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Uncivil wars: does Kantian Adaptive Networks Theory provide significant indications and warning of intra-state conflict

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BOSTON UNIVERSITY
GRADUATE SCHOOL OF ARTS AND SCIENCES

Dissertation

**UNCIVIL WARS: DOES KANTIAN ADAPTIVE NETWORKS THEORY
PROVIDE SIGNIFICANT INDICATIONS AND WARNING OF INTRA-STATE
CONFLICT?**

by

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*Tho' much is taken, much abides; and tho'
We are not now that strength which in old days
Moved earth and heaven, that which we are, we are;
One equal temper of heroic hearts,
Made weak by time and fate, but strong in will
To strive, to seek, to find, and not to yield.*

~Ulysses, Alfred, Lord Tennyson, 1842

DEDICATION

Veronika: All the lighthouses, their beams converge, to guide me home - to you

MollyAnn: From the moment I saw you in ultrasound, I loved you. Perhaps you can take
the ball a little farther down field

Dad: For letting me learn from your mistakes - and the chance to make some of my own.

I hope I made you proud.

Mom: For everything. For the scientific method. For the stories of Papa Jim.

Brothers, Sisters, Cousins, and Nieces/Nephews: You are my circus. And, you are my
monkeys.

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(Order No.)

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ABSTRACT

Reviewing inter-state warfare literature, I observe a correlation between the growth of international institutions, economic interchange, and levels of democracy, and corresponding decreases in incidents of international war. Conversely, internal conflicts comprise most conflicts in the post-1945 world, compared to inter-state conflicts.

Within the larger intra-state literature, I note an underlying lineage to concepts evolving from Kant's writings, specifically Kantian democratic peace theory (DPT) literature posited by Russett and O'Neal (2001), and the informal social-judicial relationship within *Metaphysics of Morals*.

From that pedigree, could a deeper understanding of internal political risks gained through application of Kantian DPT, interpolating Putnam's (2002) Social Capital Theory (SCT) hold potential to provide researchers and policy makers insight into propensity for descent into conflict early enough to implement corrective actions?

This investigation initially questions existence of intra-state processes performing similar ameliorating or exacerbating functions observed at inter-state level. Assessing

that intra-state dynamics exhibit an elevated dependence on social factors necessitates adjustments to DPT to accommodate the adaptable nature of social constructs, leading to the designation of my theory as Kantian Adaptable Networks Theory (KANT).

To test hypotheses, I start with DPT, incorporate elements of SCT, and identify a hybrid combination presenting greater explanatory power than either DPT or SCT factors alone. Fund for Peace's Fragile State Indices (FSI) for 2005-2013 provides the dataset to conduct regression analysis to determine significance of DPT and/or SCT elements in static and time-series. Initial results indicate DPT/SCT provides explanatory value at the intra-state level with the Group Grievance factor generally presenting the most significant effect on probability of conflict.

To assess resilience to intra-state conflict, I then explore brittleness of social-contract dynamics through the lens of Clausewitz' center of gravity theory. In my exploration of applicability of KANT at the case level, I analyze FSI data for Syria and Kenya to determine resilience to shocks and ratcheted pressures, and explanation for differing outcomes.

Based on the results of quantitative and case analysis, I present policy prescription considerations. Finally, I discuss additional avenues for follow-on research of issues and opportunities identified during the course of the investigation.

PREFACE

In this Preface, I discuss the inspiration for this investigation into Kantian Adaptive Network Theory (KANT), from career experiences to academic pursuits and the introduction to democratic peace theory.

Inspiration:

In the mid-1990's, a company specializing in international medical and political risk hired me as one of two security managers. My colleague Frank, a retired FBI agent, and I were responsible for keeping the company's portfolio of clients safe from disturbances across the globe.

Walking into this job as an early-career naval officer separating from an active-duty tour analyzing the Bosnian War, I was familiar with the basic principles of "indications and warning" to predict impending crises. However, in that military capacity I possessed access to the full resources of the US government. At this company, my resources included day or week-old newspapers, dial-up Internet, and the nascent data resources of CompuServe and AOL.

Although we did not lose any clients to the crises of the day (Liberia, Taiwan, Cambodia, etc.), it occurred to me that there had to be a better way for two analysts with computers to gain a better picture of the world, especially of impending civil wars – and process this information early enough to intervene to save lives.

Over the following years, during military and civilian employment opportunities, one of my persistent peripheral work projects involved investigating different tools and theories for automating the indications and warning process. These efforts generally

involved investigating various methods and tools for ingestion and analysis of multiple data streams to determine trends.

Moving forward to 2006, during my MA studies at Boston College, our coursework encompassed the concept of democratic peace theory (DPT) (Russett & O'Neal, 2001). During my further readings on the subject, few, if any, researchers applied the full theory (democracy + economic interchange + institutional participation) to intrastate conflict, and yet it seemed (Sullivan, 2007, unpublished) that such an avenue of research might be of value with the potential to save lives. The problem perseveres: intrastate conflict, albeit down from the post-colonial height of conflicts, still persists, with an average of 31 conflicts each year in the 2008-2012 period. During this span, Uppsala's UCDP (2014) reports at least 136,000 persons lost their lives in the course of these conflicts.

Relevance:

Building upon my career experience as a naval officer, government civilian, and defense contractor participating in most of the major crises of the last 30 years, I note the iterative nature of political science research feeding into of the policy process.

During development of an introductory international relations (IR) course, one learning objective critical to the placement of IR in the broader field necessitated deconstructing political science for my students. Similarly, working closely with a variety of colleagues from the wide spectrum between policy, praxis, and theory often necessitates establishing a common ground upon which to build analysis of international events and forecasts.

The further question then arises of how we, as political scientists, utilize our ability to quantify, explain, or anticipate changes to preserve, revise, or just simply remain neutral in the larger scheme of reaching decisions, distributing resources, and ostensibly working to improve the general welfare of the country and global community. Lives do, ultimately, depend on our ability to research, analyze, and disseminate the insights gleaned from our research. Toward that goal, I intend to shape this dissertation to maintain a level of accessibility with policy makers who may find this research illuminating.

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CHAPTER ONE: INTRODUCTION

In this chapter, I discuss risk to global stability presented by intra-state conflict, which develops into the argument for a hybrid theory that I designate as Kantian Adaptive Network Theory (KANT) as a diagnostic ontology for indications and warning of conflict.

The etymology of KANT evolves from two permutations of Kantian thought, specifically focusing on the formal iterative networks illuminated in *Perpetual Peace* (1795), and the dynamic between formal juridical networks in tension with each other as well as against and in concert with the informal social networks described in *Metaphysics of Morals* (1797). These networks then operate within a complex adaptive network construct (Holland, 1992; Cilliers, 1998) framework of interactivity and feedback such that discrete elements within the larger network cooperate, compete, or confront other discrete elements at varying network distances to exchange information or maximize goals.

In the praxis of intra-state governance, these dynamic tensions both reflect the *zeitgeist* of the societal quantum state across the series of moments, and, iteratively evoke adaptations by the participants to changing circumstances and opportunities; further, these adaptations affect and operationalize across the formal and informal networks formed by an elastic mesh of interests and alliances. The theory then attempts to provide explanatory power for measuring the impetus for preservation or revision of the intra-state equilibrium through focused analysis of specific datasets.

In the first section, I set the stage for the investigation through a discussion on the risk presented by the ongoing epidemic of intra-state conflicts. To examine the theoretical underpinnings of the relationship of political science to policy recommendations, in the second section I open the aperture to lay the groundwork for this investigation in terms of the trajectory of political philosophy leading into political science.

Moving further from philosophy toward operationalizing results, in the third section I then demonstrate a process to connect the insights gained through the political science processes to policy implications. Finally, I detail the remaining chapters of this investigation to illuminating proposals to distill KANT into policy implications.

Section I: The Intra-State Conflict Problem

Intra-state conflict persists, albeit at reduced levels compared to the post-colonial height of conflicts, with an average of 14 new conflicts sourcing a steady state of ± 30 enduring conflicts per year in the 2008-2012 time-frame. During this span, Uppsala Conflict Data Project (UCDP) (2014) reports at least 136,000 persons lost their lives in the course of these conflicts, not counting 2nd and 3rd order effects such as the millions affected by internal and external displacement, disease, social upheaval, rape, threats to food security, etc. (Gray, 2015).

The rich and significant collection of literature on the subject of civil war provides a diverse range of explanatory arguments concerning the initiation, continuation, and cessation of intra-state conflict, a discussion explored in greater granularity in Chapter 2. Yet, that spectrum of literature exhibits a void in terms of exploring the mutually related concepts of social capital theory (SCT) (Putnam, 2002) and tri-partite democratic peace theory (DPT) (Russett and Oneal¹, 2001) within the context of the impetus for, conduct of, and resolution of civil war.

Adopting a historiographical archaeological approach, we can observe that contained within the philosophical tradition of SCT and DPT lies a foundational structure radiating from the writings of Immanuel Kant. Russett and Oneal explicitly acknowledge this lineage, whereas the SCT literature incorporates it more implicitly. Likewise, a paucity of researchers discovered to date investigated the applicability of the broader Kantian visualization, integrating elements of both *Perpetual Peace* (1795) and

¹ Yes, that is the correct spelling of his name. <http://psc.ua.edu/profiles/john-r-oneal/>

Metaphysics of Morals (1797) across an interrelated system of formal juridical and informal networks responding to and affecting intrastate conflict.

When interpolated, Kant's theme weaves the informal social network of rights and obligations at the autonomous individual level (Rauscher, 2012), manifested within social capital theory, with the formally networked proposition of a DPT (democracy + economic interchange + institutional participation) interlaced within juridical-based governance structures. Yet one gains the impression (Sullivan, 2007, unpublished) that such an avenue of research holds explanatory value at the indications and warning level with the potential to save lives should significant results emerge and then brought to the attention of policy makers.

This investigation thus tenders the proposition that society/states comprised of increasing adaptive Kantian formal structured and informal networks (communities of interest and/or communities of practice) acquire increasing resilience to stressors, and thereby possess increasing resistance to impulses leading to intra-state conflict. From that proposition, we then examine whether this Kantian Adaptive Networks Theory provide significant indications and warning of intra-state conflict.

Section II: The Philosophy-Science-Policy Trajectory

Consistent with the historiographical archaeological approach, we initialize this inquiry through assessment of the modalities of the broader political science milieu in which this investigation resides. This discussion provides placement within the extensive context and grounding within the *raison d'être* of political science. In this section, I highlight the linkage detailing the effects of political philosophy and theory inspiring and shaping the political science processes.

These processes presents direct bearing on the salient aspects of the following quantitative and case analyses, with particular attention to the development of social contracts, the interlaced nature of the transmission of demands within the socio-governance matrix, and the grievance-demand-security-conflict spiral. Insights from political science then inform policy development; therefore, I tie my investigation into KANT into a similar trajectory.

Political Philosophy Driving Political Science:

Reviewing the rich literature of political philosophy publicists, particularly Strauss (1989) and Comte (1830:34-35), clearly that epistemic community presents an endeavor to place political science in perspective of relevance to the social matrix and the civic art, not simply beholden to science and scientific method. However, they do not discount the value of the scientific method as a means of analysis, just not an end in and of itself. Later, Almond and Genco (1977:490) reinforced this concept through their analysis of Karl Popper's essay (1972), adding their own description of the political

system as one of choices and decisions formulated in the context of memories, experiences, expectations, constraints, and opportunities.

Each of these contextual vectors induces effects in the cognitive and physical domains through transmission via the information domain (Arquilla, 1997; Romanych, 2005). Yet, as Strauss and Weber (1949) noted, strict adherence to a scientific perspective is insufficient to create a framework capable of analyzing the moral and ethical benchmarks that drive choices and decisions, especially compared with a framework that takes an ecumenical approach. Comte strengthens this by highlighting the dynamic balance evident between the “imagination” of theory compared with the “observations” of science.

Schram’s (2005) refinement of the perestroikan² emphasis on a “problem-driven, contextually sensitive” approach or Flyvbjerg’s³ development of “phronesis” to emphasize the multiple dimensions of political contexts are arguments toward such an ecumenical approach that incorporates the best of imagination and observation.

Amorphous moral and ethical benchmarks, such as good, truth, beauty, and justice (Lave and March, 1993:73-74) bedevil the political philosophers. Both Strauss and Weber struggle with the paradox that science cannot prove the existence of “good” without delving into metaphysical realms; however, Strauss acknowledges the possibility of establishing arbitrary benchmarks fashioned through a collective negotiating process among interested parties, which constitutes a more heuristic approach.

² Scott Heller and D. W. Miller, "Hot type: (The Mr. Perestroika rebellion)," *The Chronicle of Higher Education* 47, no. 12 (2000): A28.

³ Bent Flyvbjerg, as noted in both Schram (*ibid.*, p. 109) and David Laitin’s “The Perestroikan Challenge to Social Science,” p. 121.

For example, at a basic level of political analysis, the process of negotiating an agreement – a social contract - as well as the agreement itself, between two adjacent farmers (or tribes) to respect each other’s property and their right to raise sheep on one farm and cattle on the other without interference can set an ethical benchmark. Elevated to a macro scale, the Universal Declaration of Human Rights (United Nations, 1948) performs and codifies a similar function. The Declaration sets a benchmark, albeit one that may contain scientifically unprovable moral guidelines, but due to its essence as a commonly accepted frame of reference, it provides an arbitrary starting point by which political processes, actions, and institutions may be analyzed.

Metaphysical texts may influence cognitive process behind such an agreement; however, by reaching an agreement in the cognitive realm and creating effects in the physical realm, the benchmark becomes secularized. Such a negotiated consensus may not achieve what the Athenians acclaimed as “the good” by Platonic standards, but for the farmers faced with an emergent property dispute, a negotiated consensus achieves the necessity and sufficiency of “good enough” to work until a more elegant agreement is developed, negotiated, implemented, and enforced. An important distinction, aligned with Strauss’ concerns, clarifies that such a system of benchmarks is not contiguous with relativism, which holds that all ethical positions are equally valid. Setting a benchmark by a negotiated settlement, such as the Universal Declaration of Human Rights sets high enough standards that truly egregious behavior potentially triggers corrective action.

Therefore, political science develops the mission to examine the political complex, its elements, and relations. The task of examining the Δ (delta) between benchmarks and practices, changes to the benchmarks, trends of the Δ (delta) over time, explanation of past benchmarks and past practices, and merits of different benchmarks; and finally, to develop the prescriptions that informs policy decisions for the next step of the process.

Expanding on the opening paragraphs, we observe major trajectories of thought concerning methodologies- quantitative methodologists employing the scientific method to formulate questions, collect data, and test hypotheses; political philosophers and publicists utilizing philosophy, history, culture, and logic to conduct analyses; qualitative and ethnographic research into specific experiences and opinions; finally, the myriad of diverse hybrid fusions of methodologies. The products of these epistemic communities form the tools by which political scientists conduct their examinations of the political complex.

Political Science Driving Policy:

Before delving into quantitative and case analysis methods, we further examine the purpose of political science in relation to politics and policy. Przeworski (1970:17) noted that the goal of social science is to explain social phenomenon. Strauss similarly placed political science in the framework of civic art, those relations between people, shown to be composed of multiple domains and to incorporate the simultaneous actions of analysis, description, process, and praxis.

As noted in previous paragraphs, political scientists occupy a variety of positions with varying degrees of political responsibility, ranging from passive to active. We can now further probe into range of political science's responsibility by utilizing another concept noted by Comte⁴ and updated through application to business and military strategies, that shows the intertwining nature of facts to theory.

As we may perceive, facts, observations, imagination, and theories inform policies and actions, which in turn trigger effects in the physical or cognitive domain. Then the cycle or spiral initiates its next iteration; however, all that precedes it, as well as the dynamic vectors of the theoretical imaginings, seeking to either preserve or revise, also inform that next iteration. This spiral nature of the political process replicates in business and the military arts.⁵

As proposed by Colonel Boyd (1987), an analyst may de-construct all actions and processes into four elements of Observe, Orient, Decide, and Act (OODA), thereby forming an interactive loop, complete with feedback cycles and outputs (Figure 1, Coram, 2002:342 from Boyd's original). Although originally conceived to better prepare U.S. fighter pilots to defeat other fighter pilots in aerial

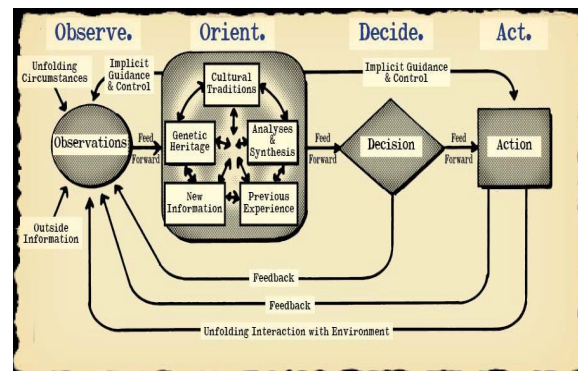


Illustration 1: Col Boyd's OODA Loop

⁴ Auguste Comte, *ibid.* "the necessity that always exists for some theory to which to refer our facts, combined with the clear impossibility that, at the outset of human knowledge, men could have formed theories out of the observation of facts...If it is true that every theory must be based upon observed facts, it is equally true that facts cannot be observed without the guidance of some theory"

⁵ I do have a point to this political philosophy exercise. We will see this iterative spiral concept again in Chapter 3 when it drives the Vector Auto Regression and Structural Equation Modeling analysis.

combat through efficient allocation of resources, energy, and time, it is clearly analogous to the relationship between political science and policy, which we view as a series of social processes competing over allocation of resources and time. Of interest, Collier et al., (2004) utilized a similar loop to describe the research inquiry process.

Stated briefly, Observation is the collection of data; Orientation is the analysis and synthesis of data to form a perspective; Decision is the determination of a course of action based on that now a-priori perspective; and Action is the physical enactment of those decisions. The important consideration for political science lies in knowing that each phase of the cycle requires some form of participation by individual political scientists from data collection, to analysis, to decision-making, and decision execution, all within the context of integrating relevant amplifying, contradictory, or deviational vectors received through the feedback mechanisms.

Contentiously reinforced in political science's discipline-wide "Mr. Perestroika" controversy a few years later, King, Keohane, and Verba (1994:4) tender the argument that political science lost its institutional awareness of its pervasive presence horizontally through the political process. The community, or portions of it at the least, lost focus on its responsibility to not simply spotlight the facts and observations, the "Observe" portion of the loop, but also remember that it has a place in the imagination, decision, and action that comprise the "Orient," "Decide," and "Act" portions as well.

Indeed, in this investigation I will, to borrow a phrase from so many political science publications, attempt to "bring the "OODA Loop" back in."

Nevertheless, there is also a “meta” aspect to political science as a science and a social science, as a component of humanity’s ongoing quest for understanding and, ultimately, wisdom. This other aspect requires recognition of the capabilities of political science in making progress along the path to wisdom. Wisdom is the culmination of a process that starts with data collection, information and knowledge management to answer Lasswell’s (1950) “who, what, when, where, and how” questions; continues with the development and appreciation of understanding that answers the “why” question; and finally, leads to achievement of **wisdom** through evaluation of our understanding. As noted by Ackoff (1989) only wisdom, of the “meta” processes, is truly forward-looking as it incorporates aspects of vision and design.

One might contend that while war is *an* option (Baratta, 2004) for achieving a decision concerning control of territory, governance processes, philosophical/ideological dominance, or extraction and distribution of resources, this investigation proceeds from the precept, more consistent from Kant and Locke rather than Foucault (Kelly 2009:50), that the noblest war is the one that never occurs. Should this investigation reveal policy options that lie within the capabilities of the aspects of national power⁶ at nominal cost - compared with the costs that conflict or intervention would entail - is it not in the country’s preeminent interest to invest those nominal expenditures of time and treasure before the scales demand payment in blood?

⁶ Expressed as Diplomatic, Information, Military, and Economic (DIME) or Political, Military, Economic, Social, Information, and Infrastructure (PMESII) capabilities "Joint Warfighting Center Joint Doctrine Series Pamphlet 3, Doctrinal Implications of the Standing Joint Force Headquarters (SJFHQ) - a423985.pdf" [cited 2015]. Available from <http://www.dtic.mil/dtic/tr/fulltext/u2/a423985.pdf>

Section III: The Course Of The Investigation:

This investigation encompasses five total chapters.

Chapter 1: In this chapter, I first set the stage for the investigation through an examination of the risks to the global community posed by persistent intra-state conflict. I then transition to a discussion on the trajectory of political philosophy leading into political science. Moving further from philosophy toward operationalizing results, I then connect the insights gained through the political science processes to policy recommendations.

Chapter 2 covers the configuration space and the development of the conceptual underpinning of this investigation, which I designate as Kantian Adaptable Networks Theory (KANT). We start with a discussion of Russett and Oneal's evolution of Kantian DPT, incorporate Putnam's Social Capital Theory, and discuss their potential relevance to intra-state conflict. Additional discussions on related literature provide supplementary perspective to place this investigation with the larger intra-state conflict teleological schema. Finally, I establish the methodology for the remainder of the investigation, including data selection, analytical design, and theoretical validity testing.

Chapter 3 provides discussion on hypotheses and the quantitative datasets and statistical methodologies applied to the data to highlight the explanatory value of KANT, operationalized through DPT and SCT, toward indications and warning of potential intra-state conflicts.

Chapter 4 provides a discussion concerning application of results from Chapter 3 toward the particular cases of Syria and Kenya. Additionally, I place additional

perspective lenses from social contract and center of gravity theory across the cases to examine case level variations.

Chapter 5 reviews the findings, discusses conclusions and policy implications, discusses whether KANT achieves validity as a theory, and highlights avenues of potential for further research.

CHAPTER TWO: ARCHAEOLOGY OF THE CONCEPT

This chapter establishes the configuration space⁷ and the development of the relevant conceptual underpinning of this investigation, designated as Kantian Adaptable Networks Theory (KANT).

We commence with a discussion of the focus of this investigation, and describe the exclusion of topics tangentially related but outside the focus of this investigation. We then briefly discuss Kant's exposition on formal iterative networks illuminated in *Perpetual Peace* (1795) and the dynamic between formal juridical networks in tension with each other as well as against and in concert with the informal social networks described in *Metaphysics of Morals* (1797).

We add a brief discussion of the complex adaptive systems concept and illuminate criteria through which social elements within these Kantian networks cooperate, compete, or confront other elements for information or goal maximization.

From that point, we examine Russett and Oneal's evolution of DPT as a permutation of the Kantian formal network argument. We then follow Kant's informal network concept to incorporate Putnam's Social Capital Theory, and discuss their potential relevance to intra-state conflict. Additional discussions on related literature provide supplementary perspective to place this investigation with the larger intra-state conflict teleological schema.

⁷ "Classical Configuration Spaces - Less Wrong " 15 April 2008 08:40AM [cited 2015]. Available from http://lesswrong.com/lw/pi/classical_configuration_spaces/.
Overriding Flyvbjerg's concerns, you will notice a few conceptual crossovers from the physical sciences throughout this investigation.

Section I: Defining The Configuration Space

This section reviews a sampled archaeology⁸ of some of the works of interest to this field, provide relevance to this particular investigation, and then, highlight areas of departure.

Included within the scope: The focus of this investigation necessitates limiting exploration to the following factors to maintain clarity. The scope includes surveying the explanatory power regarding:

- DPT: democracy, economic interdependence, and institutions
- SCT: social relationships, trust vectors, and pressures
- DPT/SCT represented through the 12 vectors of the FSI
- DPT/SCT expressed through KANT to extract indications and warning of impending conflict
- Focus on intrastate conflict reaching the level of civil war
- Use of the UCDP definitions and dataset for intrastate conflict variables

As noted in the next chapter, the Foreign Policy Fragile States Index (FSI) factors provide analogous proxies for the component DPT and SCT factors.

Excluded outside the scope: Although the lure of the vast bounty of interesting related topics and tangents dangles enticingly, this investigation, of necessity for clarity of focus, excludes examinations on the follow topics:

- Deep examination of the broader interstate conflict literature
- Examination of intrastate fractures and clashes not reaching civil war status (e.g., coups, nonviolent rebellions, etc.) and associated literature
- Examination of non-DPT/SCT causes of intra-state conflict
- Examination of DPT/SCT in context of perpetuation or cessation of intra-state conflict
- Investigations utilizing FSI for non-intrastate conflict scenarios
- Use of any other conflict definitional model or dataset, including Correlates of War or Project Ploughshares, etc.

⁸ Intended as an tip of the hat to the Foucaultian historiography concept

Any of these offer opportunities to develop into investigations in their own right for interested researchers, however, due to time and focus restrictions on the scope of this investigation, I stipulate their existence and tangential relevance, and opt to defer those investigations to a later time. Please see Chapter 5 for a brief review of additional research opportunities revealed during this investigation.

Section II: Foundation

The foundation of KANT and, by extension, the theoretical underpinnings of SCT and DPT evolves from two permutations of Kant's political writings. This investigation specifically focuses on the intra-state conflict effects created by the formal iterative networks illuminated in *Perpetual Peace* (1795) and the dynamic between formal juridical networks in tension with each other as well as against and in concert with the informal social networks alluded to in *Metaphysics of Morals* (1797).

In the praxis of intra-state demand vectors and governance, these dynamic tensions both reflect the *zeitgeist* of the societal quantum state observed in a series of moments, and, iteratively evoke adaptations by the participants to changing circumstances and opportunities; further, these adaptations affect and operationalize across the formal and informal networks formed by an elastic mesh of interests and alliances.

Russett and Oneal explicitly acknowledge this lineage (2001:29), whereas the general SCT literature, with key exceptions of Nawrath (2005) and Small (2009:235), incorporates it more implicitly.

When interpolated, Kant's theme weaves the informal social network of rights and obligations at the autonomous individual level (Rauscher, 2012), manifested within social capital theory, with the version formally networked proposition of the DPT (democracy + economic interchange + institutional participation) interlaced within juridical-based governance structures to intrastate conflict.

In the following two sections (Sections III & IV), I examine the Kantian formal network concept at the interstate and intra-state levels, with particular attention to their contribution to Russett and Oneal's democratic peace theory argument, and by extension, relevance to the indications and warning of intra-state conflict. Likewise, Section V examines the Kantian informal networks, operationalized as social capital theory, again, focusing on the relevance to illuminating the indications and warning of intra-state conflict.

Section III: Kantian Formal Networks At The International Level

This investigation proceeds to an examination of an application of Kantian Formal Networks, derived from *Perpetual Peace*, and operationalized as Democratic Peace Theory (DPT) to determine whether the theory – specifically, concepts of a particular version of that theory - provides explanatory value at the intrastate level in a similar manner to the interstate level.⁹

Democratic peace as originally conceived by Immanuel Kant and further refined by Russett and Oneal investigates a calculated equilibrium at the international level formed by three critical factors,¹⁰ expressed as

- Level of internal democratic institutions, such as republican governance structure, multiparty contested elections, broad opportunities for electoral and civic participation, and peaceful transitions of power
- Level of external economic interdependence

⁹ As detailed in Section I above, the scope of this investigation in no way encompasses an attempt to perform an exhaustive examination of the merits of DPT in the macro interstate realm. These next few pages present a brief discussion to pin DPT in its place in the literature and stipulate the controversies concerning the permutation of DPT as an IR theory. Section III discusses the applicability of DPT to intrastate conflict.

¹⁰ This is critical. Many other writers use only the “democracy” portion of DPT as the foundation for their analysis. I use the Russett–Oneal tripartite definition.

- Level of participation in international institutions, such as international law and international governmental and nongovernmental organizations

Note that this investigation builds off – but is not limited to – a particular variation of DPT. Numerous other authors (Waltz, 1959; Small and Singer, 1976; Bremer, 1992; Russett, 1993) investigated other variations of DPT, generally focusing strictly on the democracy aspect or the core contention that democracies *almost* never go to war with each other.¹¹ This epistemic stream devotes considerable resources in developing arguments over whether democratic states all possess within their polities the mechanisms and the experience of resolving disputes peacefully, contrasted with the contention that authoritarian (autocratic) states intrinsically lack this capability to achieve a sufficient degree of successful demand negotiation without devolving into repression or conflict.¹² Evolving Russett’s (1993) theory, the Triangulating Peace version evolves and expands on the earlier singular DPT paradigm. Russett and Oneal add Kant’s additional dimensions of economic interdependence and institutions, generally unaccounted for within mainstream (non-tripartite) DPT.

The Russett–Oneal argument proceeds beyond simple scaled democracy/autocracy, elevating to the equilibrium between relative levels of democracy, economic interdependence, and institutions all combined to ameliorate the drive for conflict—and strength in one area can balance a weakness in the other. An autocratic state may exhibit exceptional economic performance or a remarkable civil society

¹¹ Russett, *ibid.*

¹² Michael Corgan (Jan 28, 2015), based on a summary within email correspondence.

construct that also contributes offsetting vectors to ameliorate or resolve factional grievances.

Using the tripartite vector model, we can assess each country in terms of its relationship to other countries in both dyadic and systemic arrangements to determine the likelihood of conflict. From there we can calculate the probability of mitigating conflicts that invoke the lowest possible levels short of military involvement. Naturally, the dyads and systemic analysis can also include commonsense factors, such as “are the countries in the dyad actually connected in some way to present method, motive, and opportunity for conflict?” In this manner, a dyad formed of Uganda and New Zealand presents a *prima facie* presumption of peace as neither country lies within power projection distance to the other (Russett, 1993), nor do they tend to work within contiguous systems for economic activity, unlike Israel and Syria, for example.

As described by Russett and Oneal, assessing each country according to the three factors and in combination with the other countries assists determining the likelihood of conflict, noting the reciprocal relationship between dyad scores and likelihood of conflict.

Although it is possible for a given country to score high enough on the economic interdependence and international law factors to offset internal autocracy (e.g., China), evidence indicates that higher levels of democracy across both dyads and systems reduce the chance for conflict due to the higher conflict thresholds inherent in a democracy.

Russett and Oneal, building on Kant’s analysis, highlight the interwoven nature of democracy to economic integration and institutional participation and the relationship to

defining the ground state of the international system tending toward peace rather than conflict. When a declaration of war requires 51% or more of a country's voting population or representatives to agree, the bar to entering into interstate conflict sits far higher than for a singular dictator, or relatively small cabal to enter into a military conflict. Further, a democracy also provides a mechanism to demand a quick resolution to a conflict by the simple expedient of voting out the incumbent.

This does not imply that the other two factors create less impact on the equilibrium; however, the theory at hand encompasses "democratic peace," not "economic peace" or "international law peace." Indeed, Russett and Oneal go to great lengths to demonstrate how economic interdependence and international law contributes to the overall equilibrium in an interconnected and self-supporting model. Economic interdependence lessens the likelihood of conflict, as the business community is unlikely to support military action against the other member of the dyad due to the potential economic costs. Should the elites contravene the public will or fail to meet negotiated social contract expectations, democratic processes voice the expression of constituents' disapproval at the next election.

Further, greater participation in international institutions and international law provides a multitude of avenues for both economic cooperation and conflict resolution through formal and informal organizations at the lowest possible level, as well as normalized social interactions that tend to increase recognition across countries. One only need observe recent events to perceive international organizations enter the public consciousness as valid arbiters of interaction, such as the North American Free Trade

Agreement (NAFTA), World Trade Organization (WTO), International Criminal Court (ICC), and notable international sporting authorities such as the World Baseball Classic and International Federation of Football Association (FIFA) World Cup.

One of the strengths of democratic peace as an IR theory exemplifies the dialectic evolution from predecessor theories such as the realism/neorealism of Machiavelli, Morgenthau (1957*), Waltz (1959), and Krasner (1999). From that basis, DPT adds Liberalism or Complex Interdependence (Keohane and Nye, 1987) and incorporates aspects of Structuralism (Martin and Simmons, 1998), culminating with elements of Social Constructivism (Wendt, 2003; Reshaur, 1992).

While unlikely that an analytical construct such as DPT constitutes the “end of [political] history” as Fukuyama (1989, interpolating Hegel)¹³ describes, nor quite a unified field theory of IR, by incorporating the strongest aspects of the precursor theories, political scientists have a stronger tool to model empirical reality and provide sounder policy advice to policy makers.

Conversely, as a relative newcomer onto the IR theory playing field, DPT remains less accepted among policy makers, and faces opposition from scholars (Layne, Spiro, and Owen, 1994) entrenched in other theories, thereby making application from theory into policy problematic.

Of note, many countries do not score well on the democratic peace scale due to one or more deficient factors, which drives up the probability of conflicts between dyadic or even systemic members. As noted above, China scores well on economic

13 F. Fukuyama, "THE END OF HISTORY?" NATIONAL INTEREST 16 (1989): 3-18.

interdependence and support for international institutions; however, it is still a fairly autocratic and repressive governance regime, as recent events in Tibet and Hong Kong demonstrate.

As noted in Russett and Oneal, the number of democracies, the global economy, and proliferation of international institutions rose dramatically since 1945. Concurrently, the number of international conflicts decreased while the number of civil wars increased, resulting in countries still working out their identity and grievances. The few international conflicts that recently erupted generally lie at different ends of the democratic spectrum.

Examination of the Polity-IV data (CSP, 2014) indicates the international system continues to evolve, with some occasional retrograde, toward democratic parity. Concurrently, “partly free” countries inject a level of uncertainty into the international dynamic—in this manner, the security dilemma rears its ugly head.

Uncertainty breeds insecurity, which injects a tendency to revert to military means of conflict resolution, which in turn prompts a mirrored response. As noted above, higher levels of democracy provide a higher military threshold and a greater likelihood of finding alternate crisis management options that can be reassuring to other dyad or system members. By exercising democratic peace calculations, a political scientist can evaluate the indications and warnings of potential conflict across a dyad or system that contains “partly free” countries.

Policy implications from DPT models may wield greater explanatory value and provide more efficacious policy options toward the task of decreasing regional and global conflicts.

Projecting forward, a political scientist in the western or OECD countries applying a democratic peace model might advocate the following to create the conditions for, or emphasize the comparative advantages of, democratic peace ideals in the “partly free” countries, and reinforce the gains already accomplished in the OECD countries:

- Increased reliance on the nonmilitary aspects of national power (i.e., P(m)ESII capabilities)
- Normalizing capabilities of international institutions in those same areas as agents and external validations

Naturally, it follows that as the number of countries scoring well on the democratic peace equilibrium rise, the web of interconnected and interdependent economies lash their economic fates together and the international institutions filling the seams and gaps between nations proliferate, and the nations of the world may discover advantage in revisiting Kant’s idea of a global governance model. Such a governance model provides the final spike in the heart of the realist’s treasured belief concerning the anarchic (Wendt, 1992) nature of the international system.

The term *degree* merits additional exploration. Not all countries are equal to the same level at each nexus; however, gains in relative strength of a given nexus may offset the deficit in another. For example, compared with the United States, China displays relatively low degree of democracy and a high degree of authoritarianism; however,

it presents offsetting factors of institutional participation and economic interdependence that tend to indicate that a China–US war is extremely unlikely now. However, Russett and Oneal's research indicates that countries composed of mixed systems tend to exhibit the highest degrees of instability and insecurity, which in turn increases the probability of conflict.

The relationship of security and insecurity provides an interesting social and political view of the causes of conflict when scrutinized for aggravating factors: economic, ethnic, territorial, power, social, political, revenge, etc. Each of these factors contributes to a polarizing effect on the security equilibrium. When appraising intrastate security, one can use these factors to examine whether internal faction A assesses the security symmetry about their relationship across economic, security, grievances, etc. with internal faction B.¹⁴ How secure or insecure are the factions across the multitude of factors? What is the trend of the levels of security in that particular case? I can then estimate that if the dynamic tension between the level of security as perceived by faction A and faction B heads toward or reaches untenable levels, a crisis point emerges, creating pressure for mediation from internal or external mediators—or the escalation toward conflict.

Given the expansion in the number of countries that score high on the democratic peace scales since World War II, it is natural to wonder whether a correlation exists between increases in these numbers compared with the reduction in the number of

¹⁴ For the purposes of most of my analyses, I define “security” as the difference “delta” (Δ) between perceived current level of DIME/PMESII equilibrium compared with a collectively defined arbitrary benchmark of desired or acceptable levels of danger/safety, fear/calm, anxiety/tranquility, and despair/hope. We then observe the movement of that equilibrium, “theta” (θ), of that equilibrium over time (past to present, present to future) closer or farther away from that benchmark.

international conflicts. Likewise, if factions achieve high scores on the Kantian nexuses, and the other factions indicate equivalent evolution in their nexuses, it follows that there is greater security in the system as a whole; therefore, those aggravating factors have a greater probability of finding resolution through the elements of democratic peace: democracy, institutions, and economic interdependence. Studies by the Center for International Development and Conflict Management tend to support this assessment.¹⁵

Clearly, the data shows a telling correlation between the increase in the pervasive nature of international institutions and the other elements of democratic peace as well as the corresponding decrease in the incidents of international war. It certainly appears that international decision points increasingly achieve arbitration through the democratic peace mechanisms long before the use of force even develops into a course of action seriously considered.

To illuminate the transition zone between interstate and intrastate, Buzan et.al., (1998) develop their Levels of Analysis concept that synthesizes across the spectrum, not just relying on any single layer, whether state, institutions, or individuals.

Global Structures and Institutions	Inter-state
Regional and multinational Structures and institutions	
States/governance structures	Intra-state
Group/civil society, informal structures and sub-state institutions	
Individuals	

¹⁵ “CIDCM | Peace and Conflict | Home” [cited 2012]. Retrieved from <http://www.cidcm.umd.edu/pc/>.

By expanding the focus dialectically, we perceive a richer horizontal and vertical field of analysis to track changes in identity, preferences, norms, and demands, each simultaneously resident within a layer, yet also generating effects vertically.

Now clearly there are initial parallels between this list and some aspects of Skocpol's (1979) Historical Structuralism, or Wallerstein's (1998) World Systems Analysis concepts, further intertwined with elements identified in experiential learning as "Systems of Systems Analysis" (SOSA) (Allen, Sheckley, and Keeton, 1992), as well as Holland's Complex Adaptive Systems concept. KANT also evolves from each predecessor to show the integrated horizontal and vertical net that connects individuals to organizations/institutions and governance structures.

In the SOSA model, following Almond's (1990) concerns about viewing human political behavior as reactive and Thelen and Steinmo's closing discussion about agency and choice, we may visualize the different layers of analysis possessing intertwined series of OODA loops. Each series receives input and provides output in horizontal as well as a fully integrated vertical flow such that each layer is able to transmit and receive to and from all other levels and across the full PMESII (political, military, economic, social, infrastructure, and information) lines of operation. The actors at each level are part of an iterative spiral creating new norms, transmitting norms and demands from their own as well as other levels, satisfying or rejecting demands, and manipulating symbols relevant to their zone of influence.

In this evocation/transmission/satisfaction loop, by creating a delta between an optimized decision and a "satisficed" (Simon, 1957:118) decision, we see that there is

room for the inclusion of not just economic needs, but across the full PMESII spectrum whereby other factors can be accounted by acceptable risk that seem counter-intuitive when viewed through a strictly rational-choice/economic lens.

Complex Adaptive Systems:

In our discussion of Kantian networks, we will later examine mechanisms (time, conflict, center of gravity, etc.) through which social networks display adaptive behavior to inputs and stressors. Such evolving critical functionality enables operations within a complex adaptive network framework of interactivity and feedback. Within this construct, elements within the larger network cooperate with, compete with, or confront other elements at varying network distances and compositions to exchange information or maximize goals. While an extensive discussion of Complex Adaptive Systems (CAS), lies beyond the scope of this investigation, certain components merit introduction.

CAS, introduced by Holland (1992:19) based upon his work in cyber networks, biology and psychology, notes that complex networks display certain functions, namely evolution of adaptations from past outcomes, aggregate behavior seeking goal maximization, and anticipation of alternative outcomes combined with game theorization to project actions, inactions, and reactions of other network elements. Social networks exhibit these functions, building upon an iterative series of interactions emanating from the discrete elements within the network.

Building upon Holland, Cilliers (1998:3-4) further clarified key characteristics of CAS that possess relevance to this investigation:

- The number of elements may be sufficiently large that conventional descriptions fail to adequately assist system analysis
- Elements within the network interact dynamically, and the interactions can be physical or information
- Such interactions are rich, i.e. any element or sub-system in the system is affected by and affects several other elements or sub-systems
- Some interactions present non-linear effects: small changes in inputs, physical interactions or stimuli can cause large effects or very significant changes in outputs
- Interactions are primarily but not exclusively with immediate neighbors and the nature of the influence is modulated
- Any interaction performed can feed back onto itself directly or after a number of intervening lags and at varying qualities and quantities.
- Such systems may be open and it may be difficult or impossible to define system boundaries
- Complex systems operate under less than optimal equilibrium conditions. Energy must flow constantly to maintain system organization
- Complex systems possess history. They evolve and their past is co-responsible for their present behavior
- Elements operate in ignorance of the behavior of the system as a whole, responding only to the information or physical stimuli available to them locally

Each of these CAS characteristics affect network elements within each country.

To illuminate the effect of these factors on the centrifugal or centripetal vectors ameliorating or exacerbating impetus toward intra-state conflict, this investigation examines some CAS mechanisms, including the downstream effect of factors, previous conflict as a factor affecting future conflict, and the iterative dynamic across centers of gravity for elements within the social contract construct.

Again, fully investigating CAS within the context of intra-state conflict lies beyond our scope, however, this rich and interesting framework holds potential for additional future research.

The following sections describe the configuration space focusing on formal and informal networks affecting the intra-state layers, the lower three levels, of the analytical layers.

Section IV: Formal Networks At The Intrastate Level

The question of whether democratic peace processes perform similar arbitration/mediation functions at the intrastate level appears under-investigated as of this writing. As noted above, Russett and Oneal's research indicates that countries composed of mixed systems, those located within the intermediate ranges of the democracy-autocracy spectrum, or those displaying antagonistic institutions, tend to exhibit the highest degrees of instability and insecurity, which in turn increases the probability of conflict at the interstate level. Moreover, we can certainly observe mixed systems among those countries experiencing intrastate conflict (Marshall, 2008).

While a vast body of research examines democratic processes, institutional mechanisms also encompass cooperative, cooperative, and competitive dynamics at both inter and intra-state levels.

As we can see from Weber's (1905) discussion of "Bureaucracy" and Pierson and Skocpol (2002), institutions implement structural – network - formations at sub-state and intra-state levels that evoked and transmitted norms and demands in political and social contexts. In addition, institutions function in tying the actors to path dependence, whereby actors' choices devolved into narrowed ranges of options due to the accumulated transaction and exit costs of previous decisions, as well as limitations upon the breadth of possibilities of courses of action.

There is of course the debate concerning the interchangeability of the terms "institutions" and "organizations" Martin and Simmons (1998) make a case for delineation of "institutions" as larger, broad, conceptual constructs, such as the

financial institution, and use of the term “organization” to denote specific corporate entities, such as the UN, American Legion, Citibank, etc. To the maximum extent possible, I intend to follow this ontology.

Yet, Weber’s bureaucratic “Iron Cage” shows the perversity of institutions simultaneously acting to restrict the breadth and transmission rate of norms and demands by constraining the conceptualization of ideas through sub-optimal and pre-formatted language within its area of jurisdiction. As Orwell (1946, 1993) notes, by controlling the language, an entity such as a government or institution maintains limits and controls on the expression of ideas. Further, bureaucracies either intentionally or unintentionally degrade public access to mechanisms of redress or demand transmission through a multitude of horizontal and vertical layering with no clearly identifiable navigation.

Mancur Olson’s (1971) investigations into collective action highlights groups that coalesce for some other benefit, such as labor issues, or commonality of experience, such as veterans groups, in turn create mechanisms exerting normative and resource pressure onto governance structures, as well as create negotiation pressure for provision of group economic benefits such as reduced insurance rates or tariff loopholes. As these groups grow in size, they create additional bureaucratic layers of management – and in some cases create seeds from which rebellion germinates.

At the supranational level, Keohane and Nye (1984) provided additional perspectives underscoring the role of the institutions at the supra-state and sub-state levels to support and facilitate the growing web of economic development based on international trade.

A rich body of research (e.g., Keck and Sekkink, 1998) highlights the power of institutions and their component organizations in the age of globalization. Additionally, some publicists, such as March and Olsen (1984), and Weingast (2002) revisited the institutional/structural model examining institutions as an actor in the governance process.

Institutions permeate the spectrum above the level of the individual, providing evocation and conduits for preferences, norms, needs, and demands in both formal and informal contexts. In some cases, organizations provide quasi-government functionality such as health care and education in cases where a government has abrogated its responsibility, or in the case of trade regimes, institutions provide governance capabilities in the supra-national environment lacking a legitimate governance structure.

Perversely, in addition to the constraining pressure noted above, these institutions potentially thwart the development of juridical governance once they become entrenched, presenting a *fait accompli* that requires intense political capital to overcome

One critical aspect of Russett and Oneal's interstate argument exceeds the capabilities of this investigation, namely the dyad relationship bears additional research to obtain the DPT/SCT granularity at the intra-state level. Conceivably, were social, political, economic, and institutional data available across these regions or divisions, a more nuanced comparative analysis is possible.

For example, both of the case study countries (Kenya and Syria) comprise a number of regions or administrative divisions, with Syria comprising 14 districts, and

Kenya, 7 administrative regions. Dyad analysis would create 94 Syrian domestic dyads, and 27 Kenyan domestic dyads.

However, few countries maintain the internal level of detail or consistency wherein analysis of that discrete data potentially provides insight and trend analysis to determine internal DPT relationships and resiliency level of those relationships. Therefore, as consistent data exists at the country level within the Fragile State Index, for the purpose of this investigation, I intend to limit the focus to a country level index and analyze changes in time-series to extract indications and warning of conflict.

To be clear, this investigation initially focuses the Kantian Formal Networks' Triangulating Peace DPT argument down to the intrastate level and then builds from that base. As noted above, I contend that a state exhibiting a robust and resilient equilibrium between levels of democracy, levels of domestic economic interdependence, levels of participation in domestic institutions, *and* a strong vibrant social construct may more adroitly withstand systemic shocks that lead to civil war than a state with a fragile, brittle balance between those factors.

It is that resilient-vs-brittle equilibrium built upon a democracy/autocracy foundation driving whether the citizens and governance opt to continue to work within the social contract that they negotiate with each other or whether they allow the tectonic pressures to drive them to seek grievance resolution through conflict.

In a preliminary incarnation of this investigation (Sullivan, 2013) I examined election turnouts (as proxy for democracy), domestic hotel check-ins (as proxy for domestic economic interchange, and football/soccer club participation (as proxy for

domestic institutional participation) for five countries, including Germany, Bosnia, Kenya, Turkey, and Syria. Using a scaled value methodology, a clear pattern developed, providing potential indications of a country's capability for resilience to stress across the DPT factors in time series, and conflict floors indicating an elevated propensity to degenerate into conflict as the DPT nexus degrades.

Building on those observations, this investigation presents an initial challenge: Does DPT provide explanatory value toward providing indications and warning of impending conflict at the intrastate level? By adding elements of SCT (Putnam, 2002), can I intercalate international institutions with domestic societal networks, as intrastate dynamics hold more social dependence than international relations?

Once measured, can I determine what mix of DPT and SCT elements holds significance in maintaining a country's resilience? If DPT/SCT is not explanatory in a given case, can I examine why those intrastate factions in the mixed-system states cannot attain acceptable levels of security and an arbitrational outlet internal to a country, leading to resolution of their grievances through factional war?

Section V: Kantian Informal Networks

This investigation now proceeds to an examination of an application of Kantian Informal Networks, initiated in *Metaphysics of Morals*, and operationalized as Social Capital Theory (SCT) to determine whether the theory provides explanatory value at the intrastate level.

War, like politics (Clausewitz, 1873) is a human activity, and the logic that a real-estate maxim of “location, location, location” so simply explains a nation’s fate fails to persuade. As we shall observe in the next section, although Goldstone et al. (2010) achieved high correlations to conflict with infant mortality, “bad neighbors,” etc., these are generally factors providing little, if any, bearing on human agency as a factor in conflict.

The human dynamic as noted by Wendt (1999) and Lichbach and Zuckerman (1997) as well as the social institutionalism of Hall and Taylor (1996) provide a counterbalance within the state – institution relationship. This cultural layer injects reminders to ensure that analysis and action begins with the individual. Too often political scientists treat states and institutions as actors independent of the people who work in those offices.

As Jackson (2002)¹⁶, Hall and Taylor (1996), and Thelen and Steinmo (1992) emphasize, reified institutions, organizations, and states do not make decisions, people do. The human-in-the-loop nature of all transactions, whether active decisions or Immergut’s (1990) counter-balancing ‘veto points’ requires the balancing of preference,

¹⁶ Jackson (2002) wryly reminds us that: “States are people.”

norms, needs, and demands at the varying levels of analysis – but the decision maker is always an actual person. That person may well make decisions to support themselves, or their organizational or bureaucratic mission, and those organizations might have juridical identity but the consequences and responsibilities for that decision falls upon the individual.

We further perceive the connection between the human agency driving conflict in Skocpol (1979, and Gregor, 2014), wherein she examines and rejects four major groups of social theories of revolution and then advocates for a fifth.

The first, classic Marxist theory evolves out of dialectic structural conflicts between the production-sector and class-based property owners. The second, aggregate-psychological theory claims oppositional movements form through the participants' psychological motivations informing beliefs concerning social-contract legitimacy. A third, system/value consensus theory asserts political violence results from the actions of ideological movements responding to socio-economic fractures. The fourth, political-conflict theory argues participants cannot engage in political action until they achieve a certain minimum level of organization and resource accumulation.

Skocpol rejects all these theories as they all argue from a manufactured crisis position. She then argues for a structural approach to revolutions, noting that combination of domestic and international relationships of the state and the state's response to the demands and crises determine whether the regime maintains the support of key elites to suppress conflict, regardless of the acquiescence or support from the popular majority.

To some extent, these theories inform the iterations in the center of gravity analysis in Chapter 4 and inform analysis concerning variance in the conflict factor “fingerprint.”

Historically, Small (2009:235) notes the extended lineage of Social Capital reaches back to Kant, therefore, in addition to the formal network analysis (DPT), I opted to add Kantian Informal Networks, operationalized as Social Capital Theory, as a line of inquiry to this investigation to examine their explanatory value toward intra-state conflict. While in-depth examination of the history and permutations of SCT lies beyond the scope of this investigation, a review of the conceptual archaeology assists in understanding the relationship of social capital to the centrifugal and centripetal vectors affecting intra-state conflict – and thus drives the assessment of FSI factors as proxies in developing indications and warning of such conflict.

Kantian Informal Networks builds on Kant’s long-running dialogue with Achenwall¹⁷ (Kant 1795, 1797; Achenwall, 1768; Nawrath 2005; Rauscher, 2012) concerning the boundaries, rights, freedoms, and responsibilities of persons and groups inhabiting or transitioning between the state¹⁸ of nature, the ‘private state’ (alternately, Achenwall’s¹⁹ ‘social state’), and, ultimately, the juridical or civil state. This dialogue culminates in *Metaphysics of Morals*, wherein Kant reluctantly

17 Alternately, KANT could parse out as Kant-Achenwall Networks Theory

18 Meaning “condition,” as in states of matter. Without diverting into a complete exposition on Kant, in Morality he seems to follow a model of hierarchies of state, asserting that juridical or civil states become elevated in a Platonic sense, rising closer to a more perfect condition.

