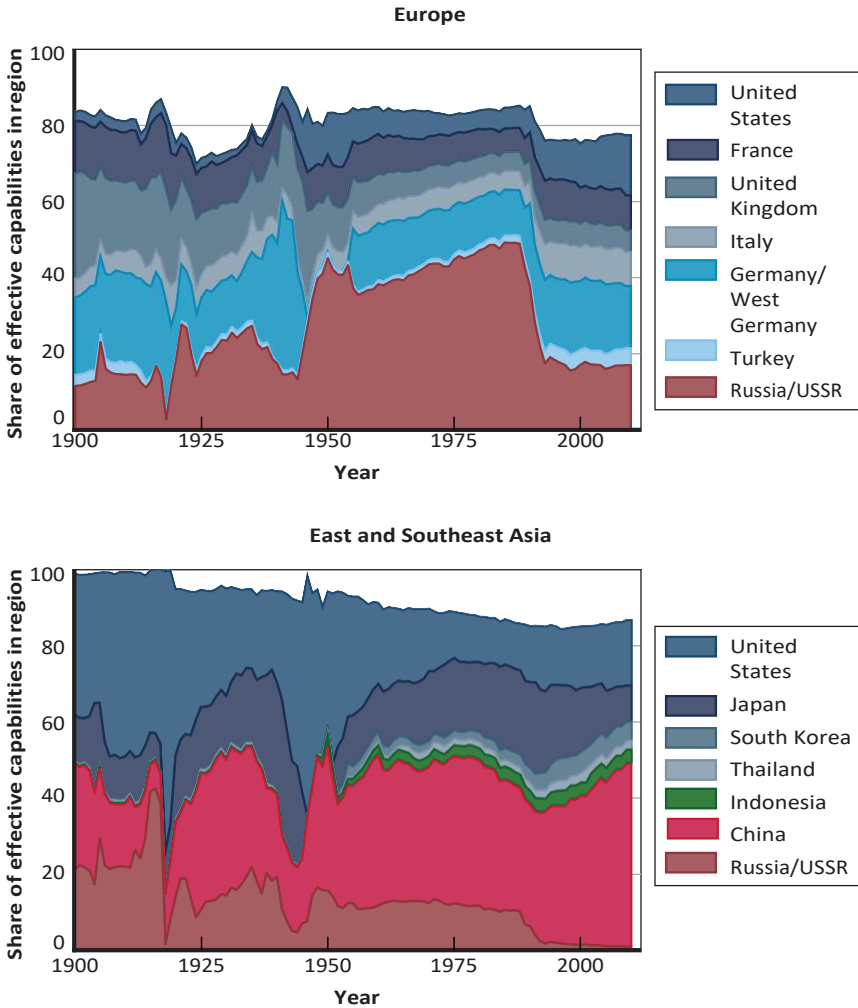
<sup>18</sup> We used a measure of the minimum distance between two countries' home territories. Alternate measures include the distance between capital cities.

<sup>19</sup> Our baseline assumptions about the speed with which military forces could travel and how this measure has changed over time in different historical eras came from Lemke, 2002. We further modified this measure using additional information from other sources. Raymond L. Garthoff, "Detente and Confrontation: American-Soviet Relations from Nixon to Reagan," Washington, D.C., The Brookings Institution, 1994; Lostumbo et al., 2013; A. V. Minaev, ed., *Sovetskaia Voennaia Moshch ot Stalina do Gorbacheva [Soviet Military Might from Stalin to Gorbachev]*, Voennyi Parad, 1999.

<sup>20</sup> Lostumbo et al., 2013.

<sup>21</sup> The NMC components are typically all weighted equally. However, our analysis suggested that this would overstate the importance of certain factors, such as population size, while understating others that relate more directly to military capabilities. We therefore weighted the components differently, decreasing the importance of population and urban population sizes (at 0.5) and increasing the importance of military size, spending, and patent applications (at 2.0). The remaining components, primary energy consumption and iron and steel production, were left at their original weight (at 1.0).

