Aggrieved Populations Analysis

October 2019

Statistical Modeling of Risk and Political Instability in the Influence Environment

Deeper Analyses
Clarifying Insights
Better Decisions

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Produced in support of the Strategic Multilayer Assessment (SMA) Office (Joint Staff, J39)

RESEARCH · INNOVATION · EXCELLENCE

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Executive Summary

Success in the global competition between the US, China, and Russia may be determined by a country's ability to influence the world's populations. A population's aspirations and grievances can drive national security problems for all three powers when frustrated aspirations and grievances lead to state instability, terrorism, or other challenges such as unwanted or unmanaged migration. In accordance with the questions posed in the J39 Strategic Multilayer Assessment (SMA) Great Power Competition tasking, this study is intended to address the following issues through the use of country-level global statistical modeling, including identifying or anticipating:

- Where aggrieved populations are likely to exist globally and how they may be operationalized against US interests.
- The effects of global climate change on state stability.
- The forms of instability that may challenge US interests (political instability, autocratic regimes, violent extremism, adversarial proxies).
- The causes and effects of mass migration.

Previous academic research was used as the starting point for this study, and it was challenged to approximate the data challenges of intelligence analysis as well as to re-test earlier findings and update models by considering new and potentially relevant variables. Three statistical models (political stability, terrorism, and migration) were developed under these conditions to address the J39 questions. The key findings were:

- **Political instability** is driven by hunger, risk acceptant elites, the interaction of fuel export and corruption, weak democracy, mountainous terrain, economic isolation, and ethnic division.
- **Terrorism** is fueled by large populations, ties to MENA oil producers, the interaction of fuel export and corruption, economic isolation, and a risk acceptant middle class.
- **Migration from undeveloped countries** is driven by hunger, a youth bulge, homicide and political oppression, and
- **Migration to developed countries** is driven by permissive immigration policies and the attraction of national wealth.

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Purpose

This study addresses several key questions posed in the J39 tasking memo for the 2019 Strategic Multilayer Assessment (SMA) Great Power Competition project (Appendix A). These questions generally concern trends in the influence environment (US Joint Chiefs of Staff, 2018), how they impact US, Chinese, and Russian interests, and how these powers are likely to act in these environments.

Specific issues assessed in this study range from:

- Identifying where aggrieved populations are likely to exist globally and how they may be operationalized against US interests.
- Anticipating the effects of global climate change on state stability.
- Identifying the forms of instability that may challenge US interests (political instability, autocratic regimes, violent extremism, adversarial proxies).
- Identifying the causes and effects of mass migration.

Approach

The US, China, and Russia compete in a global environment composed of the world's populations. The grievances of these populations and the instability of their societies have become tools used to undermine US interests (US Joint Chiefs of Staff, 2018). As Jones (2019) notes, populations are the new queens of the global competition chessboard; they collectively hold great power and in order to compete we must understand them. This report summarizes statistical models of political instability, terrorism and migration in the global population that impact US, Chinese, and Russian interests.

This study is intended to provide a broad statistical analysis of the population drivers of political instability and is complementary to the *Inequality, Risk Sensitivity, and Grievance in Context: Summary of Aggrieved Populations Country Reports* document, which presents quantitative and qualitative analyses of political instability, terrorism, and migration and their effects on US, Chinese, and Russian interests in 26 countries. That report provides in-depth, context sensitive analyses of how inequality and political instability play out in specific instances.

A brief literature review of relevant theoretical and empirical studies is presented followed by an outline of the methodology. Then, each best fitting statistical model for political instability, terrorism, and migration is presented. Detailed theoretical, methodological and statistical information that support the models is described in a series of appendices.

Theoretical Basis for Understanding Political Instability, Terrorism, and Migration

Compared to the voluminous case studies and qualitative analyses of political instability, terrorism, and human migration patterns, there is much less statistical modeling of these phenomena at a global scale. This study focuses on these less common, empirically based, studies that consider global populations. Each of the target phenomena, political instability, terrorism, and migration are covered in turn.