19 Achenwall, G., *Ius Naturae*, 1768; “Since each human holds happiness closely, all {humans} are of united strength to pursue mutually shared happiness and thus naturally bound to become a universal society. Therefore all duties tend toward others and consequently those are of necessary {meant} as social thought, it is clear that the obligations and the duties of necessity, can be regarded as the perfect law of obligations” Translated from Latin, 2015 by Dennis Sullivan

acknowledges the impact and necessity of small groups forming families and societies, yet existing in a state of nature under a system of private rights (Ebels-Duggan, 2012). However, he carefully caveats recognition and levying importance to these groupings and their internal and external relationships until such time as they achieve a form of juridical structure through publicly enforced norms of property and obligation rights (claims) becoming law, and thus transition from the state of nature into civil society.²⁰

The modern concept of social capital emerged more fully from Tocqueville (1835) and Durkheim (1893) concerning the strength and resilience of informal and formal civil society structures. The term achieved generalized consciousness when Hanifan (1916, 1920) coined the phrase “social capital” to describe the symbiotic relationship between the individual and those non-governance civil society elements providing social benefits, transmission of demand signals, and recognition of mutual interests. Similarly, future publicists asserted that social capital develops from the network of cooperative relationships between citizens that facilitates resolution of collection action problems (Coleman, 1988; Putnam, 1993).

Small (2009:6-7) further acknowledges the social capital theory contributions of Bourdieu (1977, 1986), Coleman (1988) and Lin (2001) noting their development of a formalized social network analysis theory and praxis. These works culminate in a description of four crucial social capital resource types invested in and leveraged across social networks: information, influence over people, social credentials, and the psycho-social reinforcements provided by and leveraged through these networks.

²⁰ Metaphysics of Morals § 22 & 41

More relevant to this investigation, Putnam (2002:11), echoing Waltz (1959) and contemporaneous with Hedges (2002), highlights the relationship of war to social conflict, noting the “bonding/bridging” function of war to social capital.

Of interest, Putnam’s “bonding/bridging” function, further explored and amplified through the civil/uncivil/formal/soft spectrum matrix of social capital (Perez-Diaz, in Putnam, 2002:245-287), also creates an opportunity to examine social capital from the causative perspective as well as an iterative cause and result of conflict.

Brehm and Rahn (1997) observe the reciprocal relationship between community involvement and trust in others places social capital at the individual action and cognitive levels. The scale of social capital reflects the participant’s psycho-social involvement with their communities, inherent cognitive abilities, economic resources, and overall satisfaction and quality of interactions, which affects trust in their local society and national institutions.

This trust spectrum drives participation in the formation, normalization, and operationalization of Communities of Practice as well as the boundary edges creating transitory inclusion/exclusion zones between the communities. (Lave and Wenger, 1991) that in turn foster the development of conflict trajectories discussed above in Skocpol.

Henri and Pudelko (2003) refine this discussion by observing the relationship between communities of interest and communities of practice. Of interest for analyzing the development of center of gravity analysis in potential conflict environment, they further assess that communities of interest/practice may well be local, global, and/or virtual, and combinations thereof. Interpolating Parsa (2000), these communities of

interest/practice inject an iterative dynamic during the grievance and alliance formation phase of impending conflict, as well as the decisive phase of engaged conflict. In a variety of cases, what external actors perceive as intra-state conflict, upon examination, deconstructs into a series of micro inter-group conflicts.

At the quantitative level, Lee, Jeung, and Chae (2011) attempt to overcome criticisms that the difficulty in creating measurement of social capital therefore degrades its value in providing empirical insight. In response, they develop a broad measure of social capital, incorporating four major components: trust, norms, networks, and social structure. Employing data measurements of these types of social capital, they constructed an index of social capital for 72 countries by extracting the principal components from 44 variables.²¹

From the Kantian foundation, the relevance of social capital resource types across the informal network lends corroboration to inclusion of social capital as a variable for analysis. Lee, Jeung, and Chae's model further highlights necessity for quantifiable social capital factors in this investigation.

²¹ Interestingly, as a side analysis I performed a regression analysis on Lee's index against the master conflict data from Chapter III, developing an R^2 of .13 with significance, approximately one half of the R^2 result achieved using the SCT components of the Fragile State Index, at $R^2 = .22$

Section VI: The Deeper Literature Archaeology

Scholarship at the nexus of DPT, SCT, intrastate/civil war, and the FSI appears rare²² to nonexistent as of this writing. However, this investigation does not exist in a complete vacuum. Numerous publicists address the range of discrete components synthesized into this investigation, but addressing that full range of publications far exceeds the scope and limits of this investigation. The following subsections provide a high-level review of selected relevant publicists, broken down in the broad categories of DPT and the FSI.²³

DPT:

Building on the concept of DPT/SCT in specific relation to intrastate conflict presents a challenge, yet the challenge appears to have few direct takers to date. DPT literature—specifically Russett and Oneal's interpretation of Kant's triangular structure of democracy, economic interdependence, and institutions—presents limited investigations into DPT's explanatory value for intrastate conflict (likewise for SCT). Investigations into DPT's explanatory value in interstate conflict abound, but that line of investigation remains outside the scope of this particular investigation.

Although Bremer, Regan, and Clark (2003) recommend that intrastate conflict warrant inclusion in an ontological process examined through multiple analytic perspectives, including DPT, an initial review of the DPT/SCT literature presents limited investigations into exploring whether DPT/SCT provides explanation

²² One possible candidate paper by Lochard, I. V. (2008) remains under embargo, so unable to determine applicability beyond the public abstract.

²³ AKA Failed State Index.

of conflict at the intrastate level. For example, Davenport and Armstrong (2004) look specifically at effects of democratization on internal repression. Likewise, Sow and Davoodi (2008) perform a case study on democracy and peace in Zimbabwe.

However, as with most of the few other authors discovered to date, they tend to focus solely on the effects of democracy and democratic pressures on the regime, excluding the economic and institutional factors critical to Russett and Oneal's analysis. Similarly, other authors focus on economic (Boix, 2008) or institutional issues (Auerswald, 1999) to the exclusion of examining democracy factors.

Likewise, the broader intrastate conflict literature tends to focus on discrete areas of analysis that peripherally touch on a DPT/SCT-based analysis. Given the myriad of permutation of conflict and conflict's predecessor conditions, I contend uni-variate analysis falls short in providing global explanatory value.

Collier and Hoeffler (2000, 2004), and later Collier, Hoeffler and Rohner (2009) initiate their inquiries by exploring how demands and opportunism tie to economic and grievance resolution; however, their investigation ultimately presents economic decline as more significant than grievance. Boix (2008) further reinforces economic factors contributing to civil war and other politicized violence, especially in areas of high inequality and predominantly agrarian economies. As we shall appreciate in Chapter 3, my results, derived from both univariate and several multivariate analyses generally favor Group Grievance over economic causes when focusing on singular explanations, however provide some slight buttress to the economic argument in the flash-to-bang model with economic factors alternating prominence with group grievance depending on

the analysis performed. While interesting, this range of results, depending on the analytical method, lends credence to a optimizing for a multivariate approach, rather than creating a competitive environment among univariate analysis enthusiasts (Ward, et. al., 2010).

Additionally, Arnson and Zartman (2005), Kalyvas (2006), and Evans (2006) all highlight that intrastate conflict erupts through the influence of a web of vectors unique to each country, a factor fingerprint, creating a dilemma for univariate-centric analysis seeking global explanatory value. Poverty might hold potency in Country A, yet registers as irrelevant in Country B. Thus, I contend an adaptable taxonomy across all FSI factors provides flexible explanatory options at both country and global systemic levels.

Walter (2004) analyzes conflict itself as a contributing factor, although she notes that even though earlier conflict possibly will inject higher propensity for a later conflict, it is not necessarily determinant. To explore the impact of previous conflict, I incorporate an examination of downstream conflict effects in Chapter 3.

A smaller group of publicists pursues multivariate investigations. Goldstone et al. (2010) posits a multivariate model; however, their analysis uses only a single DPT element, type of democracy, combined with infant mortality, location near other conflict countries, and state-led discrimination to predict intrastate conflict. Of interest, none of the other tested and rejected variables²⁴ encompasses democratic peace, only one touches social capital vectors, nor does the FSI reflect these variables directly.

²⁴ Goldstone, *ibid*, p. 207

As Goldstone et al. notes²⁵, a majority of the variables typically used by political scientists to explain intrastate conflict remain outside the realm of factors that policy changes can affect in the short term, such as terrain and resource endowments. This highlights an important area for potential research. As intrastate conflicts involve the decisions and actions of a country's residents that tend toward resolution or conflict, I contend that an examination should focus on factors under the direct or second order control of the residents, or at least proxies for those factors.

Fearon and Laitin (2003) examine a wider scope of factors in close equivalence to DPT factors. Ultimately, they conclude that poverty, a large population, and instability-are effective predictors of which countries are at risk for civil war than are indicators of ethnic and religious diversity or measures of grievances such as economic inequality, dearth of democracy or civil liberties, or state discrimination against minority religions or languages. (Fearon & Laitin, 2003:88).

In DPT/FSI terms, their findings present in favor of Poverty - Economic Decline and Demographic Pressures over Group Grievance, Legitimacy of the State, Human Rights, or Uneven Development, which partially aligns with my results as perceived in Chapter 3.

Hegre (2014) revisits democracy, economic development, and socioeconomic factors in a literature meta-analysis encompassing both inter- and intrastate conflict, concluding with a recommendation to examine the dynamics between socioeconomic changes, institutional changes, and the incentives for the use of political violence.

²⁵ Goldstone, *ibid*, p. 205

Therefore, a more comprehensive examination utilizing the full calculus of DPT/SCT (democratic, economic, and institutional and/or social capital) to determine the applicability of DPT/SCT on internal relationships and political vectors would provide a richer understanding of the mechanisms of intrastate conflict resolution. In addition, such an investigation potentially provides illumination of potential breakdowns in those resolution mechanisms at the intra- and interstate levels.

FSI:

Many of the works reviewed in the course of this investigation, especially those developing focus on a particular cause of intrastate conflict, develop their arguments in a general framework of gathering data across multiple vectors, controlling for various factors depending on the particular hypothesis, and then building models of varying complexity to isolate univariate explanatory factors. Such is the case with Collier and Hoeffler (2000, 2004), and Collier, Hoeffler and Rohner (2009). However, the initial results of this investigation tend to illustrate the answer more likely lies in the infamous “D: all of the above.”

The road to war, as Parsa (2000) and Kalyvas (2006) perceives, relies on interactions of a multitude of factors, some mitigating, and some aggravating. Moreover, observing the Arab Spring eruptions, the proximate spark for conflict frequently emerges from an unexpected direction whose fine granularity lies far below the level revealed through most data streams. Nevertheless, analyzing these data streams can highlight the change(s) in conditions across multiple factors optimizing a fecund environment for conflict.

In this investigation, the multivariate “competitive advantage” lies with employing the FSI²⁶ in providing democracy, economic, institutional, *and* social factors in one dataset:

- Social: Demographic Pressures, Group Grievance, Refugees and IDPs, Human Flight, Factionalized Elites
- DPT economic interchange: Uneven Development, Poverty and Economic Decline
- DPT democracy: Legitimacy of the State
- DPT domestic institutions: Public Services, Human Rights, Security Apparatus, Factionalized Elites
- Other: External Intervention

Fund for Peace already performed the heavy lifting on amalgamating data sources encompassing up to 14 sub-factors for each of the 12 FSI factors. Yet, utilizing the FSI presents a disadvantage in that there is no way to “look under the hood” at the underlying data and the calculations/weights used to determine each of the index scores.²⁷

Although an extensive and rich list of researchers reference the FSI in either incarnation²⁸, a sizable majority of those references simply consist of noting that a given country ranked at a certain level—or changed ranking from year to year, or, in the case of Krasner (2010:10), observing that certain level within the ranking system—comprises a grouping of interest.

Deeper analysis of the FSI itself appears limited to Berea, Twardy, and Maxwell (2013) who employ the FSI in a Bayesian network featuring crowdsourced

²⁶ <http://ffp.statesindex.org/indicators>.

²⁷ "CAST Conflict Assessment Framework Manual | The Fund for Peace " [cited 2014]. Available from <http://library.fundforpeace.org/cfsir1418>.

²⁸ Failed State Index (2005-2012) or Fragile State Index (2013-current)

information marketplace probabilities to predict future FSI changes. This Bayesian area of inquiry possibly will hold promise for follow-on research.

On a core FSI level, Carlsen and Brüggemann (2013, 2014) present their application of mathematical techniques, partial-order methodology, and weighted-sum/bias-free sensitivity, respectively, to the FSI dataset. Of interest, their results (2013) from partial-order analysis, namely, determination of high importance of Human Flight, Group Grievance, and Poverty and Economic Decline approximate the results that I achieve in Chapter 3, with the exception of Human Flight. Similarly, their sensitivity method (2014) assesses Human Flight as most critical, a result to which I do not concur.

As of this writing, the combination of FSI in the context of formal or informal networks as well as FSI in context of intrastate/civil war appears to be an under explored analytical avenue. Use of the FSI as a variable regressed against another dataset appears limited to Piazza's (2008) investigation into the relationship between failed states and terrorism. In the course of this investigation, he employs the FSI ranking system as an independent variable to correlate exploitation of a negative binomial regression against the (now-defunct) Memorial Institute for the Prevention of Terrorism database²⁹ to establish that higher rankings on the FSI correlate with higher incidents of terrorism.

²⁹ "START.umd.edu " [cited 2015]. Available from <http://www.start.umd.edu/>.

Section VII: Methodology

Conceptual Goals:

In the endeavor to examine conflict development in context of human social and cognitive activity, I constructed KANT as a theoretical framework to facilitate examination within structured boundaries and provide explanatory value toward understanding and potentially ameliorating intra-state conflict, while conforming to the definition proffered by Schafersman (1997):

“A scientific theory is a unifying and self-consistent explanation of fundamental natural processes or phenomena that is totally constructed of corroborated hypotheses.”

To determine my measure of effectiveness (Mullen, 2011) achieving the goal of developing a valid theory, therefore this investigation serves a tertiary purpose, namely to subject KANT to validity testing as a theory, within the parameters provided by Popper’s (1963) and Chaffee and Berger’s (1987:104) criteria³⁰ to define a valid theory. As measures of performance, during the course of this investigation, does KANT:

- Exhibit explanatory power? Does it offer plausible explanations for the phenomena and the range of phenomena it seeks to explain?
- Provide predictive power? Can KANT suggest future events or outcomes?
- Offer parsimony or simplicity in its explanatory power?
- Possess falsifiability?
- Present internal consistency?
- Present as heuristically provocative?
- Demonstrate organizing power?

See Chapter 5 for the assessment of this validity testing

³⁰ Interpreted through Davie’s “Tests for a Theory | Mass Communication Theory ” May 25, 2010 [cited 2015]. Available from <http://masscommtheory.com/2010/05/25/test-for-a-theory/>.

Hypotheses:

Therefore, within the context of a valid theory, this dissertation documents my investigation into the question of human agency, specifically the adaptive networks, as a critical factor in the phenomenon of intrastate conflict. In the next chapter, I conduct a case analysis to gain some understanding of the global conflict environment and then apply those data in case studies focusing on all four factors of KANT operationalized as DPT/SCT in the context of human agency contributing to internal political risk and the road to intrastate war.

To accomplish this task, I intend to test the following initial hypotheses³¹:

- H₁: Do democratic peace vectors provide a statistically significant explanation of human agency in contributing to or preventing intrastate conflict?
- H₂: Do democratic peace vectors augmented by social capital vectors provide a statistically significant explanation of human agency in contributing to or preventing intrastate conflict?
- H₀: There is no link between intrastate conflict and human agency (DPT or SCT) factors.

Analytical Approach:

In keeping with an ecumenical approach to quantitative and case analysis, Gerring (2007), building upon King et. al., (1994), presents the efficacy of making use of quantitative analysis to guide case selection.

To that end, I decided to establish a global baseline drawing on quantitative analysis in order to test my hypotheses concerning expected significance of democratic

³¹ National Academy of Sciences, Science, and Creationism: A View from the National Academy of Sciences, Second Edition, (Washington, DC: The National Academies Press, 1999). Hypothesis: A testable provisional statement about the world leading to deductions. Once verified, deductions increase the probability that the hypothesis is correct. If the deductions are incorrect, the original hypothesis can be abandoned or modified. Hypotheses can be used to build more complex inferences and explanations.

peace and social capital factors as indications and warning of conflict and establish significance of the variables. Following identification, I then reduce my analysis to an investigation of the most critical factors across a multivariate environment.

For the case-study portion of this project, I opted to use a baseline state that exhibits a transition into civil war during the investigation period, and for comparison, one that is constantly stable yet presents indicators of potential conflict.

Under those criteria, my baseline state is Syria. During the 1982-2011 time-frame, Syria presented as a relatively stable country and then collapsed into civil war in 2011. To that purpose, I examined the 2008-2013 FSI,³² which ranks countries against a normalized set of 12 criteria. Based on the FSI rankings, Syria consistently ranked as a weak but stable country; however, 2011 saw a marked deterioration as conflict erupted.

To determine the comparative case study, I sought a country that would provide a manageable, but interesting, dataset for comparison. This country met the following criteria: I required a country that ranked worse than Syria, yet avoided falling into civil war during the data window; this is critical, as I am not just researching intrastate conflict but also investigating opportunities and policy options to avoid conflict. To determine conflict status, I then added the conflict data from Uppsala's UCDP datasets.

Through initial analysis, including regression, ANOVA, and F tests, the country meeting these criteria is Kenya: Kenya consistently ranks worse than Syria on the FSI, is not in a measurable conflict, and consistently ranks in the top 10 when I ran statistical similarity tests (F test) compared with an average or median country already in a state of

³² Fund For Peace, "The Fragile States Index 2013," The Fund for Peace (2013).

war. By many accounts, Kenya should be in a state of war, but so far, it has avoided falling into conflict.

CHAPTER THREE: QUANTITATIVE ANALYSIS

In this chapter, to test my initial and follow-on hypotheses, I perform a series of statistical analyses on the FSI as independent variables against the UDCP Master Conflict data as dependent variable.

Section I: Description Of Quantitative Data Selection And Analysis

Sources:

For this particular research, and in keeping with an ecumenical approach to quantitative and qualitative analysis (Gerring, 2007), it was necessary to first establish a global baseline applying quantitative analysis. First, in order to test my hypotheses concerning expected significance of DPT and SCT factors as indications and warning of conflict, I sought to establish significance of the variables and then reduce my analysis to an investigation of the most critical factors across a multivariate environment.

I faced an immediate challenge of finding a dataset with enough breadth to provide global data points that spanned the investigation's focus on democratic peace and social capital variables as well as a broad range of other variables for comparison purposes. It also became clear that time is a factor in the iterative nature of conflict and conflict resolution; therefore, I required a dataset spanning multiple years.

Information Cutoff:

Despite interesting events occurring in the world last year (CY 2014), such as the advent of the Ukrainian civil war, I decided on a data cutoff of CY 2013 in order to keep my two main data sources – the Fund for Peace's (FFP's) FSI and the UCDP conflict

datasets – synchronized. The conflict dataset at the time of retrieval did not yet include the CY 2014 data.

Tools:

Given the multitude of statistical tools available, I opted to try several statistical tools³³ to compare ease of use, breadth of features, and usability of results.³⁴

In most cases, I performed calculations in JMP and processed the results in Excel to create the tables used in this investigation. I performed the more esoteric calculations such as Granger Causality or SEM in Stata or XLSTAT. Again, I processed results in Excel for interoperability with Microsoft Word.

Caveat About Statistical Analysis Tools:

For my purposes, pushing the boundaries of the application of statistics lies beyond the scope of this investigation. Although I will attempt to use some second-generation techniques in the latter sections of this paper, all statistical functions are “stock” functions incorporated in the various packages listed above with no modifications from the default settings. I therefore stipulate definitions of the statistical processes, such

³³ Beyond the rights conferred within the EULA, I am not claiming any rights to these programs. All trademarks remain the property of their respective owners. Mention or use in this investigation does not constitute endorsement.

³⁴ For this project, I used:

- Microsoft Excel 2013 with Data Analysis pack installed offers very basic features, but features excellent integration across the Microsoft Office suite.
- Minitab is good for basic analysis and provides many templated analytic processes. It is moderately priced at \$59 for a 1-year academic license.
- XLSTAT – a Visual Basic add-on using Excel as its core: XLSTAT is easy to use and holds a wide array of features, including structural equation modeling (SEM); however, it is comparatively expensive – even the student version is \$400.
- JMP by SAS holds a wide breadth of features within limits (no SEM, e.g.). It features a generally intuitive interface for ease of use; however, results are nested inside multiple drop-down menus. It is free to students when available under university bulk purchase.
- Stata is very powerful with extensive features, but it is not intuitive for non-statistics experts. It is moderately priced at around \$100 per year for student license.

as linear and logistic regression, multivariate, vector auto-regression, etc. as understood in common social science usage and consistent with the help features of each program. There possibly will be superior ways to perform the analyses described in this investigation; however, follow-on investigations provide the optimal venue for exploration of those options. Any errors in calculations are mine.

Section II: Variables

Independent Variables:

As noted above, I sought a dataset that encompassed as many DPT (democracy, economic interdependence, institutional participation) and social capital vectors within a manageable dataset array. Following research into a number of independent data sources and indices (Marshall, 2008; Ziaja, 2012), I opted to use the FSI. The FSI, formerly known as the Failed States Index, is a production of the FFP.³⁵

Through FFP's Conflict Assessment System Tool (CAST) program, the FFP accumulates and analyzes a large array of data sources including governmental, nongovernmental, and supra-governmental datasets, news reports, and academic resources. In most cases, these far exceeded the data sources and access available to me. In this case, the FFP provides value added through use of a proprietary algorithm based on analysis of the data sources for relevance to the factors, adjusts for weights, and adds a level of subjective analysis to produce a normalized set of indices across 12 indicators, with up to 14 sub-indicators in each category.

In the FSI, factors are scaled on a 1-10 basis, with the lower limit of the scale tending toward stability and the higher limit tending toward fragility or failing on the basis of graded criteria specific to each factor (see below for evaluation criteria for each factor). Thus, states with higher scores are in greater danger of failure and collapse into crisis and conflict.

³⁵ An independent, nonpartisan, nonprofit research and educational organization who states that they work to prevent violent conflict and promote sustainable security.

Table 1 shows a sample of the FSI scores for Kenya during the 2009-2013 time-frame.

Observation	Demographic Pressures	Refugees and IDPs	Group Grievance	Human Flight	Uneven Development	Poverty and Economic Decline	Legitimacy of the State	Public Services	Human Rights	Security Apparatus	Factionalized Elites	External Intervention
Kenya.2009	9.0	9.0	8.6	8.3	8.8	7.5	9.0	8.0	8.2	8.0	8.8	8.2
Kenya.2010	9.1	8.7	8.9	7.9	8.7	7.4	9.3	8.1	8.0	7.5	8.7	8.4
Kenya.2011	8.8	8.5	8.7	7.6	8.5	7.0	8.9	7.8	7.7	7.9	8.8	8.5
Kenya.2012	8.9	8.4	8.9	7.7	8.2	7.3	8.6	8.1	7.4	7.6	9.0	8.4
Kenya.2013	9.1	8.7	9.0	7.8	8.3	7.6	8.3	8.1	7.1	8.1	9.0	8.5

Table 1: FSI Example: Kenya 2009-2013

In this particular example, we perceive that during the CY 2009-2013 period Kenya improved in Refugees and Internally Displaced Persons (IDPs), Human Flight, Uneven Development, Legitimacy of the State, and Human Rights but deteriorated in Demographic Pressures, Group Grievance, Poverty and Economic Decline, Public Services, Security Apparatus, Factionalized Elites, and External Intervention.

Of particular interest, the FFP's FSI dataset spans the periods CY 2005 (77 countries), CY 2006 (146 countries), and CY 2007-2014 (177 countries); however, as noted above, my information cutoff is CY 2013. From a research perspective, there is some risk in sourcing a nontransparent data source as independent variables; however,

noting Ziaja (2012) and Carlsen and Brüggemann (2014), I judged that I might be able to identify any major inconsistencies through statistical analysis. More critically, the FSI, to a greater degree than any of the alternates, spans a variety of social, institutional, economic, governance, and external intervention indices; covers the necessary time frame; maintains an acceptable internal statistical cohesion (primary component analysis and multidimensional scaling); and provides a broad range of variables and observations for statistical analysis.

To prepare the data for analysis, I first combined the data (available in .xls format for 2007-2013 and imported via web page tables for 2005-2006) from each year's Index, spanning CY 2005-2013, arranged by year and country. As different FFP editors apparently favored alternate country name spellings over the years, I converted the country names to consistent spellings across all years.

As noted in the previous paragraph, CY 2005 (77 countries) and CY 2006 (146 countries) lack data and entries for a large group of countries included in the subsequent years. As we will appreciate during statistical analysis, this disparity injects some error into the regressions. Consequently, in some operations I opted to remove those years from the analysis.

Additionally, the secession of South Sudan in CY 2012 from Sudan created an additional country that did not exist in earlier years. Ultimately, I decided to remove South Sudan from the dataset for SEM because it did not greatly contribute to the overall analysis, nor did it have prior FSI factors.

The following is an excerpt of the FFP's description of the FSI indicators.³⁶ Where there is a direct relationship with the democratic peace and social capital vectors, I have annotated the section header accordingly, although I depart from Berea et al. (2013) by differentiating an institutional vector in addition to their social, political, and economic vectors.

Demographic Pressures (social): Demographic Pressures can include:

Pressures deriving from high population density relative to food supply, access to safe water, and other life-sustaining resources

Pressures deriving from group settlement patterns that affect the freedom to participate in common forms of human and physical activity, including economic productivity, travel, social interaction, religious worship, etc.

Pressures deriving from group settlement patterns and physical settings, including border disputes, ownership, or occupancy of land, access to transportation outlets, and control of religious or historic sites

Refugees and IDPs (social): The Refugees and IDPs measure focuses on the forced uprooting of large communities as a result of random or targeted violence and/or repression, causing food shortages, disease, deficiency of clean water, land competition, and turmoil that can spiral into larger humanitarian and security problems – both within and between countries.

Group Grievance (social): Group Grievance can include specific groups singled out by state authorities, or by dominant groups, for persecution or repression; and

³⁶ <http://library.fundforpeace.org/cfsir1418>;

groups aggrieved due to denied autonomy, self-determination, or political independence.

Human Flight and Brain Drain (social): The Human Flight and Brain Drain measure can include a “brain drain” of professionals, intellectuals, and political dissidents fearing persecution or repression; and voluntary emigration of “the middle class,” particularly economically productive segments of the population, such as entrepreneurs, business-people, artisans, and traders, due to economic deterioration.

Uneven Development (DPT economic interchange): Uneven Economic Development can include group-based inequality, or perceived inequality, in education and economic status; and group-based impoverishment as measured by poverty levels, infant mortality rates, educational levels, etc.

Poverty and Economic Decline (DPT economic interchange): Economic Decline can include:

A pattern of progressive economic decline of the society as a whole as measured by per capita income, GNP, debt, child mortality rates, poverty levels, business failures, etc.;

A sudden decline in commodity prices, trade revenue, or foreign investment; and Growth of hidden economies, including the drug trade, smuggling, and capital flight.

Legitimacy of the State (DPT democracy): Legitimacy of the State can include resistance of ruling elites to transparency, accountability, and political

representation revealed by scandals, investigative journalism, criminal prosecution, or civil action. In addition, widespread loss of popular confidence in state institutions and processes, e.g., widely boycotted or flawed elections, mass public demonstrations, sustained civil disobedience, inability of the state to collect taxes, resistance to military conscription, and rise of armed insurgencies.

Public Services (DPT domestic institutions): The Public Services measure refers to the lack of, or disappearance of, basic state functions that serve the people, including failure to protect citizens from terrorism and violence and to provide essential services, such as health, education, sanitation, public transportation, etc.

Human Rights (DPT domestic institutions): Human Rights and Rule of Law can include a rising number of political prisoners or dissidents denied due process consistent with international norms and practices. In addition, widespread abuse of legal, political, and social rights, rights of individuals, groups, and institutions (e.g., harassment of the press, politicization of the judiciary, internal use of the military for political ends, and public repression of political opponents).

Security Apparatus (DPT domestic institutions): The Security Apparatus indicator can include the emergence of elite or praetorian guards loyal to a leader, who operate with impunity and bypass the chain of command of regular armed forces; and the emergence of state-sponsored or state-supported “private militias” that terrorize political opponents, suspected “enemies,” or civilians perceived to be sympathetic to the opposition.

Factionalized Elites (social/DPT domestic institutions): Factionalized Elites can include fragmentation of ruling elites and state institutions along ethnic, class, clan, racial, or religious lines; and use of nationalistic political rhetoric by ruling elites, often in terms of communal irredentism (e.g., a “greater Serbia”) or of communal solidarity (e.g., “ethnic cleansing” or “defending the faith”).

External Intervention: External Intervention can include military or paramilitary engagement – both covert and overt – in the internal affairs of the state at risk by outside armies, states, identity groups, or entities that affect the internal balance of power or the resolution of conflict; and humanitarian, economic, or strategic military intervention into an internal conflict or for “regime change.”

Dependent Variables:

In order to perform classic linear regression analysis, I required a dependent variable to measure response. In this case, I sought a dataset that accounted for intrastate conflict. The candidate datasets included Penn State’s Correlates of War (COW) project and Sweden’s University of Uppsala UCDP. In this particular instance, I opted to use the UCDP dataset due to the presence of data from recent conflicts, including CY 2013, which more closely matched the FSI, whereas COW, at the time I accessed the data, only included data through CY 2007.

To prepare the data for analysis, I first isolated the target data by year (CY 2005-2013), country, and type of conflict. I filtered type of conflict to include intrastate conflict and internationalized intrastate conflict and concatenated. I opted to concatenate into a binary (conflict vs not conflict), as in the circumstances in which an intrastate conflict

presented an external component might be evident through significance testing of the FSI “external intervention” factor. As with the FSI, it was necessary to ensure consistency of country names and correlated with my edited country names in the FSI dataset. Finally, in cases in which a country had multiple conflict events in a given year, I opted to consider each country as being in a single conflict in that year and concatenate down to a single country name per year by removing duplicates.

Table 2 provides an example of the UCDP dataset before preparation.

Dimension	Location 1	Year (Conflict)
Intrastate	Mali	2012
Intrastate	South Sudan	2011
Intrastate	South Sudan	2012
Intrastate	Sudan	2011
Intrastate	Libya	2011
Intrastate	India	2012
Intrastate With Foreign Involvement	Mauritania	2010
Intrastate With Foreign Involvement	Mauritania	2011
Intrastate	Russia (Soviet Union)	2008
Intrastate	Russia (Soviet Union)	2007
Intrastate	Russia (Soviet Union)	2009
Intrastate	Russia (Soviet Union)	2010
Intrastate	Russia (Soviet Union)	2011
Intrastate	Russia (Soviet Union)	2012

Table 2: UCDP Conflict Data Pre-Processing

After processing, the UCDP data became a list of counties sorted by year (example only) in Table 3.

2007	2008	2009
Afghanistan	Afghanistan	Afghanistan
Algeria	Algeria	Algeria
Angola	Burundi	Angola
Chad	Chad	Central African Republic
Iraq	India	Iraq
Colombia	China	Chad
DR Congo (Zaire)	Colombia	Colombia
Ethiopia	DR Congo (Zaire)	Ethiopia
India	Ethiopia	India
Iran	Georgia	Iran
Israel	Iran	Israel
Mali	Iraq	Mali
Myanmar	Israel	Myanmar
Niger	Mali	Nigeria

Table 3: UCDP Data Post-Processing

Using an Excel command (=countif), I associated the FSI data, sorted on country and year, with a UCDP status of whether or not a country was in a conflict in that year (conflict = 1; not conflict = 0). The combined dataset (“Master FSI”) became the basis for all subsequent quantitative analyses (See Appendix 2). I also extracted a subset for each year (observation year) with all conflict variables. Table 4 is an example of the combined master dataset.

Rank	Year	Country	Total	Demographic Pressures	Refugees and IDPs	Group Grievance	Human Flight	Uneven Development	Poverty and Economic Decline	Legitimacy of the State	Public Services	Human Rights	Security Apparatus	Factionalized Elites	External Intervention	Master Conflict
7	2013	Afghanistan	106.7	9.3	9.2	9.2	7.2	7.8	8.2	9.4	8.8	8.4	9.9	9.4	10.0	1
6	2012	Afghanistan	106.0	8.9	9.0	9.4	7.4	8.1	7.7	9.5	8.5	8.5	9.7	9.4	10.0	1
7	2011	Afghanistan	107.5	9.1	9.3	9.3	7.2	8.4	8.0	9.7	8.5	8.8	9.8	9.4	10.0	1
6	2010	Afghanistan	109.3	9.5	9.2	9.7	7.2	8.2	8.3	10.0	8.9	9.2	9.7	9.4	10.0	1
7	2009	Afghanistan	108.2	9.3	8.9	9.6	7.2	8.4	8.3	9.8	8.9	8.8	9.9	9.1	10.0	1
7	2008	Afghanistan	105.4	9.1	8.9	9.5	7.0	8.1	8.5	9.2	8.3	8.4	9.6	8.8	10.0	1
8	2007	Afghanistan	102.3	8.5	8.9	9.1	7.0	8.0	8.3	8.8	8.0	8.2	9.0	8.5	10.0	1
119	2013	Albania	65.2	4.7	3.1	4.8	6.6	4.8	5.3	7.0	4.8	6.0	5.5	6.3	6.3	0
118	2012	Albania	66.1	5.0	2.8	5.1	6.8	5.1	5.6	7.3	4.9	5.5	5.4	6.6	6.0	0
121	2011	Albania	66.1	5.5	3.1	5.1	6.8	5.4	5.9	6.4	5.0	5.0	5.4	6.3	6.3	0
121	2010	Albania	67.1	5.9	2.8	4.9	7.1	5.7	6.1	6.8	5.6	5.3	5.4	6.0	5.5	0
109	2009	Albania	70.0	6.4	2.6	5.4	7.2	5.9	6.5	7.3	5.8	5.8	5.5	5.9	5.7	0
112	2008	Albania	69.7	6.2	2.7	5.4	7.5	6.1	6.3	7.2	5.9	5.4	5.5	5.7	5.8	0
110	2007	Albania	70.5	6.5	2.7	5.4	7.5	6.1	6.8	7.4	6.2	5.4	5.5	5.4	5.6	0

Table 4: FSI + Conflict Master Data Example

Methodology:

As previously noted, for this project I am testing the hypotheses listed below to examine the relationship of human agency to intrastate conflict. Although Goldstone et al. (2010) achieved high correlations with infant mortality, “bad neighbors,” etc., these are mostly factors that provide little, if any, bearing on human agency as a factor in conflict. Echoing Chapter 2, war, like politics, (Clausewitz, 1873) is a human activity, and the logic that a nation’s fate is so simply explained by real-estate maxims of “location, location, location” fails to persuade.

Thus, my null hypothesis sets the bar to distinguish the significance of human agency as a factor in intrastate conflict compared with random chance or other factors beyond the scope of this investigation.

However, contingent upon null-hypothesis rejection, I am investigating two variations that form H_1 and H_2 . The first tests for DPT factors and attempts to measure their combined fit to explain intrastate conflict. The second, acknowledging the limitations of DPT as previously discussed, also adds the SCT factors: Can I achieve greater explanatory value by adding the social dimension?

Note:

All analyses performed at the 95% confidence level. For notational purposes, my initial hypotheses are:

- H_1 : Do democratic peace vectors provide a statistically significant explanation of human agency in contributing to or preventing intrastate conflict?
- H_2 : Do democratic peace vectors augmented by social capital vectors provide a statistically significant explanation of human agency in contributing to or preventing intrastate conflict?
- H_0 : There is no link between intrastate conflict and human agency (DPT or SCT) factors.

Initial Observations:

In reference to FSI scores/ranks, a high value on the FSI is not a guarantee of intrastate conflict. For example, in the period CY 2007-2013, of the top 20 rankings (140 observations), almost half (66 observations, 47%) were not in a state of intrastate conflict.

Of those, three (Guinea, Haiti, and Zimbabwe) spent the entire period (CY 2007-2013) in the top 20 (Table 5).

Similarly, presenting a low score does not guarantee freedom from conflict. Malaysia in CY 2013 (66.11), Libya in CY 2011 (68.72), and India in CY 2007 (70.80) all fall below the mean score of 71.12 held by Suriname in CY 2011. Turkey in CY 2011 and India in CY 2008 also fall below the median countries of São Tomé and Jordan in CY

2011 at 74.5. However, below Malaysia's CY 2013 score of 66.11, if a country achieves a lower score, the probability of conflict declines close to zero – albeit with one anomaly, the United States.³⁷

Country Name	Top 20 Appear
Guinea	7
Haiti	7
Zimbabwe	7
Côte d'Ivoire	6
Kenya	5
Burundi	4
Niger	4
North Korea	4
Bangladesh	3
Chad	3
DR Congo (Zaire)	3
Guinea Bissau	3
Nigeria	3
Timor-Leste	3
Central African Republic	2
Lebanon	1
Uganda	1

Table 5: FSI Top 20 Appearances

³⁷ On a definitional basis, I disagree with UCDP's designation of the United States being in a status of intrastate conflict for the period of CY 2001-2013. Although the United States is involved on an external intervention basis in the Afghan intrastate conflict and the Iraq adventure from CY 2003 to 2010, the United States itself is not in the throes of a civil war with combat deaths over 1000 per year or even 25 internal combat deaths per year attributable to a domestic terrorist or separatist group. However, I opted to leave the conflict fields for the United States coded for conflict.

Initial Analysis:

After combining the FSI and UCDP datasets across the period CY 2005-2013, statistical description of the FSI dataset CY 2007-2013, I examined the resulting dataset for parameters and normality. See Appendix 1.

Section III: Statistical Processing And Analysis

Standard Linear Regression:

The first step regressed each factor one by one as independent variables against Master Conflict as the dependent variable. Each FSI factor, when regressed individually as independent variables against Master Conflict as the dependent variable, tests significantly with R^2 ranging from .02 to .21 and Prob > t values consistently below .05 (Table 6).

It would appear that at a basic level of analysis, all FSI factors, taken

individually, test significantly as independent variables in contributing to intrastate conflict.

At this point, it appears that we can reject the null hypothesis H_0 – that there is no link between intrastate conflict and human agency (DPT or SCT) factors – as all FSI factors demonstrated significance below the .05 threshold. However, determining viability of H_1 and/or H_2 will require some additional analysis.

Factor	Coefficient	R^2	H_0
Group Grievance	.08	.21	Reject
Refugees and IDPs	.07	.19	Reject
Security Apparatus	.06	.14	Reject
Human Rights	.05	.12	Reject
Factionalized Elites	.05	.11	Reject
Uneven Development	.06	.09	Reject
Demographic Pressures	.05	.08	Reject
Public Services	.04	.07	Reject
Legitimacy of the State	.04	.07	Reject
External Intervention	.04	.06	Reject
Human Flight	.03	.03	Reject
Poverty and Economic Decline	.02	.02	Reject
Average	.049	.10	
Median	.049	.09	
Sum	.584	1.19	

Table 6: Univariate Regression

Multivariate Analysis:

Regression Statistics	Mult R	R ²	Adjusted R ²	SE	Observations	
Goodness of Fit	.564	.318	.311	.293	1241	
ANOVA	df	SS	MS	F	Significance F	
Regression	12.000	49.165	4.097	47.718	.000 (reject)	
Factor	Coeff	Abs Coeff	SE	t Ratio	Prob > t	VIF
Group Grievance	.074	.074	.010	7.720	.000	5.299
Poverty and Economic Decline	-.070	.070	.010	-7.370	.000	4.725
Legitimacy of the State	-.055	.055	.013	-4.360	.000	13.013
Security Apparatus	.043	.043	.010	4.370	.000	7.960
Refugees and IDPs	.037	.037	.007	5.480	.000	3.469
Public Services	.035	.035	.012	2.840	.005	11.691
Uneven Development	-.024	.024	.010	-2.420	.016	4.871
Human Rights	.025	.025	.011	2.330	.020	8.786
Factionalized Elites	-.018	.018	.010	-1.700	.090	9.238
Demographic Pressures	.011	.011	.012	.840	.401	9.693
Human Flight	-.002	.002	.008	-.220	.826	3.422
External Intervention	.000	.000	.008	-.050	.962	4.918

Table 7: Multivariate Regression: Initial

Sartori (1970) reminds us to climb a little higher up the ladder of abstraction without becoming *over-conscious* thinkers. Single factors regressed individually fail to capture the complexity of a society heading toward, currently in, or climbing out of a conflict. We must note that societies and conflicts are composed of a web of interconnected vectors. Such a web justifies applying multivariate methods for analysis to discern which factors are most relevant in determining indications and warning for conflict. Thus, when analyzed in multivariate mode, the factors' contributions change, as indicated in Table 7.

Multivariate Results:

Whereas the R^2 value resolved to .318 when analyzed in multivariate mode, four factors' p values registered above .05, preventing rejection of the null hypothesis in those

cases (Factionalized Elites, Demographic Pressures, Human Flight, and External Intervention). Of interest, two factors – Factionalized Elites and Demographic Pressures – that fall below the significance cutoff and, among the remaining significant factors, Legitimacy of the State and Public Services, present a multicollinearity concern (Pedace, 2013) with variance inflation factors (VIF) above or approaching the critical VIF threshold value of 10.00, highlighting the possibility that these factors derived from related source data.

Multivariate Reduction:

At this point, I applied multivariate analysis techniques of pairwise correlation and performed an ordered Prob > t removal to reduce the number of factors from 12 to eight by removing the non-significant factors. Following this reduction, the VIF for Legitimacy of the State also decreased below the high multicollinearity threshold value (10). Removing the four factors reduced the R^2 by .007 to .311 and all remaining factors present as significant in Prob > t (Table 8).

Regression Statistics	R^2	R^2 Adj	RMSE	MOR	Obs	
Goodness of Fit	.316	.311	.293	.146	1241	
ANOVA	df	SS	MS	F	F Sig	
Regression	8.000	48.816	6.102	71.066	.000	
FACTOR	Coeff	Abs Coeff	SE	t Ratio	Prob > t	VIF
Poverty and Economic Decline	-.071	.071	.009	-7.940	.000	4.156
Group Grievance	.068	.068	.009	7.640	.000	4.511
Legitimacy of the State	-.065	.065	.011	-6.210	.000	9.089
Public Services	.042	.042	.010	4.230	.000	7.607
Security Apparatus	.038	.038	.009	4.080	.000	7.345
Refugees and IDPs	.037	.037	.006	5.780	.000	3.158
Human Rights	.026	.026	.010	2.570	.010	7.567
Uneven Development	-.020	.020	.009	-2.230	.026	3.955

Table 8: Multivariate Regression: Post-Processing

Logistic Regression:

Tangentially, with a binary dependent variable, I noticed the option of performing a logistic regression on all FSI factors as independent variables against Master Conflict as the dependent variable. In this case I performed a find/replace to convert Master Conflict = 0 to “Peace” and Master Conflict = 1 to “War” and performed the logistic regression for all FSI factors individually as well as multivariate.

Similar to the linear regression, all FSI factors presented as significant when regressed individually. However, when regressed in multivariate mode, several differences between linear regression and logistic regression presented. In the multivariate logistic regression, Public Services, Factionalized Elites, and Uneven Development presented $p > \chi^2$ above the .05 significance threshold, whereas in the previous multivariate linear regression, Factionalized Elites, Demographic Pressures, Human Flight, and External Intervention fell below the .05 cutoff (Table 9). In the logistic regression, an R^2 of .439 presented post-reduction.

Factor	Coeff	Abs Coeff	SE	chi²	Prob > chi²
Group Grievance	-.798	.798	.089	80.960	.000
Legitimacy of the State	.532	.532	.110	23.480	.000
Demographic Pressures	-.528	.528	.085	38.570	.000
Refugees and IDPs	-.358	.358	.062	33.070	.000
Poverty and Economic Decline	.340	.340	.069	23.970	.000
Human Rights	-.389	.389	.104	14.010	.000
External Intervention	.255	.255	.073	12.110	.001
Security Apparatus	-.297	.297	.089	11.170	.001
Human Flight	.208	.208	.069	9.190	.002

Table 9: Logistic Regression Results Post-Reduction

This logistic model provides consistency with the results of the linear model, noting the addition of alternate significant factors. SCT and DPT factors remain

significant. The addition of External Intervention, albeit with one of the lower coefficients, could be of interest further in the investigation during the policy recommendation discussion.

Equation And Examination Of Hypotheses:

Returning to the linear model, I now have a preliminary model to work from, with a prediction formula of:

$-.095 + -.071 \text{ (Poverty)} + .068 \text{ (Group Grievance)} + -.065 \text{ (Legitimacy of the State)} + .042 \text{ (Public Services)} + .038 \text{ (Security Apparatus)} + .037 \text{ (Refugees and IDPs)} + .026 \text{ (Human Rights)} + -.020 \text{ (Uneven Development)}$

Earlier in this investigation, I coded the FSI factors with their relevance to DPT and/or social capital vectors. A review of the coding shows:

- (Social): Demographic Pressures; Group Grievance; Refugees and IDPs; Human Flight; Factionalized Elites
- (DPT economic interchange): Uneven Development; Poverty and Economic Decline
- (DPT democracy): Legitimacy of the State
- (DPT domestic institutions): Public Services; Human Rights; Security Apparatus; Factionalized Elites
- Uncoded: External Intervention

Following the main FSI factor reduction, these factors remain, with their relevance to democratic peace or social capital vectors:

- (Social): Group Grievance; Refugees and IDPs
- (DPT economic interchange): Uneven Development; Poverty and Economic Decline
- (DPT democracy): Legitimacy of the State
- (DPT domestic institutions): Public Services; Human Rights; Security Apparatus

Conducting a multivariate regression utilizing the extracted SCT factors from the reduced multivariate analysis, I observe that with an R^2 of .22, the SCT factors test as significant against Master Conflict (Table 10).

Factor	Coefficient	Abs Coeff	SE	t Ratio	Prob > t	VIF
Group Grievance	.055	.055	.007	7.930	.000	2.493
Refugees and IDPs	.044	.044	.006	7.040	.000	2.493

Table 10: SCT Factors Augmenting DPT

Similarly, performing a multivariate regression manipulating the remaining DPT factors from the reduced multivariate analysis, I also observe an R^2 of .22, and the DPT factors test as significant – with the exception of Uneven Development with a Prob > t of .230, well over the .05 significance threshold. Reducing the DPT factors by removing Uneven Development and running the analysis a second time, I maintain the R^2 of .22, and the remaining factors test as significant (Table 11).

Factor	Coefficient	Abs Coeff	SE	t Ratio	Prob > t	VIF
Security Apparatus	.088	.088	.009	9.940	.000	5.779
Legitimacy of the State	-.073	.073	.011	-6.700	.000	8.570
Poverty and Economic Decline	-.069	.069	.009	-7.390	.000	4.069
Human Rights	.052	.052	.010	5.010	.000	7.201
Public Services	.035	.035	.009	3.770	.000	6.11

Table 11: Significant DPT Factors

SCT Cluster Vs DPT Cluster:

At this point in this investigation, I have examined the effects of the full FSI that comprises both democratic peace and social capital vectors. Yet, to investigate the effects of DPT and SCT separately, I clearly require an additional hypothesis to isolate out SCT factors:

- H_{new} : Social capital vectors provide a statistically significant explanation of human agency in contributing to or preventing intrastate conflict.

To test this additional hypothesis, I divided the original FSI factors into separate SCT and DPT clusters according to the coding and performed a multivariate regression against each cluster.

For SCT, my factors are Demographic Pressures, Group Grievance, Refugees and IDPs, Human Flight, and Factionalized Elites. Initial multivariate regression indicates an R^2 of .258, with all factors achieving significance – again with the exception of Demographic Pressures. After reducing to remove Demographic Pressures, R^2 remains at .258 and all four factors indicate significance (Table 12).

Factor	Coefficient	Abs Coeff	SE	t Ratio	Prob > t	VIF
Group Grievance	.085	.085	.009	9.640	.000	4.166
Refugees and IDPs	.044	.044	.006	7.040	.000	2.801
Factionalized Elites	-0.03	.028	.007	-3.940	.000	4.098
Human Flight	-.024	.024	.006	-4.230	.000	1.806

Table 12: SCT Factors Regressed vs Master Conflict

Similarly, conducting multivariate regression applying the DPT factors of Uneven Development, Poverty and Economic Decline, Legitimacy of the State, Public Services, Human Rights, Security Apparatus, and Factionalized Elites as a separate cluster presents an R^2 of .234 and all factors are significant (Table 13).

Factor	Coefficient	Abs Coeff	SE	t Ratio	Prob > t	VIF
Legitimacy of the State	-.090	.090	.012	-7.520	.000	10.512
Security Apparatus	.076	.076	.010	7.830	.000	6.857
Poverty and Econ Decline	-.070	.070	.009	-7.540	.000	4.076
Human Rights	.047	.047	.011	4.450	.000	7.380
Public Services	.040	.040	.009	4.250	.000	6.258
Factionalized Elites	.033	.033	.010	3.360	.001	7.27

Table 13: DPT Factors Regressed vs Master Conflict

Hypotheses Revisited:

Returning to the hypotheses under investigation and including the new hypothesis added above, we could, following the rejection of the null hypothesis (H0) earlier, accept the following hypotheses:

- H1: Do democratic peace vectors provide a statistically significant explanation of human agency in contributing to or preventing intrastate conflict?
 - Yes. DPT factors alone achieve an R^2 of .234 and test as significant.
- H2: Do social capital vectors provide a statistically significant explanation of human agency in contributing to or preventing intrastate conflict?
 - Yes. SCT factors alone achieve an R^2 of .258 and test as significant.
- H3: Do democratic peace vectors augmented by social capital vectors provide a statistically significant explanation of human agency in contributing to or preventing intrastate conflict?
 - Yes. DPT factors when combined with SCT factors achieve an R^2 of .311, greater than either SCT or DPT cluster alone, and present as significant.

Section IV: Flash-to-Bang: Downstream Effects

Time And Iterative Spiral Of Information And Effects:

Reviewing the multivariate regression results, whereas an R^2 of .31 is respectable, there is certainly room for taking the model to another level to test whether a more comprehensive explanation might be developed. One vector for further investigation that presents itself is time.

Assimilating across a variety of fields, such as our earlier discussion of Colonel Boyd's OODA³⁸ loop, and econometrics (Friedman, 1968; Nelson, 1981), there is a time delay between the treatment and the effect. Treatments possibly will include injection of the policy, cognizance of the effect of an earlier policy, and/or the lag between observing an effect added to the time required to formulate a new policy to alter the performance of agency in econometrics. Effects could include observing the econometric change of an indicator, or even the detonation of the air-to-air missile and the observation of its detonation. Alternatively, as my artillery colleagues sometimes refer to it, the "flash-to-bang" (F2B) delays.³⁹

For the purposes of this investigation, applying these concepts raises the question of time lag (Blomberg and Hess, 2002; Teeple, 2014) between FSI treatments. Examples include elections, fracturing of political elites, changes to group grievance mechanisms, changes to loan behavior or interest rates by local or national banks, and vectors that

38 Observe, Orient, Decide, Act.
39 US Army Field Manual 6-30, 1991,
http://usacac.army.mil/CAC2/doctrine/CDG/cdg_resources/manuals/fm/fm6_30.pdf.

influence the number of refugees as well as the effect of descending into, continuing in, or achieving resolution of intrastate conflict.

Understanding the F2B delay, if present, clearly provides applications in both indications and warning of impending crises as well as prophylactic policy prescriptions to mitigate the eruption of intrastate conflict in the first place. Implementing a treatment at time (T) might not create a measurable effect until some period of time ($T + x$) later due to various dissemination mechanisms.

To determine the presence of these “downstream” effects, I first opted to create an approximation of downstream effects by applying a brute-force solution: I broke out the FSI observations from each target year and conducted linear regression against the conflict results from each subsequent observation year, essentially treating each successive conflict as current (Table 14).