**Figure A.6**  
**Balance of Effective Capabilities Among States in Selected Regions,**  
**1900–2010**



To calculate the regional hegemony scores, we then took the ratio of the effective capabilities of the two most powerful states in the region in each year. In doing so, we grouped together the capabilities of close treaty allies.<sup>22</sup>

## Comparing the RAND Model with Alternative Conflict Projection Models

Other scholars have previously constructed statistical models to project the incidence of conflict, and it is important to understand how our model compares with these previous efforts. The model-building approach used in this project is broadly similar to other attempts at forecasting violent political conflict and instability.<sup>23</sup> To take perhaps the most prominent case, our approach generally parallels the work in predicting political instability undertaken by the Political Instability Task Force (PITF), but operates using a very different set of key factors and covers a much longer time horizon.<sup>24</sup>

The goal of the PITF is to develop a model that accurately predicts episodes of civil conflict and political instability over a two-year lag time. That is, the goal of that model is to forecast political instability two years into the future. The PITF identifies episodes of political instability such as occurrences of civil war (using a 1,000 battle-deaths threshold), democratic reversals, genocides, and state collapse. Using data from 1955 to 2003, the PITF identified 117 episodes of such political instability.

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<sup>22</sup> For example, the capabilities of NATO members and other treaty allies, such as Japan and South Korea, were added to the U.S. total in the years that those alliances were in operation.

<sup>23</sup> An additional prominent example is provided by Hegre et al, 2013. While similar in certain respects to RAND's methodology, the authors rely on a different set of key factors, including infant mortality rates and education levels, and a different set of statistical procedures for generating future projections.

<sup>24</sup> Detailed information on the PITF can be found in Daniel C. Esty, Jack Goldstone, Ted Robert Gurr, Pamela Surko, and Alan Unger, *Working Papers: State Failure Task Force Report*, McLean, Va.: Science Applications International Corporation, November 30, 1995. Other similar efforts include those by Lockheed Martin and Wardlab. Lockheed Martin, *Worldwide Integrated Crisis Early Warning System*, home page, undated; Wardlab, *Conflict Forecast*, home page, undated.

To build a predictive model of political instability and conflict, the PITF began with a list of variables it found to be significant in explaining the occurrence of violent civil conflict and political instability in the relevant academic literature. To build a model with the highest two-year predictive accuracy, combinations of these variables were examined and tested, with their analysis favoring models with higher predictive accuracy and greater relative parsimony. That is, if two models perform equally well in predictive accuracy, the model containing fewer variables is favored. It is important to note that the exact process of model building and testing is not publicly known; only the final predictive model developed by PITF is made available. Following this process, the PITF developed a predictive model that includes only four component variables: regime type, infant mortality, neighborhood conflict, and state-led discrimination. This final model correctly predicts more than 80 percent of historical global episodes of political instability over a two-year window.<sup>25</sup>

Given their very different areas of focus, the PITF and RAND models diverge considerably in the types of analytical tasks for which they would be helpful. While the goal of the PITF is to predict short-term occurrences of intrastate conflict and political instability, the goal of our research is to project much longer-term trends in the incidence of conflict and war through 2040. Whereas the PITF predictive models may therefore be useful for planning for rapid responses to emerging conflicts, they tell us little about the long-term state of the world. In contrast, the models developed in this project are not designed to forecast the short-term likelihood of conflict in specific countries, but are potentially more useful for informing discussions of long-term force structure and deployments, regional posturing, technological investments, and other policies that require long time-horizons to enact.

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<sup>25</sup> Goldstone et al., 2010.



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Has the relative peace of the immediate post-Cold War era been replaced by a world of escalating conflict and threats to U.S. security? What is the security threat environment likely to look like in the long-term future?

To answer these questions, this report analyzes trends in violent conflict and discusses their broad implications for long-term defense planning. It presents statistical models that estimate the incidence of violent conflict—both within and between countries—and that project conflict trends over the next 25 years under different scenarios. The analysis concludes that violent conflict is likely to return to long-standing trends of gradual decline in most regions of the world in most plausible futures. However, certain regions are likely to experience continued high or increasing levels of violent conflict (in particular, the area stretching from the Maghreb through South Asia). A handful of plausible, though extreme, scenarios could also produce a substantial spike in the likelihood of conflict globally, leading to levels of violence approaching (although not reaching) the worst periods since World War II. This report recommends five indicators as the most important sources of warning that conflict trends may be increasing.

These findings should help inform U.S. defense decisions concerning long-term investments, such as major weapons systems and broad force structure. They also can help the Army to make decisions related to such issues as leader development and contingency access.



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