Political Instability

In the 1990's, the CIA funded a consortium of academic researchers (The Political Instability Task Force—PITF) to develop a database on social unrest and develop statistical models that could provide indicators and warnings of impending revolutions, ethnic conflicts, regime changes, and genocides (Goldstone, 2008b). This landmark research produced a number of statistical studies (Carment, 2003; Carment, Samy, & Prest, 2008; Collier & Hoeffler, 1998; Fearon, 2005; Fearon & Laitin, 2003; Goldstone, 2008a), created a set of databases that have become the standard for research in this area,[1] and inspired follow-on analyses (Coggins, 2015; De Soysa & Neumayer, 2013; Elbawadi & Sambanis, 2002; Iqbal & Starr, 2007; Lujala, Gleditsch, & Gilmore, 2005; Stevenson, 2014). One key finding was that 80% of state failures are anticipated by only four country characteristics: partial democracy, neighboring war, state discrimination, and infant mortality (Goldstone, 2008a). While this statistical model had a high degree of accuracy, the research begged key questions and suffered from some methodological weaknesses (see Appendix B. Methodology for full elaboration). Questions remained such as, "What is the role of primary commodities such as oil?" and "What is the causal connection between infant mortality and state collapse?" These types of questions are addressed in this report. Also, some independent variables were very highly correlated, which makes it extremely difficult to disentangle which are actually drivers versus spurious correlations with state fragility. This, too, was addressed in this study.

Terrorism

There are few statistical studies of terrorism, and they are typically focused on predicting terrorist capabilities rather than uncovering their causes (see for instance Asal & Rethemeyer, 2009; Coggins, 2015; Gupta & Mundra, 2006; Jordan, 2009; Kuznar et al., 2009; Legault, 2010; Ligon, Derrick, Crowe, & Church, 2015; Pelletier, Lundmark, Gardner, Ligon, & Kilinc, 2016; Shellman & Asal, 2010).[2] Two statistical studies (Coggins, 2015; Plummer, 2012) identified low human development (high infant mortality, low life expectancy, low education), large population, uneven economic development, corruption, state fragility, and weak democracy as predictors of terrorism. Researchers conducting case studies and policy makers have proposed other underlying causes including poverty and inequality (Brynjar & Skjolberg, 2004; Bush, 2002; Davis & Jenkins, 2002; Gore, 2002), educational attainment (Krueger & Maleckova, 2003; Maleckova, 2005), and demographic factors such as youth bulges (Hudson & Den Boer, 2002) and sex ratios skewed toward males (Atran, Axelrod, Davis, & Fischoff, 2017; Neer & O'Toole, 2014; Shay, 2007). All of these factors are tested in this study.

[1] Many of these databases are found at: http://www.systemicpeace.org/inscrdata.html

[2] Many of these studies were supported by SMA, including studies involving Asal, Legault, Ligon, Kuznar, Rieger, and Shellman.

Migration

Broad comparative research has found that potential drivers of migration include economic opportunity, demographic characteristics such as a youth bulge or an overabundance of males, personal security and political oppression, and possibly climate change (Cummings, Pacitto, Lauro, & Foresti, 2015; Van Hear, Bakewell, & Long, 2012). In addition, case studies have proposed youth bulges and sex ratios skewed toward men as factors (Hudson & Den Boer, 2002; Lee, 1966; Ravenstein, 1885), violence (Medecins sans Frontieres, 2017), and political oppression (Cummings et al., 2015). Finally, some researchers argue that policy drives migration and that countries with more permissive policies toward accepting immigrants attract migration and fuel its global rise (Forte & Portes, 2017). All of these variables were tested in this study.

In summary, studies of political instability, terrorism, and migration have yielded numerous causes, with some empirical and statistical support. The aim of this study is to test, refine and expand this body of research.

Methodology

Intelligence analysts are often tasked with making predictions based on a snapshot of data in a short time frame, and to consider factors perhaps not previously examined in the academic literature. Therefore, one objective of this research is to challenge existing statistical models of political stability, terrorism, and migration in order to gauge their explanatory and predictive value under more realistic conditions for the analyst. The models were challenged in several ways.