Country	Refugees and IDPs	Group Grievance	Uneven Development	Poverty and Economic Decline	Legitimacy of the State	Public Services	Human Rights	Security Apparatus	Master:Conflict	Conflict.2007	Conflict.2008	Conflict.2009	Conflict.2010	Conflict.2011	Conflict.2012	Conflict.2013
Afghanistan	8.9	9.1	8.0	8.3	8.8	8.0	8.2	9.0	1	1	1	1	1	1	1	1
Algeria	6.7	7.0	7.3	3.5	7.3	7.0	7.4	6.4	1	1	1	1	1	1	1	1
Angola	7.5	5.9	8.7	4.2	8.6	7.7	7.5	6.2	1	1	0	1	0	0	0	0
Azerbaijan	7.5	7.3	7.4	6.3	7.8	6.0	6.4	7.2	1	0	0	0	0	0	1	0
Burundi	8.9	6.7	8.8	8.2	7.1	8.9	7.5	6.8	1	0	1	0	0	0	0	0
Central African Republic	8.4	8.8	8.6	8.4	9.0	8.0	8.2	8.9	1	0	0	1	1	1	1	1
Chad	8.9	9.5	9.0	8.3	9.5	9.1	9.2	9.6	1	1	1	1	1	0	0	0
China	5.1	8.0	9.0	4.0	8.5	6.5	9.0	5.3	1	0	1	0	0	0	0	0
Colombia	9.5	7.4	8.4	3.8	8.2	6.0	7.4	8.3	1	1	1	1	1	1	1	1

Table 14: Sample Post-Reduction CY 2007 FSI Matrix with Follow-on Conflicts

I repeated this regression for each year between CY 2007 and CY 2013. Each regression result was collected in a master worksheet and sorted by Prob > F. I distributed all results that passed the .05 threshold across a matrix of factors and a base year (0) plus downstream years (1-6). Of note, one factor (Uneven Development) present earlier in the reduced multivariate regression declined below significance in this process. The factor counts appear in Table 15.

Factor	0	1	2	3	4	5	6	Sum
Poverty and Economic Decline	6	5	4	3	3	2	1	24
Group Grievance	6	5	4	3	2	1	0	21
Legitimacy of the State	4	4	4	3	3	2	1	21
Refugees and IDPs	4	5	4	3	2	1	0	19
Public Services	3	2	1	0	0	0	0	6
Security Apparatus	2	1	1	1	0	0	0	5
Human Rights	0	0	1	1	1	0	0	3
Totals	25	22	19	14	11	6	2	99

Table 15: Brute-Force Analysis of Downstream FSI Effects

Illustration 2 graphically depicts the distribution of FSI factors across downstream years

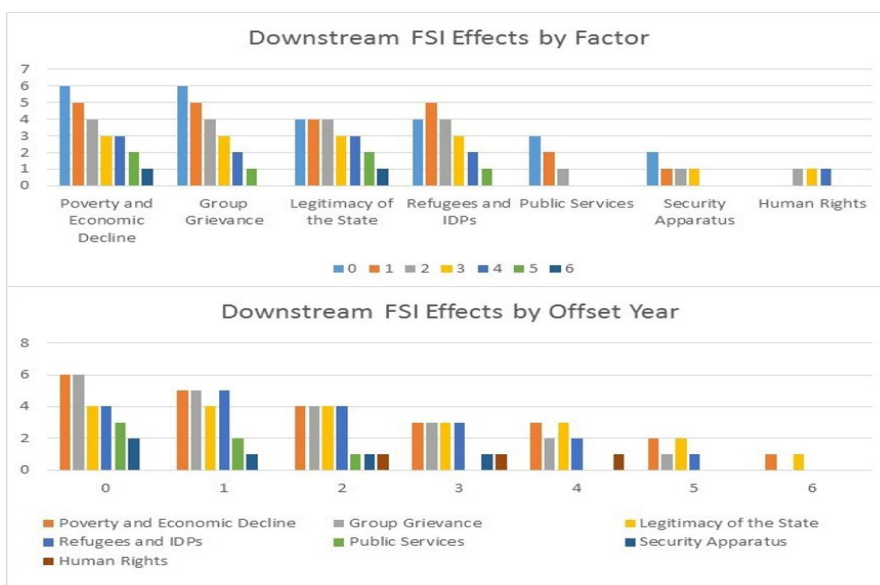


Illustration 2: Downstream Factors

As illustrated above, Poverty/Economic Decline, Group Grievance, Legitimacy of the State, and Refugees/IDPs project the greatest downstream effects across most observation periods, with the second downstream year presenting all seven significant factors. Also of note is the F2B delay for Human Rights, which does not present as a significant effect until at least 2 years downstream after the observed treatments – but

also dissipates after Year + 4. Likewise, the effects of Group Grievance dissipate after Year + 5; Public Services discontinues after Year + 2; Security Apparatus dissipates after Year + 3, etc. However, the effects of Poverty/Economic Decline and Legitimacy of the State continue to reverberate through at least Year + 6.

Time Series:

Having tentatively identified time lag as a factor, I then analyzed the reduced FSI dataset utilizing the time series and multivariate time-series functions of JMP and Stata. These functions build upon the econometric work of Box-Jenkins (1970), Lütkepohl (1991, 2005), and others previously mentioned to determine the downstream interdependence effects of time-series data.

First, I analyzed global level data to determine the presence of time-series effects making use of Stata's Vector Auto Regression (VAR) option, with Master Conflict as the dependent variable and the full FSI as the exogenous variables, calculated across eight lags. This achieved an R^2 of .41, and eight FSI factors presented as significant. Additionally, the second year (Lag_2) presented as significant, indicating that the most significant F2B between treatment and effect is 2 years downstream. This is consistent with my brute-force results above in which the second year downstream presented the full spectrum of factors.

Parameters	Root MS Error	R ²	chi ²	Prob > chi ²	
21	.339	.412	702.817	0	
IndVar	Coeff	Abs Coeff	SE	z	Prob > z
Group Grievance	.097	.097	.011	8.621	.000
Legitimacy of the State	-.063	.063	.016	-3.989	.000
Lag 2.Master Conflict	.054	.054	.024	2.220	.026
Poverty / Economic Decline	-.051	.051	.010	-4.859	.000
Refugees and IDPs	.048	.048	.008	5.865	.000
Human Rights	.047	.047	.013	3.515	.000
Security Apparatus	.040	.040	.012	3.444	.001
Demographic Pressures	.032	.032	.014	2.284	.022
External Intervention	-.031	.031	.010	-3.186	.001

Table 16: VAR Analysis against Master Conflict

FSI	VAR	Linear	Logistic
R ²	.41	.31	.44
Demographic Pressures	◆		◆
External Intervention	◆		◆
Factionalized Elites			
Group Grievance	◆	◆	◆
Human Flight			◆
Human Rights	◆	◆	◆
Legitimacy of the State	◆	◆	◆
Poverty / Economic Decline	◆	◆	◆
Public Services		◆	
Refugees and IDPs	◆	◆	◆
Security Apparatus	◆	◆	◆
Uneven Development		◆	

Table 17: Comparison of analysis results

Of interest, in this time-series VAR analysis, External Intervention and Demographic Pressures present as significant, similar to their appearance in the logistic regression results. The common significant factors across the three analytical processes (VAR, Linear, and Logistic) are Group Grievance, Human Rights, Legitimacy of the State, Poverty and Economic Decline, Refugees and IDPs, and Security Apparatus.

Country-level Effects:

I then attempted to focus VAR and auto-regressive integrated moving average (ARIMA) at the country level. However, with only nine observations (CY 2005-2013) per country, attempting to exploit the FSI, VAR, and ARIMA calculations for the country-level analysis failed due to deficiency of observations and degrees of freedom. Additional research and investigation into the applicability of time series and multivariate time-series analysis exercising a broader range of observations, injection of dummy random observations or alternate data sources at the country level potentially provides additional explanatory value.

The Past Is Prologue: Previous Conflict As SCT Factors:

Malinowski (1941), Schneider (1959), and Hedges (2002) provide perspective that conflict itself is an expression of social capital and cultural institutions. Whereas Schneider⁴⁰ and Malinowski generally examine the centripetal forces that bring a state into being, followed by the subsequent challenges of interstate conflict, Hedges observes many of the characteristics also apply in the intrastate domain when expressed in civil wars.

The dialectic processes of creation and destruction normally associated with the development of the nation-state (or tribe-nation and tribe-state in Malinowski's lexicon) do not fully consume or assimilate fully the former sub-tribe components, nor integrate their grievances and aspirations. The newly amalgamated nation-state always contains a

⁴⁰ Despite his protests to the contrary. In his introduction, Schneider claims that war is not a social activity, and then spends the rest of the paper demonstrating how war *is* a human activity pursued through social institutions.

certain amount of error and residual, which, if not mitigated through negotiation, amelioration, or successful repression, possibly will evolve (Walter, 2004) into the dark seeds for the next intrastate conflict. Moreover, when such conflict erupts, the cleavages deconstruct the state in reverse order.

To determine whether previous conflict provides explanatory value toward the performance of FSI factors, I performed a VAR exercising the FSI factors as dependent variables and each of the previous conflict years as independent variables.

This necessitates development of a new hypothesis:

- o H₄: Do democratic peace vectors augmented by social capital vectors, including previous conflict; provide a statistically significant explanation of human agency in contributing to or preventing intrastate conflict when analyzed?
 - o Yes. DPT factors when combined with SCT factors, including previous conflict and analyzed in time series, achieve a mean R^2 of .175 and present as significant.

R^2 values ranged from .075 for Poverty and Economic Decline to .317 for Group Grievance, with the conflict years significant in Tables 18 and 19.

Finally, VAR analyzing Master Conflict with the FSI and previous conflicts as independent variables presents an R^2 of .760 with Group Grievance, Legitimacy of the State, Human Rights, Demographic Pressures, and Human Flight demonstrating significance, as well as all previous conflict years – except for Conflict.2007, which failed the Prob > z threshold (Table 20).

Equation	Parameters	Root MS Error	R ²	chi ²	Prob > chi ²
Group Grievance	54	1.651	.317	560.473	.000
Refugees and IDPs	54	1.988	.286	482.218	.000
Security Apparatus	54	2.140	.233	365.787	.000
Human Rights	54	2.034	.214	329.273	.000
Uneven Development	54	1.735	.161	231.445	.000
Legitimacy of the State	54	2.236	.148	210.131	.000
Demographic Pressures	54	1.941	.143	201.028	.000
External Intervention	54	2.088	.129	179.206	.000
Public Services	54	2.225	.124	170.861	.000
Human Flight	54	1.999	.091	121.123	.000
Poverty and Economic Decay	54	1.926	.075	98.387	.000

Table 18: VAR R² of FSI Factors by Previous Conflicts

Dependent Variable	2005	2006	2007	2008	2009	2010	2011	2012	2013	Sum
Group Grievance	0	1	1	1	1	1	1	1	1	8
External Intervention	1	1	0	0	0	0	1	0	1	4
Refugees and IDPs	0	1	0	0	0	0	1	1	1	4
Poverty and Economic Decline	1	1	1	0	0	0	0	0	0	3
Public Services	1	1	0	0	1	0	0	0	0	3
Human Rights	0	1	0	0	0	1	1	0	0	3
Uneven Development	0	1	0	0	1	1	0	0	0	3
Security Apparatus	0	1	0	0	0	0	1	0	0	2
Legitimacy of the State	0	1	0	0	0	0	1	0	0	2
Human Flight	0	0	0	0	1	0	0	0	1	2
Demographic Pressures	0	1	0	0	0	0	0	0	0	1
Totals	3	10	2	1	4	3	6	2	4	35

Table 19: VAR Analysis of FSI Factors by Previous Conflicts

Ind Var vs Master Conflict	Coeff	Abs Coeff	SE	z	p Value
Conflict 2011	.576	.576	.036	16.182	.000
Conflict 2008	.420	.420	.047	8.963	.000
Conflict 2005	.369	.369	.035	10.430	.000
Conflict 2010	-.270	.270	.045	-6.024	.000
Conflict 2006	-.255	.255	.047	-5.459	.000
Conflict 2009	.229	.229	.049	4.682	.000
Conflict 2013	.171	.171	.040	4.316	.000
Conflict 2012	-.118	.118	.041	-2.882	.004
Lag 1.Master Conflict	.029	.029	.014	2.080	.037
Group Grievance	.028	.028	.006	4.331	.000
Legitimacy of the State	-.021	.021	.008	-2.481	.013
Human Rights	.019	.019	.008	2.366	.018
Demographic Pressures	.018	.018	.008	2.224	.026
Human Flight	-.015	.015	.005	-2.783	.005

Table 20: VAR of FSI and Past Conflict on Master Conflict

Section V: Second-Generation Techniques

Structural Equation Modeling:

Observing the relationship between Master Conflict, previous conflicts, and FSI factors brings up the question of how past conflicts and the FSI factors affect current and future conflicts. With R^2 as low as .22, or up to a maximum of .44, on the basis of the various analyses performed so far in this investigation, I contend that there are still areas within the current FSI/Master Conflict dataset that can be explored to determine whether a more explanatory model can be achieved with the current dataset.

The question of factor analysis, regression (linear, logistic, and vector auto regression), and lag time leads to considering the application of SEM to determine the presence and effects of potential unobserved latent variables on the overall intrastate conflict dynamic. This builds upon the work of Joreskog and Goldberger (1975), Wold (1986), Chin and Marcolin (1995), Gerow et al. (2008), Wold-Chin, et al (2013), and Hair et al. (2014).

Phase I: To test this concept, I used XLSTAT, which, as mentioned in Section I, is a Visual Basic overlay or add-on for Excel. One feature that this software offers is the partial least squares (PLS), path modeling (PLS-PM), and SEM platforms. For the initial test, I reused the CY 2009 subset from the earlier brute-force downstream test.

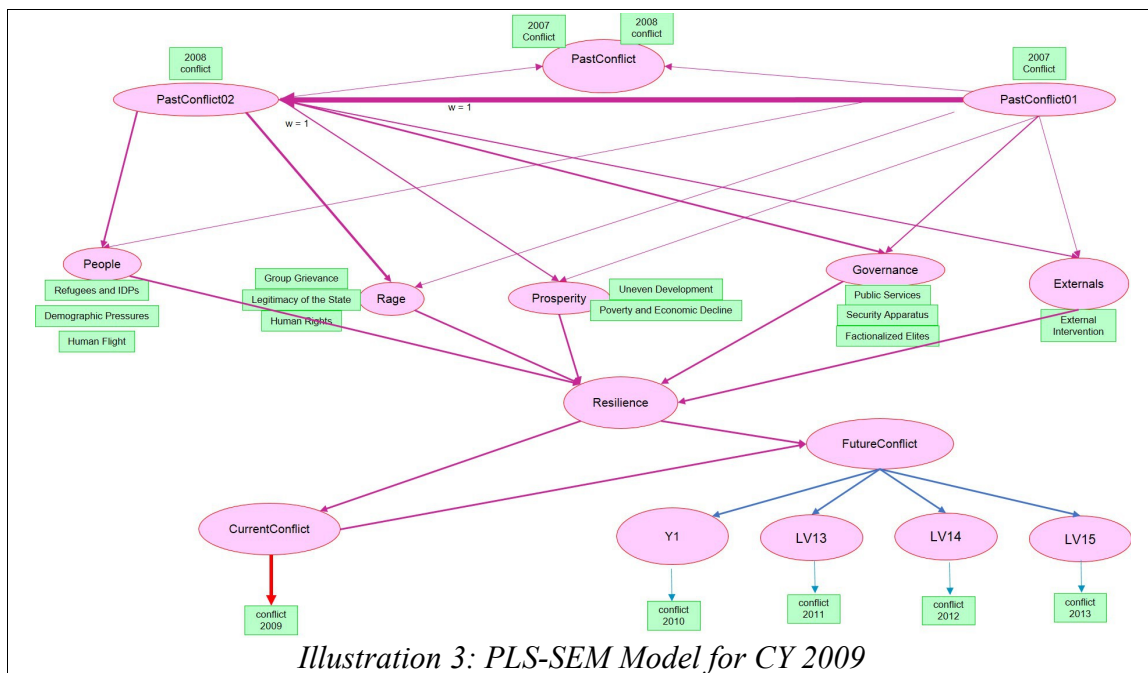
The critical capability of PLS-PM or PLS-SEM is the ability to model and test latent variables that function as representation of conceptual, abstract, or otherwise unobservable variables (Hair et al., 2014). Additionally, PLS-SEM can approximate causation between the independent and dependent variables (Gerow et al., 2008).

In this particular investigation, given time and VAR results, past conflict, current conflict, and future conflict emerge as latent variables.

Additionally, based on factor analysis, in this instance, the FSI factors logically group together in five main latent variables:

- People: Refugees and IDPs; Demographic Pressures; Human Flight
- Prosperity: Poverty and Economic Decline; Uneven Development
- Rage: Group Grievance; Legitimacy of the State; Human Rights
- Governance: Public Services; Security Apparatus; Factionalized Elites
- External: External Intervention

Finally, I opted to explore a way to account for the impact of the elasticity of the interaction between the FSI factors and past conflict. This elasticity affects current and future conflict, which for the purposes of this investigation I label “resilience” to measure the ability of a country to absorb FSI shock (OECD, 2009) before descending into intrastate conflict. In this case, it forms through the interaction of the FSI factors plus the effects of past conflicts. Figure 3 shows the CY 2009 SEM model used in this phase.



The complete results will be presented in Appendix 3 however; some critical results are exhibited below in Table 21. First, composite reliability presents above .75 for Cronbach’s α and well above .70 for the Dillon-Goldstein ρ , and the first eigenvalues are consistently well above the second value.

Latent Variable	Dimensions	Cronbach's alpha α	D.G. Rho ρ	Condition Number	Critical Value	Eigenvalue
Past Conflict	2	.953	.977	4.628	1.000	1.911
						.089
People	3	.875	.923	3.498	1.000	2.401
						.403
						.196
Rage	3	.938	.960	5.798	1.000	2.670
						.251
						.079
Prosperity	2	.796	.908	2.215	1.000	1.661
						.339
Governance	3	.936	.959	5.248	1.000	2.659
						.245
						.097
Externals	1					
Resilience	14	.963	.969	14.766	1.000	9.770
						1.797
Current Conflict	1					
Future Conflict	4	.934	.953	5.246	1.000	3.341
						.383

Table 21: Critical Results from SEM CY2009

Goodness-of-fit results display an absolute goodness of fit of .587, very close to the bootstrap goodness of fit of .584 (Table 22).

Goodness-of-Fit Index	Goodness of Fit	Goodness of Fit (Bootstrap)	SE	Critical Ratio (CR)
Absolute	.587	.584	.031	19.107
Relative	.885	.873	.040	22.028
Outer Model	.993	.985	.030	32.686
Inner Model	.891	.886	.023	38.384

Table 22: Goodness of Fit for CY 2009 with Resilience

In addition, latent-variable level R^2 ranges from .067 to .805 for the dynamic latent variables (Table 23).

Latent Variable	R^2	Prob > F	R^2 Bootstrap	SE	Critical Ratio (CR)
Prosperity	.067	.002	.073	.024	2.808
Externals	.075	.001	.090	.038	1.963
Governance	.120	.000	.124	.036	3.353
People	.144	.000	.149	.040	3.550
Rage	.159	.000	.160	.042	3.770
Current Conflict	.212	.000	.208	.043	4.916
Future Conflict	.805	.000	.816	.063	12.710

Table 23: Latent Variable R^2 in CY 2009 SEM with Resilience

Finally, total effects for the latent variables across the entire model are indicated in Table 24.

	Past Conflict 01	Past Conflict 02	People	Rage	Prosperity	Governance	Externals	Resilience	Current Conflict
Past Conflict 01									
Past Conflict 02	.911								
Past Conflict	.977	.512							
People	.358	.300							
Rage	.371	.353	.000						
Prosperity	.246	.197	.000	.000					
Governance	.330	.258	.000	.000	.000				
Externals	.261	.201	.000	.000	.000	.000			
Resilience	.472	.350	.226	.241	.150	.271	.090		
Current Conflict	.217	.161	.104	.111	.069	.125	.042	.460	
Future Conflict	.217	.161	.104	.110	.069	.124	.041	.459	.869

Table 24: Total Effects for CY 2009 Resilience SEM

Phase II. Building upon the concepts explored in Phase I, I performed this analysis again, in this instance employing all conflict years (CY 2005-2013) as past, current, and future conflict latent variables. Additionally, I reduced the number of FSI latent groups down from five to three based on factor analysis. Finally, I added a

*superblock*⁴¹ latent variable (FSI) to account for the entire range of FSI-related latent and manifest variables and a Total Conflict *superblock* latent variable. Figure 4 shows the CY 2005-2013 SEM model used in this phase.

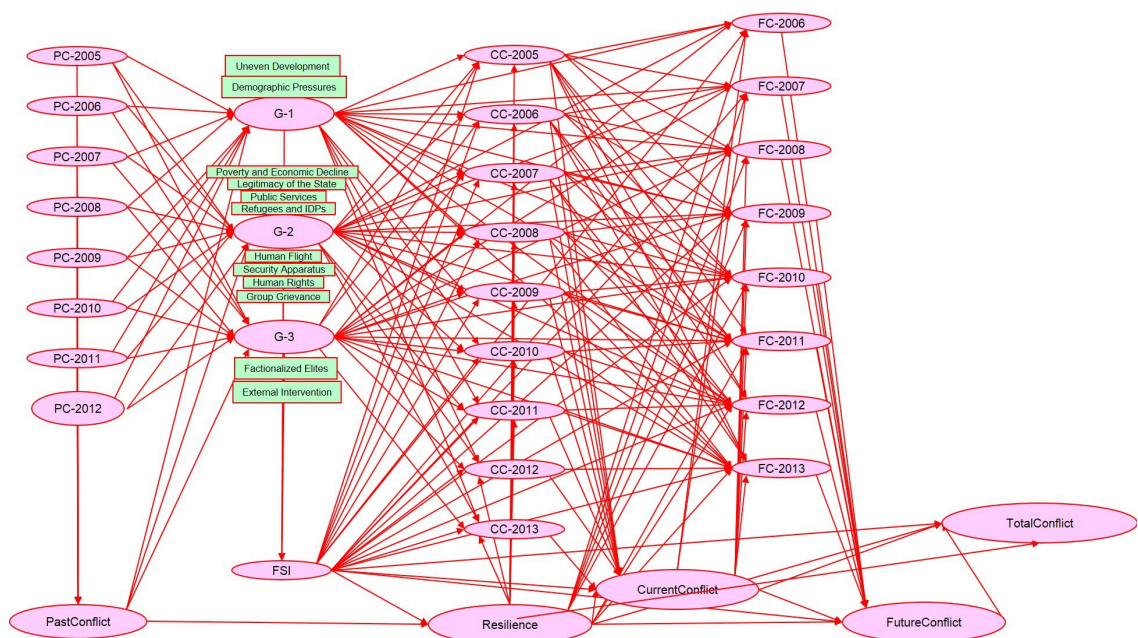


Illustration 4: PLS-SEM All vs All

The critical results are displayed in Table 25.

Goodness of Fit Index	Goodness of Fit	Goodness of Fit (Bootstrap)	SE	Critical Ratio (CR)
Absolute	.645	.642	.018	35.632
Relative	.849	.850	.018	47.921
Outer Model	.911	.909	.016	55.790
Inner Model	.932	.936	.012	80.215

Table 25: All vs All SEM with FSI and Resilience

41 An XLSTAT feature to combine one or more latent variables.

Table 26 displays the relevant Total Effects (rotated to fit the page).

Factor	Current Conflict	Future Conflict	Total Conflict
PAST CONFLICT-2005	.116	.115	.122
PAST CONFLICT-2006	.191	.191	.196
PAST CONFLICT-2007	.073	.073	.051
PAST CONFLICT-2008	.184	.183	.174
PAST CONFLICT-2009	.178	.180	.139
PAST CONFLICT-2010	.060	.062	.025
PAST CONFLICT-2011	.195	.195	.204
PAST CONFLICT-2012	.126	.126	.116
Past Conflict	.980	.988	.730
G-1	-.024	-.029	.040
G-2	-.052	-.037	-.288
G-3	-.030	-.021	.048
FSI	-.054	-.046	-.337
Resilience	1.019	1.029	.723
CURR. CONFLICT-2005	.108	.014	-.185
CURR. CONFLICT-2006	.110	-.073	-.323
CURR. CONFLICT-2007	.115	-.024	-.257
CURR. CONFLICT-2008	.111	-.089	-.349
CURR. CONFLICT-2009	.119	-.020	-.257
CURR. CONFLICT-2010	.119	.034	-.176
CURR. CONFLICT-2011	.105	-.045	-.269
CURR. CONFLICT-2012	.103	.045	-.127
CURR. CONFLICT-2013	.122	.221	.106
Current Conflict		1.806	.864
FUTURE CONFLICT-2006		.141	.216
FUTURE CONFLICT-2007		.142	.219
FUTURE CONFLICT-2008		.138	.213
FUTURE CONFLICT-2009		.148	.227
FUTURE CONFLICT-2010		.144	.221
FUTURE CONFLICT-2011		.137	.211
FUTURE CONFLICT-2012		.141	.216
FUTURE CONFLICT-2013		.136	.209
Future Conflict			1.536

Table 26: Total Effects: All vs All SEM FSI with Resilience

Section VI: Findings

Hypotheses Revisited:

Returning to the hypotheses under investigation and including the new hypothesis added above, we can see:

- H₁: Do democratic peace vectors provide a statistically significant explanation of human agency in contributing to or preventing intrastate conflict?
 - Cannot Reject: DPT factors, when tested alone, achieve an R^2 of .234 and test as significant.
- H₂: Do social capital vectors provide a statistically significant explanation of human agency in contributing to or preventing intrastate conflict?
 - Cannot Reject: SCT factors tested alone achieve an R^2 of .258 and test as significant.
- H₃: Do democratic peace vectors augmented by social capital vectors provide a statistically significant explanation of human agency in contributing to or preventing intrastate conflict?
 - Cannot Reject: DPT factors, when combined with SCT factors, achieve an R^2 of .311, greater than either SCT or DPT clusters alone, and present as significant.
- H₄: Do democratic peace vectors augmented by social capital vectors, including previous conflict provide a statistically significant explanation of human agency in contributing to or preventing intrastate conflict when analyzed?
 - Cannot Reject: DPT factors when combined with SCT factors, including previous conflict and analyzed in time-series, achieve a mean R^2 of .175 and present as significant. When analyzed in PLS-SEM, DPT and SCT factors achieve an R^2 of .65 with previous and current conflicts creating additive effects to FSI factors in determining the indications for future conflict.
- H₀: There is no link between intrastate conflict and human agency (DPT or SCT) factors.
 - Rejected; significant SCT, DPT, and time-series factors all present above the .05 threshold.

Initial Policy Implications:

These will be discussed in more depth in the conclusion.

CHAPTER FOUR: SHOCK AND WAR: CASE EXAMINATIONS OF SYRIA AND KENYA

In this chapter, I bring forward the analysis from the quantitative chapter to examine two cases, Syria and Kenya, to determine whether Kantian Adaptive Network Theory (KANT) and FSI provide explanatory value in understanding recent conflict events in those countries.

For expanded perspective, I then work through several theoretical lenses concerning factors affecting the breakdown of the intrastate social contract and the nature of the center of gravity counterpoise point formed between governance and societal elements. I then analyze the FSI in the Syrian and Kenyan cases to illuminate the elastic and plastic stresses contributing to the recent conflict trajectories in those cases.

Section I: Drilling Down To The Cases

Building on the previous chapter's discussion of FSI factors as conflict components in static and dynamic perspectives, the inquiry leads to the question of whether the macro results hold validity when focused on real-world cases. Ward, Greenhill, and Bakke (2010) highlight the difficulty encountered when applying global statistical analysis to drive policy in discrete cases, noting that global statistical results ought to be re-examined at the case level to determine applicability and to prevent misapplication of prescriptive policies that create additional havoc despite the worthiest intentions of the donors.

This is not to assert the impossibility of applying global insights at the micro level, but attention to an appropriate level of analysis is required. As some of my

colleagues learned to their chagrin, workable solutions from the Iraq experience did not apply in Afghanistan due to underlying differences in governance and societal taxonomy. Clearly, in attempting to illuminate the distinctions of the terrain—whether physical, mental, political, or economic—that differentiates the cases from each other; one may better discern nuances between the cases that, if not accounted for in one’s analysis, potentially lead to errors in policy prescriptions.

The scope of this investigation does not cover an exhaustive analysis of the history, politics, economics, etc., of the selected cases, but rather comprises an early stage of what could evolve into a larger investigative series. At this level, we examine the cases to determine how, and to what extent the results from, the quantitative analysis of the FSI through a KANT lens assists in explaining the conflicts—or lack thereof—in Syria and Kenya.

As described in Chapter 1, my focus state is Syria. During the 1982-2011 time-frame, Syria presented as a relatively stable country, and then collapsed into civil war on March 15, 2011. Based on the FSI rankings commencing in CY 2005, Syria consistently ranked as a weak but stable country; however, 2011 saw a marked deterioration as conflict erupted.

To determine the comparative case, I sought a country that would provide a manageable, but interesting, dataset for comparison. This country needed to meet the following criteria: a country that ranked worse than Syria yet avoided falling into civil war during the data window.

One country meeting these criteria is Kenya: It consistently ranks worse than Syria on the FSI, generally assessed as not⁴² in a measurable intrastate conflict, and consistently ranks in the

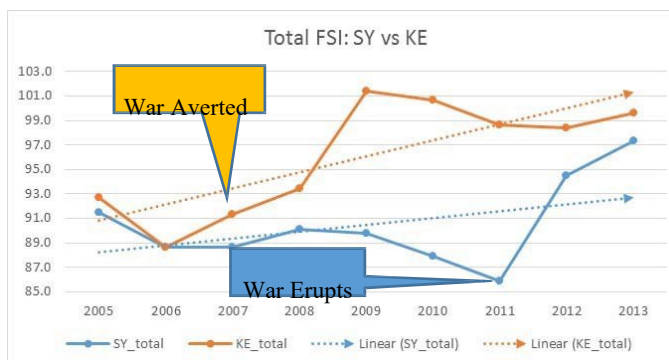


Illustration 5: Total FSI trajectory, SY vs KE

top 10 in statistical similarity tests compared with an average or median country already in a state of war (Figure 5). By many accounts, Kenya should be in a state of war, especially given the reverberating effects of the contested 2007 election, but thus far avoided falling into intrastate conflict during the reporting period. Thus, having met the criteria, for the remainder of this chapter, this investigation focuses on Syria and Kenya.

⁴² According to the UCDP, conflicting reports present different figures for the death toll from the late CY 2007-2008 election violence, ranging between 800 and 1,550 deaths.

Section II: The Cases: Scene Of The DIME

Syria:

Reviewing literature and news reporting throughout CY 2010, the subject of a Syrian civil war did not enter the discourse. Early in CY 2011, some political risk firms mentioned the remote possibility of the opposition demonstrations degenerating into conflict. As late as March 11, 2011, regional commentators⁴³ opined that Syria would not succumb to the paroxysms of rage and resistance engulfing the Arab world. By that point, the “Arab Spring” movement swept through Tunisia, Libya, Egypt, and other Arab countries in the months since a young man immolated himself in a small Tunisian town following a humiliating December 2010 confrontation with a market inspector.⁴⁴ The commentators asserted Syria’s governance and economic stability, absence of cohesion among opposition elements, and the accepted narrative of Syrian independence from Western interference would insulate Syria from the storm roiling the rest of the Arab world.

Four days later, on March 15, 2011, the Syrian civil war erupted as Syrian government



Illustration 6: Map of Syria, showing Aleppo and Homs (Hims)

43 Oren Kessler, “The road to Damascus,” *Jerusalem Post* (2011): 14; “Lebanon’s Hezbollah TV praises Syria’s measures to improve lives of its citizens,” *BBC Monitoring Middle East* (2011): n/a; *Dawn of the Arab Uprisings: End of an Old Order?* ed. Bassam Haddad, Rosie Basheer, and Ziad Abu-Rish (London, GBR: Pluto Press, 2012).

44 Kareem Fahim, “Slap to a Man’s Pride Set Off Tumult in Tunisia,” *New York Times* (2011): [Cited 2015], Retrieved from <http://nyti.ms/1BGHvV7>

forces in Aleppo and Homs⁴⁵ opened fire on demonstrations demanding government reform (Figure 6). However, can we describe Syria's eruption into civil war as a truly "black swan" event (Taleb, 2007, 2015) devoid of indications and warning and only apparent in hindsight?

Alternatively, by drawing on KANT can we develop strategic warning (Davis, 2002) of potential for conflict, even if we are not capable of preventing tactical surprise? Granted, this investigation focuses *post facto* on Syria; however, gleaning insights from the Syrian experience creates the possibility to prevent strategic surprise in other locales, such as Kenya. Therefore, applying the KANT lens I intend to examine, comparable to the complex factors that drove the fruit seller to put a match to his turpentine-soaked clothes, detectability of the vectors expressed within the FSI of rage, repression, and economic devastation that infected Syria long before the protests, repression, and descent into civil war that erupted on March 15, 2011. Like the slap to the face⁴⁶ that started a revolution, did Syria's hidden rage only lack a trigger to shatter the illusion of stability?

Kenya:

Kenyan⁴⁷ President Kibaki's contested reelection in December 2007 brought charges of vote rigging from Orange Democratic Movement candidate Raila Odinga and unleashed two months of ethnic and group violence, killing as many as 1,500

⁴⁵ Map from *CIA World Factbook* 2011 edition, annotations by Dennis Sullivan.

⁴⁶ Whether the slap actually occurred is a matter of debate; however, the after effects of the narrative of the slap still echo across the protest squares and shelled buildings.

people.⁴⁸ Rapid mobilization of domestic Kenyan nongovernmental organizations combined with regional international mediation led by former UN Secretary General Kofi Annan in late February 2008 resulted in a power-sharing accord bringing Odinga into the government in the restored position of prime minister. The power-sharing accord included a broad reform agenda including acceding to demands for constitutional reform.

In August 2010, Kenyans overwhelmingly adopted a new constitution in a national referendum. This new constitution introduced additional checks and balances to executive power and devolved power and resources to 47 newly created counties. It also eliminated the position of prime minister following the first presidential election under the new constitution, which occurred on March 4, 2013. Uhuru Kenyatta won the March elections in the first round by a close margin and entered into office on April 9, 2013.

Economically, with the discovery of extensive oil reserves near the Rift Valley, Kenya, in conjunction with neighboring Uganda, Ethiopia, and South Sudan, construction

47 Amalgamated from *CIA World Factbook*; Kenya Country Page, *The World Factbook* 2013-14. Washington, DC: Central Intelligence Agency, 2013; <https://www.cia.gov/library/publications/the-world-factb/>, in Central Intelligence Agency [database online]. Washington, DC. Retrieved from <https://www.cia.gov/library/publications/the-world-factbook/geos/ke.html>; "U.S. travel warning helps wash away Kenya tourism | The Seattle Times " [cited 2015]. Retrieved from <http://www.seattletimes.com/life/travel/us-travel-warning-helps-wash-away-kenya-tourism/>; "Kenya From Nowhere Plans East Africa's First Oil Exports: Energy - Bloomberg Business " [cited 2015]. Retrieved from <http://www.bloomberg.com/news/articles/2013-08-19/kenya-from-nowhere-plans-east-africa-s-first-oil-exports-energy>; "The root-causes of Kenya's post-election crisis | D+C - Development + Cooperation " [cited 2015]. Retrieved from <http://www.dandc.eu/en/article/root-causes-kenyas-post-election-crisis>., "Civil society organizations in Kenya strive to prevent election violence in the future | D+C - Development + Cooperation " [cited 2015]. Retrieved from <http://www.dandc.eu/en/article/civil-society-organisations-kenya-strive-prevent-election-violence-future>; and Paul Collier and Pedro C. Vicente, "Violence, bribery, and fraud: the political economy of elections in Sub-Saharan Africa," *Public Choice* 153, no. 1-2 (2012): 117-147.

48 As noted in the text above, estimates range from 800 to 1,550 people, depending on the source.

is intended to begin on a transport corridor and oil pipeline to the Indian Ocean refineries and shipping ports. Based on petroleum discoveries, the Kenyan government projects energy independence within five years and improving economic conditions for all Kenyans.

Kenya's economy struggles due to corruption and reliance on primarily agricultural production subject to volatile global prices. Low infrastructure investment threatens Kenya's long-term position as the largest East African economy, although the Kenyatta administration prioritized infrastructure development. International financial lenders and donors remain important to Kenya's economic growth and development. Unemployment remains consistently high, hovering around 40% for at least the last 10 years.

The country endures chronic budget deficits, although the government intends that the recent oil discoveries and improved revenue legislation and collection methods provide some relief. Inflationary pressures and sharp currency depreciation peaked in early 2012 but have since abated following low global food and fuel prices and monetary interventions by the Central Bank.

Recent attacks conducted by Somalia-based terrorists in Kenya and the effects of this terrorism on the surrounding region threatens Kenya's important tourism industry and places additional pressure on the government to accelerate the petroleum project to alleviate ethnic and inter-regional grievances exacerbated by the loss of tourist revenue.

Section III: Additional Points Of Analysis And Comparison

This examination centers on applying KANT, which is composed of elements of DPT, SCT, conflict as a social activity, resilience, and lagged over time to illuminate critical factors exacerbating or ameliorating the impetus to conflict. Building on the previous chapter's results achieved employing the FSI to drive linear regression, multivariate regression, logistic regression, VAR analysis, and SEM, the FSI factors presenting the largest explanatory value include:

- **Group Grievance**
- **Human Rights**
- **Legitimacy of the State**
- **Poverty and Economic Decline**
- **Refugees and IDPs**
- **Security Apparatus**

Among those listed, the most significant FSI effects, as determined through a False Discovery Rate LogWorth process⁴⁹ listed in Figure 7 include Grievance, Refugees, Legitimacy, and Poverty/ Economic Decline.⁵⁰

Second, as noted in Chapter 2 and consistent with Kalyvas (2006), these factors may interact in concert,

which introduces a question of

harmony or discord, to amplify or mitigate the effects of other factors when contributing

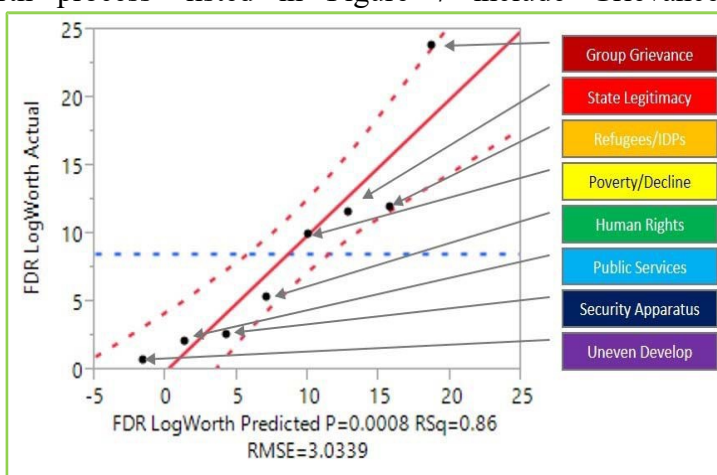


Illustration 7: Response screening results reduced FSI vs master conflict

⁴⁹ The Response Screening Personality in Fit Model” [cited 2015]. Retrieved from http://www.jmp.com/support/help/The_Response_Screening_Personality_in_Fit_Model.shtml.

⁵⁰ This is not to say that the other factors are irrelevant; however, these results warrant further investigation to determine whether there is a greater risk for false positives (Type I errors) given the scarcity of observations when applying FSI factors.

to or ameliorating conflict. Yet, Evans (2006) and Arnson and Zartman (2005) counseled that each conflict potentially presents a unique combination of factors—illuminating the possibility of an FSI “fingerprint”—that may challenge larger generalizations and require a more nuanced FSI analysis, or broadening the aperture to include non-FSI factors. Finally, in considering the cases, we must be aware of the iterative spiral: time and the flash-to-bang delay that combine to create significant downstream effects several years after treatment.

These results drive analysis at the case level, provided we bear in mind that nuances in cases might justify adjustments in technique. Over the next several sections, I describe several additional conceptual lenses through which I assess Kenya and Syria’s performance in the dynamic real-world environment affecting KANT and the corresponding FSI indicators.

Fragile? By Whose Standards?

Whereas the failed/fragile state concept provides a starting point for this discussion, and the FSI itself provides the data for the quantitative analysis, an exhaustive examination of the failed state literature lies beyond the scope of this investigation. Of note, Migdal (1988), Helman and Ratner (1993), Zartman (1994), Gros (1996), and the OECD (2009) established the discussion and ramifications of failing states, followed afterward by critique of the failed state literature by Call (2008) and Solomon (2013).

However, high failed/fragile state rankings do not necessarily lead to intrastate conflict. As discovered during the calculations for Chapter 3, FSI rank by itself correlates

in univariate mode against Master Conflict at .33 with an R^2 of .11, but drops from consideration on $Prob>|t|$ when included in multivariate regression with all FSI factors.

Crossing these discussions, FFP (2013) establishes that the critical taxonomy of failed/fragile states includes:

- Loss of physical control of territory
- Loss of a monopoly on the legitimate use of force
- Erosion of legitimate decision-making authority
- Inability to provide reasonable public services
- Inability to interact with other states as a full member of the international community

Discussions on the nature of failed/fragile states in terms of intrastate conflict revolve around the observer's perspective and the relationship between the governance structures and the various societal elements, frequently referred to as the social contract. In this case, the term social contract encompasses the more specific constructs including aggregate-psychological theory and system/value consensus theory (Gurr, 1971; Skocpol, 1979), Gregor, 2014).

Murshed and Addison (2006), building on Rousseau (1762),^{51, 52} contended that peace in societies rests on iterative social contracts between governance and society in a dynamic equilibrium between centrifugal vectors measuring the nation-state's movement away from cohesion, balanced against centripetal vectors measuring the movement toward cohesion (Sartori, 1976; Cox, 1990; Gerring, Thacker, & Moreno, 2005). As the social contract's equilibrium deteriorates, as the centrifugal vectors gain

51 Or the Mandate of Heaven in Sino-influenced societies Jiang Yonglin, *Mandate of Heaven and the Great Ming Code* (Seattle, WA: University of Washington Press, 2010).

52 Kant's *Metaphysics of Morals* further builds upon Rousseau's social contract, building a case for the hierarchy of the civil state (as a condition), with a presupposition of deference to the expectedly enlightened wisdom of the incumbent ruler.

supremacy, the probability of conflict increases until such point of social contract failure exhibits disruption by descent into conflict (Sartori, 1976:145).

To paraphrase Wendt (1992), the social contract, like anarchy, is what its participants make of it. This inverts the external focus on absolute judgments by the global community concerning this listed taxonomy to a relative perspective concerning the assessment of fragility/failure by those who must live under that structure. They, after all, constitute the actors making the decision to accept the status quo—now and up to x many lags into the estimated future(s)—or to commence action across their aspects of power⁵³ to exert pressure for reform or revolution. Similarly, the governance entities seek to contain or control demand signals within the contractual participants through use of their aspects of power.

How external actors assess the state of the state matters less to a resident or government official than the extent to which those residents and officials relate to each other in terms of legitimacy of force or authority, the nature of “reasonable” services, or representation to external actors (OECD, 2009).⁵⁴ Estimations considered by an outside

53 Diplomacy/statecraft, information, military/force, and economic pressures/incentives.

54 OECD document discussion on resilience, my commentary noted in << >> The social contract, we argue, emerges from the interaction between expectations that a given society has of a given state; <<and of its relations with different parts of society with each other, whether cooperative or competitive, or cooperative>>>; state capacity to provide services, including security, and to secure revenue from its population and territory to provide these services (in part a function of economic resources; elite(s) will to direct state resources and capacity to fulfill social expectations. It is crucially mediated by d) the existence of political processes through which the bargain between state and society is struck, reinforced and institutionalized. Finally, e) legitimacy plays a complex additional role in shaping expectations and facilitating political process. Legitimacy is also produced and replenished – or, conversely, eroded – by the interaction among the other four factors. Legitimacy has various domestic forms and sources, which are not always mutually reinforcing: embedded or residual legitimacy, deriving from prior state formation or other historical dynamics; performance legitimacy, which derives from effective and equitable service delivery; and process legitimacy. Legitimacy can also derive from international recognition and reinforcement, although this especially can be at odds with domestic sources of legitimacy.

entity highlighting a disturbing devolution of the provision of public services away from expectations that are based on external norms of a just, credible, and well-functioning service regime merely only have to achieve a level “good enough” for the provider and recipients in a manner mutually adjudicated between them.

Indeed, Call (2008) highlighted a variation of the Peltzman Effect⁵⁵ (Peltzman, 1998), observing that risks introduced by well-meaning external actors seeking to intervene in an internal condition of a failed/fragile state, mostly to assuage their own internal political demands, which ultimately resulted in exacerbating the conditions they seek to alleviate. As we realize from the external intervention FSI factor results from Chapter 3, this does not imply that all interventions create detrimental results, but does introduce necessity for caution combined with deeper analysis of the situation, planned intervention, and risk analysis of second- and third-order effects.

Here we note potential limits of employing the FSI, at least within the analytical techniques applied thus far. Analysis of the FSI reveals social contract stresses forming conditions conducive to—or alleviating—conflict, yet the insufficiency of granularity due to the yearly time-series lag of FSI iterations apparently restricts our ability to perceive proximate trigger events of a conflict.

The FSI lacks the granularity to illuminate the aspirations, frustrations, and intentions of the protagonists. FSI analysis remains further limited by its undefined sub-

⁵⁵ A regulatory regime whose primary purpose existential purpose seeks to prevent some negative outcome is doomed to failure. “Regulation seldom changes the forces that were producing the particular result the regulators seek to change (Peltzman, 2004)

factors in the FFP's methodology, obstructing our ability to cull significant factors representing the centrifugal–centripetal dynamic. At the case level, does the centrifugal–centripetal dynamic tension between demands and decisions evolve in consonance or discord? Viewed in that lens, modalities of breaking a fragile state bear striking similarities to perspectives derived from the physical sciences.

Section IV: Breaking The Fragile State

Brittle Systems:

As observed in the FSI, a number of fragile states persist in their debility without descending into conflict, indicating the possible existence of an additional quality in proximate sequence between fragility and conflict. To examine this potential progression, insights from the physical sciences introduce the concept of brittleness and cascading system failure.

Bush, Hershey, and Vosburgh (1999) noted that physical or technical systems repeatedly exhibit brittle behavior, sometimes defined as a sudden and steep decline in performance as the system state changes due to strains⁵⁶ that exceed specified operating boundaries. Two forms of strain, elastic (reversible) and plastic (permanent), act on the system. In a brittle system, plastic strain creates degradation from which the system cannot recover, whereas a brittle system can recover from reversible, elastic strain.

Systems, whether economic or physical, endure stresses in three ways: shocks, ratchet, and shock and ratchet (Smithies, 1957; Corden, 1981; Guillamont, 1999; Roland, 2000; Kreps and Wallis, 2003). Shocks comprise short duration but high-intensity increases in stress directed against vulnerable areas. Ratchet indicates a steady, gradual change in pressure against fault lines; a ductile system will adjust to the pressure, whereas a plastic system will resist adjustment until the stress overcomes the ability of the system to resist and the system fails in rapid succession. Finally, shock and ratchet indicates a

⁵⁶ To carry the analogy further, ductility measures the amount of permanent strain the system can absorb prior to fracture. Stress is the distance by which a parameter exceeds tolerance. A brittle fracture occurs with very little energy absorption, whereas a ductile fracture absorbs much energy.

combination of shock and ratchet, consisting of shocks against some vulnerabilities with gradual increases in stress in other or the same vulnerabilities.

Based on Bush et al. (1999) criteria, nation-states also display brittle properties, wherein the dynamic systems between governance and populations exhibit vulnerability to stresses that exceed the capability of the governance and society to rebound from shocks and ratcheted pressure.

Cascading Failure:

These concepts provide perspective for physical and technical systems. Therefore, how does one exceed the “specified operating tolerance” of a country or society? To that point, Motter and Lai (2002) note that many real-world physical and technical networks are heterogeneous, deliberately designed to exploit certain advantages contained within each subsystem to accomplish a certain task when operating in concert. Heterogeneous systems also possess dissimilar vulnerability to stresses, both plastic and elastic. This combination of vulnerabilities, considered faults, permeates this amalgamation, with the risks of those faults accepted through the designers’ risk management processes. This amalgamation of biased systemic interface zones offers strengths applicable to certain tasks while simultaneously increasing vulnerability to undergo large-scale cascade failures when overstresses affect vital nodes.

Center Of Gravity:

Harley’s (1997) discussion of Clausewitz’ center of gravity (COG) concept bridges the gap between cascading failure in physical systems and targeted cascading failure in social constructs, especially those in a state of conflict. Strange and Iron (2004)

expand on Clausewitz through examination of the moral COG to demonstrate linkages between the COG of a political entity, including leaders, ruling elites, and groups within the population, and identification of the decisional nexus. Although the “source of power and movement” (Strange & Iron, 2004:23) built upon the supportive foundations of an entity, COG, constructed of heterogeneous critical capabilities, also charts the critical vulnerabilities within the system that hold the potential for the system’s destruction when stressed through shocks and/or ratchets beyond the recuperative capability of the system.

Whereas Clausewitz asserted the necessity for opposition—“a center of gravity is relevant only in relation to an enemy” (Strange & Iron, 2004:24)—I contend a COG exhibits both latent/potential and kinetic characteristics in similar manner to energy-based systems (McCall, 2010). Latent COG functions when operationalized to accomplish uncontested governance or societal tasks.

Conversely, building on Schmitt’s (1932, 1996) concept of opposition, kinetic COG analysis highlights dynamic tension between opposed

COG Matrix	Democratic	Autocratic
Preservationist	DP	AP
Revisionist	DR	AR

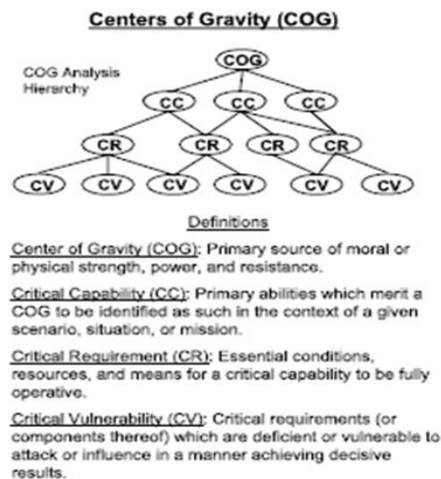
Table 27: COG Matrix: Democracy, Autocracy, Preservationist, & Revisionist

antagonists within the social contract, whether preservationist and revisionist (Table 27). Their vectors contribute to intrastate conflict when elements within the social contract construct commence placing stresses (demands) on the system, culminating, in some cases, in complete system disruption.

With the exception of Schalch (1997) and Gregor (2014), pursuing examination of COG vectors affecting the tendency toward or away from intrastate conflict appears as an

area under-investigated within the intrastate conflict literature, contrasted with the larger body of COG work for interstate conflict. This gap leads to a contention that we can develop deeper insight through further accounting for the nature of the COG nexus of that system and the “barycentric nexus” formed by the COG of the incumbent and the opponents, once opposition forms. Each oppositional element operates in the span between democratic and autocratic tendencies, differentiated by the qualities of preservationist or revisionist impulses. A conflict system within a democratic–revisionist-dominant dynamic presents a different COG analysis compared with a more autocratic–preservationist system and possesses an alternate composite of vulnerabilities.

Strange and Iron (2004) expanded the COG concept to illustrate the relationship between the COG and the component factors of Critical Capability (CC), Critical Requirement (CR), and Critical Vulnerability (CV). As presented in Figure 8, each CC comprises one or more CR, which in turn comprises one or more CV.⁵⁷



*Illustration 8: COG Diagram,
Beavers, 2003*

Returning to the security dynamics of DIME/PMESII discussed in earlier chapters, DIME⁵⁸ comprises the aspects of (national) power, e offensively or defensively.

⁵⁷ Often notated as CV→CR→CC→COG.

⁵⁸ Diplomatic, Information, Military, and Economic

PMESII⁵⁹ comprises the simplest taxonomy for CC, with a myriad of options and permutations of CR and CV. DIME aspects protect one's PMESII while seeking advantage (attacking) over an opponents' PMESII, who in turn is manipulating their DIME against their opponent's PMESII. Strategists, Sun Tzu, through Clausewitz, and into the modern era all stress the requirement to create asymmetric alignments of power, referred to here as DIME, against capabilities, PMESII, to achieve desired effects of bending the opponent to one's will.

Adding a polity discriminant to the FSI (Table 28) regression illuminates the difference between varying polity levels and highlights a potential critical path to determining the critical vulnerabilities within autocratic systems compared with democratic systems. Applying deleterious effects across multiple CVs

Polity	Calculation	Value
8	R^2	.330
7	R^2	.500
-7	R^2	.490
Polity	Term vs Master Conflict	Prob> t
8	Poverty and Economic Decline	.000
8	Refugees and IDPs	.010
8	Uneven Development	.010
8	Legitimacy of the State	.020
8	External Intervention	.030
7	Poverty and Economic Decline	.010
7	Human Rights	.050
-7	Poverty and Economic Decline	.000
-7	Demographic Pressures	.030
-7	Public Services	.050

Table 28: Sample FSI regressed vs Master Conflict, by polity level

along a critical path creates cascading systemic failures at the CC level, which in a brittle system affects the speed of system collapse. Military operations, such as Ullman and Wade's (1996) Rapid Dominance or Falzon's (2006) Centre of Gravity Network Effects concept may seek to create this system collapse artificially and in a controlled manner to achieve military objectives.

⁵⁹ Political, Military, Economic, Social, Information, and Infrastructure.

In contrast, civil disorder tends to progress in an iteratively disjointed model within a longer timescale between the rational choice and ideological factions within the governance and societal antagonists.

Zimmermann (1987) observed the more ideological and more autocratic factions tending toward earlier responses

Attitude Matrix	Rational Choice	Ideological
DP	DP-RC	DP-I
AP	AP-RC	AP-I
DR	DR-RC	DR-I
AR	AR-RC	AR-I

Table 29: COG Attitude Matrix:

involving violence as the debate over resources, demands, and decisions evolves. Table 29 depicts the vectors within the democracy <->autocracy | preservationist <-> revisionist | rational <-> ideological configuration space.

Quality of COG affects the nature of how to support and deconstruct a regime through stresses and supports along critical vulnerabilities. In the cases of Syria and Kenya, Syria presents as an autocratic preservationist regime with tendencies toward predominantly ideological attitudes of President Assad, supported by the Syrian Ba'ath Party and Alawite elites. The Assad regime initially faced opposition from the democratic revisionist rational choice movement of the political opposition that evolved into the Free Syria Army. Ultimately, the autocratic revisionist ideological movement of the self-styled Islamic State in Iraq and Syria (ISIS, also known as Daesh) entered the fray.

By contrast, Kenya's recent political history presents, in CY 2007, a democratic preservationist rational regime (Kibaki/PNU) versus democratic revisionist rational challengers (Odinga/ODM). Later, the CY 2013 contest pitted democratic revisionist rational (Odinga/ODM) and democratic revisionist rational (Kenyatta/TNA). The COG of

Kenyan political groups diverges compared with those of Syrian groups, and as such will create different conditions through which FSI and KANT vectors drive analysis.

Breaking Bad—from Grievance To Conflict:

Contrary to Waltz (1959), civil war does not lurk around the intrastate periphery merely awaiting removal of obstacles; rather, the process generally entails multiple fractures and stresses in the social contract building over a period, culminating in the outbreak of violence. FSI data indicate that only 14% of countries descended into or continued intrastate conflict in any given year between CY 2005 and 2013. Optimally, states should not descend into conflict through random change, as Motter and Lai (2002) observed that random breakdown rarely achieves systemic failure; such deterioration requires active participation. As Collier and Hoeffler (2004) noted, grievance, like crime, requires motive and opportunity.

However, FSI results in Chapter 3⁶⁰ call into question Collier and Hoeffler's (2004) conclusion concerning greed as a primary explanation for conflict. Group Grievance presents as most significant, indicating a *prima facie* case to examine grievance and its component for relevance to macro global issues, as well as Kenya and Syria as cases.

This social capital line of inquiry lends strength to the conflict trajectory resulting from the devolution of recognition as noted by Wendt (1992, 1999) interpolating Hegel (1807), reinforced by Cahan (2013), the degenerative micro-conflict process described by Parsa (2000), and combined with the ideological hardening described by Zimmermann

⁶⁰ Group Grievance, Refugees/IDPs, Legitimacy of the State, and Poverty and Economic Decline – in that order.

(1987). As groups on the governance and societal sides shift toward increasingly ideological stances to maintain internal cohesion in the challenge of external demands, internal dissent, and degradation of expectations of negotiated future security (Lake & Rothchild, 1998), negotiating positions likewise shift from rational to ideological.

Concurrently, the gradual demonization of the *other* (Markell, 2003) degrades their mutual recognition; the *other* transforms, across multiple possible cleavages, such as ethnicity (Lake & Rothchild, 2008), through malicious misrecognition from a social contract partner, to an opponent, to an enemy. In parallel with the devolution of the *other*, the impetus to win, to force compliance upon the *other* regardless of costs, degrades the fabric of the social contract.

The *status quo*, in most cases, championed by the governance structures, even when reinforced through repressive physical and information actions, maintains a psychological advantage in the negotiation and prioritization of the revisionist demand signals expressed by societal elements (Mann, 1993). The red line between protests and rebellion wears thin, but surmounting that line remains problematic. The revisionist elements confront internal psychological barriers to overcome the societal inertia against collective action (Olson, 1971; Edel, 1979). Outright rebellion requires a Shakespearean⁶¹ “screwing of courage to a sticking point.” Such calculus presents as a variation of an inverse prisoner’s dilemma, in this case styled as a rebel’s dilemma. The participants must identify the necessity to rebel; identify the opportunity to rebel; recruit assistance to rebel, which causes the risk calculus between increasing the chance

⁶¹ "Macbeth " [cited 2015]. Retrieved from <http://www.folgerdigitaltexts.org/?chapter=5&play=Mac&loc=line-1.7.69>.

of success against increased risk of apprehension and the attendant increased risk/punishment; resolve that rebellion becomes preferable to acquiescing to continued repression; and commence operations.

As Achenwall⁶² (1765), Fearon and Laitin (2003), Collier and Hoeffler (2004), and Taydas (2006) observed, the participants convert desperation to action when they perform the psychological calculus determining that the risks of rebellion outweigh the desolation of accepting the *status quo*—they have nothing left to lose.

Autocracies sharpen the gulf between risk and reward when they grow excessively ideological independent of the demand signals from their societal elements. Bazzi and Blattman (2014) showed that the institutionalized checking of executive power reduces incentives for a violent overthrow, and presents less resilience to changes in state revenue. It follows that centralized, less competitive regimes heighten the potential payoff of the state prize effect. With Syria ranking at a (-7) on the Polity IV⁶³ scale indicating heightened levels of autocracy, the barriers to rebellion, once breached, become more problematic to mediate.

At the opposite limit of the polity scale, Marinov and Goemans (2014) asserted that higher levels of democracy open the burgeoning conflict to international norms against rebellion. Major players at the international level professed a commitment to

⁶² Achenwall, as quoted by Kant, in Reiss' *Kant: Political Writings*: "If the danger which threatens the commonwealth as a result of long endurance of injustices from the head of state is greater than the danger to be feared from taking up arms against him, the people may then resist him. It may use this right to abrogate its contract of subjection and to dethrone him as a tyrant."

⁶³ "PolityProject " [cited 2015]. Retrieved from <http://www.systemicpeace.org/polityproject.html>.

defend democracy, including options to punish attempts to depose elected incumbents, which tends to incentivize reform rather than revolution.

Section V: Kenya, Syria, And The FSI

Descending To Conflict

Arnson and Zartman (2005:262) claimed:

“[quantitative statistical studies] do not explain civil conflict; they explain conflict with more than 1,000 deaths, which is a bit like explaining human growth by starting at the age of twelve years.”

However, this investigation shows that statistical analysis does in fact provide insight into burgeoning conflict years before conflict reaches 1,000 deaths.

In this section, I examine the FSI data to conduct a low-level time series comparison between Syria and Kenya on selected factors chosen by multivariate and sequential regression, utilizing the Kenyan and Syrian data extracted from the FSI Master Conflict dataset used in Chapter 3.

The left side of the chart depicts the raw FSI data with an active linear trend-line for selected factors; the right side depicts the FSI Δ (percentage change) at each lag. This helps identify shocks and/or ratchets within the FSI data that may denote exacerbation or alleviation of contributions toward conflict.

As noted in Chapter 3, FSI factors hold significant effect toward conflict occurring as far downstream as 5 to 7 years lagged after the shock. Yet, building a model from the FSI appears problematic due to a dearth of specific case observations, presenting only nine lags in this particular dataset. Working with the FFP and deconstructing their data sources potentially provides additional granularity to make more nuanced predictive analysis, especially if incorporated in a Bayesian Belief Network or similar engine.

Group Grievance

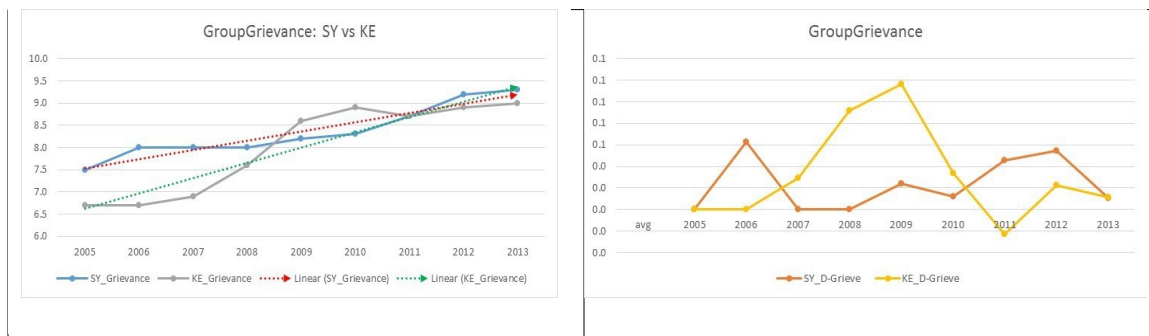


Illustration 9: FSI Group Grievance comparison: KE vs SY

With Group Grievance presenting at R^2 of .21 and significance extending up to 5 years downstream, Group Grievance offers a crucial starting point for this time series analysis (Figure 9).

Syria: This time series presents as a shock–ratchet combination. The initial shock following the drought-related crop failures and government responses in CY 2006 improves briefly during 2007-2008, and begins a steady climb through the second year of the civil war. The spike in CY 2006 opened a 5- to 7-year civil war vulnerability period, exacerbated by the steady ratchet indicating failure of the governance and societal elements to reach agreement. With Syria presenting as a highly autocratic state on the Polity IV scale (polity: -7), Group Grievance reflects deep fractures within the social contract. Additionally, high autocracy ranks tend toward more rapid devolution of the social contract into a state-prize melee. Other factors and subsets of those factors may offer key exacerbating or alleviating data as Syria descended into conflict in CY 2011.

Kenya: This presents as a shock and release, with a major spike culminating in CY 2009. Short-lived improvements in Kenyan Group Grievance by CY 2011 revert to increased Group Grievance by the culmination of the data period. Kenya presents as a mid– high-level democracy on the Polity IV scale (Polity average = 7.5); however, the CY 2009 spike indicates a conflict vulnerability within the 5- to 7-year window. Further, as a mid– high democracy, other factors (discussed below), especially Legitimacy of the State, potentially perform a greater role in exacerbating or alleviating a conflict trajectory.

Poverty And Economic Decline

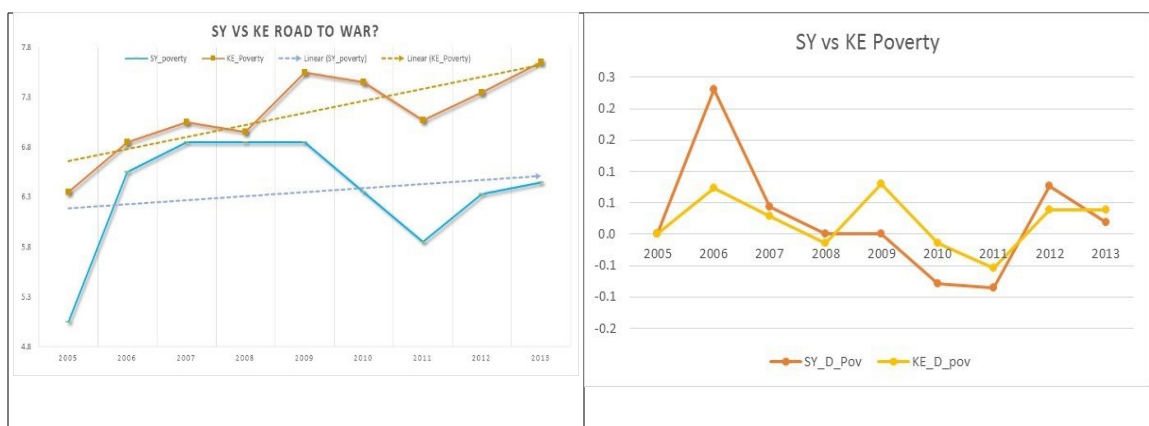


Illustration 10: FSI Poverty comparison: KE vs SY

When analyzed specifically in the context of Syria, Group Grievance, and Poverty and Economic Decline present an R^2 of .91 when regressed in multivariate mode against Master Conflict (Figure 10).

Syria: The CY 2006-2011 drought and subsequent Syrian governmental mismanagement⁶⁴ both water and economic resources took their toll on the economic sustainability of Syria, directly contributing to the conflict that erupted 5 years later. In Figure 10, the Poverty and Economic Decline FSI factor spiked in the CY 2006 period and remained high for the next several years. The shock of total crop failure led to large-scale population migration, massive public and private debt, and depletion of Syrian government reserves.⁶⁵

As Gleick (2014) assessed, government mismanagement of water resources exacerbated the problem. Femia and Werrell (2013) directly tied the drought and subsequent economic effects to the CY 2011 conflict outbreak, highlighting the 5-year lag between the crop failures to the conflict. Adding the shock and ratchet from the Group Grievance critical factor above, Syria's conflict vulnerability opened in CY 2006, and mediating factors failed, despite the modest improvements to Syrians' fortunes in the CY 2010-2011 period.

Kenya: In the face of the effects from the CY 2007-2008 global financial crisis and a similar, although less severe, East African drought, Kenya weathered the

64 "A rural exodus as drought takes hold of Syria | Toronto Star" [cited 2015]. Retrieved from http://www.thestar.com/news/world/2013/03/16/a_rural_exodus_as_drought_takes_hold_of_syria.html; "Syria: Climate Change, Drought and Social Unrest « The Center for Climate & Security" [cited 2015]; Retrieved from <http://climateandsecurity.org/2012/02/29/syria-climate-change-drought-and-social-unrest/>; "New Agriculturist: News brief - Crops fail in Syria" [cited 2015]. Retrieved from <http://www.new-ag.info/en/news/newsitem.php?a=593>; "Sowing the Seeds of Dissent: Economic Grievances and the Syrian Social Contract's Unraveling " in Jadaliya [database online]. 02/16/2012 [cited 2015]. Retrieved from http://www.jadaliyya.com/pages/index/4383/sowing-the-seeds-of-dissent_economic-grievances-an; Peter H. Gleick, "Water, Drought, Climate Change, and Conflict in Syria," *Weather, Climate, and Society* 6, no. 3 (2014): 331-340; and Caitlin E. Werrell and Francesco Femia, *The Arab Spring and Climate Change: A Climate and Security Correlations Series*, Center for American Progress, 2013.

65 Bureau of Statistics, Syrian. <http://www.cbssyr.org/index-EN.htm>

economic shocks in healthier shape than Syria. However, as illustrated in Figure 10, Kenya’s experience resembles a saw-tooth waveform, indicating multiple recurring system shocks. Concurrent with Kenya’s Group Grievance spike in CY 2009, Kenya’s conflict vulnerability window extends through at least the next 2 years, barring other ameliorating factors.

Legitimacy Of The State

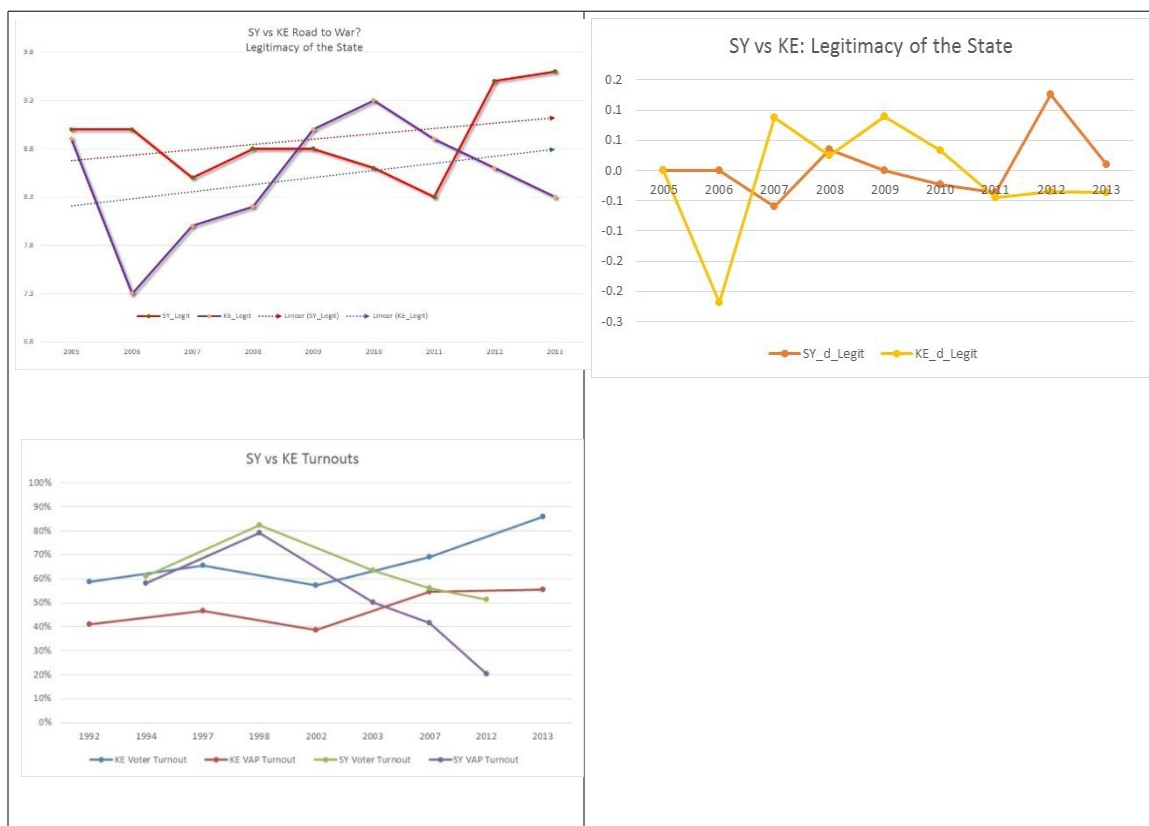


Illustration 11: Legitimacy of the State, with SY vs KE voter turnouts

Legitimacy of the State affects the nature of societal relationship to the governance structure, presenting significance in democratic Polity levels 2, 8, and 9

and autocratic Polity levels -3 and -4. With Kenya demonstrating Polity level 8 for 3 years within the dataset, I opted to add Legitimacy of the State to the analysis.

Of interest, the election turnout data (IDEA, 2013) provide perspective inside the FSI data. The chart highlights the reversal between the Syrian and Kenyan electorates between CY 1998 and 2012, indicating increasing disengagement on the part of Syrian voters, whereas Kenyan voters' participation in the election process grew despite the violence and controversy surrounding the Kenyan election processes.

Syria: A small shock occurred in CY 2008, combined with the Group Grievance and Poverty and Economic Decline shocks the year prior that contributed to the conflict vulnerability window.

Kenya: Similar to Poverty and Economic decline, we observe a saw-tooth pattern in CY 2007 and 2009, with leveling out in CY 2011-2013. With Kenya's mid-high democracy Polity rating and the improvement in Legitimacy of the State, the vulnerability window opened between Group Grievance, and Poverty and Economic Decline holding potential for amelioration in the CY 2015-2016 window.

KE And SY Percentage Change

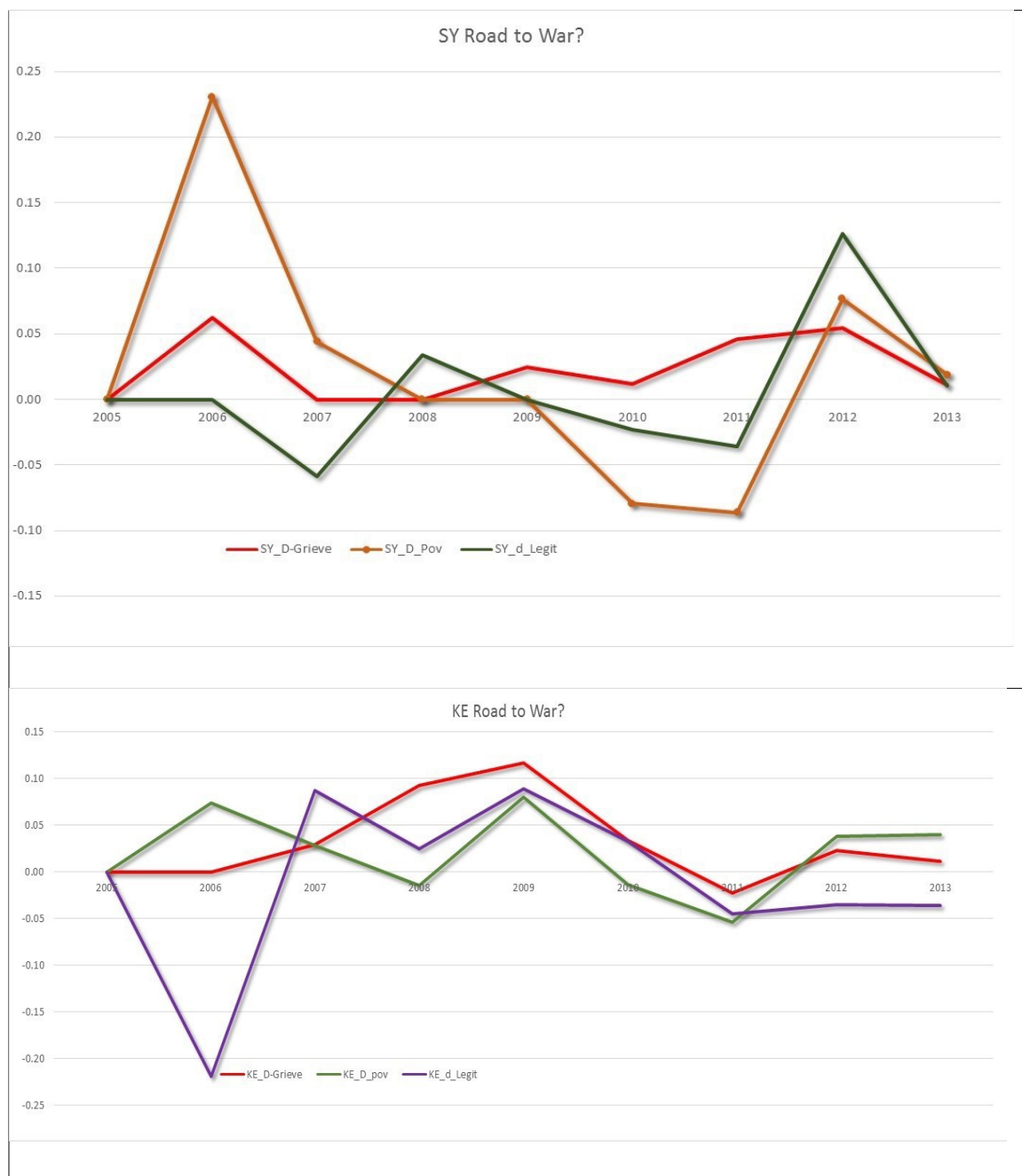


Illustration 12: Percentage FSI Change, SY & KE

Examining the three factors as COG critical capabilities shows that both Syria and Kenya endured systemic shocks in CY 2006 and 2009, respectively. The difference appears that Kenya, as a democracy, possesses deeper systemic resiliency to absorb shocks elastically, whereas Syria's more autocratic social construct demonstrated greater brittleness, with events creating plastic shock, exceeding Syria's capacity to recover from these stresses.

In this light, Taleb's black swan concept loses explanatory value; had analysts observed these FSI changes upstream, the eruption of conflict in March 2011 might have proven less surprising. Kenya, however, still faces reverberating effects from the CY 2009 crisis that hold potential to affect events several years downstream. I remain hopeful that this investigation provides concepts and inspiration for tools to effectively predict and alleviate crisis conditions preemptively. Lives depend on it.

CHAPTER FIVE: CONCLUSIONS, IMPLICATIONS, AND WAY AHEAD

This chapter reviews my findings from this investigation, discusses policy options and other implications, and highlights opportunities for follow-on research.

This investigation focused on the development of a hybrid theory, which I designated as KANT, to examine the indications and warnings of intrastate conflict available within the FSI dataset. In this case, I examined the efficacy of the FSI, refined through a combination of DPT, SCT, social contracts, and COG theory—all operating within a contingent, iterative time stream—toward illuminating intrastate conflict risk.

The FSI, although not manifestly determinant for intrastate conflict, contains indications of systemic brittleness, which when subjected to critical path stresses, also reflected in the FSI, illuminate conditions conducive to conflict.

This brittleness reflects strengths and vulnerabilities of the combined DPT–SCT interactions, and presents opportunities for targeted policy interventions within the constraints of highly nuanced situational analysis of discrete cases.

Section I: Chapter Review

Chapter 1

This chapter presented the inspiration for my investigation, from career experiences to academic pursuits. I set the stage for the investigation through a discussion on the trajectory of political philosophy leading into political science. Moving further from philosophy toward operationalizing results, I then connected the insights gained through the political science processes into the iterative loop of providing policy recommendations.

This chapter assessed the “what” and “why” of the modalities of the broader political science process. This discussion provides placement within the broader context and grounding within the *raison d'être* of political science. In this section, I highlighted how political philosophy and theory inspires and shapes the political science processes, including OODA Loop and the trajectory from data to wisdom. In an optimal construct, insights from political science then inform policy recommendations.

Chapter 2

This chapter covered the configuration space and the development of the relevant conceptual underpinning of this investigation, which I identified as KANT. The chapter started with a discussion of the development of Kant’s *Perpetual Peace* into Russett and Oneal’s evolution of DPT, incorporated Putnam’s SCT, which similarly owes its lineage to Kant’s *Metaphysics of Morals*, and discussed their potential relevance to intrastate conflict. Additional discussions on related literature provided supplementary perspective to place this investigation with the larger intrastate conflict teleological schema.

A question about DPT's relationship to intrastate conflict initiated this investigation. However, the inquiry expanded to incorporate SCT, and by Chapter 4, added elements of social contract theory and COG theory. Other investigators' works provided context, and provided examination of two critical concerns.

First, the competition created within the rich body of intra-state conflict literature focusing on univariate explanatory results, exemplified by Collier and Hoeffler, which falls short of accommodating the extensive breadth of nuanced factors evident in intra-state conflict development.

On the other hand, a more recent focus on multivariate analysis, exemplified by Goldstone et al., presents interesting results with indications and warning implications, yet remains deficient in explaining formal civic and informal social network effects upon intra-state conflict.

Chapter 3

This chapter explored the hypotheses, quantitative datasets, and statistical methodologies applied to the data to highlight the explanatory value of DPT and SCT toward indications and warning of potential intrastate conflicts.

The following results presented:

- H₁: Do democratic peace vectors provide a statistically significant explanation of human agency in contributing to or preventing intrastate conflict?
 - Yes. DPT factors, when tested alone, achieve an R^2 of .234 and test as significant.
- H₂: Do social capital vectors provide a statistically significant explanation of human agency in contributing to or preventing intrastate conflict?
 - Yes. SCT factors tested alone achieve an R^2 of .258 and test as significant.

- H₃: Do democratic peace vectors augmented by social capital vectors provide a statistically significant explanation of human agency in contributing to or preventing intrastate conflict?
 - Yes. DPT factors, when combined with SCT factors, achieve an R^2 of .311, greater than either SCT or DPT cluster alone, and present as significant.
- H₄: Do democratic peace vectors augmented by social capital vectors, including previous conflict; provide a statistically significant explanation of human agency in contributing to or preventing intrastate conflict when analyzed?
 - Yes. DPT factors when combined with SCT factors, including previous conflict and analyzed in time series, achieve a mean R^2 of .175 and present as significant. When analyzed in PLS-SEM, DPT and SCT factors achieve an R^2 of .65 with previous and current conflicts creating additive effects to FSI factors in determining the indications for future conflict.
- H₀: There is no link between intrastate conflict and human agency (DPT or SCT) factors.
 - Rejected; significant SCT, DPT, and time-series factors all present above the .05 threshold

Analysis fixed at static moments in time forms just a portion of the results; I illuminated additional lenses affecting the performance of the FSI factors as indications and warning of conflict, specifically the downstream time-lag effect and resiliency. These lenses perform critical roles in the case studies in Chapter 4.

Each analytic method presented tiered factors; however, common results placed Group Grievance, Poverty and Economic Decline, Legitimacy of the State, and Human Rights consistently within the top four most significant factors.

Further, within these results, I developed interesting observations concerning opportunities for further analysis benefiting from higher-level tools, such as SEM and Bayesian belief networks.

Conceptual Review

Returning to Popper's (1963) and Chaffee and Berger's (1987) theory criteria tests in Chapter Two, let us assess my measure of effectiveness toward achieving the goal of developing a valid theory. As measures of performance, during the course of this investigation, did KANT:

Exhibit explanatory power? In this instance, I constructed KANT to provide explanatory power for intra-state conflict through the mechanism of DPT and SCT, showing that countries possessed of adaptable formal and informal networks resiliently weather the storms of economic, demographic, political, and social stressors, whereas those countries where the networks degraded displayed increased susceptibility to conflict. KANT explains how those networks demonstrate the mechanisms across the sub-components of DPT and SCT contribute to a resilience nexus, such that each country's nexus comprises different factors compared to its neighbors, or the global system in its entirety.

Provide predictive power? Can KANT suggest future events or outcomes? In this instance, I constructed KANT with the desired end-state in mind, conditional upon validation, to develop indications and warning of conflict risk and lay the groundwork for examining the mechanisms potentially useful in constructing a predictive tool. Within KANT, we observe DPT and SCT factors operating within the context of downstream effects, operating by shock, ratchet, or shock and ratchet stressors through the center of gravity of the intra-state actors to identify potential conditions under which conflict

erupts – or opportunities for amelioration through policy prescriptions affecting formal and informal network processes.

Offer parsimony or simplicity in its explanatory power? I constructed KANT to put forward the proposition that society/states comprised of increasing adaptive Kantian formal structured and informal networks (communities of interest and/or communities of practice) gain increasing resilience to stressors, and thereby possess increasing resistance to impulses leading to intra-state conflict. Whereas the calculations for the mechanism of resilience develop in complexity, the core function of a potentially predictive KANT index exhibits simplicity – the more adaptive the networks, the more resilience to conflict.

Exhibit falsifiability? KANT presents as signally falsifiable with five hypotheses tested. Each hypothesis, H_0 - H_4 , examined in this investigation offered an opportunity for falsification. As noted above, significant SCT, DPT, and time-series factors all presenting above the .05 threshold led to rejection of the null hypothesis (H_0). All other hypotheses (H_1 - H_4) met significance. Looking forward, KANT further offers opportunity for future falsification in follow-on research (discussed in Section III) such as examination of unpacked FSI data, use of additional data streams, and in individual case studies.

Present internal consistency? Thus far, in the investigation, KANT demonstrates logical consistency and does not contradict itself. Within the information lag, formal and informal networks create physical and information effects, which in turn create cognitive effects on the intra-state actors. Those actors then make decisions affecting impetus toward or away from conflict. By measuring indices reflecting

behaviors and outcomes, and then conducting statistical analysis, we can approximate the effect of the networks on the outcomes.

Present as heuristically provocative? KANT serves to expand the range of potential knowledge in the context of intra-state conflict, providing a multivariate and time-series framework of analysis. Further, as I note in Sections II and III, KANT presents opportunities for further discussions and follow-on research.

Demonstrate organizing power? Within the formal and informal network spirals, KANT provides a potentially useful framework for understanding and organizing intra-state conflict related investigations and policy development. This research opportunity demonstrates likely consistency with Ackoff's (1999) data-information-knowledge-understanding-wisdom trajectory in the context of intra-state conflict, with the potential for exercising the process to generate opportunities for wisdom concerning policy prescriptions leading toward or away from conflict opportunities.

With successful accomplishment of these seven established measures of performance toward identification of a valid theory, I therefore assess as a measure of effectiveness that KANT conditionally achieves validity as a theory. However, this by no means indicates an attempt to claim KANT as a form of "truth," but merely a possible valid explanation for the particular phenomenon of intra-state conflict.

Chapter 4

This chapter applied the results from Chapter 3 toward the particular cases of Syria and Kenya. Additionally, I placed additional perspective lenses from social contract and COG theory across the cases to examine case-level variations.

As investigated in the literature and quantitative results, intrastate conflict defies simple, single-variable explanations. Each system possesses a unique combination of strengths and vulnerabilities within the heterogeneous interfaces between governance and societal elements. Each element within the social contract exhibits differing COG from which it derives power and movement in order to exert demands. Each conflict creates unique stresses on the system. Each element's COG construct reacts differently as the critical path between COG and vulnerability differs.

In this investigation, I exercised DPT/SCT to demonstrate stress modalities affecting the social contract across critical paths within the COG construct. That construct, which I generalized within a matrix of democracy–autocracy, preservationist–revisionist, and rational choice–ideological for my cases, holds potential for numerous permutations should we opt to open the aperture to encompass the entire global community.

Each COG option then presents a minimum of 486 potential permutations of PMESII critical capabilities, critical requirements, and critical vulnerabilities for each element contending within a state.

However, a KANT tool, discussed in the next section, may assist analysts in narrowing down higher-risk countries and identifying indications and warning of impending conflict with sufficient predictive certainty to advise policy makers to mediate with targeted prescriptive interventions.

Section II: Policy Options And Other Implications

This investigation's secondary purpose involves determining potential policy options derived from the quantitative and case studies centered on indications and warning of intrastate conflict derived through KANT. As discussed in Chapter 1, political science provides crucial Observe and Orient functions within the Theory–Political Science–Policy OODA Loop that potentially provides insight to drive nuanced policy prescriptions.

Indications And Warning:

O'Brien (2010) noted the necessity to recognize deteriorating conditions with sufficient warning time to effect ameliorating or mediating options within the event to effect lag. Clearly, this process involves risk: Correct prescriptions lead to accolades; incorrect prescriptions lead to massive costs in terms of blood, treasure, and reputation.

I recall two specific events within my career with the political risk company; one emergent situation involved concern over China launching rockets over Taiwan. We proactively relocated our clients out of the area as a precaution. However, we misread the situation, which degenerated into large costs over a false alarm.

In contrast, we correctly read the indications and warning involving the onset of civil war in Cambodia, but encountered an obstacle when bureaucratic measures entangled my Oceania-based colleague's travel documents. Fortunately, I arranged short-notice travel to Cambodia in time to evacuate almost 200 clients from the war zone, completing our operation prior to arrival of most official government operations.

Feder (2002) warned that prescriptive policy requires analysis beyond simply picking the most likely outcomes. Effective prescription also requires understanding composite risk management and understanding the intersection of likelihood effect.⁶⁶

As mentioned in the discussion of the earlier paper (Sullivan, 2013), from a policy recommendation perspective, we discern that promoting any one or all of the DPT or SCT nexuses holds potential for significant effect on the prospects of deterring intra-state war through an increase in the KANT resiliency of an at-risk country.

Caution is required; while directly and overtly promoting voter turnout or civil society organizations may be seen in some countries as interference in domestic affairs, assisting a country promote domestic tourism for personal and professional reasons, or promoting sports participation and spectatorship may offer a less controversial option within the political context. Such calculations hold prescriptive potential for cost/benefit advantage when demonstrating positive and immediate economic gain from these seemingly tangential activities – the KANT gains are far more subtle but still present the potential for achieving the desired effect.

To answer the research question contained within the title of this investigation, yes, KANT can provide significant indications and warning of impending intra-state conflict; however, it is not ready for prime time in its present form. Clearly, additional research is required to develop a working predictive model. With R^2 values ranging between .31 and .46, depending on the methodology, further research into advanced

⁶⁶ Scenario analysis - at each turn, does the polity vote for war? Syria 2007 crop failure1 = no; 2008 crop failure2 + loan sharking1 = no; 2009 crop failure3 + IDPs1 + loan sharking2 = NO; 2010 crop failure4 + IDPs2 + loan sharking3 + govt insensitivity1 = MAYBE; 2011 crop failure5 + IDPs3 + refugees1 + loan sharking4 + govt insensitivity2 + outside influence1 = YES

statistical models potentially provides greater granularity and explanatory power. Goldstone (2010) claims 85% accuracy in conflict prediction; determining whether KANT can achieve greater accuracy would be an interesting challenge.

Strategic And Tactical Levels:

Policy prescription options emerge at both strategic and tactical levels.⁶⁷ At the strategic level, policy options effect systemic amelioration to reduce systemic volatility, brittleness, and conflict-conducive behavior. By implementing long-term planning and targeted interventions operating over the 5- to 7-year lag, gradual prescriptions increase systemic resilience to shock. The target country, or sectors within that country, governance or societal, likely ought not make dramatic changes to its FSI status or other metric; however, small improvements in targeted FSI factors reduce the vulnerability to proximate trigger events within 3-4 lags and ameliorate plastic stress in ratchet and shock scenarios.

Similarly, tactical or crisis prescriptions operate within a shorter time frame, generally under a year, and may comprise multiple coordinated sub-national engagements, necessitating a model⁶⁸ for processing warning data on a daily or monthly basis to gain the required level of granularity. Such intervention requires careful consideration of ramifications to avoid misapplication of tangible assistance or national, regional, or international good offices to mediate in a crisis.

⁶⁷ This is not limited to military options. The full range of elements of national power, represented as DIME can be employed at the Strategic (national or international level) or at the Tactical (sub-national, provisional, county, town) level. A delivery of humanitarian food aid or crisis negotiating team to a particular village is a tactical operation. Based on "JP 3-0, Joint Operations - jp3_0.pdf" [cited 2015]. Available from http://www.dtic.mil/doctrine/new_pubs/jp3_0.pdf. p. xi-xii

⁶⁸ Discussed in the next section.

Single-factor Consideration:

A colleague recently inquired what I would offer about this investigation if given 30 seconds in an elevator with a world leader. Putting evidence aside supporting multivariate analysis, if pressed to make an “elevator pitch” with a single takeaway point concerning this investigation, quantitative and case analysis conducted so far strongly suggest that solving or alleviating Group Grievance flash points⁶⁹ creates the greatest benefit at the global level toward reducing incidence of intrastate conflict. Conducting reverse regression indicates that altering the Group Grievance FSI factor in a more positive direction by only a few points dramatically raises barriers to conflict at the global level.

OECD concurs on these policy implications:

“Where the state lacks the basic will to negotiate a resilient social contract, our analysis suggests a two-part basic strategy: political engagement with the government to seek to generate the necessary political reforms and support to service delivery functions of the state, if viable, or alternative mechanisms of service delivery to meet human needs where not (OECD, 2009:88).

Warnings accompany such a course of action. As discussed in the previous chapter, Call (2008) urged tailoring intervention to the needs of target country, not the internal political aspirations of the donor country, to avoid “an excessive attachment to specific western forms of state sovereignty and fail to recognize the significance of alternative forms of legitimization or articulation of the state-society contract.”⁷⁰

⁶⁹ more so than a more diffused Poverty and Economic Decline environment

⁷⁰ OECD, op. cit.

Tailored Factors:

The previous section notwithstanding, this investigation reinforces the conflict fingerprint concept: each country presents a highly nuanced dynamic between governance and the multiple societal elements within its social contract. Through a combination of results from quantitative analysis in Chapter 3 and the lenses of social contract and COG analysis discussed in Chapter 4, a KANT perspective offers the policy maker a methodological construct for a broader analysis.

A KANT tool, when developed through additional investigation of predictive capability, potentially assists evaluation of the PMESII barycentric balance between the governance and societal elements within each country. From that analysis, a policy maker gains a broader range of DIME options for implementing policy prescriptions. Such prescription, derived from a more nuanced analysis of that particular vignette provides a spectrum of options to, at least, alleviates conflict prior to conflict, or effect larger systemic changes resulting in increased resiliency and decreased vulnerability to conflict descending to violence.

A utopian goal of complete elimination of conflict likely lies beyond our collective reach within the projectable future; however, creating a resilient, adaptable network wherein mediation of conflict occurs presents as more within the realm of the possible.

Section III: Opportunities For Follow-On Research

In this section, I discuss opportunities for follow-on research illuminated during the course of this investigation. Observations identified during research design or emerged during analysis; these opportunities generally exceeded my time, system, or funding constraints. Additionally they would likely benefit from more advanced analytic tools or techniques optimally suited to collaboration with experts in those tools or techniques.

Internal Dyads:

As noted in the intra-state methodology discussion, acquiring consistent sub-national district level DPT/SCT data remains problematic and clearly lies beyond the scope of the FSI. Conducting such dyad analysis employing raw data at the sub-national level for the 94 Syrian and 27 Kenyan potential dyads potentially provides greater granularity and insight concerning frictions between and among these administrative divisions.

Gradations Of Conflict:

During this investigation, I concatenated the UCDP data, consisting of “intrastate” and “intrastate with foreign involvement” categories into a single intrastate conflict variable of Conflict=Yes=1 or Conflict=No=0. Differentiating between the “intrastate” compared to “intrastate with foreign involvement” potentially provides additional fidelity when regressing against a dataset such as the FSI.

Integrating Multiple Conflicts:

Similarly, during this investigation I concatenated the UCDP data listing multiple conflicts occurring in a defined year and a particular country into a single conflict status for that country/year. Differentiating countries with singular or multiple conflict states potentially provides additional fidelity when regressing against a dataset such as the FSI.

Full-spectrum Crisis:

Zartman (2005:262) elevated an interesting perspective: “[quantitative statistical studies] do not explain civil conflict; they explain conflict with more than 1,000 deaths, which is a bit like explaining human growth by starting at the age of twelve years.”

This investigation focused on factors affecting intrastate conflict that reached the defined conflict stage, and relied on statistical inference to identify predecessor conditions within the FSI variations. Building on Marshall (2008) and illuminated by the downstream FSI effects from the quantitative chapter, crises and their precursors present *both* contingent *and* causal linkages. Conflict, as iteratively time and causality lagged, may benefit from investigations building from this point to examine and extract explanatory value for the full spectrum of conflict.

Language Considerations:

Additional opportunities and challenges lie within the diverse languages of the source documents and data sets, requiring attention to translation and interpretation. Likewise, dissemination of products and recommendations require attention to detail and nuance to reduce misunderstandings.

Intersection Of Polity IV Variants:

While likely included within the Legitimacy of the State FSI factor, the FFP CAST methodology does not explicitly reference inclusion of Polity IV data. As noted in Chapter 4, levels of democracy–autocracy, preservationist–revisionist, and fractured–coherent state determinants appear to provide explanatory value. Likewise, a rational choice–ideological spectrum adds nuance within the analysis. Examination of this data stream holds potential to illuminate nuances that provide value added to KANT analysis.

FSI Data Granularity:

One issue identified during this investigation notes the variance introduced through the yearly time lag of the FSI, combined with a loss of fidelity within the individual FSI factors.

To resolve these concerns, a follow-on investigation may benefit from working with the FFP and their CAST model to “break open” FSI to acquire core data sources and perform analysis at the sub-factor level rather than the index level.

Additional data streams, such as Leetaru’s (2014) GDELT⁷¹ conflict data amalgamation tool, or Zook and Graham’s (2011) Floating Sheep project⁷² present opportunities to update and analyze warning factors in near real time.

Expanded KANT Mechanism Examination:

This investigation focused specifically on FSI data interpreted through KANT to develop explanatory mechanisms for intra-state conflict. While the results present as

⁷¹ <http://gdeltproject.org>

⁷² www.floatingsheep.org

significant, the R^2 values generally lie in the mid ranges (0.31 – 0.44), leaving precarious gaps in the overall explanatory power of KANT. Exploring additional mechanisms not included in the FSI and their effects on KANT hold potential for augmenting the overall R^2 or defining the limits of KANT. Examples include the effects leveraged on DPT and SCT through geology, geography, climate, and weather, and factors discussed in Goldstone et.al. (2010) analysis of “bad neighbors,” infant mortality, type of democracy, and effects of systematized discrimination; among others. This entails examination of each factor for itself, i.e., the effect geography *qua* geography exerts on conflict, but also the second-order effect that geography presents on social capital, which in turn affects conflict.

Social Network Analysis:

Analysis of COG can benefit from overlaying conflict group social network analysis with COG analysis to determine the intersection of movements, ideologies, and connection of groups inhabiting critical vulnerabilities within the critical path structure affecting intrastate cohesion or fracturing.

Create A KANT Indications And Warning Tool:

Similar to Goldstone’s Political Instability Task Force⁷³ model, a tool incorporating KANT may prove useful in predicting changes in intrastate brittleness that signal conditions conducive toward ignition of conflict, within the context of accounting for Type I and Type II errors. Determining proximate triggers within the conflict

⁷³ "Political Instability Task Force" [cited 2014]. Available from <http://globalpolicy.gmu.edu/political-instability-task-force-home/>.

vulnerability schema further requires data cycling on monthly or daily lags. Possible opportunities exist, but not necessarily limited to the following capabilities:

Refined SEM:

SEM provides explanatory power within a potentially determinant ontological construct. As observed in Chapter 3, my limited SEM models presented R^2 above .69, supporting a contention that a more rigorously constructed SEM with sufficient computing power may achieve greater explanatory power.

Refined Bayesian Belief Network Modeling:

Similar to SEM, Bayesian belief network models constructed sourcing the KANT ontology applies Bayesian probabilistic ontological constructs to calculate outcome probabilities. A number of commercial (e.g., HUGIN⁷⁴ and Netica⁷⁵) and academic or government (e.g., SIAM⁷⁶) tools provide potential avenues of follow-on research.

74 "Hugin Academic Version," [cited 2015]. Available from <http://www.hugin.com/index.php/productsservices/products/academic>.

75 "Norsys Software Corp. - Bayes Net Software" [cited 2015]. Available from <http://www.norsys.com/>.

76 "SIAM Software Application" [cited 2015]. Available from <http://www.inet.saic.com/inet-public/siam.htm>.

Section IV: Signing Off

Researchers interested in collaboration on any or all of these opportunities are welcome to contact me to discuss options.

Thank you for your time and attention to this investigation, and I welcome your comments, questions, and suggestions.

~DJS, Miami FL, August 2015

APPENDIX 1

Parameter	Demographic Pressures	Refugees and IDPs	Group Grievance	Human Flight	Uneven Development	Poverty and Economic Decline	Legitimacy of the State	Public Services	Human Rights	Security Apparatus	Factionalized Elites	External Intervention	Example
Mean	6.32	5.05	5.96	5.59	6.65	5.79	6.39	5.76	5.92	5.70	6.14	5.85	Suriname 2011/ 2012
SE	.06	.07	.06	.06	.05	.05	.07	.07	.06	.07	.07	.06	
Median	6.50	4.90	6.00	6.00	7.00	5.90	7.00	6.00	6.30	6.00	6.82	6.10	Jordan São Tomé 2011
Mode	6.50	3.60	4.90	5.00	8.00	8.00	7.90	1.40	7.00	1.00	8.00	6.00	Jamaica 2010 Ukraine 2012
SD	2.07	2.30	1.99	2.01	1.82	1.90	2.38	2.33	2.27	2.39	2.44	2.20	
Variance	4.30	5.31	3.98	4.03	3.32	3.62	5.67	5.44	5.16	5.71	5.94	4.84	
Kurtosis	-.74	-.91	-.45	-.59	.22	-.73	-.19	-.95	-.81	-.69	-.74	-.51	
Skew	-.41	.19	-.13	-.54	-.88	-.19	-.83	-.29	-.37	-.40	-.57	-.37	
Range	9.20	9.12	9.03	9.00	8.70	8.80	9.54	8.90	9.00	9.11	9.30	9.15	
Min	.80	.88	1.00	1.00	1.00	1.20	.46	1.10	1.00	.90	.70	.85	Norway 2008
Max	10.00	10.00	10.03	10.00	9.70	10.00	10.00	10.00	10.00	10.01	10.00	10.00	Somalia 2012
Sum	7838.69	6271.91	7395.26	6935.20	8254.85	7189.50	7929.26	7146.12	7341.01	7072.13	7615.07	7263.99	
Count	1241.00	1241.00	1241.00	1241.00	1241.00	1241.00	1241.00	1241.00	1241.00	1241.00	1241.00	1241.00	
CI	.12	.13	.11	.11	.10	.11	.13	.13	.13	.13	.14	.12	

Table 30: Statistical Description of the FSI

APPENDIX 2

Rank	Year 20XX	Country	Demographic Pressures	Refugees and IDPs	Group Grievance	Human Flight	Uneven Development	Poverty and Economic Decline	Legitimacy of the State	Public Services	Human Rights	Security Apparatus	Factionalized Elites	External Intervention	Master Conflict
11	05	Afghanistan	9	8	8	7.4	8.8	7.5	8.1	8.1	7.9	8.2	8	10.0	1
10	06	Afghanistan	7.9	9.6	9.1	7.0	8.0	7.5	8.3	8.0	8.2	8.2	8.0	10.0	1
8	07	Afghanistan	8.5	8.9	9.1	7.0	8.0	8.3	8.8	8.0	8.2	9.0	8.5	10.0	1
7	08	Afghanistan	9.1	8.9	9.5	7.0	8.1	8.5	9.2	8.3	8.4	9.6	8.8	10.0	1
7	09	Afghanistan	9.3	8.9	9.6	7.2	8.4	8.3	9.8	8.9	8.8	9.9	9.1	10.0	1
6	10	Afghanistan	9.5	9.2	9.7	7.2	8.2	8.3	10.0	8.9	9.2	9.7	9.4	10.0	1
7	11	Afghanistan	9.1	9.3	9.3	7.2	8.4	8.0	9.7	8.5	8.8	9.8	9.4	10.0	1
6	12	Afghanistan	8.9	9.0	9.4	7.4	8.1	7.7	9.5	8.5	8.5	9.7	9.4	10.0	1
7	13	Afghanistan	9.3	9.2	9.2	7.2	7.8	8.2	9.4	8.8	8.4	9.9	9.4	10.0	1
110	07	Albania	6.5	2.7	5.4	7.5	6.1	6.8	7.4	6.2	5.4	5.5	5.4	5.6	0
112	08	Albania	6.2	2.7	5.4	7.5	6.1	6.3	7.2	5.9	5.4	5.5	5.7	5.8	0
109	09	Albania	6.4	2.6	5.4	7.2	5.9	6.5	7.3	5.8	5.8	5.5	5.9	5.7	0
121	10	Albania	5.9	2.8	4.9	7.1	5.7	6.1	6.8	5.6	5.3	5.4	6.0	5.5	0
121	11	Albania	5.5	3.1	5.1	6.8	5.4	5.9	6.4	5.0	5.0	5.4	6.3	6.3	0
118	12	Albania	5.0	2.8	5.1	6.8	5.1	5.6	7.3	4.9	5.5	5.4	6.6	6.0	0
119	13	Albania	4.7	3.1	4.8	6.6	4.8	5.3	7.0	4.8	6.0	5.5	6.3	6.3	0
94	06	Albania	6.0	2.7	4.5	7.0	6.0	7.0	7.0	6.9	5.5	5.5	4.5	6.0	0
61	05	Algeria	5	9	6.4	6	9	3	9	5	6.6	8	9.2	5.0	1
72	06	Algeria	6.0	6.6	7.1	5.6	7.4	3.5	7.5	7.6	7.5	6.8	6.4	5.8	1
88	07	Algeria	6.1	6.7	7.0	5.6	7.3	3.5	7.3	7.0	7.4	6.4	5.9	5.7	1
80	08	Algeria	6.1	6.8	7.2	5.9	7.3	4.0	7.5	6.8	7.6	6.7	6.2	5.7	1
73	09	Algeria	6.7	6.7	7.7	6.2	7.3	4.6	7.7	6.7	7.6	7.0	6.7	5.7	1
71	10	Algeria	6.7	6.5	8.2	6.1	7.1	5.1	7.5	6.5	7.6	7.5	6.8	5.7	1
81	11	Algeria	6.4	6.1	7.8	5.7	6.8	5.2	7.1	6.1	7.5	7.2	6.8	5.3	1
77	12	Algeria	6.1	6.5	8.1	5.4	6.5	5.5	7.2	5.9	7.4	7.1	6.8	5.5	1
73	13	Algeria	5.8	7.0	7.8	5.1	6.2	5.8	7.4	5.9	7.7	7.4	7.3	5.2	1
43	05	Angola	7.9	8.6	6.3	3.8	9	4.4	7.9	7.2	8.3	7	8.1	8.8	1
37	06	Angola	8.0	8.5	6.3	5.0	9.0	4.9	8.8	7.6	7.8	6.8	8.0	7.6	1
53	07	Angola	8.5	7.5	5.9	5.0	8.7	4.2	8.6	7.7	7.5	6.2	7.5	7.6	1
56	08	Angola	8.6	6.9	5.9	5.0	9.0	4.0	8.4	7.6	7.5	6.2	7.5	7.2	1
55	09	Angola	8.6	7.0	6.1	5.5	9.4	4.5	8.0	8.0	7.2	6.2	7.3	7.2	1
59	10	Angola	8.4	6.9	5.9	5.6	9.1	5.0	8.1	8.0	7.3	5.9	6.8	6.7	1
52	11	Angola	8.6	6.6	6.2	5.9	8.8	4.5	8.5	8.2	7.5	6.2	7.0	6.7	1

48	12	Angola	8.9	6.9	6.5	5.6	9.1	4.8	8.2	8.3	7.6	5.9	7.0	6.4	1
43	13	Angola	8.9	7.2	6.8	5.9	9.4	5.1	8.6	8.4	7.3	6.1	7.3	6.1	1
120	07	Antigua & Barbuda	5.2	3.6	5.2	7.9	7.1	4.8	6.3	4.9	5.5	5.2	4.6	5.4	0
124	08	Antigua & Barbuda	4.9	3.3	4.9	7.9	6.9	4.6	6.0	4.9	5.5	5.2	4.6	5.4	0
126	09	Antigua & Barbuda	4.7	3.6	4.3	7.8	6.5	4.8	5.8	5.0	5.0	5.0	4.4	5.9	0
127	10	Antigua & Barbuda	4.7	3.4	4.5	7.3	6.1	5.5	5.3	4.6	4.7	4.6	4.0	6.2	0
125	11	Antigua & Barbuda	5.2	3.0	4.1	7.6	5.9	5.1	5.8	4.3	4.5	4.9	3.7	5.8	0
127	12	Antigua & Barbuda	4.9	2.7	4.1	7.9	5.6	4.8	5.8	4.3	4.8	4.9	3.7	5.5	0
128	13	Antigua & Barbuda	4.6	3.0	4.1	7.6	5.6	4.5	5.8	4.0	4.4	4.9	3.7	5.8	0
122	06	Argentina	3.0	1.4	4.0	4.0	5.2	4.2	3.5	4.0	3.7	2.0	2.8	3.0	0
149	07	Argentina	3.8	1.5	4.0	4.0	5.2	4.6	3.4	3.8	3.7	1.9	2.7	2.8	0
151	08	Argentina	3.8	1.5	4.0	4.0	5.2	4.5	3.4	3.9	3.7	1.9	2.7	2.8	0
148	09	Argentina	4.1	2.0	4.5	4.0	5.5	4.8	3.4	4.2	4.0	2.1	3.1	3.0	0
148	10	Argentina	4.6	2.2	4.5	3.8	5.8	5.1	3.6	3.7	3.8	2.4	3.2	3.1	0
145	11	Argentina	4.4	2.6	4.9	3.5	6.0	4.4	4.0	3.5	4.0	2.7	3.0	3.8	0
145	12	Argentina	4.4	2.3	4.7	3.3	6.3	4.1	4.3	3.8	3.8	3.0	3.0	3.5	0
144	13	Argentina	4.1	2.0	5.0	3.0	6.0	4.0	4.4	3.9	4.1	3.0	2.7	3.8	0
111	07	Armenia	5.8	7.6	5.0	6.9	6.0	5.0	6.5	6.2	5.5	4.5	5.8	5.5	0
109	08	Armenia	5.8	7.5	5.0	6.7	6.0	5.6	6.5	6.0	5.5	4.5	6.0	5.6	0
101	09	Armenia	5.9	7.2	6.0	6.7	6.5	5.3	7.1	5.4	6.1	5.3	6.9	5.9	0
101	10	Armenia	5.7	6.9	6.0	7.0	6.5	5.8	6.6	5.3	6.4	5.1	7.0	5.8	0
101	11	Armenia	5.5	6.6	6.0	6.6	6.2	5.3	6.6	5.0	6.5	5.2	7.0	5.8	0
102	12	Armenia	5.2	6.8	5.7	6.3	5.9	5.6	6.8	4.7	6.8	5.2	7.0	6.1	0
105	13	Armenia	4.9	7.0	5.7	6.0	5.6	5.9	6.6	4.4	6.8	5.3	7.0	6.2	0
89	06	Armenia	6.0	7.1	5.0	7.0	6.0	5.1	7.0	6.5	6.0	4.5	5.8	5.5	0
140	06	Australia	2.5	1.5	3.0	1.0	4.5	1.5	1.0	1.0	2.5	1.0	1.5	1.0	0
168	07	Australia	2.9	1.6	3.0	1.1	4.4	1.8	1.0	1.4	2.5	0.9	1.5	1.1	0
169	08	Australia	2.9	2.0	3.5	1.1	4.4	2.3	1.0	1.4	2.5	0.9	1.5	1.1	0
170	09	Australia	3.1	2.2	3.4	1.1	4.4	2.8	1.4	1.4	2.5	1.0	1.5	1.1	0
168	10	Australia	3.5	2.5	3.4	1.2	4.2	3.2	1.5	1.8	2.0	1.4	1.5	1.1	0
166	11	Australia	3.3	2.8	3.6	1.6	3.9	2.9	1.6	1.8	1.9	1.7	1.6	1.4	0
165	12	Australia	4.4	3.0	3.9	1.4	3.6	2.6	1.3	2.1	2.2	2.0	1.6	1.1	0
169	13	Australia	3.3	2.7	3.6	1.1	3.3	2.1	1.0	1.8	2.2	1.7	1.6	1.0	0
165	07	Austria	2.8	2.2	3.5	1.1	5.0	1.9	1.3	1.4	1.5	1.0	2.0	2.3	0
168	08	Austria	2.8	2.2	3.5	1.1	4.9	1.9	1.3	1.4	1.5	1.0	2.0	2.3	0
167	09	Austria	2.9	2.2	3.6	1.1	4.9	2.3	1.6	1.4	1.6	1.0	2.4	2.6	0
170	10	Austria	2.7	2.3	3.8	1.2	4.7	2.7	1.4	1.4	1.6	1.1	1.9	2.4	0
168	11	Austria	2.6	2.6	3.8	1.6	4.4	2.3	1.2	1.6	1.5	1.1	2.4	2.2	0
168	12	Austria	2.6	2.3	4.0	1.9	4.1	2.0	1.3	1.8	1.8	1.4	2.4	1.9	0
166	13	Austria	2.3	2.4	4.3	1.6	4.0	1.9	1.5	1.5	2.0	1.1	2.7	1.6	0
136	06	Austria	2.5	2.1	3.5	1.0	5.0	1.9	1.3	1.0	1.5	1.0	2.0	3.3	0
50	05	Azerbaijan	8	6	6	5.8	9	4.1	9.7	5	8.5	7	9.6	7.0	1
61	06	Azerbaijan	6.0	8.1	7.3	5.0	7.5	5.9	8.1	6.5	6.0	7.0	7.5	7.0	1
62	07	Azerbaijan	6.0	7.5	7.3	5.3	7.4	6.3	7.8	6.0	6.4	7.2	7.5	6.5	1
64	08	Azerbaijan	6.0	7.8	7.3	5.3	7.0	5.9	8.1	5.5	6.9	7.2	7.5	6.5	1
56	09	Azerbaijan	6.4	8.2	7.9	5.7	7.4	6.1	8.2	5.5	7.0	7.3	7.9	7.0	1

55	10	Azerbaijan	6.2	8.1	7.9	5.7	7.3	5.9	8.0	5.5	7.2	7.3	7.9	7.4	1
63	11	Azerbaijan	5.8	7.9	7.5	5.4	6.9	5.5	7.7	5.7	7.2	7.0	7.8	7.5	1
68	12	Azerbaijan	5.6	7.6	7.2	5.1	6.6	5.2	8.0	5.4	7.3	6.7	7.8	7.2	1
76	13	Azerbaijan	5.3	7.9	6.9	4.7	6.1	4.7	8.2	5.1	7.6	6.9	7.8	6.9	1
128	07	Bahamas	6.0	3.6	5.3	5.4	7.2	3.2	6.4	4.1	3.0	5.4	5.3	5.2	0
127	08	Bahamas	6.2	3.6	5.3	5.4	7.2	3.7	5.9	4.3	3.0	5.4	5.3	5.2	0
130	09	Bahamas	6.7	3.7	5.0	5.7	6.9	4.4	5.5	4.6	3.0	5.3	4.8	5.3	0
132	10	Bahamas	6.2	3.2	4.7	5.8	6.4	5.0	5.5	4.4	2.8	4.8	4.8	5.3	0
133	11	Bahamas	5.8	2.8	4.4	6.2	6.2	4.8	5.2	4.2	3.2	4.3	4.5	4.9	0
134	12	Bahamas	6.1	2.5	4.4	5.9	5.9	4.5	4.9	4.4	3.1	4.3	4.5	4.6	0
133	13	Bahamas	6.6	2.8	4.4	5.6	5.6	4.5	4.9	4.4	2.8	4.3	4.5	4.3	0
51	05	Bahrain	6	5	6.7	9	9	1.7	9.7	4	8.4	9	9.6	7.5	0
133	07	Bahrain	5.3	3.6	6.0	3.7	5.0	3.5	6.8	3.7	4.7	3.4	6.0	5.3	0
134	08	Bahrain	5.3	3.1	6.0	3.7	5.0	3.3	7.0	3.4	4.7	3.7	6.0	5.6	0
133	09	Bahrain	5.0	3.1	6.4	3.7	5.9	3.5	6.9	3.1	5.0	4.4	6.1	5.9	0
133	10	Bahrain	4.5	2.6	6.5	3.5	6.0	4.0	6.7	3.1	5.4	4.7	6.1	5.7	0
129	11	Bahrain	4.5	2.9	6.8	3.1	6.0	3.4	6.9	2.7	5.9	4.8	6.6	5.3	0
125	12	Bahrain	4.6	2.6	7.3	2.8	5.7	3.1	7.5	2.7	7.0	6.0	7.0	5.9	0
124	13	Bahrain	4.6	2.5	7.3	3.3	5.7	3.2	7.6	2.4	7.5	6.1	7.1	5.6	0
17	05	Bangladesh	8.4	7	7.6	6	9	7.4	9.5	8.2	8.5	8	8.7	6.0	1
19	06	Bangladesh	9.0	5.8	9.5	8.5	9.0	7.0	9.0	7.5	7.8	8.3	8.9	6.0	1
16	07	Bangladesh	8.6	5.8	9.6	8.4	9.0	6.9	9.0	7.4	7.8	8.0	9.5	5.9	1
12	08	Bangladesh	9.8	7.1	9.7	8.4	9.0	7.1	9.1	7.8	8.0	8.3	9.6	6.4	1
18	09	Bangladesh	8.9	6.9	9.4	8.4	9.0	8.0	8.5	8.0	7.6	8.0	8.9	6.5	1
24	10	Bangladesh	8.4	6.7	8.9	8.4	8.8	7.9	8.0	8.3	7.4	8.1	8.9	6.3	1
25	11	Bangladesh	8.3	6.5	9.2	8.1	8.4	7.7	8.0	8.0	7.1	7.9	8.9	6.2	1
29	12	Bangladesh	8.0	6.8	8.9	7.8	8.1	7.4	8.2	7.8	6.8	7.6	8.9	5.9	1
29	13	Bangladesh	8.1	7.3	8.6	7.5	7.8	7.3	8.3	8.0	7.3	7.7	8.9	5.8	1
129	07	Barbados	4.1	3.6	5.8	6.9	7.6	5.0	6.1	2.6	3.0	5.3	4.8	5.1	0
131	08	Barbados	4.1	3.3	5.5	6.9	7.0	5.0	5.9	2.6	3.0	5.3	4.8	5.1	0
135	09	Barbados	4.1	3.3	5.3	7.0	7.1	5.2	4.5	2.8	3.0	5.0	4.5	5.4	0
135	10	Barbados	4.0	3.2	4.9	6.5	6.7	5.4	4.1	3.1	2.8	4.5	4.5	5.7	0
135	11	Barbados	4.3	2.9	4.4	6.8	6.3	5.0	3.9	2.9	2.5	4.2	4.2	5.4	0
135	12	Barbados	4.1	2.6	4.4	6.5	6.0	5.3	3.6	3.0	2.8	4.2	4.2	5.3	0
137	13	Barbados	3.8	2.7	4.4	6.2	5.7	5.8	3.6	2.7	2.5	4.2	4.2	5.0	0
44	05	Belarus	9	8	7	2.4	9	5.4	8.5	7	7.3	6.8	9.4	7.5	0
50	06	Belarus	9.0	5.1	5.5	3.5	8.5	6.3	9.0	7.5	7.3	6.8	8.0	8.0	0
51	07	Belarus	8.0	4.6	6.5	5.0	7.5	6.8	9.1	6.9	8.5	6.7	8.5	7.1	0
53	08	Belarus	7.7	4.3	6.7	5.0	7.2	6.7	9.3	6.6	8.8	6.5	8.5	7.1	0
66	09	Belarus	7.2	4.1	6.9	5.0	7.2	6.6	8.9	6.6	8.0	6.6	8.1	7.1	0
82	10	Belarus	6.7	3.7	6.4	4.8	6.7	6.7	8.7	6.2	7.9	6.2	7.8	6.9	0
82	11	Belarus	6.3	3.6	6.8	4.5	6.3	6.2	8.8	5.8	8.0	6.3	8.0	7.0	0
85	12	Belarus	6.0	3.3	6.5	4.2	6.0	6.5	9.0	5.5	8.3	6.0	8.0	7.3	0
82	13	Belarus	5.7	3.6	6.8	3.9	5.7	6.2	9.0	5.2	8.3	6.3	8.3	7.6	0
138	06	Belgium	3.0	1.5	3.5	1.0	4.0	2.0	1.5	1.0	1.5	1.0	1.5	2.5	0
166	07	Belgium	3.2	1.6	4.0	1.1	4.0	2.1	1.5	1.4	1.5	1.6	1.5	2.0	0

164	08	Belgium	3.2	1.6	4.7	1.1	4.6	2.5	1.8	1.4	1.5	1.6	3.0	2.0	0
162	09	Belgium	2.8	1.7	4.9	1.3	4.9	3.2	2.8	2.0	1.7	1.7	3.5	3.0	0
163	10	Belgium	2.6	1.8	4.4	1.3	4.7	3.7	2.3	2.1	1.5	1.8	3.0	2.8	0
160	11	Belgium	2.5	2.1	4.4	1.6	4.4	3.6	2.7	2.5	1.6	2.0	4.0	2.6	0
163	12	Belgium	2.6	1.9	4.1	1.9	4.1	3.6	2.4	2.5	1.8	2.3	4.0	2.3	0
164	13	Belgium	2.5	1.6	4.1	1.8	3.8	3.5	2.1	2.2	1.5	2.0	3.9	2.0	0
113	07	Belize	6.6	5.2	5.2	6.9	7.6	6.0	6.5	5.7	3.8	5.7	5.0	5.6	0
110	08	Belize	6.8	5.5	5.2	6.9	7.6	5.8	6.5	5.7	3.8	5.7	5.0	5.7	0
111	09	Belize	7.0	5.0	4.9	6.9	7.3	6.0	6.2	5.7	4.0	5.9	4.6	6.0	0
112	10	Belize	6.5	5.1	4.9	6.7	7.1	6.2	6.2	5.8	3.8	5.7	4.6	6.1	0
114	11	Belize	6.7	5.4	4.4	7.0	6.8	5.7	6.0	5.8	3.8	5.5	4.3	6.3	0
113	12	Belize	6.8	5.1	4.4	7.0	6.9	5.4	6.0	5.9	3.9	5.5	4.3	6.0	0
114	13	Belize	6.5	4.9	4.4	7.1	6.6	5.5	6.0	6.0	4.1	5.5	4.3	6.3	0
90	06	Benin	6.0	5.1	4.0	6.9	7.3	6.5	6.5	7.8	4.8	5.5	3.8	6.7	0
103	07	Benin	6.5	5.2	4.0	6.9	7.4	7.1	6.4	8.1	4.8	5.2	3.8	6.6	0
100	08	Benin	6.9	5.2	4.0	6.7	7.4	7.0	6.7	8.1	5.2	5.2	3.8	6.6	0
97	09	Benin	7.5	6.2	4.1	7.0	7.4	6.9	6.6	8.0	5.6	5.2	4.3	6.7	0
93	10	Benin	7.7	6.7	4.2	6.7	7.4	7.4	6.4	8.4	5.5	5.3	4.1	7.0	0
74	11	Benin	8.1	7.1	3.9	6.6	7.2	7.9	6.7	8.5	5.7	6.0	5.0	7.3	0
74	12	Benin	8.0	6.8	3.6	6.3	6.9	7.6	6.4	8.3	5.4	6.0	6.4	7.0	0
78	13	Benin	8.3	6.5	3.6	6.2	7.2	7.1	6.0	8.6	5.1	5.8	6.1	7.3	0
26	05	Bhutan	8	8	5.5	8	9	8	9.8	5	8	6	10	6.7	0
39	06	Bhutan	6.0	8.1	7.0	6.7	9.0	8.0	8.4	6.0	8.6	5.0	8.4	6.7	0
47	07	Bhutan	6.5	7.5	7.0	6.7	8.7	7.9	8.0	6.5	8.5	4.6	8.0	6.5	0
51	08	Bhutan	6.5	7.5	7.0	6.7	8.7	7.8	7.7	6.7	8.3	4.6	7.7	6.2	0
48	09	Bhutan	6.5	7.5	7.9	6.8	8.7	7.5	7.4	7.2	8.4	5.5	7.7	6.2	0
50	10	Bhutan	7.0	7.3	7.7	7.1	8.5	7.5	6.9	7.3	7.9	5.8	7.7	6.6	0
50	11	Bhutan	6.6	6.9	7.8	6.8	8.2	6.9	6.6	6.9	7.6	6.2	7.5	7.0	0
59	12	Bhutan	6.7	6.6	7.6	6.5	7.8	6.6	6.3	6.6	7.3	5.9	7.5	7.0	0
63	13	Bhutan	6.4	6.9	7.3	6.8	7.5	6.3	6.0	6.9	7.3	5.6	7.5	7.3	0
56	06	Bolivia	7.5	4.0	7.0	7.0	8.8	6.2	7.0	7.8	6.7	6.5	8.4	6.0	0
59	07	Bolivia	7.4	3.7	7.0	7.0	8.5	6.4	7.2	7.4	7.0	6.2	8.3	5.9	0
55	08	Bolivia	7.7	4.2	7.3	7.0	8.5	6.4	7.4	7.6	7.0	6.2	8.5	6.4	0
51	09	Bolivia	7.8	4.9	7.5	6.9	8.7	7.0	7.6	7.7	6.8	6.4	8.2	6.8	0
53	10	Bolivia	7.6	4.7	7.7	6.7	8.7	6.8	7.1	7.5	6.6	6.5	8.3	6.7	0
59	11	Bolivia	7.2	4.6	7.7	6.4	8.9	6.5	6.8	7.1	6.3	6.5	8.0	6.9	0
62	12	Bolivia	7.5	4.3	7.4	6.1	8.8	6.5	7.1	6.8	6.5	6.5	8.0	6.6	0
69	13	Bolivia	6.9	4.0	7.1	6.4	8.9	6.2	7.2	6.8	6.3	6.7	8.0	6.3	0
35	06	Bosnia	6.5	8.5	8.6	6.0	7.3	6.2	8.1	5.8	5.3	7.5	8.7	10.0	0
54	08	Bosnia	6.1	8.0	8.5	6.0	7.2	5.5	7.9	5.4	5.3	7.3	8.6	8.5	0
63	09	Bosnia	5.5	7.2	8.2	5.8	7.3	5.5	8.2	5.6	5.4	7.4	8.7	8.5	0
60	10	Bosnia	5.3	7.1	8.7	5.6	7.1	5.7	8.0	5.4	5.9	7.2	9.2	8.3	0
69	11	Bosnia	5.0	6.8	8.4	5.9	6.8	5.2	7.6	5.0	6.1	7.0	9.2	8.0	0
79	12	Bosnia	4.7	6.5	8.0	5.8	6.5	5.5	7.0	4.7	6.1	6.7	8.7	7.7	0
83	13	Bosnia	4.4	6.8	7.7	5.6	6.2	5.2	6.7	4.4	6.4	6.4	8.7	8.0	0
22	05	Bosnia	7	8	8.6	5.7	9	5.7	8.5	6	7.3	9	8.7	10.0	0

54	07	Bosnia	6.1	8.0	8.3	6.0	7.2	6.0	7.6	5.6	5.3	7.3	8.3	8.8	0
96	06	Botswana	9.3	6.0	3.5	6.0	6.9	5.0	5.5	6.8	4.9	4.0	3.0	6.0	0
118	07	Botswana	9.2	5.8	3.4	6.0	7.0	5.6	5.4	6.5	4.8	3.9	2.8	6.0	0
120	08	Botswana	9.2	6.0	3.4	6.0	6.9	5.3	5.4	6.2	4.8	3.9	2.8	6.0	0
116	09	Botswana	9.2	6.7	4.3	6.0	7.2	5.6	5.8	6.4	5.0	4.0	2.8	5.8	0
113	10	Botswana	9.0	6.6	4.1	5.9	7.7	6.1	5.3	6.4	4.8	4.0	2.9	5.8	0
113	11	Botswana	8.9	6.4	4.5	5.6	7.4	6.3	5.0	6.0	5.0	4.1	3.3	5.4	0
117	12	Botswana	8.6	6.1	4.8	5.3	7.7	6.5	4.7	5.9	4.7	3.8	3.3	5.1	0
122	13	Botswana	8.3	5.8	4.8	5.0	7.5	6.1	4.4	6.0	4.4	3.5	3.3	4.8	0
62	05	Brazil	9	5	5.7	5.9	9	2	7.8	8.3	6.7	6.5	8.7	6.4	0
101	06	Brazil	6.5	3.6	5.7	5.0	8.5	2.7	5.5	6.7	5.3	5.7	3.2	4.7	0
116	07	Brazil	6.6	3.4	6.1	5.0	8.8	3.2	6.2	6.3	5.3	6.9	4.5	4.6	0
117	08	Brazil	6.3	3.3	6.1	5.0	8.8	3.7	6.2	6.0	5.6	7.1	4.9	4.6	0
113	09	Brazil	6.4	3.9	6.4	5.0	8.9	4.1	6.4	6.0	5.6	6.9	5.1	4.4	0
119	10	Brazil	6.3	3.7	6.2	4.8	8.8	4.0	6.2	6.0	5.4	6.7	5.1	4.2	0
123	11	Brazil	6.1	3.5	6.5	4.5	8.5	3.9	5.9	5.8	5.1	6.5	4.9	3.9	0
123	12	Brazil	7.0	3.9	6.2	4.2	8.4	3.6	5.6	5.5	5.0	6.2	4.9	3.6	0
126	13	Brazil	7.0	3.6	5.9	3.9	8.3	3.3	5.3	5.4	5.3	5.9	4.9	3.3	0
108	07	Brunei	6.3	5.6	7.4	4.2	7.9	3.2	7.7	3.3	6.6	6.9	7.4	4.7	0
116	08	Brunei	5.9	4.9	6.7	4.2	7.4	3.2	7.7	3.3	6.8	6.3	7.4	4.7	0
118	09	Brunei	5.4	4.4	6.6	4.0	7.8	3.4	7.9	3.6	6.8	6.1	7.4	4.7	0
117	10	Brunei	5.4	4.2	6.6	3.8	7.8	3.7	7.7	3.5	6.9	5.9	7.4	4.7	0
122	11	Brunei	5.1	3.9	6.2	4.1	7.8	3.4	7.7	3.2	6.7	5.6	7.4	4.7	0
123	12	Brunei	4.8	3.6	6.2	4.3	7.8	3.1	7.4	2.9	6.6	5.6	7.4	4.4	0
123	13	Brunei	4.5	3.3	6.2	4.6	7.8	2.8	7.4	2.6	6.9	5.6	7.4	4.1	0
103	06	Bulgaria	6.0	4.1	4.0	6.0	6.2	4.3	6.2	5.3	4.9	5.5	4.1	5.5	0
127	07	Bulgaria	5.4	4.1	4.2	5.9	6.2	4.3	5.7	5.0	4.7	5.4	3.9	5.5	0
131	08	Bulgaria	5.1	4.1	4.0	5.7	6.0	4.3	5.4	4.6	4.7	5.2	3.9	5.5	0
128	09	Bulgaria	4.7	3.8	4.4	6.0	6.3	5.0	6.0	5.0	4.8	5.3	4.6	5.6	0
126	10	Bulgaria	4.5	3.9	4.5	5.8	6.1	5.3	6.0	5.0	4.6	5.1	4.6	5.8	0
130	11	Bulgaria	4.1	3.6	4.3	5.5	5.7	5.3	5.9	4.6	4.3	4.9	5.3	5.5	0
130	12	Bulgaria	4.0	3.3	4.9	5.2	5.4	5.0	5.1	4.3	4.0	4.6	5.3	5.2	0
132	13	Bulgaria	4.4	3.1	4.6	4.9	5.1	5.0	4.8	4.4	3.7	4.7	5.3	5.0	0
30	06	Burkina Faso	9.0	5.9	6.5	6.6	8.8	8.2	7.8	8.4	6.5	7.6	7.7	6.7	0
33	07	Burkina Faso	8.6	5.6	6.4	6.6	8.9	8.2	7.6	8.9	6.6	7.6	7.7	7.0	0
36	08	Burkina Faso	8.6	5.6	6.4	6.6	8.9	8.1	7.6	8.9	6.6	7.6	7.7	7.3	0
35	09	Burkina Faso	9.0	6.0	6.1	6.5	9.0	8.2	7.9	9.0	6.5	7.5	7.6	8.0	0
35	10	Burkina Faso	9.3	6.2	5.9	6.6	8.8	8.0	7.7	8.8	6.6	7.3	7.6	7.9	0
37	11	Burkina Faso	8.9	6.2	5.5	6.3	8.5	8.0	7.7	8.7	6.4	7.0	7.3	8.0	0
41	12	Burkina Faso	8.9	5.9	5.2	6.0	8.2	7.7	8.0	8.4	7.0	7.1	7.3	7.7	0
35	13	Burkina Faso	9.4	7.4	5.3	6.3	8.4	7.7	7.7	8.7	6.8	7.2	7.3	8.0	0
18	05	Burundi	9	7.2	7.1	3.8	8.8	7.8	7.2	9	8.3	7.5	8.6	10.0	1
15	06	Burundi	9.0	9.1	7.0	6.7	8.8	7.8	7.2	8.5	7.5	7.3	7.8	10.0	1
19	07	Burundi	9.1	8.9	6.7	6.7	8.8	8.2	7.1	8.9	7.5	6.8	7.5	9.0	1
24	08	Burundi	9.1	8.2	6.7	6.5	8.8	8.0	7.1	9.0	7.5	6.8	7.8	8.6	1
24	09	Burundi	9.2	8.1	7.5	6.5	8.4	8.0	7.5	9.0	7.6	7.3	7.7	8.9	1

23	10	Burundi	9.4	8.4	7.8	6.5	8.4	8.2	7.6	9.0	7.7	7.1	7.9	8.7	1
17	11	Burundi	9.1	8.7	8.2	6.2	8.1	8.5	8.2	8.8	8.0	7.7	8.2	9.0	1
18	12	Burundi	8.8	8.9	8.0	5.9	7.9	8.8	8.3	8.5	8.1	7.4	7.9	9.0	1
20	13	Burundi	8.9	8.8	8.1	6.2	7.6	9.1	8.4	8.3	7.9	7.7	7.9	8.7	1
48	07	Cambodia	7.6	5.9	7.3	8.0	7.2	6.4	8.5	7.6	7.1	6.2	7.5	6.4	0
48	08	Cambodia	7.8	5.7	7.5	8.0	7.2	6.6	8.3	7.6	7.1	6.2	7.2	6.6	0
48	09	Cambodia	7.9	5.2	7.0	8.0	7.2	7.5	8.5	7.9	7.4	6.5	7.5	6.7	0
40	10	Cambodia	8.0	5.3	6.9	7.9	7.1	7.7	8.7	8.3	7.7	6.4	7.7	7.0	0
38	11	Cambodia	7.7	5.6	7.2	7.6	6.8	7.2	8.5	8.4	8.0	6.2	8.0	7.4	0
37	12	Cambodia	7.5	5.9	7.3	7.7	7.1	6.9	8.2	8.3	7.7	6.5	8.0	7.7	0
41	13	Cambodia	7.2	6.2	7.0	7.4	7.3	6.4	8.3	8.1	7.8	6.2	8.0	8.0	0
47	06	Cambodia	7.5	6.5	7.0	8.0	7.2	6.0	7.8	7.5	6.9	6.7	7.5	6.4	0
53	05	Cameroon	9	7	5.1	8.6	9	4.2	6.4	7.5	6.6	8	8.2	5.0	0
36	06	Cameroon	6.5	6.8	6.5	8.0	8.7	6.0	8.5	8.0	7.2	7.6	7.9	6.7	0
35	07	Cameroon	7.0	6.8	7.0	7.9	8.7	6.1	8.5	7.5	7.2	7.7	8.0	7.0	0
33	08	Cameroon	7.4	7.1	7.1	7.9	8.7	6.1	8.7	7.6	7.4	7.8	8.2	7.2	0
26	09	Cameroon	8.0	7.5	7.2	8.0	8.9	6.9	9.2	8.0	8.0	7.8	8.7	7.1	0
26	10	Cameroon	8.2	7.6	7.5	8.1	8.7	7.0	9.0	8.0	7.8	7.8	8.7	7.0	0
24	11	Cameroon	8.0	7.3	7.8	7.8	8.4	7.0	8.8	8.3	8.1	7.8	8.5	6.8	0
26	12	Cameroon	8.2	7.0	7.5	7.5	8.1	6.5	8.9	8.1	7.8	7.9	9.2	6.5	0
27	13	Cameroon	8.3	7.3	7.8	7.2	7.8	6.1	8.5	8.4	8.1	8.0	9.2	6.8	0
167	07	Canada	3.3	2.4	2.0	2.1	5.0	1.5	1.5	1.2	2.0	1.0	1.6	1.5	0
167	08	Canada	3.3	2.4	3.0	2.1	5.0	1.5	1.5	1.2	2.0	1.0	1.8	1.5	0
166	09	Canada	3.3	2.4	3.0	2.1	4.7	2.0	1.7	1.2	2.1	1.1	2.4	1.7	0
166	10	Canada	3.2	2.5	3.1	2.1	4.5	2.5	1.5	1.5	1.9	1.2	2.4	1.5	0
168	11	Canada	2.9	2.5	3.3	2.4	4.1	2.4	1.2	1.9	1.6	1.5	2.5	1.4	0
169	12	Canada	2.7	2.2	3.0	2.4	3.8	2.1	1.0	2.2	1.9	1.8	2.5	1.1	0
168	13	Canada	2.6	2.1	3.1	2.1	3.5	1.8	1.5	2.0	2.0	1.8	2.5	1.0	0
139	06	Canada	3.0	2.3	2.0	2.0	5.0	1.2	1.5	1.0	1.5	1.0	1.6	1.0	0
66	07	Cape Verde	7.9	4.8	4.8	8.2	6.2	8.0	7.0	7.4	6.4	6.1	6.4	7.9	0
65	08	Cape Verde	7.9	4.8	4.8	8.2	6.2	7.8	7.3	7.2	6.4	5.8	6.4	7.9	0
84	09	Cape Verde	7.9	4.0	4.4	8.2	6.2	7.2	7.4	7.6	6.2	5.7	6.1	7.6	0
88	10	Cape Verde	7.7	4.1	4.4	8.2	6.0	7.0	7.2	7.4	6.0	5.5	6.1	7.6	0
90	11	Cape Verde	7.3	4.3	4.2	8.3	6.3	6.3	6.9	6.9	5.7	5.7	5.7	8.2	0
91	12	Cape Verde	7.0	4.0	4.2	8.4	6.6	6.6	6.6	6.6	5.4	5.7	5.7	7.9	0
94	13	Cape Verde	6.7	4.1	4.2	8.3	6.9	6.1	6.3	6.5	5.1	5.7	5.5	8.2	0
20	05	Central African Republic	9	5	8.8	3	7	9	9.7	8	8.2	9	10	7.0	0
13	06	Central African Republic	9.0	7.7	8.8	5.5	8.5	8.1	9.0	8.0	7.5	8.9	8.0	8.5	1
10	07	Central African Republic	8.9	8.4	8.8	5.5	8.6	8.4	9.0	8.0	8.2	8.9	9.3	9.0	1
10	08	Central African Republic	9.0	8.8	8.9	5.5	8.8	8.4	9.2	8.6	8.7	9.4	9.4	9.0	1
8	09	Central African Republic	8.9	9.0	8.6	5.7	9.1	8.4	9.3	9.3	8.9	9.6	9.5	9.1	1
8	10	Central African Republic	9.1	9.3	8.9	6.1	9.2	8.4	9.0	9.2	8.8	9.7	9.1	9.6	1
8	11	Central African Republic	8.9	9.6	8.6	5.8	8.9	8.1	9.1	9.0	8.6	9.7	9.1	9.6	1
10	12	Central African Republic	8.8	9.7	8.5	5.6	8.7	8.0	8.9	9.1	8.5	9.6	9.1	9.3	1
9	13	Central African Republic	8.6	9.8	8.5	6.1	9.2	7.7	9.0	9.5	8.6	9.7	9.1	9.4	1
7	05	Chad	8	9.1	7.1	8.3	9	8	8.9	9	9.1	7	9.4	8.0	1

6	06	Chad	9.0	9.0	8.5	8.0	9.0	7.9	9.5	9.0	9.1	9.4	9.5	8.0	1
5	07	Chad	9.1	8.9	9.5	7.9	9.0	8.3	9.5	9.1	9.2	9.6	9.7	9.0	1
4	08	Chad	9.1	9.2	9.7	7.8	9.1	8.3	9.7	9.4	9.5	9.8	9.8	9.5	1
4	09	Chad	9.3	9.4	9.8	7.8	9.3	8.3	9.8	9.6	9.5	9.9	9.8	9.7	1
2	10	Chad	9.4	9.5	9.8	8.3	9.3	8.5	9.9	9.6	9.6	9.9	9.8	9.7	1
2	11	Chad	9.2	9.5	9.4	8.0	8.9	8.5	9.8	9.6	9.3	9.2	9.8	9.1	1
4	12	Chad	9.3	9.5	9.1	7.7	8.6	8.3	9.8	9.5	9.3	8.9	9.8	7.8	1
5	13	Chad	9.5	9.7	8.8	8.0	8.9	8.0	9.7	9.9	9.8	9.4	9.5	7.9	1
158	07	Chile	3.8	1.1	3.5	2.1	4.0	3.8	1.6	3.7	3.7	2.0	1.5	3.0	0
157	08	Chile	3.8	2.0	3.9	2.1	4.6	3.7	2.0	3.8	3.9	2.0	1.5	3.0	0
155	09	Chile	4.0	2.5	3.6	2.1	4.4	4.3	2.0	4.2	3.6	2.0	1.5	3.3	0
155	10	Chile	4.1	2.6	3.4	2.5	4.5	4.6	1.8	4.0	3.4	2.3	1.5	3.3	0
153	11	Chile	5.0	3.0	3.5	2.8	5.0	4.6	2.1	4.3	3.3	2.5	1.4	3.3	0
151	12	Chile	4.6	2.7	3.8	3.1	5.5	4.6	3.7	4.5	3.2	2.8	1.4	3.5	0
152	13	Chile	4.9	2.4	3.5	2.8	5.5	4.1	3.8	4.3	3.5	2.9	1.4	3.2	0
132	06	Chile	3.0	1.0	3.5	2.0	4.0	3.4	1.5	3.5	3.6	2.0	1.5	3.0	0
75	05	China	6.8	5	7.4	6	9	0.5	8.6	2.9	8.9	7	8.4	1.8	1
57	06	China	8.5	5.1	8.0	6.6	9.2	4.5	8.5	7.3	9.0	5.5	8.0	2.3	1
62	07	China	8.7	5.1	8.0	6.5	9.0	4.0	8.5	6.5	9.0	5.3	7.5	3.1	1
68	08	China	8.8	5.1	7.8	6.3	9.0	4.0	8.3	6.6	8.9	5.2	7.0	3.3	1
56	09	China	9.0	6.8	7.9	6.1	9.2	4.5	8.5	7.2	8.9	6.0	7.2	3.3	1
62	10	China	8.8	6.6	8.0	5.9	9.0	4.3	8.3	7.0	9.0	5.8	7.2	3.1	1
72	11	China	8.2	6.2	7.9	5.6	8.6	4.4	7.9	6.6	8.8	5.7	6.9	3.3	1
76	12	China	7.9	5.9	7.9	5.3	8.3	3.9	7.9	6.3	8.6	6.0	6.9	3.5	1
66	13	China	8.1	6.1	8.3	5.0	8.0	3.6	8.1	6.8	9.4	6.5	7.2	3.8	1
14	05	Colombia	9	8	6.9	9.2	9	7.1	9.8	4.2	8.2	5.4	9.2	9.0	1
27	06	Colombia	7.0	9.1	7.4	8.5	8.5	3.2	8.7	6.5	7.6	9.0	9.2	7.1	1
33	07	Colombia	6.8	9.5	7.4	8.4	8.4	3.8	8.2	6.0	7.4	8.3	8.5	7.0	1
37	08	Colombia	6.8	9.2	7.4	8.4	8.4	3.8	7.9	6.0	7.2	8.0	8.3	7.6	1
41	09	Colombia	6.9	9.2	7.2	8.5	8.5	4.3	7.9	6.0	7.2	7.5	8.0	8.0	1
46	10	Colombia	6.7	9.0	7.2	8.3	8.3	4.6	7.7	5.8	6.9	7.7	8.0	8.0	1
44	11	Colombia	6.7	8.7	7.5	7.9	8.6	4.1	7.5	5.6	7.2	7.5	8.0	7.7	1
52	12	Colombia	6.4	8.4	7.2	7.6	8.4	4.0	7.4	5.9	7.0	7.0	7.7	7.4	1
57	13	Colombia	6.5	8.3	7.5	7.3	8.1	3.8	7.3	6.1	7.3	6.8	7.7	7.1	1
78	07	Comoros	6.2	3.6	5.3	5.7	6.1	7.6	7.9	8.7	6.6	6.7	6.5	6.9	0
74	08	Comoros	6.7	3.6	5.3	6.0	6.1	7.3	8.1	8.5	6.9	7.0	6.7	7.4	0
51	09	Comoros	7.4	3.7	5.5	6.0	6.3	7.8	8.7	8.7	7.0	7.5	7.9	9.8	0
52	10	Comoros	7.5	3.9	5.6	6.4	6.1	7.6	8.2	8.5	6.8	7.5	8.0	9.0	0
56	11	Comoros	7.5	4.0	5.3	6.6	5.8	7.6	8.0	8.2	6.6	7.5	8.0	8.7	0
57	12	Comoros	7.3	4.2	5.3	6.9	6.1	7.9	7.7	7.9	6.3	7.5	7.5	8.4	0
56	13	Comoros	7.4	4.5	5.3	7.2	6.4	8.2	7.4	7.9	6.6	7.5	7.5	8.1	0
26	07	Congo (Republic)	8.7	7.3	6.8	6.1	8.1	8.3	8.5	8.8	7.9	7.9	7.2	7.4	0
26	08	Congo (Republic)	8.7	7.7	6.8	6.1	8.1	8.0	8.8	8.8	7.9	7.9	7.2	7.4	0
30	09	Congo (Republic)	8.9	7.8	6.5	6.1	8.0	8.0	8.6	8.8	7.9	7.8	7.1	7.6	0
31	10	Congo (Republic)	8.7	7.7	6.3	6.4	8.1	7.8	9.1	8.6	7.7	7.6	7.1	7.4	0
32	11	Congo (Republic)	8.5	7.7	6.0	6.7	8.2	7.3	8.9	8.3	7.5	7.3	6.7	8.2	0

33	12	Congo (Republic)	8.3	7.7	6.3	6.5	7.9	7.5	8.6	8.4	7.2	7.0	6.7	7.9	0
36	13	Congo (Republic)	8.2	8.0	6.0	6.2	8.2	7.0	8.7	8.7	7.5	6.7	6.7	8.2	0
114	06	Costa Rica	6.0	4.2	4.0	5.0	6.2	4.5	3.9	2.5	3.5	2.0	3.3	4.5	0
139	07	Costa Rica	5.6	4.4	4.0	5.0	6.6	4.8	3.9	2.9	3.5	2.0	3.3	4.5	0
140	08	Costa Rica	5.6	4.2	4.0	4.8	6.6	4.6	4.1	3.5	3.5	2.2	3.3	4.5	0
137	09	Costa Rica	5.7	4.5	4.1	4.7	6.7	5.0	4.1	4.0	3.5	2.2	3.2	4.8	0
138	10	Costa Rica	5.5	4.6	3.9	4.5	6.5	5.4	3.9	4.1	3.3	2.5	3.2	4.6	0
137	11	Costa Rica	5.1	4.3	4.1	4.1	6.5	4.9	3.5	4.2	3.0	2.5	3.5	4.9	0
139	12	Costa Rica	4.6	4.0	4.4	3.8	6.4	4.6	3.2	4.5	2.7	2.8	3.5	5.2	0
139	13	Costa Rica	4.9	4.1	4.1	3.5	6.1	4.3	3.5	4.6	2.4	2.5	3.8	4.9	0
1	05	Cote d'Ivoire	8	8	7.7	8.8	9	7.7	9.8	9.5	9.4	9	9.1	10.0	1
3	06	Cote d'Ivoire	8.8	7.6	9.8	8.5	8.0	9.0	10.0	8.5	9.4	9.8	9.8	10.0	1
6	07	Cote d'Ivoire	8.6	8.3	9.8	8.4	8.0	8.9	9.5	7.9	9.2	9.6	9.3	9.8	1
8	08	Cote d'Ivoire	8.4	8.3	9.5	8.4	8.0	8.5	8.9	7.8	9.0	9.2	8.9	9.7	1
11	09	Cote d'Ivoire	8.6	7.8	9.0	8.4	8.1	8.3	9.1	8.0	8.5	8.5	8.5	9.7	1
12	10	Cote d'Ivoire	8.4	8.0	8.9	8.2	7.9	8.0	9.0	8.3	8.3	8.2	8.5	9.5	1
10	11	Cote d'Ivoire	8.1	8.5	8.7	7.9	8.0	7.7	9.5	8.4	8.6	8.6	9.1	9.7	1
11	12	Cote d'Ivoire	7.9	9.0	9.0	7.6	7.7	7.4	9.6	8.3	8.3	8.9	9.9	10.0	1
12	13	Cote d'Ivoire	7.8	9.3	9.0	7.3	7.8	7.7	9.3	8.5	8.6	9.1	9.4	9.7	1
126	07	Croatia	5.3	6.5	6.0	5.0	5.7	5.7	4.2	4.1	4.5	3.9	3.9	5.7	0
129	08	Croatia	5.1	6.3	5.7	5.0	5.5	5.3	4.4	4.1	4.5	3.9	3.9	5.7	0
131	09	Croatia	4.9	6.1	5.4	4.8	5.5	5.9	4.5	3.9	4.7	4.3	4.3	5.8	0
131	10	Croatia	4.7	5.9	5.2	4.6	5.3	6.2	4.8	3.7	4.5	4.4	4.3	5.4	0
132	11	Croatia	4.3	5.5	5.5	4.9	5.0	5.9	4.4	3.4	4.3	4.4	4.7	5.0	0
130	12	Croatia	4.0	5.2	5.6	4.7	4.7	5.4	4.2	3.2	4.6	4.7	4.7	5.3	0
135	13	Croatia	3.7	5.5	5.3	4.4	4.4	5.1	3.9	2.9	4.7	4.8	4.4	5.0	0
104	06	Croatia	5.7	6.6	6.5	5.0	5.7	5.8	4.2	4.1	4.6	4.0	3.9	5.8	0
58	05	Cuba	5	8	6.3	5.4	8.8	5.7	7.8	3.8	9	9	8.6	6.3	0
61	06	Cuba	7.5	4.7	5.5	6.0	7.9	6.5	7.8	4.0	8.3	8.0	8.0	7.7	0
76	07	Cuba	6.5	4.7	5.5	6.0	7.2	6.3	7.6	3.8	7.8	7.7	7.8	7.7	0
76	08	Cuba	6.5	4.7	5.5	6.8	7.2	6.1	7.6	4.0	7.8	7.7	7.0	7.7	0
73	09	Cuba	6.9	5.9	5.5	7.2	6.8	6.3	7.5	5.0	7.4	7.5	7.1	7.5	0
77	10	Cuba	6.7	5.7	5.5	7.2	6.6	6.3	7.0	5.0	7.5	7.3	7.1	7.5	0
86	11	Cuba	6.3	5.4	5.1	6.9	6.3	6.0	6.6	5.3	7.4	6.9	6.9	7.5	0
101	12	Cuba	6.0	5.0	4.8	6.6	5.9	5.5	6.4	5.0	7.4	6.6	6.9	7.0	0
101	13	Cuba	6.6	5.3	4.8	6.3	5.9	5.2	6.5	4.7	7.5	6.3	6.9	6.7	0
112	07	Cyprus	5.1	4.2	8.3	5.7	7.5	4.8	5.5	3.8	3.5	4.2	8.4	9.2	0
112	08	Cyprus	4.9	4.2	8.3	5.2	7.5	4.2	5.5	3.8	3.5	5.0	8.4	9.2	0
114	09	Cyprus	5.0	4.5	7.5	5.2	7.8	4.0	5.4	3.6	3.8	5.2	7.9	9.0	0
114	10	Cyprus	4.8	4.5	7.6	5.0	7.6	4.3	5.2	3.4	3.6	5.3	7.9	8.8	0
115	11	Cyprus	4.4	4.4	7.6	5.3	7.3	5.0	5.0	3.3	3.3	5.3	7.9	8.8	0
115	12	Cyprus	4.1	4.7	7.3	5.0	7.0	5.4	5.2	3.1	3.3	5.0	7.9	8.8	0
115	13	Cyprus	4.0	4.4	7.3	4.8	7.0	5.8	5.5	3.0	3.3	5.0	7.9	9.0	0
92	06	Cyprus	5.0	3.6	8.6	6.0	7.7	5.0	5.4	4.2	3.5	4.0	8.5	9.0	0
148	07	Czech Republic	4.0	3.3	3.2	5.0	3.9	2.8	3.7	3.8	3.5	2.0	3.5	3.4	0
149	08	Czech Republic	3.8	3.1	3.2	4.8	3.9	3.4	3.7	3.8	3.5	2.0	3.5	3.4	0

152	09	Czech Republic	3.5	2.7	3.6	4.5	4.3	4.1	3.6	3.8	3.5	2.0	3.3	3.7	0
152	10	Czech Republic	3.3	2.8	3.4	4.3	4.1	4.4	3.4	3.6	3.3	2.1	3.3	3.5	0
152	11	Czech Republic	3.0	2.8	3.8	4.0	3.8	4.6	3.7	3.9	3.0	2.1	3.8	3.8	0
155	12	Czech Republic	2.8	2.5	3.5	3.7	3.5	4.3	3.5	3.6	2.7	2.1	3.8	3.5	0
154	13	Czech Republic	2.5	2.2	3.8	3.4	3.8	4.5	4.1	3.7	2.4	2.1	4.2	3.2	0
119	06	Czech Republic	4.0	3.5	3.2	5.0	4.0	2.5	3.7	3.9	3.0	2.0	3.5	3.5	0
137	06	Denmark	3.0	2.5	4.5	2.0	2.0	2.0	1.0	1.0	1.5	1.0	1.0	3.3	0
169	07	Denmark	3.2	2.6	2.5	2.0	1.9	2.1	1.0	1.4	1.5	1.0	1.0	2.0	0
170	08	Denmark	3.2	1.9	2.5	2.0	1.9	2.1	1.0	1.4	1.5	1.0	1.0	2.0	0
172	09	Denmark	3.0	1.6	3.0	2.0	2.2	2.7	1.3	1.5	1.5	1.3	1.0	2.1	0
172	10	Denmark	2.8	1.7	3.0	1.8	2.0	3.1	1.1	1.3	1.3	1.5	1.0	2.3	0
173	11	Denmark	2.9	2.1	3.3	2.1	1.7	2.5	1.2	1.6	1.3	1.5	1.0	2.6	0
175	12	Denmark	2.8	1.9	3.0	2.2	1.8	2.2	0.8	1.7	1.5	1.8	1.0	2.3	0
174	13	Denmark	2.5	1.6	3.4	1.9	1.6	1.9	1.0	1.4	1.7	1.5	1.4	2.0	0
60	11	Djibouti	7.8	7.2	6.2	5.2	6.8	6.0	7.2	7.2	7.0	6.2	7.5	8.3	0
53	12	Djibouti	8.3	6.9	6.5	4.9	7.1	6.6	7.5	7.2	6.8	6.5	7.5	8.0	0
50	13	Djibouti	8.3	7.2	6.2	5.2	7.3	6.9	7.8	7.4	7.0	6.6	7.5	8.1	0
70	07	Djibouti	7.9	6.5	5.5	5.0	6.1	6.9	7.4	7.5	6.0	7.0	6.9	7.6	0
71	08	Djibouti	7.7	6.4	5.5	5.2	6.2	7.1	7.4	7.3	6.2	6.5	6.9	7.6	0
73	09	Djibouti	8.0	6.4	5.7	5.2	6.3	6.6	7.4	7.5	6.2	6.2	6.9	8.2	0
68	10	Djibouti	7.9	6.8	5.9	5.5	6.5	6.4	7.2	7.3	6.6	6.0	7.1	8.7	0
19	05	Dominican Republic	9	8	7.1	8.5	9	6.8	6.8	9.6	9.2	7	9.2	4.0	0
47	06	Dominican Republic	7.8	7.0	6.5	8.5	8.0	6.0	6.2	8.0	7.1	7.0	7.4	5.5	0
69	07	Dominican Republic	6.5	6.4	6.1	8.3	8.1	5.8	6.0	6.9	7.0	6.5	7.4	5.6	0
77	08	Dominican Republic	6.5	5.4	6.1	8.3	8.1	5.6	5.8	6.9	7.0	6.1	7.0	5.6	0
88	09	Dominican Republic	6.7	5.3	6.0	8.5	8.0	5.6	5.8	6.7	6.7	5.8	6.8	5.8	0
93	10	Dominican Republic	6.5	5.1	5.8	8.3	7.8	5.9	5.6	6.9	6.5	5.6	6.8	6.0	0
84	11	Dominican Republic	6.5	5.5	6.1	7.9	7.5	5.6	5.8	6.8	6.3	5.8	6.8	6.2	0
95	12	Dominican Republic	6.5	5.2	5.8	7.6	7.2	5.8	5.7	6.5	6.0	5.5	6.5	5.9	0
95	13	Dominican Republic	6.4	5.5	6.1	7.9	6.9	5.5	5.4	6.2	5.7	5.2	6.5	5.9	0
2	06	DR Congo (Zaire)	9.5	9.5	9.1	8.0	9.0	8.1	9.0	9.0	9.5	9.8	9.6	10.0	0
2	05	DR Congo (Zaire)	9	9.4	9	7	9	8	8	9	9.1	8.7	9.1	10.0	1
7	07	DR Congo (Zaire)	9.4	8.9	8.8	7.6	9.1	8.0	8.3	8.7	8.9	9.6	8.6	9.6	1
6	08	DR Congo (Zaire)	9.6	9.2	8.8	7.9	9.0	8.3	8.3	9.1	8.9	9.6	8.6	9.4	1
5	09	DR Congo (Zaire)	9.7	9.6	8.9	8.1	9.3	8.3	8.6	9.2	9.0	9.7	8.7	9.6	1
5	10	DR Congo (Zaire)	9.9	9.6	8.6	8.0	9.5	8.7	8.8	9.0	9.4	9.8	8.9	9.7	1
4	11	DR Congo (Zaire)	9.7	9.6	8.3	7.7	9.2	8.7	9.0	8.9	9.2	9.6	8.8	9.5	1
2	12	DR Congo (Zaire)	9.9	9.7	9.3	7.4	8.9	8.8	9.5	9.2	9.7	9.7	9.5	9.6	1
2	13	DR Congo (Zaire)	10.0	10.0	9.4	7.1	8.8	8.5	9.6	9.5	9.8	10.0	9.5	9.7	1
46	05	Ecuador	9	6	5.6	6.9	9	5	9.5	7.5	7.9	8	8.6	4.0	0
63	06	Ecuador	6.0	5.6	6.8	7.1	8.0	5.2	8.3	7.4	6.7	6.8	7.8	5.5	0
72	07	Ecuador	6.2	6.0	6.7	7.1	8.0	5.3	7.5	6.8	6.6	6.6	7.6	5.5	0
68	08	Ecuador	6.2	6.0	6.5	7.3	7.8	5.9	7.1	6.8	6.4	6.7	7.9	5.7	0
69	09	Ecuador	6.5	6.3	6.3	7.3	8.0	6.4	7.0	6.8	6.0	6.8	7.8	6.0	0
69	10	Ecuador	6.3	6.1	6.4	7.5	8.0	6.7	7.4	7.0	5.8	6.6	7.8	6.1	0
62	11	Ecuador	5.9	6.4	6.9	7.1	7.7	6.3	7.5	7.2	5.7	7.0	8.2	6.3	0

67	12	Ecuador	5.6	6.0	6.9	7.1	7.7	5.9	7.5	7.2	5.2	6.5	8.2	6.3	0
74	13	Ecuador	5.8	5.7	7.2	6.8	7.4	5.6	7.2	6.9	4.9	6.7	8.2	6.2	0
38	05	Egypt	9	8	7.8	5	9	3.8	9.5	7.3	7.7	8.5	8.2	5.0	0
31	06	Egypt	8.0	6.0	8.5	6.0	8.0	7.0	9.0	7.3	8.0	6.5	7.7	7.5	0
36	07	Egypt	7.7	6.5	7.8	6.2	7.8	7.0	9.0	6.7	8.5	6.1	8.3	7.6	0
40	08	Egypt	7.5	6.3	7.7	6.2	7.8	6.9	9.0	6.3	8.5	6.1	8.4	8.0	0
43	09	Egypt	7.6	6.9	8.0	6.2	7.6	7.0	8.6	6.4	8.4	6.2	8.1	8.0	0
49	10	Egypt	7.4	6.7	8.2	6.0	7.4	6.8	8.4	6.1	8.2	6.5	8.1	7.8	0
45	11	Egypt	7.1	6.4	8.3	5.7	7.4	6.5	8.6	5.9	8.3	6.8	8.0	7.8	0
31	12	Egypt	7.1	6.4	8.8	5.7	7.4	7.1	9.2	5.9	9.0	7.0	8.8	8.0	0
34	13	Egypt	7.2	6.5	8.5	5.4	7.1	8.2	8.9	5.6	9.6	7.3	8.7	7.7	0
72	05	El Salvador	5	5	5.6	2.7	9	7.5	9	3	8	6	9.7	5.0	0
77	06	El Salvador	8.5	6.1	6.0	7.0	7.0	5.0	7.0	7.4	6.7	6.0	3.9	5.5	0
91	07	El Salvador	7.6	5.6	6.0	7.0	7.3	5.4	7.0	6.9	6.9	5.8	3.9	5.5	0
91	08	El Salvador	7.4	5.6	6.0	7.0	7.6	6.0	7.0	6.5	7.0	6.3	3.9	5.2	0
90	09	El Salvador	7.6	5.7	6.2	6.9	7.8	6.3	7.0	6.6	6.9	6.4	4.5	5.3	0
85	10	El Salvador	8.1	5.7	5.9	7.1	7.9	6.6	6.8	7.0	6.7	6.7	4.5	5.1	0
89	11	El Salvador	7.6	5.3	5.8	7.1	7.6	6.3	6.5	6.9	6.7	7.0	4.3	4.9	0
93	12	El Salvador	7.7	5.2	6.0	7.2	7.3	6.0	6.2	6.6	6.4	6.7	4.3	4.8	0
96	13	El Salvador	7.4	5.5	5.7	6.9	7.0	6.5	5.9	6.5	6.1	6.4	4.3	5.1	0
33	05	Equatorial Guinea	8	6	6.3	9	9	5.1	9.9	8	7.8	7	9.8	5.0	0
52	06	Equatorial Guinea	7.0	2.0	6.7	7.5	9.0	4.0	9.0	8.0	8.5	8.3	8.0	6.0	0
41	07	Equatorial Guinea	8.0	2.0	7.0	7.4	9.0	4.0	9.4	8.6	9.4	8.9	8.5	6.0	0
42	08	Equatorial Guinea	7.8	2.0	7.0	7.4	9.2	3.9	9.4	8.3	9.5	9.0	8.5	6.0	0
47	09	Equatorial Guinea	8.3	2.0	6.8	7.4	9.0	4.4	9.4	8.6	9.2	8.6	8.6	6.0	0
44	10	Equatorial Guinea	8.4	2.3	6.8	7.4	8.8	4.7	9.6	8.4	9.4	8.4	8.4	5.9	0
40	11	Equatorial Guinea	8.5	2.7	6.6	7.2	9.1	4.5	9.6	8.1	9.4	8.1	8.2	6.0	0
43	12	Equatorial Guinea	8.2	3.0	6.6	6.9	8.8	4.8	9.4	7.8	9.1	7.8	8.2	5.7	0
47	13	Equatorial Guinea	8.3	3.3	6.6	6.6	9.1	4.5	9.6	7.6	9.4	7.5	8.2	5.5	0
55	05	Eritrea	8	8	5.4	4	9	8.8	9	7	5.7	5	9.2	5.0	0
54	06	Eritrea	8.0	7.2	5.4	6.0	6.0	8.0	8.0	7.3	6.8	7.2	7.5	6.5	0
50	07	Eritrea	8.1	7.1	5.4	6.0	5.9	8.4	8.3	7.7	7.4	7.5	7.2	6.5	0
44	08	Eritrea	8.6	7.1	5.6	6.0	5.9	8.5	8.4	7.9	7.4	7.5	7.2	7.3	0
36	09	Eritrea	8.6	7.0	5.8	6.5	6.0	8.6	8.6	8.6	7.9	7.4	7.7	7.6	0
30	10	Eritrea	8.7	7.2	6.1	7.1	6.2	8.6	8.8	8.6	8.4	7.6	7.9	8.1	0
28	11	Eritrea	8.3	6.8	6.1	7.4	6.5	8.3	8.5	8.4	8.9	7.7	8.1	8.5	0
23	12	Eritrea	8.6	7.1	6.4	7.1	6.9	8.6	8.4	8.2	8.7	7.8	8.1	8.5	0
25	13	Eritrea	8.7	7.4	6.1	7.3	6.9	8.3	8.7	8.4	9.1	7.5	8.1	8.6	0
140	07	Estonia	4.8	4.8	4.5	4.0	4.9	3.7	5.0	3.8	3.7	2.1	5.9	3.3	0
139	08	Estonia	4.8	4.8	5.1	4.0	4.9	3.7	4.8	3.8	3.5	2.6	5.7	3.3	0
140	09	Estonia	4.7	4.4	4.9	4.0	5.4	4.4	4.7	3.5	3.5	2.5	5.5	3.7	0
140	10	Estonia	4.5	4.2	5.0	4.1	5.2	5.0	4.5	3.3	3.3	2.6	5.5	3.5	0
140	11	Estonia	4.1	3.9	5.4	4.5	4.9	4.3	4.1	2.9	3.0	2.9	5.5	3.9	0
143	12	Estonia	3.8	3.6	5.7	4.2	4.6	3.8	3.8	3.0	2.7	3.2	5.5	3.6	0
145	13	Estonia	3.5	3.3	5.9	3.9	4.3	3.5	3.8	3.0	2.4	2.9	5.5	3.3	0
111	06	Estonia	5.0	5.1	4.5	4.0	5.0	3.5	5.0	4.0	3.7	2.0	5.9	3.3	0

30	05	Ethiopia	8.7	8	6	7.3	9	8.5	7.9	5.5	6.3	9	8.9	6.0	1
26	06	Ethiopia	9.0	7.6	7.0	7.5	8.5	8.0	7.6	6.2	8.0	7.5	8.7	6.3	1
18	07	Ethiopia	9.0	7.9	7.8	7.5	8.6	8.0	7.9	7.0	8.5	7.5	8.9	6.7	1
16	08	Ethiopia	8.9	7.5	7.8	7.5	8.6	8.2	7.9	7.5	8.5	7.5	8.9	7.3	1
16	09	Ethiopia	9.4	8.0	8.2	7.7	8.8	8.3	7.9	8.2	8.5	7.5	8.8	7.6	1
17	10	Ethiopia	9.2	7.8	8.6	7.5	8.5	8.0	7.7	8.1	8.7	7.8	9.0	7.9	1
19	11	Ethiopia	9.1	8.2	8.4	7.2	8.2	7.7	7.5	8.4	8.5	7.9	9.0	8.1	1
17	12	Ethiopia	9.6	8.7	8.1	7.0	7.9	7.4	7.2	8.4	8.6	8.1	8.7	8.2	1
19	13	Ethiopia	9.7	8.7	8.6	6.7	7.6	7.7	7.3	8.7	8.7	8.4	8.7	8.1	1
89	07	Fiji	5.9	4.0	7.5	5.4	7.5	5.9	9.0	4.1	5.9	7.0	8.2	5.3	0
87	08	Fiji	5.9	4.0	7.5	6.0	7.5	5.9	8.7	4.4	5.9	7.0	8.2	5.6	0
81	09	Fiji	6.1	4.3	7.3	6.5	7.7	6.3	8.6	5.0	6.1	6.7	8.2	6.0	0
74	10	Fiji	5.9	4.2	7.4	6.6	7.5	6.7	8.9	5.5	6.7	6.8	8.2	6.1	0
68	11	Fiji	5.9	3.9	7.6	6.9	7.7	7.0	8.6	5.5	6.5	7.0	7.9	6.6	0
65	12	Fiji	5.1	3.3	7.6	7.3	7.7	7.0	8.8	5.2	7.0	7.0	7.9	6.6	0
68	13	Fiji	5.2	3.8	7.3	7.0	7.4	7.3	8.8	4.9	7.3	7.0	7.9	6.9	0
175	07	Finland	2.5	1.6	1.0	2.1	1.9	2.2	0.9	1.2	1.5	0.9	0.7	2.0	0
176	08	Finland	2.6	1.6	1.0	2.1	1.9	2.0	0.9	1.2	1.5	0.9	0.7	2.0	0
176	09	Finland	2.5	1.6	1.2	2.1	1.9	2.4	0.9	1.1	1.7	0.9	0.9	2.0	0
176	10	Finland	2.3	1.7	1.2	2.2	1.7	3.0	0.7	1.2	1.5	1.0	1.0	1.8	0
177	11	Finland	2.0	2.1	1.7	2.5	1.3	2.8	1.0	1.5	1.1	1.0	1.2	1.5	0
177	12	Finland	2.2	1.9	1.4	2.6	1.3	2.9	0.8	1.8	1.4	1.3	1.2	1.2	0
178	13	Finland	1.9	1.6	1.4	2.3	1.0	3.2	1.0	1.5	1.1	1.0	1.1	1.0	0
144	06	Finland	3.0	1.5	1.0	2.0	2.0	2.2	1.0	1.0	1.5	1.0	1.0	1.0	0
129	06	France	4.0	3.8	6.0	2.0	5.0	3.0	1.5	1.0	3.2	1.0	1.8	2.0	0
156	07	France	4.1	3.6	5.8	2.0	4.8	2.9	1.5	1.4	3.2	1.0	1.8	2.0	0
158	08	France	4.1	3.1	6.0	2.0	5.5	3.0	1.7	1.4	3.2	1.0	1.8	2.0	0
158	09	France	3.9	3.0	5.8	2.0	5.5	3.3	1.8	1.5	2.9	1.2	2.0	2.4	0
159	10	France	3.7	3.1	5.6	1.8	5.3	3.6	1.8	1.5	2.7	1.6	2.0	2.2	0
161	11	France	3.3	2.8	5.9	1.8	4.9	3.5	1.6	1.9	2.5	1.9	1.9	2.0	0
162	12	France	3.0	2.5	5.6	1.8	4.6	3.9	1.9	1.8	2.7	2.2	1.9	1.7	0
161	13	France	2.7	2.2	5.9	1.9	4.3	4.0	2.2	1.5	2.4	2.3	1.9	1.4	0
84	06	Gabon	6.0	5.4	3.0	6.0	7.9	5.0	7.9	7.5	6.2	5.5	7.5	5.7	0
98	07	Gabon	6.6	5.7	3.0	6.0	7.8	4.9	7.3	7.0	6.7	5.3	7.2	5.8	0
93	08	Gabon	6.9	6.2	3.0	6.0	8.1	5.2	7.5	7.0	6.5	5.6	7.2	5.8	0
99	09	Gabon	7.2	5.7	3.0	6.0	7.8	5.5	7.3	6.8	6.3	5.9	7.2	5.7	0
98	10	Gabon	7.0	5.9	3.0	6.4	7.9	5.9	7.8	6.6	6.4	5.7	7.2	5.5	0
92	11	Gabon	6.8	6.2	3.3	6.1	7.9	5.5	7.5	6.7	6.7	5.7	7.1	5.8	0
92	12	Gabon	6.5	5.9	3.3	5.8	7.6	5.7	7.8	6.9	6.8	5.7	7.1	5.5	0
100	13	Gabon	6.8	5.6	3.3	5.5	7.3	5.2	7.6	7.0	6.8	5.4	7.1	5.4	0
60	05	Gambia	7	7	5.4	4	9	6.7	8.1	7	7.9	6	8.3	6.0	0
83	06	Gambia	6.0	5.0	4.0	6.0	7.0	8.1	7.5	6.5	6.6	5.5	5.8	6.0	0
85	07	Gambia	6.4	5.2	4.2	6.0	7.0	8.0	7.9	6.6	6.8	5.8	5.9	6.2	0
83	08	Gambia	6.9	5.8	4.2	6.0	7.0	7.5	7.9	6.6	6.8	5.8	5.9	6.5	0
80	09	Gambia	7.2	5.7	4.4	6.4	7.0	7.4	7.8	7.1	6.9	6.0	6.2	6.9	0
75	10	Gambia	7.6	6.0	4.6	6.2	6.8	7.5	7.6	7.2	7.4	5.8	6.2	7.3	0

69	11	Gambia	7.9	6.4	4.0	6.5	6.6	7.1	7.5	7.0	7.5	6.1	6.8	7.5	0
63	12	Gambia	7.8	6.1	3.7	6.8	6.5	7.4	7.8	7.2	7.5	5.8	6.8	7.2	0
62	13	Gambia	7.7	6.4	3.7	7.1	6.8	7.8	7.6	7.5	8.0	5.5	6.8	6.9	0
58	07	Georgia	6.3	6.8	7.6	5.7	7.0	5.7	7.9	6.1	5.4	7.8	7.8	8.2	1
56	08	Georgia	6.3	6.8	8.1	5.7	6.9	5.4	8.4	5.9	5.9	7.7	8.3	8.4	1
33	09	Georgia	6.4	8.3	8.5	6.0	7.5	6.0	9.0	6.3	7.5	7.9	8.9	9.5	1
37	10	Georgia	6.2	7.8	8.4	5.8	7.2	6.5	9.0	6.4	7.3	8.0	9.1	8.7	1
47	11	Georgia	5.8	7.5	8.0	5.5	6.9	6.0	8.4	6.0	6.9	7.9	9.0	8.5	1
51	12	Georgia	5.5	7.2	8.3	5.2	6.6	6.3	8.5	5.7	6.7	7.6	9.1	8.2	1
55	13	Georgia	5.2	7.5	8.0	5.2	6.3	6.4	8.6	5.4	6.4	7.9	9.4	7.9	1
60	06	Georgia	6.0	6.8	7.4	6.1	7.0	5.5	7.7	6.3	5.6	8.1	7.1	8.6	0
153	07	Germany	3.9	4.8	4.9	3.0	5.5	3.0	2.3	1.7	2.9	2.5	1.8	2.1	0
155	08	Germany	3.9	4.3	4.9	2.8	5.3	2.8	2.3	1.9	2.7	2.5	1.8	2.1	0
157	09	Germany	3.5	3.9	4.9	2.8	4.9	3.2	2.3	1.9	2.5	2.1	1.8	2.4	0
157	10	Germany	3.3	4.0	4.7	2.6	4.7	3.6	2.1	1.7	2.3	2.2	2.0	2.2	0
162	11	Germany	2.9	4.2	4.7	2.6	4.4	2.9	1.9	2.0	2.0	2.2	2.1	2.0	0
164	12	Germany	2.5	3.9	4.4	2.5	4.1	2.6	1.7	1.8	2.0	2.5	2.1	1.7	0
165	13	Germany	2.4	3.6	4.3	2.2	3.9	2.6	1.4	1.8	1.9	2.2	2.0	1.4	0
124	06	Germany	4.0	5.0	4.9	3.0	6.2	3.2	2.3	1.8	2.9	2.5	1.8	2.1	0
124	07	Ghana	6.0	4.5	5.1	8.0	6.8	4.0	5.5	6.9	4.5	2.4	3.5	4.7	0
123	08	Ghana	6.8	5.0	5.1	8.0	6.8	5.0	5.5	6.9	4.5	2.4	3.9	4.7	0
124	09	Ghana	7.0	5.1	5.4	8.1	6.6	5.5	5.3	7.2	4.7	2.4	4.2	4.7	0
122	10	Ghana	7.1	5.3	5.2	7.9	6.4	5.8	5.1	7.6	4.7	2.6	4.2	5.2	0
115	11	Ghana	6.8	5.5	5.5	7.6	6.3	6.1	4.8	7.7	4.5	3.0	4.2	5.6	0
112	12	Ghana	6.7	5.2	5.2	7.6	6.2	6.0	4.8	7.6	4.5	3.3	4.7	5.7	0
110	13	Ghana	6.7	5.5	4.9	7.3	6.5	6.1	5.1	7.6	4.7	3.8	5.0	6.0	0
106	06	Ghana	5.5	4.5	5.0	8.0	6.8	4.0	5.5	6.8	4.4	2.0	3.5	4.5	0
146	07	Greece	4.7	2.0	3.5	5.4	5.0	3.5	4.0	3.1	3.9	3.1	1.6	3.7	0
147	08	Greece	4.9	2.6	4.3	5.0	5.0	3.7	4.0	3.6	3.9	3.1	1.6	3.7	0
147	09	Greece	4.5	2.7	4.4	4.7	4.8	4.0	4.5	3.9	3.6	3.5	2.0	3.5	0
147	10	Greece	4.5	2.8	4.2	4.5	4.6	4.3	4.6	3.7	3.4	3.4	2.4	3.5	0
143	11	Greece	4.1	2.6	4.5	4.4	4.3	5.1	4.9	3.8	3.1	3.8	2.5	4.3	0
138	12	Greece	3.8	2.3	4.8	4.7	4.6	5.9	5.4	4.2	3.3	4.0	2.5	4.8	0
138	13	Greece	4.3	2.0	4.8	4.4	4.3	6.4	5.4	3.9	3.0	3.9	3.0	5.1	0
121	06	Greece	5.0	1.4	3.5	5.5	5.0	3.5	4.0	3.0	3.0	2.0	1.5	3.7	0
104	07	Grenada	5.9	3.6	5.0	7.9	7.1	6.5	6.5	4.1	5.1	5.9	5.7	8.3	0
115	08	Grenada	5.7	3.0	4.9	7.9	7.1	5.8	6.5	4.1	4.9	5.4	5.7	8.0	0
119	09	Grenada	5.9	2.9	4.5	7.8	6.9	5.9	6.3	4.1	4.7	5.5	5.8	7.6	0
123	10	Grenada	5.8	2.9	4.2	7.6	6.7	6.1	6.4	3.9	4.6	5.4	5.8	7.6	0
119	11	Grenada	5.8	3.2	3.9	8.0	6.5	5.7	6.2	4.2	4.3	5.3	5.6	7.7	0
121	12	Grenada	5.5	2.9	3.9	8.2	6.2	6.0	6.2	3.9	4.0	5.3	5.6	7.4	0
120	13	Grenada	5.2	3.2	3.9	8.5	5.9	5.8	6.2	3.6	3.7	5.3	5.6	7.7	0
31	05	Guatemala	9	6	7.4	7.5	9	7.7	9.5	5	8.7	8.1	9.1	4.0	0
51	06	Guatemala	8.7	6.0	7.1	6.7	8.0	7.1	7.5	7.1	7.1	7.5	6.0	5.5	0
60	07	Guatemala	7.0	6.0	7.1	6.7	8.0	7.0	7.4	6.6	7.1	7.3	5.9	5.3	0
66	08	Guatemala	6.8	6.0	6.9	6.7	8.0	6.7	7.2	6.6	7.1	7.3	6.0	5.3	0

73	09	Guatemala	7.0	5.8	6.7	6.7	8.2	6.6	7.1	6.6	7.0	7.1	6.3	5.5	0
72	10	Guatemala	7.4	5.6	6.8	6.7	8.0	6.9	7.1	6.8	6.9	7.2	6.3	5.5	0
72	11	Guatemala	7.3	5.6	6.9	6.5	7.7	6.5	6.8	6.9	6.9	7.6	6.0	5.3	0
70	12	Guatemala	7.0	5.9	7.1	6.8	7.6	6.1	6.8	6.7	6.7	7.3	6.0	5.4	0
70	13	Guatemala	7.3	6.0	7.3	7.1	8.1	6.1	6.9	6.9	6.6	7.0	6.0	5.4	0
16	05	Guinea	9	6	6.1	10	9	4.5	9.7	7.5	8.1	8.1	9.2	7.5	0
11	06	Guinea	7.5	7.2	8.1	8.4	8.0	8.0	9.1	9.0	8.1	8.1	9.0	8.5	0
9	07	Guinea	7.8	7.4	8.1	8.3	8.5	8.5	9.6	8.9	8.6	8.1	9.0	8.5	0
11	08	Guinea	7.9	7.4	8.5	8.3	8.6	8.6	9.7	9.0	8.9	8.4	8.6	7.9	0
9	09	Guinea	8.5	7.1	8.2	8.6	8.9	8.7	9.8	9.2	9.0	9.4	9.2	8.0	0
9	10	Guinea	8.3	7.5	8.2	8.6	8.7	8.9	9.8	9.0	9.5	9.4	9.3	7.8	0
11	11	Guinea	8.2	7.7	7.9	8.3	8.4	8.6	9.4	8.7	9.2	9.3	9.2	7.6	0
12	12	Guinea	8.3	8.0	7.9	8.0	8.1	8.9	9.5	8.6	8.7	9.4	9.2	7.3	0
14	13	Guinea	8.4	8.2	7.6	7.7	8.2	9.2	9.8	8.9	8.4	9.1	8.9	7.0	0
38	07	Guinea Bissau	7.6	6.5	5.4	7.0	8.6	8.0	7.2	8.5	8.0	8.0	6.8	7.2	0
32	08	Guinea Bissau	8.0	6.5	5.4	7.0	8.6	8.2	7.9	8.5	8.0	8.4	7.1	7.7	0
27	09	Guinea Bissau	8.6	6.5	5.8	7.0	8.5	8.5	8.6	8.7	8.0	8.5	8.0	8.1	0
19	11	Guinea Bissau	8.7	7.2	5.4	7.4	8.1	8.7	9.2	8.4	7.8	9.3	9.2	8.8	0
15	12	Guinea Bissau	8.7	7.5	5.7	7.7	7.8	9.0	9.3	8.5	7.5	9.4	9.2	8.9	0
15	13	Guinea Bissau	8.4	7.8	5.7	8.0	8.1	8.7	9.7	8.8	7.6	9.5	9.7	9.0	0
46	06	Guinea-Bissau	7.0	4.9	5.5	7.0	9.3	7.4	7.8	8.0	7.9	7.5	6.5	6.6	0
22	10	Guinea-Bissau	8.5	6.8	5.8	7.1	8.4	8.3	9.1	8.8	8.1	8.9	8.9	8.5	0
98	07	Guyana	6.9	4.1	5.4	7.9	8.1	6.8	6.4	5.7	5.6	5.9	4.9	5.6	0
105	08	Guyana	6.3	3.6	5.7	7.9	7.8	6.4	6.4	5.7	5.4	6.7	5.1	5.2	0
104	09	Guyana	6.3	3.5	6.1	7.9	7.9	6.6	6.7	5.5	5.4	6.8	5.1	5.2	0
102	10	Guyana	6.1	3.6	6.2	8.0	7.7	6.9	6.8	5.3	5.2	6.6	5.1	5.5	0
99	11	Guyana	6.4	3.6	5.9	8.4	7.4	6.4	6.5	5.5	5.0	6.3	5.1	6.0	0
104	12	Guyana	6.1	3.5	6.2	8.6	7.1	6.1	6.5	5.7	4.7	6.1	5.1	5.7	0
107	13	Guyana	5.8	3.8	5.9	8.5	6.8	6.6	6.2	6.0	4.4	5.8	5.1	5.9	0
10	05	Haiti	8.8	8	7.7	3.4	9	8.1	9.4	9.8	8.7	7.8	8.5	10.0	0
8	06	Haiti	8.8	5.0	8.8	8.0	8.3	8.4	9.4	9.3	9.6	9.4	9.6	10.0	0
11	07	Haiti	8.6	4.2	8.0	8.0	8.2	8.4	9.2	9.0	9.1	9.3	9.3	9.6	0
14	08	Haiti	8.5	4.2	8.0	8.0	8.2	8.3	9.0	8.8	8.9	8.9	8.9	9.6	0
12	09	Haiti	9.3	5.8	7.3	8.6	8.2	8.9	9.2	9.5	8.5	8.4	8.3	9.8	0
11	10	Haiti	9.3	5.6	7.3	8.6	8.3	9.2	9.3	9.5	8.3	8.2	8.4	9.6	0
5	11	Haiti	10.0	9.2	7.3	8.9	8.8	9.2	9.4	10.0	8.0	8.4	8.8	10.0	0
7	12	Haiti	9.5	8.1	7.0	8.8	8.6	9.5	9.3	9.3	7.7	8.2	9.0	9.7	0
8	13	Haiti	9.6	8.6	7.0	9.1	9.1	9.7	8.8	9.6	7.6	7.9	9.0	9.9	0
41	05	Honduras	9	6	5.3	9.7	9	5.4	9.9	3	7.2	8	9.1	6.0	0
75	06	Honduras	8.8	2.1	5.3	6.0	9.0	7.6	7.5	6.9	5.6	6.0	6.4	5.5	0
93	07	Honduras	7.8	2.0	5.3	6.0	8.7	7.6	7.4	6.6	5.8	5.9	6.3	5.4	0
94	08	Honduras	7.2	2.0	5.3	6.5	8.7	7.2	7.4	6.6	6.1	6.2	6.3	5.4	0
90	09	Honduras	7.8	4.0	5.0	6.3	8.5	7.2	7.0	7.1	6.3	6.0	6.1	5.9	0
76	10	Honduras	7.6	4.1	5.0	6.5	8.3	7.5	7.5	6.9	6.3	7.0	6.8	6.5	0
78	11	Honduras	7.6	3.9	5.3	6.6	8.1	7.0	7.3	6.6	6.3	6.5	6.3	6.9	0
75	12	Honduras	7.3	3.6	5.6	6.9	8.1	7.2	7.0	6.7	6.2	7.0	6.3	6.6	0

75	13	Honduras	7.0	3.9	5.8	6.6	8.1	6.9	6.9	6.8	6.3	6.8	6.3	6.9	0
116	06	Hungary	3.7	3.6	3.0	5.0	6.4	4.0	3.8	4.2	4.0	2.0	3.0	4.0	0
138	07	Hungary	3.7	3.6	3.0	5.0	6.3	4.1	6.0	3.8	4.0	2.1	5.5	4.1	0
140	08	Hungary	3.7	3.4	3.4	5.0	6.1	4.3	5.7	3.8	4.0	1.9	5.3	4.3	0
141	09	Hungary	3.5	3.0	3.4	5.0	6.1	5.0	5.5	3.8	3.5	2.1	5.0	4.8	0
141	10	Hungary	3.3	3.1	3.2	4.8	5.9	5.4	5.7	3.6	3.3	2.2	5.0	4.6	0
142	11	Hungary	3.1	3.1	3.5	4.5	5.5	5.4	5.4	3.7	3.0	2.5	4.7	4.3	0
141	12	Hungary	2.8	2.8	3.8	4.2	5.2	5.9	5.8	3.4	3.2	2.6	4.7	4.0	0
141	13	Hungary	2.5	2.9	4.1	3.9	4.9	6.0	5.9	3.1	3.4	2.3	4.8	3.8	0
170	07	Iceland	1.0	0.9	1.0	3.2	2.5	3.5	1.3	1.3	2.1	1.0	0.8	2.5	0
172	08	Iceland	1.0	0.9	1.0	3.2	2.8	3.0	1.3	1.3	2.1	1.0	0.8	2.5	0
165	09	Iceland	1.0	0.9	1.0	3.2	2.5	6.7	2.2	1.4	2.1	1.0	2.0	5.0	0
165	10	Iceland	0.8	1.1	1.0	3.0	2.3	7.2	2.0	1.5	1.9	1.1	2.0	5.9	0
165	11	Iceland	1.6	1.5	1.0	3.3	2.2	6.2	2.0	1.9	1.6	1.0	1.8	6.0	0
166	12	Iceland	1.9	1.3	1.0	3.1	1.9	5.7	1.7	1.9	1.6	1.3	1.8	5.7	0
171	13	Iceland	1.6	1.6	1.0	2.8	1.7	3.7	1.4	1.6	1.3	1.0	1.8	5.2	0
76	05	India	8	6.2	5.4	6.7	9	5.8	4	5.1	5.9	2.4	6.8	4.2	1
93	06	India	8.8	2.8	6.9	7.1	8.5	5.0	4.8	6.7	5.4	4.5	5.7	4.2	1
109	07	India	8.3	3.2	7.0	7.1	8.9	4.6	4.8	6.7	5.4	5.0	5.6	4.2	1
98	08	India	8.0	3.2	7.0	6.9	8.9	4.6	4.8	6.7	6.0	6.6	6.0	4.2	1
87	09	India	8.3	4.9	7.3	6.7	8.9	5.0	5.5	7.0	6.0	7.1	6.0	5.1	1
79	10	India	8.1	5.2	7.8	6.5	8.7	5.1	5.8	7.2	6.1	7.6	6.2	4.9	1
76	11	India	8.0	5.0	8.2	6.2	8.5	5.4	5.8	7.2	5.9	7.8	6.8	4.5	1
78	12	India	7.3	5.5	7.9	5.9	8.4	5.5	5.5	6.9	5.8	7.5	6.8	5.0	1
79	13	India	7.5	5.2	8.2	5.4	8.1	5.4	5.2	6.7	5.9	7.8	6.8	5.2	1
47	05	Indonesia	8.6	7	6.3	8.9	9	4	9.2	4	8.6	7.6	8.8	5.0	1
32	06	Indonesia	7.5	8.2	6.3	8.3	8.0	6.8	6.7	7.2	7.5	7.5	7.9	7.3	1
55	07	Indonesia	7.0	7.5	6.0	7.5	8.0	6.5	6.5	7.0	7.0	7.3	7.2	6.9	1
60	08	Indonesia	7.0	7.3	5.9	7.5	8.0	6.3	6.8	6.7	6.8	7.1	7.0	6.9	1
61	09	Indonesia	7.3	6.7	6.3	7.2	8.1	6.9	6.7	6.7	6.7	7.3	7.3	6.9	1
61	10	Indonesia	7.2	6.5	6.3	7.3	7.9	6.7	6.9	6.7	6.5	7.3	7.1	6.7	1
64	11	Indonesia	7.4	6.6	6.6	6.9	7.5	6.4	6.7	6.5	6.3	7.1	7.0	6.5	1
63	12	Indonesia	7.4	6.3	7.1	6.6	7.2	6.0	6.7	6.2	6.8	7.1	7.0	6.2	1
77	13	Indonesia	7.5	6.0	7.3	6.3	6.9	5.5	6.4	6.1	6.5	6.8	7.0	5.9	1
57	05	Iran	5	8	7.3	6	9	3.3	9.1	4.8	8.8	7.3	9.1	6.1	1
52	06	Iran	6.5	8.7	6.9	5.0	7.5	3.0	8.1	6.1	9.1	8.0	8.8	6.3	1
57	07	Iran	6.2	8.6	7.1	5.0	7.2	3.3	7.8	5.7	8.7	8.3	8.9	6.0	1
49	08	Iran	6.5	8.7	7.3	5.0	7.4	4.3	8.0	5.8	8.7	8.5	9.0	6.5	1
38	09	Iran	6.5	8.5	7.6	6.8	7.4	5.5	8.3	6.0	8.9	8.6	9.1	6.8	1
32	10	Iran	6.4	8.3	8.1	7.1	7.3	5.5	9.0	5.9	9.4	8.9	9.5	6.8	1
35	11	Iran	6.1	7.9	8.5	6.7	7.0	5.4	9.1	5.6	9.0	8.6	9.2	7.0	1
34	12	Iran	5.8	7.6	8.6	6.4	6.7	6.4	8.8	5.3	8.9	8.3	9.3	7.4	1
37	13	Iran	5.5	7.3	8.8	6.1	6.7	6.5	8.9	5.0	9.4	8.6	9.4	7.5	1
4	05	Iraq	8	9.4	8.3	6.3	8.7	8.2	8.8	8.9	8.2	8.4	10	10.0	1
4	06	Iraq	8.9	8.3	9.8	9.1	8.7	8.2	8.5	8.3	9.7	9.8	9.7	10.0	1
2	07	Iraq	9.0	9.0	10.0	9.5	8.5	8.0	9.4	8.5	9.7	10.0	9.8	10.0	1

5	08	Iraq	9.0	9.0	9.8	9.3	8.5	7.8	9.4	8.5	9.6	9.9	9.8	10.0	1
6	09	Iraq	8.7	8.9	9.7	9.1	8.6	7.6	9.0	8.4	9.3	9.7	9.6	10.0	1
7	10	Iraq	8.5	8.7	9.3	9.3	8.8	7.6	9.0	8.4	9.1	9.5	9.6	9.5	1
9	11	Iraq	8.3	9.0	9.0	8.9	9.0	7.0	8.7	8.0	8.6	9.5	9.6	9.3	1
9	12	Iraq	8.0	8.5	9.7	8.6	8.7	7.7	8.4	7.8	8.3	9.9	9.6	9.0	1
11	13	Iraq	8.3	8.8	10.0	8.3	8.4	7.3	8.6	7.6	8.6	10.0	9.6	8.5	1
173	07	Ireland	1.6	1.5	1.0	2.1	2.9	2.1	1.5	1.8	1.5	1.0	1.0	1.5	0
174	08	Ireland	1.9	1.5	1.0	2.0	3.0	2.0	1.5	2.0	1.5	1.0	1.0	1.5	0
173	09	Ireland	1.9	1.5	1.0	2.0	3.0	2.7	1.8	2.3	1.5	1.1	1.3	1.5	0
173	10	Ireland	2.0	1.6	1.0	2.0	2.8	3.3	1.6	2.4	1.5	1.4	1.5	1.3	0
171	11	Ireland	2.3	2.0	1.3	2.4	2.6	3.9	2.0	2.2	1.2	1.6	1.4	2.4	0
170	12	Ireland	2.5	1.7	1.6	3.0	2.7	3.8	2.2	2.2	1.3	1.7	1.4	2.4	0
170	13	Ireland	2.2	1.4	1.6	2.8	2.5	3.9	1.9	1.9	1.3	1.8	1.3	2.2	0
143	06	Ireland	2.0	1.4	1.0	2.0	3.0	1.9	1.5	1.3	1.5	1.0	1.0	1.0	0
67	06	Israel	7.0	8.5	9.0	3.5	7.0	3.8	7.3	7.0	7.0	4.8	7.5	7.0	1
74	07	Israel	7.0	7.9	9.0	3.5	6.9	3.7	7.3	7.0	7.4	5.3	7.2	7.4	1
58	08	Israel	7.2	8.1	9.0	3.8	7.5	3.9	7.5	7.2	7.9	5.5	8.0	8.0	1
56	09	Israel	7.2	8.0	9.3	4.0	7.5	4.1	7.5	7.0	8.0	6.0	8.0	8.0	1
54	10	Israel	7.0	7.8	9.5	3.8	7.7	4.4	7.3	6.8	7.8	6.5	8.2	7.8	1
53	11	Israel	6.8	7.6	9.6	3.8	7.8	4.3	7.3	6.5	7.9	7.0	8.1	7.8	1
61	12	Israel	6.5	7.3	9.5	3.5	7.8	4.0	7.0	6.2	7.9	6.8	8.1	7.6	1
67	13	Israel	6.2	7.4	9.8	3.2	7.5	3.7	6.7	5.9	7.6	7.1	8.1	7.7	1
155	07	Italy	3.6	3.5	3.5	3.0	4.5	3.8	3.7	2.0	1.8	2.5	3.2	2.0	0
154	08	Italy	3.7	3.5	4.0	3.0	4.5	3.8	3.8	2.5	2.1	3.7	3.3	2.0	0
150	09	Italy	3.8	3.7	4.5	3.0	4.7	4.4	4.3	2.8	2.6	4.0	3.7	2.4	0
149	10	Italy	4.0	3.9	4.8	2.8	4.5	4.7	4.5	3.1	3.0	4.2	4.0	2.2	0
147	11	Italy	3.6	3.5	5.3	3.2	4.1	4.2	4.7	2.8	3.1	4.9	4.4	2.0	0
145	12	Italy	3.3	3.6	5.0	2.9	3.8	4.6	5.0	2.7	3.2	4.9	4.8	2.0	0
147	13	Italy	3.8	3.3	4.7	2.6	3.6	4.8	4.7	2.4	2.9	5.0	4.8	2.0	0
127	06	Italy	3.5	2.8	3.5	3.0	4.5	4.0	3.2	1.5	1.8	2.5	2.8	2.0	0
122	07	Jamaica	6.1	2.4	4.3	6.7	6.7	5.4	7.0	5.8	5.4	5.6	3.7	6.0	0
121	08	Jamaica	6.1	2.4	4.3	6.5	6.5	6.0	6.9	6.0	5.4	5.6	4.0	6.0	0
117	09	Jamaica	6.4	2.7	4.5	6.3	6.7	6.6	7.0	6.4	5.7	6.0	4.0	6.3	0
119	10	Jamaica	6.0	2.8	4.5	6.4	6.5	6.8	6.8	6.2	5.5	5.8	4.0	6.1	0
118	11	Jamaica	6.2	3.4	4.3	6.7	6.2	6.3	6.5	5.9	5.3	6.3	3.7	6.3	0
119	12	Jamaica	5.9	3.1	4.0	7.0	6.2	6.6	6.4	5.6	5.2	6.2	3.7	6.0	0
118	13	Jamaica	5.6	3.4	4.0	7.2	5.9	6.6	6.1	5.7	5.0	6.3	3.7	6.3	0
97	06	Jamaica	6.5	2.5	4.5	6.7	6.5	5.0	7.0	6.5	5.6	6.0	3.9	6.1	0
163	07	Japan	4.1	1.1	3.8	2.0	2.5	2.6	1.8	1.2	3.5	1.0	1.3	3.6	0
163	08	Japan	4.3	1.1	3.8	2.0	2.5	2.3	1.8	1.2	3.4	2.0	1.7	3.6	0
164	09	Japan	4.2	1.1	3.8	2.0	2.5	3.1	2.0	1.2	3.4	2.0	2.0	3.9	0
164	10	Japan	4.0	1.2	3.6	2.1	2.6	3.5	1.8	1.3	3.2	2.1	2.2	3.7	0
164	11	Japan	3.6	1.1	3.9	1.8	2.3	3.5	2.0	1.7	3.0	2.0	2.6	3.5	0
151	12	Japan	8.3	4.0	3.8	2.1	2.0	4.0	2.5	5.0	3.2	2.0	2.6	4.0	0
156	13	Japan	5.4	3.7	3.8	2.0	1.8	3.7	2.2	2.5	3.0	1.7	2.6	3.7	0
135	06	Japan	4.0	1.0	3.8	2.0	2.5	2.6	1.8	1.0	3.0	1.0	1.3	4.0	0

81	07	Jordan	6.2	6.8	6.5	5.0	7.7	6.6	6.2	5.6	6.2	6.4	6.5	6.9	0
82	08	Jordan	6.7	7.8	6.5	4.7	7.5	6.6	6.0	5.6	6.7	6.0	6.5	6.7	0
86	09	Jordan	6.7	7.9	6.8	5.0	7.4	6.5	6.0	5.4	6.9	6.0	6.5	6.8	0
90	10	Jordan	6.8	7.9	6.9	4.8	7.2	6.2	5.9	5.2	7.0	5.9	6.5	6.7	0
95	11	Jordan	6.4	7.6	6.7	4.7	6.9	5.8	5.7	4.9	6.8	6.0	6.3	6.8	0
90	12	Jordan	6.5	7.3	7.0	4.4	6.8	6.4	6.3	4.6	7.1	5.7	6.3	6.5	0
87	13	Jordan	6.7	7.8	7.1	4.2	6.5	6.5	6.5	4.3	7.4	5.8	6.8	6.2	0
74	06	Jordan	6.0	6.8	6.0	5.0	7.6	6.5	6.8	5.8	6.1	6.8	6.6	7.0	0
68	05	Kazakhstan	9	5	7.2	3.8	9	2.5	9.1	5	8.1	6	9.6	4.0	0
88	06	Kazakhstan	5.0	2.9	5.1	4.0	6.2	6.5	7.5	6.7	7.0	6.7	7.7	6.6	0
102	07	Kazakhstan	5.7	3.0	5.2	4.0	6.2	6.6	7.5	6.1	7.0	6.7	7.7	6.6	0
101	08	Kazakhstan	6.2	3.6	5.2	4.0	6.5	6.0	7.7	5.5	6.8	6.5	7.8	6.6	0
105	09	Kazakhstan	6.0	3.9	5.5	4.0	6.4	6.4	7.7	5.3	6.8	6.5	7.6	6.4	0
103	10	Kazakhstan	5.8	4.0	5.7	4.1	6.2	6.7	7.5	5.5	7.1	6.3	7.6	6.2	0
107	11	Kazakhstan	5.5	3.8	6.0	3.8	5.9	6.2	7.2	5.1	6.9	6.2	7.7	5.9	0
107	12	Kazakhstan	5.6	3.5	6.5	3.5	5.6	6.5	7.5	5.4	7.1	6.3	7.7	5.6	0
109	13	Kazakhstan	5.3	3.8	6.2	3.6	5.3	6.2	7.8	5.1	7.1	6.4	7.7	5.3	0
25	05	Kenya	9	8	6.7	8.3	8.8	6.3	8.9	7.4	8.5	8.4	8.4	4.0	0
33	06	Kenya	9.0	7.1	6.7	8.0	8.0	6.8	7.3	7.2	6.9	7.0	7.6	7.0	0
31	07	Kenya	8.4	8.0	6.9	8.0	8.1	7.0	8.0	7.4	7.0	7.1	8.2	7.2	0
26	08	Kenya	8.7	8.5	7.6	8.0	8.1	6.9	8.2	7.4	7.2	7.1	8.4	7.3	0
14	09	Kenya	9.0	9.0	8.6	8.3	8.8	7.5	9.0	8.0	8.2	8.0	8.8	8.2	0
13	10	Kenya	9.1	8.7	8.9	7.9	8.7	7.4	9.3	8.1	8.0	7.5	8.7	8.4	0
16	11	Kenya	8.8	8.5	8.7	7.6	8.5	7.0	8.9	7.8	7.7	7.9	8.8	8.5	0
16	12	Kenya	8.9	8.4	8.9	7.7	8.2	7.3	8.6	8.1	7.4	7.6	9.0	8.4	0
17	13	Kenya	9.1	8.7	9.0	7.8	8.3	7.6	8.3	8.1	7.1	8.1	9.0	8.5	0
123	07	Kuwait	5.9	4.8	4.5	4.1	6.1	3.1	6.9	3.3	6.5	5.3	7.6	4.0	0
126	08	Kuwait	5.5	4.4	4.7	4.1	6.1	2.9	6.7	3.3	7.0	5.1	6.9	5.3	0
125	09	Kuwait	5.7	4.2	5.1	4.3	6.1	3.5	6.5	3.5	6.9	5.1	7.2	5.3	0
125	10	Kuwait	5.5	4.1	5.1	4.1	6.1	3.8	6.0	3.1	6.5	4.9	7.2	5.1	0
128	11	Kuwait	5.1	3.8	4.9	4.3	5.9	4.0	5.7	2.9	6.2	4.5	7.2	5.0	0
128	12	Kuwait	4.9	3.5	4.6	4.0	5.6	3.7	6.5	2.9	6.5	4.7	7.2	4.7	0
127	13	Kuwait	5.1	3.8	4.6	3.7	5.3	3.4	7.6	2.6	6.8	4.4	7.9	4.4	0
105	06	Kuwait	5.7	4.5	4.5	4.0	6.0	2.8	6.8	3.0	6.5	5.5	7.5	4.0	0
65	05	Kyrgyzstan	8	5	5.4	4.3	9	5.8	8.9	5.7	7.9	5	9.7	5.7	0
28	06	Kyrgyzstan	8.0	6.6	7.0	7.5	8.0	7.5	8.3	7.3	7.9	8.3	7.9	6.0	0
41	07	Kyrgyzstan	7.5	6.2	6.8	7.4	8.0	7.5	8.2	6.3	7.9	7.9	7.5	7.0	0
39	08	Kyrgyzstan	7.5	5.8	6.8	7.4	8.0	7.5	8.4	6.5	7.9	8.1	7.5	7.4	0
42	09	Kyrgyzstan	8.0	5.3	7.2	7.5	8.3	7.6	8.3	6.5	7.6	7.7	7.3	7.8	0
45	10	Kyrgyzstan	7.8	5.2	7.4	7.3	7.9	7.9	8.4	6.3	7.6	7.6	7.4	7.6	0
31	11	Kyrgyzstan	7.6	6.5	8.3	7.0	7.6	7.6	9.0	6.0	8.0	8.0	8.3	7.9	0
41	12	Kyrgyzstan	6.5	5.3	8.4	6.7	7.3	7.9	8.7	5.4	7.8	7.4	8.3	7.6	0
48	13	Kyrgyzstan	6.2	5.6	8.4	6.4	7.0	7.6	8.4	5.9	7.6	7.4	8.0	7.3	0
28	05	Laos	9	6.7	6.3	8.8	9	6.5	7.9	2.5	9.4	9	9.7	6.7	0
39	06	Laos	8.0	5.9	6.3	6.6	5.9	6.5	7.9	8.0	8.2	9.0	8.9	6.7	0
44	07	Laos	8.0	5.5	6.5	6.6	5.7	7.1	7.9	8.0	8.5	8.2	8.6	6.6	0

40	08	Laos	8.0	5.7	6.8	6.6	5.7	7.1	8.2	8.0	8.9	8.2	8.6	6.9	0
43	09	Laos	8.2	5.9	7.0	6.6	6.0	7.5	8.2	8.0	8.5	7.6	8.3	7.2	0
40	10	Laos	7.9	5.9	6.8	6.7	5.8	7.3	8.3	8.1	8.7	7.4	8.5	7.3	0
46	11	Laos	7.6	5.8	6.5	6.8	5.7	7.2	8.0	7.7	8.5	7.1	8.6	7.2	0
48	12	Laos	7.8	5.5	6.3	7.1	5.8	6.7	8.3	7.4	8.2	6.9	8.6	6.9	0
58	13	Laos	7.5	5.8	6.1	6.8	6.1	5.7	8.6	7.3	8.3	6.6	8.3	6.6	0
109	06	Latvia	5.7	5.9	4.5	5.0	7.0	5.5	4.8	4.0	3.7	2.0	4.1	4.0	0
134	07	Latvia	5.2	5.7	4.6	5.0	7.0	5.8	4.7	4.0	3.8	2.2	4.4	4.3	0
136	08	Latvia	4.9	4.9	4.6	5.0	6.0	5.0	4.7	4.2	3.8	3.0	4.4	4.0	0
136	09	Latvia	4.5	4.5	4.5	5.0	6.2	5.5	5.1	4.4	3.7	2.9	4.3	4.0	0
135	10	Latvia	4.3	4.3	4.6	5.0	6.0	6.3	5.4	4.2	3.5	3.0	4.3	4.5	0
135	11	Latvia	4.2	3.9	4.9	4.8	5.7	5.8	5.3	3.9	3.6	3.3	4.3	4.4	0
136	12	Latvia	3.9	3.6	5.2	4.5	5.4	5.3	4.8	3.7	3.5	3.6	4.3	4.1	0
140	13	Latvia	3.6	3.3	5.4	4.2	4.9	4.0	4.5	3.4	3.2	3.3	4.3	3.8	0
37	05	Lebanon	8	8	7.5	7.1	7	4.7	8.7	4.3	7.3	8.1	9.2	9.0	0
65	06	Lebanon	6.8	4.3	7.8	7.0	6.8	5.3	6.4	5.0	6.8	7.5	8.3	8.5	0
28	07	Lebanon	6.9	8.6	9.0	7.0	7.1	6.3	7.3	6.4	7.0	9.0	8.8	9.0	0
18	08	Lebanon	7.2	9.0	9.4	7.1	7.4	6.3	8.0	6.7	7.0	9.3	9.4	8.9	0
29	09	Lebanon	7.0	9.0	9.2	7.2	7.4	6.3	7.8	6.2	6.9	9.1	9.1	8.3	0
34	10	Lebanon	6.8	8.9	9.0	7.0	7.2	6.1	7.3	6.0	6.8	8.9	8.8	8.1	0
43	11	Lebanon	6.5	8.5	8.7	6.6	6.8	5.7	7.0	5.8	6.6	8.7	8.8	8.0	0
45	12	Lebanon	6.2	8.2	8.4	6.3	6.5	5.5	7.5	5.5	6.5	8.4	9.1	7.7	0
46	13	Lebanon	6.3	8.5	8.5	6.0	6.2	5.3	7.2	5.6	6.8	8.5	9.2	8.2	0
62	07	Lesotho	9.0	4.5	5.5	5.4	5.5	9.1	7.5	8.9	6.7	6.2	6.7	6.2	0
61	08	Lesotho	9.1	4.6	5.6	6.0	5.6	8.2	7.6	8.5	6.8	6.3	6.9	6.5	0
67	09	Lesotho	9.4	4.7	5.2	6.5	5.6	8.4	7.4	8.7	6.5	5.5	6.9	7.0	0
67	10	Lesotho	9.2	4.8	5.2	6.7	5.7	8.7	7.2	8.5	6.3	5.9	7.2	6.8	0
71	11	Lesotho	9.0	4.6	5.0	6.8	6.1	8.1	6.9	8.2	6.0	5.5	7.0	7.2	0
72	12	Lesotho	8.7	4.6	4.7	6.5	6.4	8.6	6.3	8.0	5.7	5.5	7.0	6.9	0
71	13	Lesotho	8.8	4.9	4.7	6.8	6.7	8.5	6.0	8.2	5.4	5.2	7.0	7.2	0
9	05	Liberia	9	7.8	7.3	8.1	9	10	7.5	8.2	8.2	6.5	7.9	10.0	0
11	06	Liberia	8.0	9.3	7.0	7.1	8.6	8.9	7.8	9.0	7.2	7.3	8.8	10.0	0
27	07	Liberia	8.1	8.5	6.5	6.8	8.3	8.4	7.0	8.6	6.7	6.9	8.1	9.0	0
34	08	Liberia	8.1	8.4	6.0	6.5	8.3	8.3	7.0	8.5	6.7	6.7	7.9	8.6	0
33	09	Liberia	8.6	8.0	6.1	6.8	8.5	8.2	7.0	8.5	6.7	6.9	7.9	8.6	0
33	10	Liberia	8.4	8.2	6.3	6.7	8.3	8.0	7.1	8.5	6.5	6.7	8.1	8.9	0
26	11	Liberia	8.3	8.6	6.8	7.0	8.0	8.4	7.0	8.8	6.3	7.3	8.1	9.3	0
25	12	Liberia	8.4	8.9	6.5	6.7	7.7	8.6	6.9	8.8	6.1	7.0	8.4	9.3	0
24	13	Liberia	8.8	9.2	6.5	7.0	8.0	8.3	6.6	9.1	6.4	7.1	8.3	9.8	0
63	05	Libya	7	8	6.7	7.1	9	3.1	8.7	3	8.7	8	8.4	3.0	1
95	06	Libya	6.0	2.1	5.5	4.0	7.3	5.1	7.5	4.5	8.1	5.5	7.9	5.0	1
114	07	Libya	6.2	2.6	5.6	4.0	7.3	5.3	7.4	4.5	8.1	5.3	8.0	5.0	1
111	08	Libya	6.2	4.0	5.6	4.0	7.3	5.3	7.4	4.5	8.1	5.6	7.0	5.0	1
112	09	Libya	5.9	4.2	5.8	4.0	7.1	5.5	7.1	4.2	8.1	5.4	7.1	5.0	1
111	10	Libya	5.7	4.3	5.8	4.2	6.9	5.3	7.3	4.2	8.3	5.2	7.1	4.8	1
111	11	Libya	5.5	4.6	6.0	3.9	6.9	4.6	7.3	4.3	8.3	5.9	7.0	4.4	1

50	12	Libya	5.8	5.1	7.0	3.9	7.0	5.5	8.1	7.6	9.0	9.0	8.0	9.0	1
54	13	Libya	5.5	5.4	7.4	4.2	6.7	5.0	8.4	7.3	9.0	8.9	8.0	8.8	1
113	06	Lithuania	5.7	3.5	3.5	5.5	6.1	4.5	4.1	4.1	3.7	2.0	3.0	4.0	0
142	07	Lithuania	5.4	3.4	3.5	5.4	6.2	4.5	4.2	3.7	3.7	2.0	3.0	4.0	0
143	08	Lithuania	4.9	3.1	3.9	5.4	6.2	4.5	4.4	3.5	3.5	2.0	3.0	4.3	0
145	09	Lithuania	4.5	2.8	4.2	5.2	6.2	4.7	4.1	3.4	3.5	2.1	3.0	4.3	0
146	10	Lithuania	4.3	2.9	4.0	5.0	6.0	5.7	3.9	3.2	3.3	2.2	3.2	4.1	0
149	11	Lithuania	4.1	3.2	3.7	4.6	5.7	5.3	3.6	2.9	3.1	2.5	2.8	3.8	0
149	12	Lithuania	3.8	2.9	4.0	4.4	5.4	5.0	3.5	3.1	2.9	2.8	2.8	3.5	0
150	13	Lithuania	3.8	2.9	3.7	4.1	5.2	4.5	3.8	3.4	2.9	2.5	3.0	3.2	0
164	07	Luxembourg	2.1	1.8	3.7	1.2	2.5	2.0	3.3	2.6	1.6	2.0	3.0	2.3	0
165	08	Luxembourg	2.1	1.8	3.7	1.2	2.5	1.8	3.3	2.6	1.6	2.0	3.0	2.3	0
167	09	Luxembourg	2.1	1.5	3.2	1.2	2.5	2.2	2.9	2.4	1.5	2.0	3.6	2.5	0
168	10	Luxembourg	1.9	1.7	3.2	1.2	2.3	2.8	2.7	2.2	1.3	2.1	3.6	2.3	0
170	11	Luxembourg	1.7	2.1	2.8	1.5	2.0	2.3	2.5	1.9	1.0	2.3	3.4	2.6	0
172	12	Luxembourg	2.0	2.1	2.8	1.8	1.8	1.8	2.2	1.6	1.3	2.3	3.4	2.3	0
172	13	Luxembourg	1.7	1.8	2.8	2.1	1.5	1.5	1.9	1.3	1.0	2.3	3.4	2.0	0
94	07	Macedonia	5.4	4.7	7.1	7.0	7.4	5.9	7.3	5.1	5.3	6.1	6.4	6.4	0
95	08	Macedonia	5.4	4.6	7.4	7.0	7.4	6.0	7.6	5.1	5.3	5.8	6.6	6.4	0
99	09	Macedonia	5.0	4.6	7.5	6.9	7.3	6.3	7.4	4.8	5.3	5.8	6.7	6.8	0
103	10	Macedonia	4.8	4.6	7.6	6.7	7.1	6.6	6.9	4.6	5.1	5.6	6.5	6.6	0
106	11	Macedonia	4.5	4.6	7.4	6.7	6.8	6.2	6.7	4.2	5.0	6.0	6.7	6.2	0
109	12	Macedonia	4.2	4.9	7.6	6.4	6.5	5.9	6.4	4.2	4.6	5.7	6.7	5.9	0
112	13	Macedonia	3.9	5.2	7.8	6.1	6.2	5.9	6.1	3.9	4.3	6.0	7.0	5.6	0
78	06	Macedonia	5.7	5.1	7.1	7.0	7.5	6.0	7.2	5.6	5.3	6.1	6.2	6.3	0
82	07	Madagascar	8.5	3.0	5.1	5.0	7.0	7.5	5.7	8.7	5.7	6.1	6.7	7.5	0
86	08	Madagascar	8.5	2.5	5.1	5.0	7.2	7.4	6.0	8.7	6.0	5.8	7.0	7.5	0
68	09	Madagascar	8.9	5.0	5.6	5.0	7.6	7.4	6.6	8.8	5.9	5.9	7.1	7.8	0
64	10	Madagascar	8.6	4.8	5.4	5.3	7.7	7.2	7.1	8.6	5.8	6.4	7.7	8.0	0
58	11	Madagascar	8.3	4.6	5.2	4.9	7.8	7.6	7.1	8.6	6.0	6.8	8.0	8.3	0
58	12	Madagascar	8.0	4.4	5.2	5.2	7.6	7.9	7.3	8.3	6.0	6.9	7.8	8.0	0
61	13	Madagascar	8.1	4.3	4.9	5.5	7.9	8.2	7.2	8.6	5.9	7.0	7.5	7.7	0
29	06	Malawi	9.0	6.0	6.0	7.0	8.8	8.8	8.0	9.0	8.0	5.5	6.7	7.0	0
29	07	Malawi	9.0	6.0	6.0	8.0	8.8	9.2	7.9	9.0	8.0	5.4	7.5	7.4	0
29	08	Malawi	9.0	6.2	6.0	8.2	8.8	9.1	8.0	9.0	7.8	5.4	7.6	7.8	0
28	09	Malawi	9.3	6.3	5.9	8.3	8.5	9.1	8.3	8.8	7.5	5.6	7.8	8.4	0
28	10	Malawi	9.2	6.5	6.2	8.4	8.3	9.2	8.1	8.6	7.3	5.4	7.8	8.6	0
33	11	Malawi	9.1	6.5	6.0	8.1	8.0	8.8	7.9	8.2	7.0	5.2	7.6	8.7	0
36	12	Malawi	8.8	6.2	5.7	7.8	7.7	8.5	8.0	7.9	7.1	5.1	7.6	8.4	0
40	13	Malawi	8.9	6.5	5.7	8.1	8.0	8.4	7.5	8.2	6.8	5.0	7.6	8.4	0
74	05	Malaysia	7	5	5.9	5	9	1.3	8	7.7	8.6	6	8.3	1.8	1
98	06	Malaysia	6.5	4.1	5.5	3.5	6.6	4.3	5.9	5.8	6.5	6.2	5.5	5.7	1
119	07	Malaysia	6.3	4.1	5.5	3.6	6.6	4.6	5.9	5.4	6.5	6.3	5.3	5.8	1
118	08	Malaysia	6.3	5.0	5.9	3.6	6.9	4.2	5.9	5.1	6.5	6.3	5.7	5.8	1
114	09	Malaysia	6.5	5.2	6.2	3.8	6.9	4.7	6.1	5.2	6.5	6.1	6.1	5.6	1
110	10	Malaysia	6.3	5.0	6.6	3.9	7.0	5.1	5.9	5.0	6.8	5.9	6.3	5.4	1

112	11	Malaysia	6.0	4.8	6.7	4.2	6.7	4.9	6.0	5.1	6.9	6.0	6.4	5.0	1
110	12	Malaysia	5.7	4.5	6.4	4.4	6.4	4.6	6.5	4.8	7.4	6.3	6.8	4.7	1
116	13	Malaysia	5.6	4.6	6.1	4.8	5.9	4.1	6.2	4.5	7.1	6.0	6.8	4.4	1
66	07	Maldives	8.0	7.0	4.9	7.0	4.9	7.3	7.9	7.1	7.7	6.1	7.2	6.0	0
67	08	Maldives	7.7	6.5	4.9	7.0	4.9	7.1	7.6	7.1	7.7	6.3	7.6	6.0	0
81	09	Maldives	6.5	6.5	5.2	7.0	5.2	6.7	7.2	7.3	7.5	6.3	7.4	6.0	0
84	10	Maldives	6.3	6.4	5.2	7.1	5.3	7.0	7.3	7.1	7.3	6.1	7.4	5.8	0
90	11	Maldives	6.0	5.9	4.9	6.8	5.0	6.7	7.4	6.9	7.0	5.7	7.6	5.8	0
88	12	Maldives	5.7	5.6	4.9	6.5	4.7	6.4	7.9	6.6	7.5	5.7	7.6	6.1	0
88	13	Maldives	5.4	5.3	4.9	6.2	4.4	6.5	8.3	6.7	7.6	5.8	8.0	6.4	0
90	07	Mali	8.5	4.4	6.1	7.9	6.6	8.7	4.7	8.6	4.6	4.8	3.7	6.9	1
89	08	Mali	8.5	4.4	6.1	7.4	6.6	8.5	4.7	8.6	4.6	5.9	3.7	6.6	1
83	09	Mali	8.7	4.6	6.5	7.4	6.9	8.3	5.3	8.4	5.2	6.5	4.0	6.9	1
78	10	Mali	8.7	4.8	6.3	7.5	7.0	8.1	5.4	8.5	5.0	7.0	4.0	7.0	1
77	11	Mali	8.8	5.3	6.0	7.3	6.7	7.8	5.5	8.2	4.9	7.1	4.5	7.2	1
79	12	Mali	8.8	5.5	6.0	7.3	6.4	7.5	5.3	8.0	4.6	7.1	4.5	7.0	1
38	13	Mali	9.3	7.6	7.6	7.8	6.8	8.1	6.0	8.5	6.5	8.1	5.0	8.0	1
81	06	Mali	8.5	4.2	6.0	8.0	6.8	8.5	4.6	8.6	4.7	4.5	3.5	6.7	0
143	07	Malta	3.8	6.1	3.9	4.8	4.5	3.5	4.5	3.3	3.5	4.5	1.6	4.5	0
144	08	Malta	3.8	6.1	3.9	4.6	4.5	3.5	4.3	3.4	3.5	4.3	1.6	4.8	0
143	09	Malta	3.9	6.0	4.0	4.3	4.6	3.9	4.3	3.5	3.6	4.0	1.7	5.0	0
145	10	Malta	3.7	5.8	4.2	4.1	4.4	4.2	4.1	3.2	3.7	4.0	2.0	4.8	0
148	11	Malta	3.4	5.4	4.0	4.4	4.1	4.1	3.7	2.9	3.4	3.7	2.0	4.4	0
150	12	Malta	3.1	5.1	4.0	4.4	3.8	3.8	4.0	2.6	3.2	3.7	2.0	4.1	0
151	13	Malta	2.8	5.2	4.0	4.1	3.5	3.6	4.1	2.3	3.3	3.7	2.0	3.8	0
41	06	Mauritania	9.0	5.9	8.5	5.0	7.0	7.8	7.1	8.2	7.1	7.6	7.9	6.7	1
45	07	Mauritania	8.7	6.2	8.0	5.0	7.0	7.8	6.8	8.1	7.1	7.4	7.9	6.7	1
47	08	Mauritania	8.4	6.2	8.0	5.0	7.0	7.8	6.6	8.1	6.9	7.2	7.6	7.3	1
46	09	Mauritania	8.7	6.2	8.2	5.0	7.0	7.8	7.0	8.5	7.1	7.9	8.0	7.3	1
39	10	Mauritania	8.5	6.4	8.0	5.2	6.8	7.7	7.5	8.3	7.3	7.9	7.9	7.6	1
40	11	Mauritania	8.2	6.8	7.8	5.5	6.5	7.3	7.3	7.9	7.0	7.9	7.9	7.9	1
38	12	Mauritania	8.0	6.5	7.5	5.4	6.3	7.6	7.6	7.9	7.3	7.7	8.1	7.6	1
31	13	Mauritania	8.5	8.3	7.2	5.7	6.5	8.0	7.7	8.4	7.4	7.8	8.2	7.9	1
147	07	Mauritius	3.6	1.1	3.5	2.1	5.9	3.8	5.1	4.4	3.9	3.5	3.0	2.8	0
148	08	Mauritius	3.6	1.1	3.5	2.1	5.9	3.8	5.1	4.1	3.9	3.5	3.0	2.8	0
148	09	Mauritius	3.9	1.0	3.5	2.4	5.9	4.3	5.3	4.4	3.9	3.6	3.3	3.2	0
150	10	Mauritius	3.7	1.2	3.5	2.6	5.7	4.1	5.1	4.2	3.7	3.7	3.3	3.6	0
150	11	Mauritius	3.3	1.6	3.5	3.0	5.4	4.5	4.7	3.9	3.5	3.6	3.2	4.0	0
147	12	Mauritius	3.6	1.9	3.5	3.3	5.1	4.2	4.4	3.9	3.8	3.6	3.2	4.3	0
148	13	Mauritius	3.8	2.2	3.5	3.6	4.8	4.1	4.1	3.8	3.5	3.3	3.2	4.6	0
118	06	Mauritius	3.0	1.0	3.5	2.0	6.0	3.1	5.1	4.5	4.7	4.0	3.0	2.0	0
73	05	Mexico	7.1	5	6.8	9.2	8.9	2	7.7	7.9	7.3	2.3	8.4	2.0	0
85	06	Mexico	7.2	4.3	6.1	7.0	8.3	6.3	5.9	6.0	5.1	6.0	4.7	6.2	0
101	07	Mexico	6.9	4.0	6.1	7.0	8.4	6.2	6.1	5.7	5.1	6.1	4.8	6.2	0
105	08	Mexico	7.0	4.0	5.8	7.0	8.4	6.0	6.1	5.7	5.1	5.8	4.8	6.5	0
98	09	Mexico	7.0	4.3	5.9	7.0	8.2	6.1	6.8	6.0	5.5	7.0	5.0	6.6	0

96	10	Mexico	6.8	4.1	5.8	6.8	8.0	6.5	6.6	5.8	5.8	7.5	5.5	6.9	0
93	11	Mexico	6.5	4.2	6.1	6.5	7.7	6.0	6.6	5.8	5.9	7.9	5.2	6.7	0
98	12	Mexico	6.0	4.2	5.8	6.2	7.5	5.7	6.6	6.1	6.2	7.7	5.2	6.4	0
97	13	Mexico	6.5	4.0	6.1	5.9	7.2	5.2	6.1	6.6	6.3	7.9	5.2	6.1	0
97	07	Micronesia	7.7	3.2	5.0	8.1	7.1	6.5	6.9	7.1	2.5	6.0	5.4	8.0	0
97	08	Micronesia	7.7	2.9	5.0	8.6	7.3	6.6	6.9	7.2	2.5	5.7	5.4	8.2	0
107	09	Micronesia	7.2	3.1	4.5	8.3	7.0	6.6	6.6	6.8	3.0	5.3	5.5	8.0	0
108	10	Micronesia	7.0	3.1	4.5	8.1	6.8	6.4	6.6	6.6	2.8	5.1	5.5	8.1	0
102	11	Micronesia	7.1	3.5	4.2	8.0	7.2	6.7	6.3	6.9	2.5	5.4	5.6	8.5	0
103	12	Micronesia	6.8	3.4	4.2	8.1	7.5	7.0	6.3	6.6	2.8	5.4	5.6	8.2	0
99	13	Micronesia	7.1	3.1	4.2	8.4	8.0	7.5	6.3	6.3	3.1	5.4	5.6	7.9	0
57	06	Moldova	7.0	4.7	7.3	8.0	7.5	7.5	7.4	7.0	6.8	5.5	6.8	7.0	0
48	07	Moldova	7.0	4.7	7.3	8.4	7.5	7.5	7.9	7.1	6.8	6.3	7.5	7.7	0
49	08	Moldova	7.0	4.7	7.3	8.4	7.2	7.2	8.3	7.0	7.1	6.5	7.7	7.3	0
54	09	Moldova	6.6	4.2	7.1	8.0	7.0	6.8	8.1	6.7	7.0	8.0	8.0	7.6	0
58	10	Moldova	6.4	4.3	6.9	7.8	6.8	7.0	7.9	6.7	6.8	7.8	8.0	7.4	0
65	11	Moldova	6.1	4.4	6.6	7.5	6.5	6.7	7.6	6.3	6.5	7.8	8.0	7.2	0
73	12	Moldova	5.8	4.7	6.3	7.2	6.2	6.2	7.4	6.0	6.2	7.5	8.0	7.2	0
84	13	Moldova	5.9	5.0	6.0	6.9	5.9	6.4	6.9	5.7	6.0	7.2	7.7	6.9	0
131	07	Mongolia	6.0	1.0	4.1	2.1	5.4	5.2	6.0	5.3	6.7	4.8	4.9	6.9	0
133	08	Mongolia	5.8	1.0	4.1	2.1	5.4	5.5	6.0	5.3	6.2	4.8	4.7	6.9	0
127	09	Mongolia	5.8	1.2	4.3	2.3	5.8	5.9	6.7	5.5	6.6	5.0	5.7	7.1	0
129	10	Mongolia	5.6	1.4	4.3	2.3	5.9	5.7	6.2	5.3	6.4	4.8	5.3	6.9	0
127	11	Mongolia	5.5	1.6	4.0	1.9	6.2	5.3	5.9	5.6	6.0	5.0	5.5	7.1	0
129	12	Mongolia	5.8	1.9	3.7	2.2	6.0	5.2	5.6	5.6	5.7	4.7	5.5	6.8	0
129	13	Mongolia	5.5	2.2	3.7	2.5	6.3	4.7	5.3	5.7	5.4	4.4	5.5	6.5	0
108	06	Mongolia	6.0	1.0	4.1	2.0	5.7	4.5	6.2	5.3	6.7	4.7	5.0	7.2	0
135	07	Montenegro	5.4	4.1	5.8	2.5	4.3	4.0	4.5	3.6	5.6	4.8	6.0	5.0	0
135	08	Montenegro	5.4	4.1	6.1	2.5	4.3	4.0	4.3	3.6	5.6	4.6	6.0	5.3	0
134	09	Montenegro	5.1	4.1	6.4	2.5	4.6	4.6	4.7	4.0	5.5	4.7	6.0	5.8	0
134	10	Montenegro	4.9	4.2	6.6	2.7	4.4	4.9	4.5	3.8	5.3	4.5	5.9	5.6	0
134	11	Montenegro	4.5	4.5	6.4	2.4	4.1	5.2	4.3	3.6	5.0	4.8	6.2	5.3	0
133	12	Montenegro	4.2	4.2	6.5	2.7	3.8	4.9	4.5	3.9	4.7	4.9	6.2	5.0	0
134	13	Montenegro	3.9	4.5	6.5	3.0	3.5	4.6	4.2	3.6	4.4	4.6	6.2	5.3	0
67	05	Morocco	6	8	5.9	8	9	5.7	8.5	1.8	6.3	9	8.2	2.5	0
76	06	Morocco	6.5	8.0	6.9	6.2	7.0	6.5	8.0	5.7	6.6	5.6	5.5	4.0	0
85	07	Morocco	6.6	7.5	6.8	6.2	7.3	6.6	7.8	6.0	6.6	5.2	5.4	4.0	0
88	08	Morocco	6.6	7.1	6.8	6.2	7.6	6.6	7.3	6.0	6.6	5.1	5.7	4.2	0
92	09	Morocco	7.0	6.7	6.8	6.2	7.8	6.5	7.4	6.5	6.7	5.1	6.2	4.2	0
90	10	Morocco	6.8	6.6	6.6	6.4	7.6	6.5	7.2	6.6	6.8	5.4	6.2	4.3	0
87	11	Morocco	6.4	6.5	6.4	6.4	7.5	6.0	6.9	6.6	6.4	5.9	6.3	4.9	0
87	12	Morocco	6.1	6.2	6.8	6.7	7.2	5.6	6.6	6.2	6.4	6.6	6.6	5.2	0
93	13	Morocco	5.8	5.9	6.5	7.0	6.9	5.3	6.7	5.9	6.6	6.3	6.6	4.9	0
42	05	Mozambique	9	8	5.7	9	8.8	7.8	8.1	6.7	7.4	3.8	8.2	5.0	1
80	06	Mozambique	7.0	2.0	4.5	8.1	7.1	7.0	7.4	8.0	6.7	5.5	5.5	6.0	1
80	07	Mozambique	7.5	2.2	4.7	8.0	7.2	7.5	7.4	8.0	7.0	5.9	5.6	5.9	1

85	08	Mozambique	7.8	2.2	4.7	7.8	7.2	7.4	7.3	8.0	7.0	5.8	5.6	6.0	1
72	09	Mozambique	8.7	3.2	4.8	7.6	7.4	8.0	7.3	8.9	7.2	6.0	5.6	6.0	1
69	10	Mozambique	8.8	3.5	4.8	7.8	7.5	7.8	7.5	8.9	7.3	6.2	5.4	6.2	1
56	11	Mozambique	9.0	4.0	4.6	7.7	7.4	8.2	7.6	8.6	7.0	7.1	5.6	6.7	1
59	12	Mozambique	8.9	4.3	4.9	7.5	7.7	7.9	7.3	8.3	6.7	6.8	5.6	6.5	1
59	13	Mozambique	9.2	4.6	4.9	7.2	8.0	8.0	7.0	8.5	6.4	6.5	5.6	6.8	1
23	05	Myanmar	8.9	8	6.3	8	9	6.9	9.2	8	9.6	9	7.5	3.0	1
18	06	Myanmar	8.9	8.8	9.0	6.0	9.0	7.1	9.2	8.2	9.8	9.0	8.0	3.5	1
14	07	Myanmar	8.5	8.5	9.1	6.0	8.9	7.6	9.1	8.3	9.8	9.0	8.2	4.0	1
12	08	Myanmar	8.5	8.5	9.5	6.0	9.0	7.6	9.5	8.3	9.9	9.3	8.7	5.5	1
13	09	Myanmar	9.0	8.8	8.9	6.0	9.5	8.2	9.5	9.0	9.0	8.4	8.7	6.5	1
16	10	Myanmar	8.5	8.3	8.7	6.3	9.3	8.2	9.6	8.5	9.1	8.2	8.2	6.5	1
18	11	Myanmar	8.2	8.0	8.7	6.0	9.0	7.9	9.7	8.3	9.0	8.5	8.3	6.7	1
21	12	Myanmar	7.9	8.2	8.7	5.7	8.7	7.6	9.4	8.4	8.6	7.5	8.6	6.9	1
26	13	Myanmar	7.6	8.5	9.0	5.4	8.4	7.3	9.0	8.1	8.3	7.8	8.6	6.6	1
106	07	Namibia	6.5	5.1	5.4	7.9	8.2	5.9	4.4	7.5	5.7	5.5	3.2	6.0	0
98	08	Namibia	7.2	5.0	5.4	7.6	8.9	6.0	4.7	7.1	6.0	5.5	3.2	6.3	0
96	09	Namibia	7.7	5.5	5.8	7.7	9.1	6.1	5.0	7.1	6.0	5.8	3.6	6.2	0
100	10	Namibia	7.5	5.7	5.6	7.5	8.9	6.5	4.8	6.9	5.8	5.6	3.7	6.0	0
103	11	Namibia	7.2	5.6	5.3	7.1	8.5	6.3	4.4	6.7	5.5	5.5	3.5	6.2	0
106	12	Namibia	7.1	5.3	5.6	6.8	8.5	6.4	4.4	6.6	5.2	5.2	3.5	6.3	0
108	13	Namibia	6.9	5.6	5.3	6.5	8.7	6.7	4.1	6.7	4.9	4.9	3.5	6.5	0
91	06	Namibia	5.7	4.9	5.5	8.0	8.0	5.5	4.5	7.8	5.8	5.5	3.5	6.0	0
35	05	Nepal	9	8	5.6	4	9	7.1	8.9	6	9.1	7.6	8	6.7	1
20	06	Nepal	8.5	4.8	9.2	6.0	9.2	8.5	9.2	6.2	9.1	9.0	9.0	6.7	1
21	07	Nepal	8.1	5.2	8.9	6.1	9.2	8.2	8.5	6.6	8.8	8.3	8.5	7.2	1
23	08	Nepal	8.1	5.5	9.0	6.1	9.2	8.2	8.3	7.0	8.8	8.5	8.3	7.2	1
25	09	Nepal	8.3	6.8	8.7	6.0	9.3	8.5	8.0	7.4	8.7	8.1	8.4	7.2	1
26	10	Nepal	8.1	7.0	9.2	6.2	9.0	8.3	8.1	7.6	8.7	7.7	8.5	7.0	1
26	11	Nepal	7.8	7.4	9.0	5.9	8.7	7.9	7.9	7.7	8.5	7.8	8.0	7.1	1
27	12	Nepal	7.9	7.7	9.0	5.6	8.4	7.6	8.0	7.4	8.2	7.5	8.2	7.4	1
30	13	Nepal	7.6	7.7	9.0	5.9	8.1	7.3	8.1	7.3	7.9	7.6	8.2	7.1	1
162	07	Netherlands	3.2	4.0	4.8	2.5	4.0	2.0	1.3	1.4	1.4	1.0	1.0	2.0	0
166	08	Netherlands	3.4	3.0	4.9	2.2	3.7	2.0	1.3	1.4	1.4	1.0	1.0	2.0	0
169	09	Netherlands	2.9	3.1	4.7	2.1	3.3	2.5	1.4	1.4	1.2	1.0	1.4	2.0	0
166	10	Netherlands	2.7	3.2	4.7	1.9	3.2	3.0	1.2	1.5	1.3	1.1	1.7	2.4	0
166	11	Netherlands	3.0	3.0	4.4	2.2	2.9	3.2	1.1	1.7	1.0	1.4	2.4	2.1	0
167	12	Netherlands	2.9	2.7	4.1	2.5	2.6	3.3	1.0	1.8	1.3	1.7	2.4	1.8	0
167	13	Netherlands	3.0	2.4	4.1	2.2	2.3	3.5	1.0	1.5	1.0	1.8	2.6	1.5	0
134	06	Netherlands	3.0	4.1	4.8	2.5	4.0	2.0	1.2	1.0	1.5	1.0	1.0	2.0	0
171	07	New Zealand	1.1	1.2	2.0	2.1	4.0	3.0	1.1	1.4	1.5	1.0	1.0	1.1	0
171	08	New Zealand	1.1	1.2	2.9	2.1	4.0	3.0	1.1	1.4	1.5	1.0	1.0	1.1	0
171	09	New Zealand	1.3	1.2	3.2	2.3	4.2	3.6	1.1	1.4	1.7	1.0	1.2	1.1	0
171	10	New Zealand	1.5	1.4	3.3	2.1	4.3	4.0	1.0	1.6	1.5	1.1	1.2	0.9	0
172	11	New Zealand	2.0	1.7	3.5	2.4	4.0	3.8	1.1	1.9	1.2	1.1	1.1	1.1	0
171	12	New Zealand	2.4	1.4	3.8	2.7	3.7	3.9	0.8	2.1	1.5	1.4	1.1	0.8	0

173	13	New Zealand	2.1	1.1	3.5	2.4	3.4	3.6	0.5	1.8	1.2	1.1	1.1	1.0	0
141	06	New Zealand	1.0	1.0	2.0	2.0	4.0	2.9	1.0	1.0	1.5	1.0	1.0	1.0	0
71	07	Nicaragua	6.7	5.1	6.4	7.1	8.6	7.8	6.5	7.0	5.4	6.5	7.2	5.7	0
61	08	Nicaragua	7.5	5.7	6.5	6.8	8.4	7.5	6.3	7.5	5.4	6.5	7.1	6.5	0
64	09	Nicaragua	7.4	5.2	6.3	6.9	8.1	7.7	7.1	7.8	5.8	6.5	7.2	6.6	0
65	10	Nicaragua	6.8	5.0	6.3	6.9	7.9	7.9	7.6	7.6	6.2	6.5	7.0	6.8	0
67	11	Nicaragua	6.9	4.9	6.0	7.2	8.2	7.3	7.3	7.3	6.0	6.2	6.8	7.1	0
69	12	Nicaragua	6.5	4.3	6.2	7.5	8.2	6.9	7.4	7.0	5.7	5.9	6.8	7.0	0
72	13	Nicaragua	6.6	4.8	5.9	7.8	7.9	6.8	7.5	6.8	5.4	5.6	6.8	7.3	0
59	06	Nicaragua	6.5	5.5	6.4	7.1	9.0	8.5	7.3	7.2	5.7	6.5	7.0	5.7	0
32	07	Niger	9.2	5.9	8.9	6.0	7.2	9.2	8.2	8.8	7.1	6.7	6.0	8.0	1
22	08	Niger	9.5	6.0	9.2	6.0	7.2	9.2	8.4	9.1	7.9	7.5	6.7	7.8	1
23	09	Niger	9.5	6.4	8.5	6.3	7.6	9.2	8.7	9.5	8.2	7.4	7.1	8.1	1
19	10	Niger	9.6	6.5	8.0	6.5	7.8	9.2	8.9	9.7	8.5	7.3	7.6	8.2	1
15	11	Niger	9.8	6.6	7.8	6.2	7.9	8.9	8.9	9.5	8.2	8.0	8.6	8.7	1
18	12	Niger	9.3	6.9	7.7	6.0	7.6	8.6	8.4	9.2	7.9	8.2	8.6	8.4	1
18	13	Niger	9.8	7.9	7.8	6.3	7.9	8.4	8.1	9.5	7.6	8.3	8.9	8.5	1
44	06	Niger	9.4	4.3	8.5	6.0	7.2	9.0	7.9	8.5	6.5	6.7	6.0	7.0	0
54	05	Nigeria	7.2	3	6.5	8.7	8.9	5.8	8.8	6.9	6.7	9	8.3	4.5	1
22	06	Nigeria	8.0	5.9	9.1	8.5	9.0	5.4	9.0	8.3	7.1	9.2	9.0	5.9	1
17	07	Nigeria	8.2	5.6	9.5	8.5	9.1	5.4	9.1	8.7	7.1	9.2	9.5	5.7	1
18	08	Nigeria	8.2	5.1	9.4	8.2	9.2	5.9	8.9	8.7	7.5	9.2	9.3	6.1	1
15	09	Nigeria	8.5	5.3	9.7	8.3	9.5	6.6	9.2	9.0	8.6	9.4	9.6	6.1	1
14	10	Nigeria	8.4	5.8	9.5	8.1	9.3	6.9	9.4	9.1	8.8	9.3	9.4	6.2	1
14	11	Nigeria	8.3	6.0	9.6	7.7	9.0	7.3	9.0	9.0	8.6	9.1	9.5	6.9	1
14	12	Nigeria	8.4	6.5	9.7	7.6	8.9	7.5	9.1	9.1	8.6	9.2	9.8	6.6	1
16	13	Nigeria	8.5	6.6	9.8	7.3	9.2	7.5	8.8	9.3	8.6	9.5	9.4	6.3	1
13	05	North Korea	8	6	7.2	8.1	9	9.6	9.8	9.7	9	8.3	8	3.0	0
14	06	North Korea	8.0	6.0	7.2	5.0	9.0	9.5	9.8	9.5	9.5	8.3	8.0	7.5	0
13	07	North Korea	8.0	6.0	7.2	5.0	8.8	9.6	9.8	9.5	9.7	8.3	7.9	7.9	0
15	08	North Korea	8.2	6.0	7.2	5.0	8.8	9.6	9.8	9.6	9.7	8.3	7.6	7.9	0
17	09	North Korea	8.5	6.0	7.2	5.0	8.8	9.6	9.8	9.6	9.5	8.3	7.8	8.2	0
19	10	North Korea	8.5	5.6	7.2	5.0	8.8	9.6	9.9	9.6	9.5	8.1	7.8	8.2	0
22	11	North Korea	8.2	5.3	6.9	4.7	8.5	9.2	9.9	9.3	9.5	8.1	7.4	8.6	0
22	12	North Korea	7.9	5.3	6.6	4.4	8.6	9.3	9.9	9.4	9.6	8.1	7.7	8.7	0
23	13	North Korea	8.0	5.0	6.6	4.4	8.3	9.3	9.8	9.5	9.7	8.4	7.7	8.4	0
176	07	Norway	2.0	1.6	1.0	1.1	2.0	2.1	1.0	1.3	1.5	1.0	1.0	1.5	0
177	08	Norway	2.0	1.6	1.0	1.1	2.0	1.8	1.0	1.3	1.5	1.0	1.0	1.5	0
177	09	Norway	1.9	1.6	1.3	1.1	2.2	2.3	1.0	1.3	1.5	1.1	1.1	1.9	0
177	10	Norway	1.7	1.6	1.3	1.2	2.4	2.6	0.8	1.1	1.6	1.2	1.1	2.1	0
176	11	Norway	2.0	2.0	1.3	1.5	2.1	2.9	1.0	1.4	1.9	1.2	1.2	1.9	0
173	12	Norway	2.3	1.8	3.6	1.5	1.8	2.4	0.8	1.7	2.2	3.0	1.2	1.6	0
176	13	Norway	2.0	1.9	3.6	1.6	1.5	1.9	0.5	1.4	1.9	2.7	1.1	1.3	0
146	06	Norway	3.0	1.5	1.0	1.0	2.0	1.8	1.0	1.0	1.5	1.0	1.0	1.0	0
145	07	Oman	3.1	1.1	3.0	1.1	2.0	3.7	6.3	4.2	6.6	5.3	7.1	2.0	0
146	08	Oman	4.6	1.3	3.0	1.1	2.0	3.9	6.3	4.4	6.6	5.3	6.9	2.0	0

146	09	Oman	4.5	1.0	3.0	1.3	2.3	4.4	6.0	4.5	6.4	5.0	6.6	2.2	0
144	10	Oman	4.7	1.1	3.0	1.7	2.7	4.5	6.0	4.5	6.7	5.2	6.6	2.0	0
141	11	Oman	5.1	1.5	3.0	1.5	3.0	3.8	5.9	4.4	6.9	5.3	6.3	2.4	0
137	12	Oman	5.1	1.8	2.7	1.5	3.3	4.3	6.2	4.7	7.2	5.6	6.6	2.7	0
136	13	Oman	5.0	2.0	2.7	1.8	3.6	4.5	6.1	4.4	7.5	5.3	6.6	2.4	0
117	06	Oman	2.0	1.0	3.0	1.0	2.0	3.5	6.3	3.5	6.5	5.5	7.5	2.0	0
34	05	Pakistan	5	5	6.9	8	9	3.3	9.8	7.5	8.1	9	9.3	8.5	1
9	06	Pakistan	9.3	9.3	8.6	8.1	8.9	7.0	8.5	7.5	8.5	9.1	9.1	9.2	1
12	07	Pakistan	8.2	8.5	9.0	8.1	8.5	5.8	8.7	7.1	8.7	9.5	9.5	8.5	1
9	08	Pakistan	8.0	8.6	9.5	8.1	8.8	6.2	9.5	7.1	9.5	9.6	9.8	9.1	1
10	09	Pakistan	8.3	8.6	9.6	8.3	8.8	6.4	9.1	7.5	8.9	9.5	9.6	9.5	1
10	10	Pakistan	8.1	8.9	9.4	7.9	8.4	6.2	8.9	7.3	8.9	9.7	9.5	9.3	1
12	11	Pakistan	8.8	9.2	9.3	7.5	8.5	6.6	8.6	7.3	8.7	9.4	9.1	9.3	1
13	12	Pakistan	8.5	9.0	9.6	7.2	8.2	7.2	8.3	7.0	8.6	9.3	9.1	9.4	1
13	13	Pakistan	8.9	9.1	9.7	6.9	7.9	7.5	8.4	7.3	8.7	9.8	9.2	9.6	1
130	07	Panama	6.6	3.1	4.4	5.0	7.5	5.8	4.8	5.6	4.7	5.0	2.9	4.0	0
130	08	Panama	6.4	3.1	4.4	5.0	7.5	5.6	4.6	5.4	4.7	5.0	2.9	4.0	0
132	09	Panama	6.6	3.4	4.6	5.0	7.3	5.6	4.7	5.5	4.7	5.1	3.0	4.2	0
130	10	Panama	6.3	3.5	4.4	5.0	7.5	5.6	4.8	5.5	4.5	5.2	3.0	4.0	0
131	11	Panama	6.0	3.9	4.6	4.9	7.4	4.9	4.6	5.2	4.5	5.7	2.5	3.6	0
132	12	Panama	5.8	3.6	4.9	4.8	7.5	4.3	4.6	5.1	4.4	5.4	2.5	3.3	0
131	13	Panama	5.9	3.7	5.0	4.5	7.9	3.8	4.7	5.0	4.4	5.1	2.5	3.3	0
107	06	Panama	6.5	2.6	4.5	5.0	7.5	5.7	4.9	5.8	4.8	5.3	3.0	4.0	0
52	07	Papua New Guinea	7.5	3.5	8.0	7.9	9.0	7.3	7.8	7.8	6.1	7.0	6.7	6.5	0
52	08	Papua New Guinea	7.5	3.5	8.0	7.9	9.0	7.3	7.8	7.8	6.1	7.0	6.7	6.0	0
61	09	Papua New Guinea	7.5	4.0	7.3	7.6	8.9	6.8	7.7	8.1	6.5	6.7	7.1	5.9	0
56	10	Papua New Guinea	7.5	4.2	7.1	7.7	9.0	6.3	7.8	8.3	6.3	6.5	7.1	6.1	0
54	11	Papua New Guinea	7.4	4.5	6.9	7.4	9.1	6.4	7.5	8.7	6.3	6.6	7.1	6.4	0
54	12	Papua New Guinea	7.4	4.8	6.9	7.2	8.8	6.6	7.6	8.6	6.1	6.3	7.1	6.1	0
53	13	Papua New Guinea	7.6	5.0	6.6	7.5	9.1	6.9	7.1	8.9	6.2	6.6	7.1	6.3	0
49	06	Papua New Guinea	8.0	2.5	8.0	8.0	9.0	7.0	7.8	8.0	6.1	7.0	6.7	6.5	0
36	05	Paraguay	4	5	6.9	8.3	9	7.8	9.9	7	8.3	8	8.7	6.0	0
87	06	Paraguay	5.0	1.5	6.2	6.0	7.5	6.6	8.0	6.8	8.0	4.5	7.5	4.4	0
100	07	Paraguay	6.5	1.6	6.2	6.0	7.4	6.7	8.1	6.5	7.9	4.3	7.5	4.2	0
104	08	Paraguay	6.6	1.3	6.2	6.0	7.7	6.2	8.3	6.0	7.1	5.0	7.7	4.2	0
106	09	Paraguay	6.4	1.3	6.5	6.0	7.9	5.9	7.9	6.0	6.9	5.3	7.5	4.4	0
106	10	Paraguay	6.2	1.5	6.3	5.8	8.0	6.2	8.3	5.8	6.7	5.9	7.5	3.9	0
100	11	Paraguay	5.9	1.9	6.5	5.5	8.3	5.9	7.9	5.5	6.4	6.4	7.7	4.5	0
107	12	Paraguay	6.0	2.2	6.2	5.2	8.3	5.6	7.6	5.8	6.1	6.1	7.7	4.2	0
104	13	Paraguay	6.1	2.4	6.5	4.9	8.6	5.1	7.9	6.1	6.1	6.1	7.9	4.2	0
40	05	Peru	6	7	6.6	9	8.5	5	9.6	4.4	7.1	9	8.9	7.0	1
68	06	Peru	6.5	4.6	7.0	7.6	8.0	5.4	6.8	6.4	6.8	8.0	7.1	5.0	1
84	07	Peru	6.6	4.0	6.9	7.5	8.1	5.6	6.6	6.2	5.2	7.7	7.0	5.0	1
81	08	Peru	6.9	4.2	6.9	7.5	8.1	5.7	6.4	6.4	5.5	7.4	7.0	5.5	1
92	09	Peru	6.6	4.5	6.4	7.3	8.2	5.6	6.9	6.3	5.5	7.2	6.9	5.7	1
92	10	Peru	6.4	4.5	6.7	7.0	8.0	5.6	6.9	6.5	5.5	7.4	6.9	5.5	1

98	11	Peru	6.1	4.1	6.8	6.7	8.0	5.1	6.6	6.1	5.2	7.2	6.6	5.1	1
99	12	Peru	6.1	4.4	7.1	6.4	8.0	4.6	7.1	6.6	4.9	6.9	6.6	4.8	1
103	13	Peru	5.9	4.7	7.0	6.1	7.8	4.1	7.1	6.4	5.0	7.0	6.7	4.5	1
56	05	Philippines	7	7	6.5	8.2	9	4.7	9.3	3.8	8.2	7	9.2	4.0	1
68	06	Philippines	7.0	5.5	7.2	5.7	7.5	5.3	7.8	6.0	6.1	7.0	7.2	6.9	1
56	07	Philippines	7.0	5.7	7.2	6.7	7.6	5.8	8.2	5.9	6.8	7.6	7.8	6.9	1
59	08	Philippines	6.9	5.7	7.0	7.2	7.6	5.9	8.3	5.9	6.8	7.4	7.8	6.9	1
53	09	Philippines	7.2	6.3	7.5	7.2	7.6	6.0	8.5	6.1	7.0	7.7	7.9	6.8	1
51	10	Philippines	7.7	6.7	7.6	7.0	7.4	5.8	8.6	6.3	7.5	7.9	8.0	6.6	1
51	11	Philippines	7.3	6.5	7.2	6.7	7.1	5.6	8.3	6.1	7.3	8.3	8.5	6.1	1
56	12	Philippines	7.3	6.2	7.6	6.5	6.8	5.3	7.9	6.3	7.0	8.4	8.0	5.8	1
60	13	Philippines	7.1	6.5	7.9	6.2	6.5	5.6	7.6	6.4	6.7	8.7	8.0	5.5	1
115	06	Poland	5.0	3.2	3.2	6.5	4.7	4.3	4.2	4.3	3.5	2.0	3.0	4.0	0
144	07	Poland	4.9	3.0	3.2	6.5	4.8	4.3	4.2	4.2	3.5	2.0	3.0	4.0	0
145	08	Poland	4.8	3.0	3.2	6.4	4.8	4.3	4.2	3.8	3.8	2.0	3.3	4.0	0
142	09	Poland	4.9	3.0	3.2	6.1	4.9	4.8	4.4	3.9	4.0	2.3	3.7	4.4	0
142	10	Poland	4.7	3.2	3.3	5.9	4.8	5.0	4.5	3.7	3.8	2.4	3.7	4.0	0
146	11	Poland	4.3	3.5	3.5	5.6	4.7	4.3	4.2	3.3	3.5	2.5	3.6	3.9	0
148	12	Poland	3.8	3.0	3.8	5.3	4.4	4.0	3.7	3.1	3.2	2.8	3.6	3.6	0
153	13	Poland	3.5	2.8	3.8	5.0	3.9	3.5	3.4	2.8	2.9	2.5	3.6	3.3	0
161	07	Portugal	4.8	1.1	2.5	2.1	3.9	3.7	1.5	3.7	3.3	1.0	1.3	3.5	0
162	08	Portugal	4.3	1.0	2.5	2.1	3.6	3.8	1.5	4.0	3.5	1.0	1.3	3.2	0
163	09	Portugal	3.9	1.4	2.6	2.3	3.9	4.2	1.6	3.8	3.7	1.1	1.2	3.0	0
162	10	Portugal	3.7	1.8	2.6	2.2	3.7	4.7	1.9	3.6	3.5	1.4	1.2	2.8	0
163	11	Portugal	3.3	2.0	2.5	2.5	3.6	4.8	1.6	3.3	3.3	1.6	1.4	2.5	0
160	12	Portugal	3.1	1.8	2.3	2.9	3.7	5.3	2.0	3.8	3.0	1.9	1.4	3.0	0
162	13	Portugal	2.8	1.6	2.3	2.6	3.4	5.4	2.1	3.5	2.7	1.6	1.3	3.3	0
131	06	Portugal	5.0	1.0	2.5	2.0	4.0	3.7	1.5	3.8	3.3	1.0	1.4	3.5	0
136	07	Qatar	5.0	3.6	5.6	3.6	4.8	4.9	7.0	2.6	4.7	2.5	4.7	4.6	0
137	08	Qatar	4.7	3.3	5.3	3.3	5.0	4.6	6.8	2.6	5.0	2.3	4.9	4.9	0
138	09	Qatar	4.7	3.2	5.2	3.3	5.3	4.4	6.5	2.6	4.5	2.5	5.0	4.7	0
139	10	Qatar	4.5	3.0	5.2	3.4	5.3	4.1	6.3	2.6	4.7	2.7	5.0	5.0	0
139	11	Qatar	4.2	2.7	4.9	3.1	5.0	3.7	6.0	2.3	5.0	3.0	5.0	4.6	0
142	12	Qatar	4.2	2.4	4.9	2.8	4.8	3.2	5.9	2.3	5.3	2.8	5.0	4.3	0
143	13	Qatar	4.3	2.1	4.9	3.1	4.8	2.9	5.9	2.0	5.6	2.5	5.0	4.0	0
125	07	Romania	5.5	3.8	5.2	5.2	6.1	5.7	6.1	5.2	4.8	3.4	4.5	5.4	0
128	08	Romania	5.3	3.5	5.2	5.2	6.1	5.2	5.9	5.2	4.8	3.4	4.7	5.4	0
129	09	Romania	5.6	3.4	5.5	5.1	5.8	5.3	6.2	5.0	4.5	4.3	5.1	5.5	0
128	10	Romania	5.4	3.2	5.6	4.9	5.6	5.6	6.0	4.8	4.3	4.1	5.2	5.5	0
126	11	Romania	5.1	3.2	6.0	5.0	5.8	5.8	5.9	4.5	4.0	4.1	5.2	5.2	0
126	12	Romania	4.6	2.9	6.0	5.0	5.6	6.0	6.3	4.4	4.2	4.4	5.2	4.9	0
130	13	Romania	4.3	2.7	6.3	4.7	5.3	5.7	6.4	4.3	3.9	4.1	5.2	4.6	0
102	06	Romania	6.5	3.9	5.4	5.5	6.0	5.9	6.2	5.3	4.8	3.5	4.1	5.5	0
59	05	Russia	9	6	7.5	2.3	9	3.8	9.4	6.7	9	7.6	9.2	4.0	1
43	06	Russia	8.0	7.2	8.0	7.0	8.0	3.7	8.2	6.9	9.1	7.5	9.0	4.5	1
62	07	Russia	7.5	5.9	7.7	6.5	8.2	3.9	7.6	6.2	8.5	6.8	8.5	3.9	1

73	08	Russia	7.0	5.4	7.5	6.5	7.9	3.7	7.9	5.9	8.7	7.0	8.0	4.2	1
71	09	Russia	7.0	5.9	7.5	6.2	8.1	4.6	8.0	5.7	8.3	6.9	8.0	4.6	1
80	10	Russia	6.7	5.4	7.1	6.0	7.9	5.1	8.1	5.5	8.0	6.8	7.6	4.8	1
82	11	Russia	6.3	5.1	7.6	5.7	7.6	4.6	7.8	5.3	8.1	7.2	7.8	4.6	1
83	12	Russia	6.0	5.0	7.9	5.4	7.3	4.0	7.9	5.0	8.1	8.2	8.0	4.3	1
80	13	Russia	5.7	5.3	8.2	5.1	7.0	3.5	8.1	5.1	8.6	8.5	8.0	4.0	1
12	05	Rwanda	9	7.8	8	8.6	9	9.2	9.5	5	8.3	5	8.9	8.2	1
24	06	Rwanda	9.5	7.0	9.0	8.2	7.2	8.0	8.7	6.9	7.7	5.0	8.9	6.8	1
36	07	Rwanda	9.1	7.0	8.7	7.6	7.1	7.5	8.5	6.9	7.4	4.6	8.2	6.6	1
42	08	Rwanda	9.1	7.0	8.5	7.5	7.4	7.3	8.2	6.8	7.3	4.6	7.8	6.5	1
43	09	Rwanda	9.3	6.9	8.7	7.2	7.3	7.5	7.9	7.3	7.3	4.6	8.0	7.0	1
40	10	Rwanda	9.1	7.0	8.5	7.0	7.2	7.0	7.5	7.4	7.5	5.0	8.0	7.5	1
34	11	Rwanda	8.9	7.3	8.2	6.8	7.4	7.0	7.1	7.8	8.2	5.8	8.4	8.0	1
35	12	Rwanda	8.6	7.6	8.5	7.0	7.4	6.8	6.8	7.5	8.0	5.5	7.9	7.7	1
39	13	Rwanda	8.4	7.9	8.2	6.9	7.7	6.7	6.5	7.6	7.7	5.5	8.2	8.0	1
96	07	Samoa	6.8	3.8	5.0	7.9	7.2	6.3	6.7	4.7	4.9	6.7	5.4	8.4	0
101	08	Samoa	6.8	3.2	5.0	8.2	6.9	6.1	6.7	4.8	4.6	6.3	5.4	8.4	0
108	09	Samoa	6.5	3.0	5.2	8.2	6.8	5.8	6.6	5.0	4.7	6.0	5.5	8.1	0
107	10	Samoa	6.9	3.1	5.1	8.0	6.6	6.2	6.4	5.1	4.5	5.8	5.3	8.1	0
109	11	Samoa	7.0	2.7	4.8	8.3	6.6	5.9	6.2	4.7	4.2	5.5	5.1	8.6	0
110	12	Samoa	6.7	2.6	4.8	8.6	6.3	5.4	6.0	4.8	4.4	5.5	5.1	8.3	0
111	13	Samoa	6.8	2.5	4.8	8.8	6.0	5.9	6.0	4.8	4.5	5.5	5.1	8.0	0
78	08	Sao Tome	7.9	4.5	5.1	7.4	6.1	8.3	7.4	7.9	5.3	5.8	6.2	6.4	0
95	09	Sao Tome	8.0	4.0	5.0	7.3	6.1	7.9	7.3	7.5	5.3	5.6	6.3	6.4	0
97	10	Sao Tome	7.5	4.1	5.1	7.0	5.9	7.3	7.3	7.3	5.1	6.0	6.7	6.5	0
96	11	Sao Tome	7.1	4.3	4.8	7.3	6.2	6.9	6.9	7.0	4.9	5.8	6.3	6.9	0
97	12	Sao Tome	6.8	4.0	4.8	7.6	6.1	7.4	6.7	6.7	4.6	5.8	6.3	7.0	0
91	13	Sao Tome	6.6	4.3	4.8	7.9	6.3	7.9	6.6	6.4	4.3	5.8	6.3	7.3	0
76	07	Sao Tome	7.9	4.8	5.1	7.4	6.1	8.5	7.3	8.1	5.3	5.8	5.9	6.4	0
45	05	Saudi Arabia	7.6	6.3	7.8	8.8	9	2.2	9.8	4.3	8.6	9	8.3	5.4	0
73	06	Saudi Arabia	6.0	6.9	7.9	3.5	7.0	2.0	8.5	4.1	8.5	7.8	7.5	7.5	0
82	07	Saudi Arabia	5.9	7.2	7.7	3.6	6.5	2.3	8.8	4.3	8.8	7.3	7.6	6.5	0
83	08	Saudi Arabia	6.3	6.2	7.7	3.4	7.0	2.3	8.8	4.3	9.1	7.3	7.7	6.8	0
89	09	Saudi Arabia	6.5	6.0	8.0	3.4	7.0	2.7	8.4	4.3	8.9	8.0	7.8	6.5	0
87	10	Saudi Arabia	6.3	6.2	7.8	3.5	7.3	3.1	8.2	4.1	9.1	7.8	7.8	6.3	0
93	11	Saudi Arabia	6.0	5.8	7.5	3.2	7.0	3.4	7.9	4.2	8.9	7.5	7.9	5.9	0
100	12	Saudi Arabia	5.8	5.5	7.7	2.9	6.7	3.4	7.6	4.3	8.6	7.2	7.9	5.9	0
102	13	Saudi Arabia	5.5	5.2	7.4	3.1	6.4	3.6	7.8	4.0	8.9	7.2	8.0	5.6	0
116	07	Senegal	7.0	4.5	5.2	5.1	6.9	5.7	5.7	6.7	5.6	5.2	3.8	5.5	1
107	08	Senegal	7.0	5.5	6.0	5.1	7.1	6.0	5.7	7.0	6.0	6.0	4.0	5.5	1
102	09	Senegal	7.4	6.0	6.3	5.6	7.5	6.5	6.0	7.3	6.0	5.9	4.0	5.7	1
99	10	Senegal	7.6	6.2	6.1	5.8	7.0	6.2	5.9	7.4	6.0	6.3	4.2	5.9	1
85	11	Senegal	7.6	6.4	6.3	6.0	7.2	6.5	5.9	7.8	6.2	6.3	4.5	6.1	1
71	12	Senegal	7.8	6.7	6.0	6.3	6.9	6.9	6.0	7.5	6.5	6.3	6.3	6.0	1
64	13	Senegal	8.3	7.0	6.3	6.8	6.8	7.2	5.9	7.8	6.2	6.2	6.6	6.3	1
98	06	Senegal	6.8	4.3	5.2	5.0	6.8	5.2	5.8	6.5	6.0	5.5	3.5	5.5	0

66	05	Serbia	7	6	7.5	4.3	9	7.5	6.9	5	6.2	6	9.6	5.0	0
55	06	Serbia	5.7	8.5	8.6	5.5	8.0	6.5	7.8	5.0	5.6	6.5	8.6	7.5	0
70	08	Serbia	6.0	7.3	7.9	5.5	7.5	6.5	7.4	5.0	6.1	6.3	8.0	6.6	0
78	09	Serbia	5.8	7.3	7.9	5.5	7.4	5.9	7.3	5.2	5.8	6.3	7.9	6.9	0
86	10	Serbia	5.6	6.9	7.8	5.3	6.9	6.2	6.8	5.2	5.6	6.5	8.0	7.0	0
97	11	Serbia	5.3	6.4	7.5	5.0	6.5	5.7	6.5	4.9	5.3	6.5	8.0	6.8	0
89	12	Serbia	5.0	6.3	7.9	4.7	6.2	6.2	6.6	4.6	5.8	6.4	8.0	7.3	0
92	13	Serbia	4.7	6.6	8.0	4.7	5.9	6.5	6.3	4.7	5.5	6.5	8.0	7.0	0
66	07	Serbia	6.0	8.0	7.7	5.5	7.7	6.5	7.5	5.0	6.1	6.3	8.0	6.8	0
106	07	Seychelles	6.9	5.0	5.5	4.7	6.9	4.0	7.9	4.1	6.7	6.2	6.7	6.7	0
114	08	Seychelles	6.7	4.8	5.4	4.7	6.8	3.9	7.6	4.1	6.3	6.0	6.5	6.7	0
120	09	Seychelles	6.3	4.4	5.0	4.7	6.8	4.8	7.1	4.6	5.9	5.6	6.0	6.5	0
115	10	Seychelles	6.1	4.3	5.0	4.5	6.9	5.8	7.0	4.5	5.9	5.6	6.0	6.3	0
119	11	Seychelles	5.8	3.9	4.8	4.9	6.6	5.4	6.8	4.1	5.8	6.1	5.7	7.1	0
120	12	Seychelles	5.5	3.6	4.8	5.2	6.9	4.9	6.3	3.8	5.5	6.1	5.7	6.8	0
121	13	Seychelles	5.2	3.3	4.8	4.9	6.6	5.2	6.3	3.5	5.2	6.4	5.7	6.9	0
6	05	Sierra Leone	9	8	7.5	8.9	8.7	10	7.5	9.1	8.7	6.3	8.6	9.8	0
16	06	Sierra Leone	8.5	7.9	7.1	8.9	8.7	9.0	8.0	8.0	7.0	7.0	7.7	8.8	0
23	07	Sierra Leone	8.6	7.4	7.1	8.7	8.7	8.7	8.0	8.0	7.0	6.5	7.7	7.0	0
31	08	Sierra Leone	8.6	7.4	6.9	8.4	8.2	8.7	7.7	8.2	7.0	6.4	7.5	7.3	0
32	09	Sierra Leone	8.9	6.9	6.6	8.5	8.4	8.6	7.4	8.7	7.0	6.1	7.7	7.3	0
28	10	Sierra Leone	9.1	7.1	6.7	8.3	8.8	8.6	7.7	9.1	6.8	5.9	7.8	7.7	0
30	11	Sierra Leone	8.9	7.5	6.5	8.0	8.5	8.0	7.7	8.8	6.7	6.0	7.9	7.6	0
31	12	Sierra Leone	8.9	7.8	6.2	7.7	8.2	8.3	7.6	8.7	6.4	5.7	7.9	7.1	0
33	13	Sierra Leone	9.0	8.1	5.9	8.0	8.5	8.6	7.3	9.0	6.1	5.4	7.9	7.4	0
160	07	Singapore	2.9	1.1	3.0	3.0	2.5	3.4	3.6	1.5	4.0	1.0	4.0	3.0	0
159	08	Singapore	2.9	1.1	3.0	2.7	2.9	3.1	4.0	1.5	4.3	1.0	4.0	2.8	0
160	09	Singapore	3.0	1.1	3.1	2.7	3.0	3.2	4.0	1.5	4.3	1.0	4.1	2.8	0
160	10	Singapore	2.8	0.9	2.9	2.5	3.1	3.7	4.2	1.7	4.4	1.5	4.1	3.0	0
157	11	Singapore	2.5	0.9	3.0	2.8	3.4	3.6	3.9	2.0	4.7	1.5	4.0	2.8	0
157	12	Singapore	2.6	0.9	3.0	3.1	3.7	3.3	3.5	2.2	5.0	1.8	4.0	2.5	0
158	13	Singapore	2.5	1.1	2.7	3.3	3.7	3.0	3.2	1.9	4.9	1.5	4.0	2.2	0
133	06	Singapore	2.0	1.0	3.0	3.0	2.5	3.3	3.5	1.0	3.5	1.0	4.0	3.0	0
112	06	Slovakia	4.5	1.8	4.4	5.5	6.5	4.5	3.8	4.3	4.6	2.0	4.0	4.0	0
141	07	Slovakia	4.3	1.8	4.4	5.5	6.5	4.5	4.2	4.1	3.9	2.0	4.2	3.9	0
142	08	Slovakia	4.3	1.8	4.2	5.3	6.2	4.2	4.0	4.1	4.3	2.0	4.2	4.2	0
144	09	Slovakia	4.3	2.0	4.3	5.4	5.8	4.6	3.9	4.0	4.0	2.0	3.9	4.4	0
143	10	Slovakia	4.1	2.2	4.8	5.2	5.6	5.0	4.1	3.8	3.8	2.1	3.9	4.2	0
144	11	Slovakia	3.8	2.3	5.0	5.1	5.2	4.6	3.9	3.6	3.6	2.3	3.7	3.9	0
144	12	Slovakia	3.5	2.0	5.3	4.8	4.9	5.1	4.2	3.8	3.3	2.6	3.7	4.2	0
146	13	Slovakia	3.2	2.0	5.0	4.5	4.6	5.2	4.3	3.5	3.0	2.3	3.7	3.9	0
154	07	Slovenia	4.0	1.7	3.4	3.5	5.4	3.2	3.2	3.5	3.5	3.0	1.1	2.0	0
156	08	Slovenia	4.0	1.7	3.4	3.5	5.2	3.0	3.2	3.5	3.5	3.0	1.1	2.0	0
156	09	Slovenia	3.6	1.3	3.4	3.5	5.2	3.6	3.0	3.2	3.2	2.7	1.3	2.3	0
156	10	Slovenia	3.4	1.4	3.4	3.3	5.0	4.0	2.8	3.0	3.0	2.8	1.3	2.6	0
156	11	Slovenia	3.1	1.7	3.1	3.6	4.7	3.7	3.0	2.8	2.8	3.0	1.1	2.9	0

161	12	Slovenia	2.8	1.5	3.3	3.5	4.4	3.5	2.7	2.4	2.8	2.8	1.6	2.6	0
163	13	Slovenia	2.5	1.4	3.3	3.2	4.5	3.6	2.8	2.1	2.5	2.5	1.6	2.3	0
126	06	Slovenia	4.0	1.5	3.5	3.5	5.5	3.2	3.2	3.5	3.7	3.0	1.2	1.0	0
30	07	Solomon Islands	8.5	4.8	8.0	5.1	8.0	8.0	8.5	8.5	7.1	7.7	8.8	9.0	0
30	08	Solomon Islands	8.7	4.8	8.0	5.1	8.0	8.0	8.7	8.5	7.1	7.7	8.8	9.0	0
40	09	Solomon Islands	8.0	5.0	7.5	5.0	8.0	8.3	8.3	8.4	7.0	7.2	8.0	8.9	0
43	10	Solomon Islands	8.3	4.8	7.0	5.4	7.9	8.0	8.1	8.2	6.8	7.0	8.0	9.1	0
49	11	Solomon Islands	7.9	4.5	6.8	5.1	8.0	7.6	7.9	8.1	6.5	6.7	8.0	8.8	0
47	12	Solomon Islands	7.6	4.8	6.8	5.4	8.3	7.9	7.6	7.8	6.2	6.7	8.0	8.5	0
52	13	Solomon Islands	7.7	4.9	6.8	5.7	8.3	7.8	7.3	8.0	5.9	6.7	8.0	8.2	0
5	05	Somalia	9	8	7.4	6.3	9	8.3	9.8	10	7.8	10	8.7	8.0	1
6	06	Somalia	9.0	8.1	8.0	7.0	7.5	8.5	10.0	10.0	9.5	10.0	9.8	8.5	1
3	07	Somalia	9.2	9.0	8.5	8.0	7.5	9.2	10.0	10.0	9.7	10.0	10.0	10.0	1
1	08	Somalia	9.8	9.8	9.5	8.3	7.5	9.4	10.0	10.0	9.9	10.0	10.0	10.0	1
1	09	Somalia	9.8	9.9	9.7	8.5	7.7	9.5	10.0	9.9	9.9	10.0	10.0	9.8	1
1	10	Somalia	9.6	10.0	9.7	8.3	8.0	9.6	10.0	9.6	9.9	10.0	10.0	9.6	1
1	11	Somalia	9.7	10.0	9.5	8.2	8.4	9.3	9.8	9.4	9.7	10.0	9.8	9.7	1
1	12	Somalia	9.8	10.0	9.6	8.6	8.1	9.7	9.9	9.8	9.9	10.0	9.8	9.8	1
1	13	Somalia	9.5	10.0	9.3	8.9	8.4	9.4	9.5	9.8	10.0	9.7	10.0	9.4	1
132	07	South Africa	8.2	6.0	4.7	4.0	8.5	2.8	4.3	5.7	4.1	3.2	3.9	2.0	0
125	08	South Africa	8.4	7.0	4.9	4.0	8.5	4.2	5.0	5.7	4.2	3.9	4.4	2.5	0
122	09	South Africa	8.4	7.4	5.3	4.3	8.5	4.6	5.5	5.7	4.5	4.3	5.9	3.0	0
115	10	South Africa	8.4	7.0	5.6	4.4	8.5	5.0	5.8	5.5	4.7	4.1	5.9	3.0	0
117	11	South Africa	8.4	6.7	5.9	4.1	8.2	5.3	5.5	5.5	4.6	4.5	5.9	3.0	0
115	12	South Africa	8.1	6.4	5.6	4.0	8.2	5.6	5.2	5.8	4.5	4.8	5.9	2.8	0
113	13	South Africa	7.8	6.5	5.7	4.3	8.0	5.9	5.3	6.3	4.2	5.1	5.6	2.9	0
110	06	South Africa	7.7	5.8	4.5	4.0	8.0	2.2	4.1	6.0	4.0	3.4	4.0	2.0	0
123	06	South Korea	4.0	4.2	3.5	5.5	2.5	1.0	3.9	1.5	2.8	1.0	3.0	7.0	0
151	07	South Korea	4.0	3.9	3.5	5.5	2.4	1.4	3.9	2.0	2.7	1.0	2.9	6.5	0
153	08	South Korea	4.0	3.9	4.0	5.3	2.4	1.6	3.9	2.0	2.7	1.0	3.3	6.5	0
153	09	South Korea	4.0	3.5	4.1	5.0	2.4	2.1	4.1	2.2	2.7	1.4	3.6	6.5	0
153	10	South Korea	3.6	3.3	3.9	4.8	2.5	2.8	3.9	2.3	2.8	1.5	3.6	6.3	0
155	11	South Korea	3.3	3.0	3.7	4.5	2.3	2.2	3.7	2.2	2.6	1.7	3.6	6.0	0
156	12	South Korea	3.0	2.5	3.4	4.2	2.6	2.3	3.2	2.2	2.8	2.0	3.6	5.7	0
157	13	South Korea	3.0	2.0	3.1	3.9	2.9	2.0	2.9	1.9	2.6	2.1	3.6	5.4	0
152	07	Spain	3.7	1.8	5.7	1.6	5.0	3.4	1.4	1.9	2.8	4.3	5.6	2.0	0
150	08	Spain	3.9	2.1	6.2	1.6	5.0	3.4	1.4	2.4	2.8	5.2	5.6	2.0	0
151	09	Spain	3.9	2.6	6.2	1.7	5.2	4.0	1.3	2.6	2.7	5.2	5.7	2.2	0
151	10	Spain	3.7	2.8	6.3	1.8	5.0	4.4	1.6	2.4	2.5	5.3	5.7	2.0	0
151	11	Spain	3.3	2.9	6.0	1.9	4.7	4.5	2.1	2.4	2.6	4.9	5.6	2.2	0
153	12	Spain	3.1	2.6	5.7	2.3	4.4	5.0	2.6	2.9	2.5	4.4	5.6	1.7	0
149	13	Spain	2.8	2.3	5.8	3.0	4.1	5.5	3.3	3.3	2.2	4.1	6.0	2.0	0
125	06	Spain	3.2	1.8	5.8	1.5	5.0	3.3	1.5	1.5	2.9	3.2	5.7	2.0	0
25	07	Sri Lanka	7.0	8.6	9.5	6.9	8.2	6.0	8.9	6.5	7.5	8.7	9.2	6.1	1
20	08	Sri Lanka	7.0	9.0	9.8	6.9	8.2	6.0	9.2	6.6	8.0	9.3	9.5	6.1	1
22	09	Sri Lanka	7.5	9.3	9.8	6.9	8.5	6.1	9.0	6.6	8.5	9.2	9.2	6.1	1

25	10	Sri Lanka	7.3	9.4	9.6	6.7	8.7	5.9	8.6	6.4	8.8	8.5	9.4	6.4	1
28	11	Sri Lanka	7.0	8.6	9.4	6.9	8.4	5.3	8.5	6.1	8.6	8.0	9.5	6.8	1
29	12	Sri Lanka	7.1	8.7	9.1	7.1	8.1	5.6	8.1	5.8	8.7	8.2	9.2	6.5	1
28	13	Sri Lanka	6.8	8.4	9.5	7.3	7.8	5.9	8.2	5.5	9.0	8.5	9.3	6.8	1
25	06	Sri Lanka	8.0	8.2	9.1	6.7	8.0	5.7	8.6	7.0	7.2	8.5	8.9	6.5	0
3	05	Sudan	8.6	9.4	7.8	9.1	9	8.5	9.2	8.7	8	9.8	8.7	7.3	1
1	06	Sudan	9.6	9.7	9.7	9.1	9.2	7.5	9.5	9.5	9.8	9.8	9.1	9.8	1
1	07	Sudan	9.2	9.8	10.0	9.0	9.1	7.7	10.0	9.5	10.0	9.9	9.7	9.8	1
2	08	Sudan	9.0	9.6	10.0	8.8	9.3	7.3	10.0	9.5	9.9	9.8	9.9	9.9	1
3	09	Sudan	9.0	9.8	9.9	9.0	9.6	7.0	9.8	9.5	9.8	9.7	9.5	9.8	1
3	10	Sudan	8.8	9.8	9.9	8.7	9.5	6.7	9.9	9.3	9.9	9.8	9.9	9.6	1
3	11	Sudan	8.5	9.6	9.9	8.2	9.1	6.4	9.4	9.0	9.7	9.6	9.9	9.5	1
3	12	Sudan	8.4	9.9	10.0	8.3	8.8	7.3	9.5	8.5	9.4	9.7	9.9	9.5	1
3	13	Sudan	8.8	10.0	10.0	8.4	8.5	7.8	9.6	8.8	9.3	9.8	10.0	10.0	1
95	07	Suriname	7.1	4.2	6.1	6.7	8.3	6.9	6.4	4.9	5.7	6.2	5.1	6.3	0
101	08	Suriname	6.5	3.9	6.1	6.7	8.3	6.2	6.4	4.9	6.0	6.0	5.4	6.0	0
103	09	Suriname	6.2	3.9	6.2	6.9	7.9	6.3	6.7	5.0	6.0	6.2	5.8	6.1	0
105	10	Suriname	6.0	3.7	6.4	6.7	7.7	6.6	6.5	5.1	5.8	6.0	5.8	6.2	0
105	11	Suriname	6.0	3.5	6.1	7.0	7.5	6.1	6.1	4.9	5.6	5.8	5.8	6.7	0
105	12	Suriname	5.8	3.2	6.1	7.3	7.5	6.6	6.4	5.0	5.3	5.8	5.8	6.4	0
106	13	Suriname	5.7	3.0	6.1	7.6	7.0	7.1	6.1	5.3	5.4	5.8	5.8	6.3	0
61	07	Swaziland	8.7	4.0	4.0	5.3	6.0	7.7	8.8	8.1	7.5	7.1	7.1	7.0	0
71	08	Swaziland	8.8	4.0	4.0	5.5	6.1	7.8	8.5	7.5	7.5	6.5	6.9	6.9	0
65	09	Swaziland	9.2	4.0	4.0	6.0	6.0	8.0	8.8	7.8	7.5	6.8	6.9	7.4	0
63	10	Swaziland	9.1	4.2	4.2	6.2	6.2	8.2	8.6	7.6	7.7	6.6	6.9	7.3	0
61	11	Swaziland	9.2	4.6	3.9	5.9	6.5	7.8	8.5	7.5	8.2	6.6	7.0	6.9	0
55	12	Swaziland	8.9	4.6	3.6	5.8	7.0	8.3	8.6	7.7	8.3	6.3	7.0	7.4	0
49	13	Swaziland	9.0	4.9	3.6	6.3	7.5	8.9	8.7	7.8	8.3	6.0	7.0	7.5	0
174	07	Sweden	3.2	2.8	1.0	2.0	2.0	1.3	1.0	1.2	1.4	0.9	1.0	1.5	0
175	08	Sweden	3.2	3.0	1.3	2.0	2.1	1.2	1.0	1.2	1.4	0.9	1.0	1.5	0
175	09	Sweden	2.8	2.6	1.3	2.0	2.3	1.6	1.0	1.2	1.6	1.1	1.3	1.8	0
175	10	Sweden	2.7	2.7	1.3	1.8	2.1	2.2	0.8	1.3	1.8	1.3	1.3	1.6	0
175	11	Sweden	2.8	2.9	1.3	2.0	2.2	1.9	0.9	1.5	1.6	2.3	1.8	1.6	0
176	12	Sweden	2.6	2.6	1.0	1.8	1.9	1.6	0.8	1.8	1.6	2.5	1.8	1.3	0
177	13	Sweden	2.5	2.4	1.0	1.7	1.7	1.7	0.5	1.9	1.3	2.2	1.8	1.0	0
144	06	Sweden	3.0	2.5	1.0	2.0	2.0	1.2	1.0	1.0	1.5	1.0	1.0	1.0	0
172	07	Switzerland	3.3	1.7	2.1	2.0	2.6	1.5	1.0	1.4	1.7	1.0	1.0	0.9	0
173	08	Switzerland	2.9	1.7	2.6	2.0	2.6	1.5	1.0	1.4	1.7	1.0	1.0	0.9	0
174	09	Switzerland	2.6	1.3	2.9	2.0	2.6	2.1	1.2	1.6	1.7	1.0	1.0	1.2	0
174	10	Switzerland	2.4	1.5	3.3	1.8	2.6	2.4	1.0	1.4	2.2	1.2	1.0	1.0	0
174	11	Switzerland	2.1	1.9	3.5	2.1	2.8	2.4	1.0	1.6	2.0	1.4	1.0	1.4	0
174	12	Switzerland	2.4	1.8	3.2	2.2	2.6	2.2	0.9	1.7	2.0	1.7	1.0	1.7	0
175	13	Switzerland	2.1	1.5	3.5	2.1	2.3	2.3	0.8	1.4	1.7	1.4	1.0	1.4	0
142	06	Switzerland	3.0	1.5	2.0	2.0	2.5	1.2	1.0	1.0	1.5	1.0	1.0	1.0	0
29	05	Syria	9	8	7.5	6.8	9	5	9	5	7.6	9	8.2	7.4	1
33	06	Syria	7.0	7.1	8.0	6.8	8.9	6.5	9.0	5.5	9.0	7.5	7.1	6.2	1

40	07	Syria	6.5	8.9	8.0	6.8	8.1	6.8	8.5	5.3	8.5	7.4	7.5	6.3	1
35	08	Syria	6.5	9.0	8.0	6.8	8.1	6.8	8.8	5.7	8.8	7.6	7.7	6.3	1
39	09	Syria	6.1	9.2	8.2	6.8	8.0	6.8	8.8	5.7	8.6	7.8	7.8	6.0	1
48	10	Syria	5.9	8.9	8.3	6.6	7.8	6.3	8.6	5.5	8.8	7.6	7.8	5.8	1
48	11	Syria	5.6	8.5	8.7	6.3	7.4	5.8	8.3	5.8	8.6	7.5	7.9	5.5	1
23	12	Syria	5.5	9.0	9.2	6.0	7.5	6.3	9.5	7.0	9.4	8.5	8.7	7.9	1
21	13	Syria	5.6	9.5	9.3	6.2	7.2	6.4	9.6	7.0	9.5	9.8	9.2	8.1	1
49	05	Tajikistan	9	5	6.2	6.7	9	5.3	8.6	5	9.4	8	9.5	5.0	1
42	06	Tajikistan	7.0	6.6	6.2	6.5	7.4	6.8	8.9	7.5	8.6	7.5	8.7	6.0	1
39	07	Tajikistan	7.7	6.1	6.3	6.4	7.3	7.3	9.0	7.3	8.6	7.8	8.8	6.1	1
38	08	Tajikistan	7.9	6.1	6.5	6.4	7.3	7.0	9.2	7.1	8.8	7.8	8.6	6.2	1
36	09	Tajikistan	8.2	6.4	6.9	6.5	7.3	7.5	8.9	7.6	8.6	7.5	8.4	6.5	1
38	10	Tajikistan	8.0	6.2	6.9	6.3	7.1	7.5	8.9	7.3	8.7	7.3	8.4	6.6	1
39	11	Tajikistan	7.7	5.9	7.2	6.0	6.8	7.4	8.9	6.9	8.5	7.4	8.6	7.0	1
46	12	Tajikistan	7.3	5.6	6.9	5.7	6.5	7.7	8.8	6.6	8.5	7.1	8.3	6.7	1
51	13	Tajikistan	7.4	5.3	6.7	5.9	6.2	8.0	9.1	6.3	8.2	7.4	8.3	6.4	1
32	05	Tanzania	9	7.2	7.6	6.7	8.9	4.5	8.2	7.8	8.6	7.9	7.5	7.1	0
71	06	Tanzania	7.0	6.8	6.0	6.0	7.0	7.0	6.5	7.8	6.0	6.0	5.2	7.0	0
75	07	Tanzania	7.4	7.1	6.2	6.0	6.9	7.4	6.3	7.8	6.0	5.7	5.5	7.0	0
75	08	Tanzania	7.4	7.0	6.4	6.0	6.9	7.2	6.3	7.6	5.8	5.7	5.8	7.0	0
70	09	Tanzania	8.0	7.1	6.6	6.0	6.9	7.5	6.7	8.0	5.8	5.4	6.3	6.8	0
72	10	Tanzania	8.2	7.3	6.4	6.1	6.7	7.2	6.5	8.3	5.9	5.6	6.0	7.0	0
65	11	Tanzania	8.1	7.4	6.1	5.8	6.3	7.4	6.5	8.6	6.2	5.5	6.0	7.4	0
66	12	Tanzania	8.2	7.1	5.8	6.1	5.9	6.9	6.5	8.5	6.5	5.8	5.7	7.4	0
65	13	Tanzania	8.6	6.8	6.0	6.4	6.4	6.8	6.2	8.8	6.2	5.5	5.7	7.7	0
69	05	Thailand	9	5	6.3	4	9	0.9	8.5	3.5	7	9	9.2	6.0	1
79	06	Thailand	7.5	5.7	8.1	4.3	7.5	2.0	6.8	6.0	6.5	6.8	7.2	6.5	1
85	07	Thailand	7.0	5.8	7.8	4.4	7.5	3.0	8.0	5.5	6.3	7.2	8.0	5.5	1
89	08	Thailand	6.8	6.0	7.7	4.4	7.5	3.6	7.7	5.5	6.2	7.0	7.7	5.5	1
78	09	Thailand	6.9	6.5	8.0	4.5	7.7	3.8	8.2	5.4	6.9	7.5	8.0	5.8	1
81	10	Thailand	6.7	6.7	7.8	4.7	7.5	4.3	8.0	5.4	7.0	7.4	8.0	5.3	1
79	11	Thailand	6.4	6.6	8.0	4.4	7.2	4.0	8.4	5.0	7.3	7.6	8.5	4.9	1
84	12	Thailand	8.2	6.7	7.8	4.0	6.9	4.0	6.5	4.7	7.2	7.3	8.8	4.9	1
90	13	Thailand	7.9	6.4	8.1	3.5	6.4	3.5	6.2	4.6	7.3	7.8	8.8	4.6	1
20	07	Timor-Leste	8.1	8.5	7.1	5.3	6.5	8.5	9.5	7.9	6.9	9.0	8.8	8.8	0
25	08	Timor-Leste	8.1	8.6	7.1	5.3	6.5	8.2	9.0	8.0	6.9	8.8	8.5	8.8	0
20	09	Timor-Leste	8.4	9.0	7.3	5.7	6.8	8.4	9.4	8.4	7.0	9.0	8.8	9.0	0
18	10	Timor-Leste	8.6	9.1	7.5	6.1	7.0	8.4	9.1	8.7	7.0	8.8	8.7	9.2	0
23	11	Timor-Leste	8.5	8.0	7.1	5.8	7.3	7.9	8.8	8.7	6.8	8.3	8.3	9.3	0
28	12	Timor-Leste	8.4	7.7	6.8	6.1	7.0	8.0	8.5	8.4	6.3	8.3	8.3	8.9	0
32	13	Timor-Leste	8.7	7.4	6.8	6.4	6.7	7.9	8.0	8.5	6.0	8.3	8.3	8.5	0
64	05	Togo	5	6	7	6	9	3	8.9	10	7.6	5	7.9	5.0	0
37	06	Togo	7.0	5.8	6.0	6.5	7.5	8.0	8.7	8.1	8.1	8.1	7.8	6.7	0
46	07	Togo	7.5	5.4	6.0	6.5	7.5	8.2	7.7	8.0	7.8	7.8	7.6	6.6	0
45	08	Togo	7.7	5.6	6.0	6.5	7.5	8.2	7.2	8.0	7.9	7.8	7.5	6.9	0
50	09	Togo	7.9	6.0	5.8	6.9	7.5	8.2	7.5	8.3	7.6	7.4	7.3	6.8	0

47	10	Togo	8.0	6.2	5.6	7.0	7.6	8.0	7.5	8.4	7.7	7.6	7.6	6.9	0
36	11	Togo	8.1	6.5	5.4	7.0	7.9	8.0	8.0	8.5	7.7	7.3	7.8	7.1	0
39	12	Togo	8.1	6.8	5.1	6.9	7.6	7.7	8.2	8.2	7.4	7.3	7.5	6.8	0
42	13	Togo	8.2	7.1	4.8	6.8	7.6	7.4	8.3	8.3	7.8	7.4	7.5	6.5	0
115	07	Trinidad	5.9	3.8	5.2	6.4	8.1	3.8	6.4	5.8	5.4	5.7	5.7	5.4	0
119	08	Trinidad	5.5	3.6	5.2	6.7	7.7	4.0	6.4	5.5	5.4	5.7	5.9	5.4	0
123	09	Trinidad	5.8	3.1	4.9	7.1	7.6	4.5	6.1	5.4	5.6	5.7	5.6	5.3	0
124	10	Trinidad	5.6	3.1	4.9	7.3	7.2	4.8	5.9	5.2	5.4	6.0	5.6	5.1	0
124	11	Trinidad	5.3	3.2	4.7	7.7	6.9	4.5	5.5	4.9	5.1	5.5	5.6	4.8	0
122	12	Trinidad	5.5	2.9	4.4	7.7	6.6	4.7	5.9	5.1	5.5	6.0	5.6	4.5	0
125	13	Trinidad	5.3	3.0	4.4	7.8	6.1	4.6	5.6	5.2	5.2	5.7	5.6	4.2	0
71	05	Tunisia	6	8	6.2	7.1	9	3.6	7.8	4	7.3	6	8.3	3.0	0
100	06	Tunisia	5.7	3.6	5.0	5.0	7.5	3.6	6.5	6.0	7.5	6.0	6.0	3.0	0
121	07	Tunisia	5.6	3.4	5.1	5.1	7.4	4.3	6.4	5.9	7.3	5.9	6.2	3.0	0
122	08	Tunisia	5.6	3.4	5.1	5.1	7.2	4.3	6.6	5.9	7.3	5.9	6.2	3.0	0
121	09	Tunisia	5.9	3.2	5.4	5.3	7.2	4.9	6.6	6.1	7.4	6.2	6.0	3.4	0
118	10	Tunisia	5.7	3.4	5.4	5.2	7.0	5.0	6.4	5.7	7.5	6.5	6.0	3.7	0
108	11	Tunisia	5.5	3.4	5.6	5.2	6.6	5.0	7.2	5.3	7.7	7.0	6.8	4.8	0
94	12	Tunisia	5.2	4.0	5.6	5.2	6.3	5.5	7.8	5.0	8.3	7.5	7.8	6.0	0
85	13	Tunisia	4.9	4.2	7.8	5.0	6.0	6.0	7.9	5.0	8.4	7.2	7.8	6.3	0
48	05	Turkey	9	8	7.3	5	9	4.2	9.7	4.8	5	8	9.1	7.0	1
82	06	Turkey	7.2	6.1	7.3	5.0	8.6	4.1	6.1	5.7	5.0	6.4	6.9	6.0	1
91	07	Turkey	6.9	5.8	7.4	5.0	8.7	4.7	6.1	5.4	5.1	6.7	7.1	6.0	1
92	08	Turkey	6.7	6.2	7.6	5.0	8.2	4.6	6.0	5.2	5.5	6.7	7.5	6.2	1
85	09	Turkey	6.8	6.6	7.7	5.0	8.0	5.3	6.5	5.3	6.0	7.0	7.8	6.2	1
89	10	Turkey	6.3	6.3	8.0	4.8	7.8	5.8	6.0	5.4	5.5	7.4	7.8	6.0	1
103	11	Turkey	5.9	6.0	8.3	4.5	7.4	5.5	5.9	5.7	5.2	4.0	7.5	5.6	1
85	12	Turkey	6.0	6.5	8.6	4.2	7.1	5.6	6.2	6.0	5.3	7.7	7.5	5.9	1
86	13	Turkey	5.7	7.4	9.0	3.9	6.8	5.3	5.9	5.5	5.5	7.9	7.3	5.6	1
70	05	Turkmenistan	8	5	4.9	4.3	9	3.1	9.8	6	7.6	5	9.8	4.0	0
45	06	Turkmenistan	7.0	4.2	5.2	6.0	7.2	8.0	9.1	7.2	9.7	8.5	8.0	6.0	0
43	07	Turkmenistan	7.0	4.5	6.2	5.6	7.3	7.4	9.0	7.7	9.6	8.5	8.2	6.5	0
46	08	Turkmenistan	7.0	4.5	6.2	5.6	7.3	7.1	8.7	7.7	9.6	8.3	7.9	6.3	0
59	09	Turkmenistan	7.0	4.8	6.5	5.6	7.6	6.9	8.5	7.2	8.9	7.6	7.7	6.0	0
65	10	Turkmenistan	6.8	4.6	6.3	5.4	7.4	6.6	8.4	7.0	9.0	7.7	7.7	5.6	0
75	11	Turkmenistan	6.5	4.2	6.6	5.1	7.1	6.0	8.4	6.7	8.7	7.5	7.7	5.2	0
81	12	Turkmenistan	6.2	3.9	6.4	4.8	6.8	5.7	9.0	6.4	8.4	7.2	7.7	4.9	0
81	13	Turkmenistan	5.9	3.9	6.7	4.9	6.5	5.4	9.3	6.1	8.7	7.1	7.7	4.6	0
27	05	Uganda	9	7.6	6.9	5.7	8.4	6	8	8.4	8.3	8	8.1	7.3	1
21	06	Uganda	8.0	9.2	7.8	5.7	8.4	7.5	8.0	8.0	8.0	8.5	7.9	7.5	1
15	07	Uganda	8.1	9.4	8.5	6.0	8.5	7.5	8.5	8.2	8.2	8.3	7.8	7.4	1
16	08	Uganda	8.7	9.3	8.3	6.0	8.5	7.6	8.3	7.9	7.9	8.1	7.8	7.7	1
21	09	Uganda	8.7	9.3	8.0	6.5	8.7	7.6	8.0	8.0	7.7	8.2	8.2	8.0	1
21	10	Uganda	8.7	8.9	8.5	6.9	8.4	7.2	7.9	8.2	7.6	8.7	8.6	7.9	1
20	12	Uganda	8.8	8.2	7.7	6.9	8.1	7.5	8.0	8.6	7.8	8.3	8.7	7.9	1
22	13	Uganda	9.1	8.4	8.0	6.7	7.8	7.4	8.1	8.3	7.9	8.2	8.6	8.2	1

21	11	Uganda	8.8	8.0	8.0	6.6	8.4	7.5	7.7	8.3	7.5	8.6	8.6	8.2	0
39	05	Ukraine	9	7	6.9	8.8	9	7.3	8.9	5.5	8.5	2	9.1	6.8	0
86	06	Ukraine	7.0	3.8	7.2	7.5	7.0	4.5	7.0	5.5	5.9	3.0	7.5	7.0	0
105	07	Ukraine	6.5	3.6	7.0	7.5	7.0	5.0	7.5	4.5	5.9	3.0	7.9	6.0	0
108	08	Ukraine	6.5	3.2	7.2	7.3	6.7	5.0	7.3	4.5	5.9	3.0	7.9	6.3	0
110	09	Ukraine	6.1	3.0	6.9	7.1	6.4	5.5	7.2	4.2	5.5	3.3	7.9	6.6	0
109	10	Ukraine	5.6	3.1	6.9	6.6	6.2	6.3	7.2	4.0	5.3	3.8	7.9	6.6	0
110	11	Ukraine	5.3	3.1	6.5	6.3	5.9	6.0	7.4	4.1	5.5	4.0	8.0	6.8	0
113	12	Ukraine	5.0	2.9	6.2	6.0	5.6	5.7	7.7	3.9	5.4	4.3	8.0	6.5	0
117	13	Ukraine	4.7	3.2	5.9	5.7	5.3	5.4	7.8	3.6	5.7	4.4	8.0	6.2	0
137	07	United Arab Emirates	5.6	3.6	4.0	3.7	5.2	2.6	7.0	4.1	6.1	2.1	3.6	4.0	0
138	08	United Arab Emirates	5.0	3.6	4.3	3.4	5.5	2.6	7.0	3.9	5.9	1.9	3.8	4.3	0
139	09	United Arab Emirates	4.6	3.4	4.7	3.3	5.7	3.2	6.7	3.6	5.8	2.3	4.0	4.5	0
137	10	United Arab Emirates	4.4	3.2	4.7	3.3	5.7	3.9	6.7	3.4	5.9	2.7	4.0	4.5	0
138	11	United Arab Emirates	4.1	2.8	4.6	3.0	5.4	4.2	6.5	3.3	5.7	3.0	3.6	4.1	0
140	12	United Arab Emirates	4.1	2.8	4.3	2.7	5.1	3.9	6.4	3.1	5.9	3.2	3.6	3.8	0
142	13	United Arab Emirates	3.9	2.5	4.3	2.4	4.8	3.5	6.5	2.9	6.4	2.9	3.6	3.5	0
130	06	United Kingdom	3.5	3.9	5.0	2.0	5.0	1.0	2.5	1.8	2.0	2.5	3.0	2.0	0
156	07	United Kingdom	3.4	4.0	4.2	2.0	4.7	1.4	2.2	1.8	2.6	3.0	2.7	2.1	0
160	08	United Kingdom	3.0	3.0	4.5	2.0	4.5	1.7	2.0	1.8	2.6	3.0	2.7	2.1	0
161	09	United Kingdom	3.2	2.8	4.3	1.9	4.7	2.5	1.8	2.2	2.3	2.6	2.9	2.4	0
161	10	United Kingdom	3.2	3.0	4.1	1.8	4.5	3.0	1.6	2.3	2.3	2.7	3.2	2.2	0
159	11	United Kingdom	2.9	3.3	4.4	2.1	4.2	3.3	1.4	2.2	2.0	2.7	3.6	1.9	0
158	12	United Kingdom	2.8	3.0	4.7	2.4	3.9	3.7	1.9	2.6	2.1	3.0	3.6	1.6	0
160	13	United Kingdom	2.5	2.7	5.0	2.1	3.6	4.1	1.6	2.3	1.8	2.7	3.5	1.3	0
128	06	United States of America	5.0	6.0	3.0	1.0	6.0	1.5	2.5	1.0	5.0	1.0	1.5	1.0	1
159	07	United States of America	3.5	5.5	3.2	1.0	5.8	1.8	2.8	1.4	4.6	1.3	1.7	1.0	1
161	08	United States of America	3.5	4.0	3.2	1.0	5.5	2.3	3.0	1.8	4.2	1.3	2.0	1.0	1
159	09	United States of America	3.1	3.7	3.3	1.0	5.3	2.9	3.0	2.3	4.0	1.4	2.5	1.5	1
158	10	United States of America	3.1	3.2	3.4	1.1	5.4	4.0	2.5	2.5	3.7	1.6	3.3	1.5	1
158	11	United States of America	3.4	2.9	3.6	1.1	5.4	3.7	2.2	2.7	3.3	1.6	3.6	1.3	1
159	12	United States of America	3.3	2.6	3.9	1.3	5.1	3.4	2.6	2.7	3.5	1.9	3.6	1.0	1
159	13	United States of America	3.0	2.3	4.2	1.0	4.8	3.2	2.3	2.4	3.2	2.2	3.9	1.0	1
150	07	Uruguay	5.1	1.1	2.0	5.9	5.1	3.5	2.9	4.0	2.5	3.0	2.3	3.5	0
151	08	Uruguay	5.1	1.1	2.0	5.9	5.1	3.7	2.9	4.0	2.5	3.0	2.3	3.8	0
154	09	Uruguay	4.7	1.0	2.0	5.8	5.2	4.1	2.8	3.6	2.5	3.3	2.5	3.7	0
153	10	Uruguay	4.3	1.3	2.0	5.6	5.0	4.0	2.6	3.4	2.5	3.4	3.0	4.2	0
154	12	Uruguay	4.1	1.8	2.7	5.0	4.6	3.8	2.2	3.4	2.6	4.0	2.7	3.7	0
155	13	Uruguay	3.8	1.9	2.8	4.7	4.4	3.6	1.7	3.4	2.3	3.7	2.7	3.5	0
120	06	Uruguay	5.0	1.0	2.0	6.0	5.0	3.5	3.0	4.0	2.5	3.0	2.5	3.7	0
153	11	Uruguay	3.9	1.7	2.4	5.3	4.7	3.8	2.5	3.3	2.5	3.7	2.7	3.9	0
24	05	Uzbekistan	6.5	8	6.8	6.8	9	6	9.1	5	9.6	9	9.4	8.0	0
22	06	Uzbekistan	7.7	5.8	7.5	7.5	8.1	7.0	9.3	7.0	9.3	9.1	9.1	7.0	0
22	07	Uzbekistan	7.7	5.4	7.1	7.1	8.6	7.5	9.2	6.8	9.0	8.9	9.2	7.0	0
26	08	Uzbekistan	7.7	5.4	7.1	7.1	8.6	7.7	9.3	6.8	9.2	9.0	9.2	6.3	0
31	09	Uzbekistan	7.9	5.3	7.4	7.0	8.7	7.2	9.0	6.6	9.2	9.0	9.0	6.5	0

36	10	Uzbekistan	7.7	5.1	7.4	6.6	8.5	7.0	8.5	6.4	9.3	8.8	9.0	6.2	0
40	11	Uzbekistan	7.3	5.7	7.4	6.3	8.2	6.8	8.4	6.0	9.0	8.5	8.7	6.0	0
39	12	Uzbekistan	7.0	5.7	7.7	6.0	7.9	7.1	8.7	5.7	9.1	8.2	8.7	5.7	0
44	13	Uzbekistan	6.7	6.0	7.5	6.3	7.6	7.2	9.0	5.4	9.2	7.9	8.7	5.4	0
21	05	Venezuela	8	8	6.8	7.6	9	4.5	9.8	8.2	9.1	7.8	7.2	7.5	0
63	06	Venezuela	7.5	4.8	6.8	7.0	8.0	4.0	7.5	7.0	7.8	7.5	7.3	6.0	0
73	07	Venezuela	6.9	5.2	6.8	6.9	8.2	4.0	7.5	6.3	7.9	6.9	7.5	5.7	0
79	08	Venezuela	6.5	5.0	6.8	6.9	8.0	4.6	7.1	6.3	7.4	6.6	7.5	5.2	0
77	09	Venezuela	6.8	5.0	7.0	6.9	8.0	5.3	7.2	5.9	7.3	6.9	7.7	5.5	0
82	10	Venezuela	6.3	5.1	6.8	6.7	7.6	5.8	7.2	6.1	7.2	6.7	7.5	5.7	0
80	11	Venezuela	6.0	4.8	7.0	6.4	7.3	6.1	7.5	5.8	7.4	7.0	7.3	5.5	0
82	12	Venezuela	5.7	4.5	6.7	6.1	7.2	5.9	7.9	6.3	7.7	6.7	7.3	5.2	0
89	13	Venezuela	5.4	4.8	6.4	5.8	6.9	5.4	7.6	6.5	7.7	6.5	7.3	4.9	0
52	05	Vietnam	8.6	8	5.6	8.5	8.9	3.4	7.6	4.3	8.4	8	6.4	7.2	0
70	06	Vietnam	7.0	6.5	5.3	7.0	6.2	5.6	7.0	6.6	7.0	7.5	7.0	5.9	0
78	07	Vietnam	6.5	5.9	5.3	7.0	6.2	6.2	7.0	6.5	6.9	7.4	7.0	5.9	0
95	08	Vietnam	6.6	5.0	5.3	6.0	6.2	6.1	7.2	6.0	7.0	6.4	6.9	5.9	0
94	09	Vietnam	6.8	5.3	5.5	6.0	6.5	6.7	7.3	6.3	7.2	6.2	7.1	6.0	0
95	10	Vietnam	6.9	5.2	5.3	5.9	6.5	6.6	7.3	6.4	7.3	6.0	7.0	6.2	0
88	11	Vietnam	6.7	5.0	5.7	5.7	6.2	6.1	7.5	6.4	7.7	6.0	6.9	6.1	0
96	12	Vietnam	6.1	4.4	6.0	6.0	5.9	6.1	7.5	6.1	7.4	5.7	6.9	5.9	0
98	13	Vietnam	5.9	4.7	5.7	5.7	5.8	6.2	7.8	5.8	7.5	5.4	6.9	5.6	0
8	05	Yemen	7.8	8	6.4	8.2	9	8.8	9.8	9.3	6.4	9	9.4	7.6	1
16	06	Yemen	7.8	6.7	7.0	8.2	9.0	7.8	8.8	8.2	7.2	9.0	9.4	7.5	1
24	07	Yemen	8.0	6.7	7.3	7.2	8.7	8.0	7.8	8.1	7.2	8.0	9.0	7.2	1
21	08	Yemen	8.6	7.2	7.3	7.2	8.8	8.2	8.0	8.3	7.5	8.2	8.9	7.2	1
18	09	Yemen	8.8	7.9	7.7	7.4	8.9	8.2	8.3	8.5	7.7	8.4	9.0	7.3	1
15	10	Yemen	8.6	8.3	8.2	7.2	8.6	7.9	8.7	8.6	8.0	8.9	9.2	7.8	1
13	11	Yemen	8.7	8.4	8.6	6.9	8.3	7.7	8.6	8.7	7.7	9.3	9.3	8.2	1
8	12	Yemen	8.8	8.7	9.0	7.0	8.4	8.7	9.1	9.0	8.4	9.7	9.8	8.3	1
6	13	Yemen	9.3	9.2	9.0	7.4	8.1	9.2	9.3	8.7	8.7	9.8	9.5	8.7	1
66	06	Zambia	9.2	5.2	5.2	6.7	7.3	7.6	7.5	7.8	5.8	6.0	5.2	6.1	0
69	07	Zambia	9.1	6.2	5.2	6.7	7.4	7.9	7.6	7.9	5.8	5.5	5.2	6.1	0
63	08	Zambia	8.8	6.4	5.2	6.7	7.4	8.1	7.8	7.9	5.8	5.5	5.5	6.5	0
60	09	Zambia	9.0	7.1	5.3	7.0	7.1	8.5	7.8	8.4	5.6	5.2	5.7	7.5	0
56	10	Zambia	9.0	7.3	5.4	7.1	7.3	8.0	7.5	8.0	5.9	5.0	6.1	7.3	0
55	11	Zambia	8.9	7.6	5.7	6.8	7.3	7.7	7.6	7.8	6.1	5.3	5.8	7.3	0
44	12	Zambia	9.1	7.3	6.3	7.1	7.7	8.1	8.0	7.7	6.4	5.3	6.0	7.0	0
45	13	Zambia	9.3	7.4	6.0	7.4	8.0	8.3	8.0	7.6	6.7	5.0	5.7	7.2	0
15	05	Zimbabwe	9	8	6.4	7.7	9	7.3	7.9	8.5	7.5	9	7.9	6.7	0
5	06	Zimbabwe	9.7	8.9	8.5	9.0	9.2	9.8	8.9	9.5	9.5	9.4	8.5	8.0	0
4	07	Zimbabwe	9.7	8.7	8.8	9.1	9.5	10.0	9.5	9.6	9.7	9.5	9.0	7.0	0
3	08	Zimbabwe	9.7	9.0	9.5	10.0	9.6	10.0	9.5	9.6	9.8	9.5	9.3	7.0	0
2	09	Zimbabwe	9.8	9.1	9.1	10.0	9.7	10.0	9.8	9.8	9.9	9.7	9.5	7.6	0
4	10	Zimbabwe	9.4	8.6	8.8	9.7	9.4	9.6	9.6	9.4	9.5	9.2	9.5	7.5	0
6	11	Zimbabwe	9.3	8.2	9.0	9.3	9.2	9.0	9.3	9.0	9.2	9.0	9.6	7.8	0

5	12	Zimbabwe	9.0	8.4	8.7	9.0	8.9	8.9	9.4	9.1	8.9	8.7	9.8	7.5	0
10	13	Zimbabwe	9.2	8.7	8.4	8.6	8.6	8.6	9.2	9.1	8.9	8.4	9.7	7.8	0

Table 31: Master FSI with Conflict

APPENDIX 3

Composite reliability:

<i>Latent variable</i>	<i>Dimensions</i>	<i>Cronbach's alpha</i>	<i>D.G. rho (PCA)</i>	<i>Condition number</i>	<i>Critical value</i>	<i>Eigen values</i>
<i>PastConflict01</i>	1					
<i>PastConflict02</i>	1					
<i>PastConflict</i>	2	0.953	0.977	4.628	1.000	1.911 0.089
<i>People</i>	3	0.875	0.923	3.498	1.000	2.401 0.403 0.196
<i>Rage</i>	3	0.938	0.960	5.798	1.000	2.670 0.251 0.079
<i>Prosperity</i>	2	0.796	0.908	2.215	1.000	1.661 0.339
<i>Governance</i>	3	0.936	0.959	5.248	1.000	2.659 0.245 0.097
<i>Externals</i>	1					
<i>Resilience</i>	14	0.963	0.969	14.766	1.000	9.770 1.797 0.598 0.381 0.340 0.317 0.174 0.151 0.112 0.099 0.088 0.078 0.049 0.045
<i>Current Conflict</i>	1					
<i>Future Conflict</i>	4	0.934	0.953	5.246	1.000	3.341 0.383 0.155 0.121

Table 32: PLS SEM CY 2009 Composite Reliability

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