- Dependent variables used indices easily accessible to analysts.
- Data from only recent years were used.
- The effects of two new variables were tested: climate change, and inequality induced risk sensitivity.

Each of these challenges and their remedies are explained fully in Appendix B. Methodology.

Several methodological challenges in the data themselves had not been adequately addressed in the previous literature. Many key independent variables of interest in the literature are highly correlated making it difficult to discriminate which actually have a stronger, and potentially causal, relationship to a dependent variable. A traditional approach is to run separate statistical models with the highly intercorrelated variables and compare their goodness of fit. This was used along with stepwise regression, which includes and excludes variables based on their contribution to the goodness of fit. The traditional approach combined with stepwise regression worked well for the political stability and terrorism models. Standardized coefficients[3] were used in the traditional approach to provide a measure of the relative influence of each independent variable on the dependent variable.

In contrast, nearly all of the independent variables in the migration model were highly intercorrelated, outstripping the traditional approach's ability to discriminate between independent variables in a

[3] Standardized coefficients measure how many standard deviations a dependent variable will change (per standard deviation increase in an independent variable), and so render comparisons of how much relative effect each independent variable has on the dependent variable.

consistent way. An alternative approach, relative influence methodology, was used. This methodology runs every possible permutation of the independent variables and calculates the mean percentage variance each variable contributes to the dependent variable, once again providing a measure of the relative influence of each independent variable on the dependent variable.

Two variables, infant mortality and fuel exports, were relevant in previous research, but it remains unclear why they contribute to variance in political instability and terrorism. These variables were tested in new ways in this study in order to provide a clearer understanding of how they contribute explained variance in the dependent variable, the details of which are described in the findings sections on each model below. Finally, a new variable was created to operationalize the effects of climate change on countries dependent on agriculture, and this is described in the findings of the migration model section below.

Findings

This is an abbreviated review of the basic findings of the statistical modeling for political stability, terrorism, and migration. A full exposition of the models is presented in Appendix D: Detailed Findings.

Political Stability Model Results

The dependent variable in these analyses was the World Bank's Political Stability Index, which ranges from -2.5 (unstable) to 2.5 (stable) and is largely based on global surveys and data from NGOs and the World Bank.[4] Four independent variables, per capita GDP (LnpcGDP), infant mortality (LnInfMort), GAIN exposure (a measure of climate change), and food deficit (a measure of food insecurity and malnutrition) were highly correlated. Therefore, four different models were run, with only one each of these variables. The best performing model was the one containing food deficit. Its overall goodness of fit was very high ($R^2 = 0.607$, $p < 0.00001$) compared to the others (see Appendix D for a detailed description of the methods and variables).

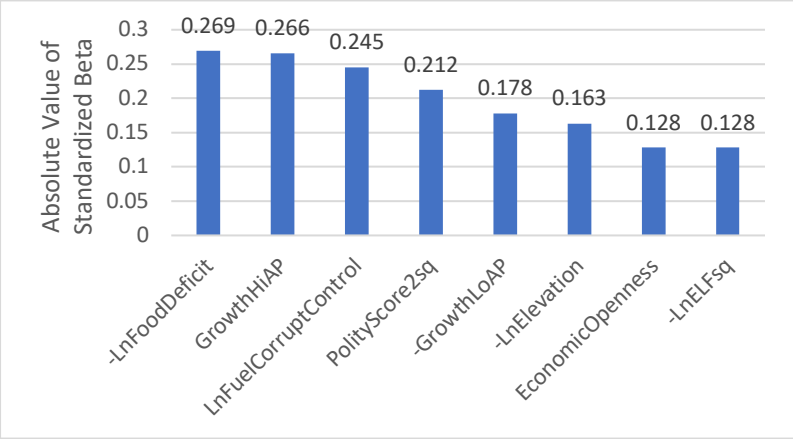

Figure 1. Political Stability Results in Standardized Coefficients, negative signs indicate negative effect.

Food insecurity (LnFoodDeficit) and **risk acceptance of the wealthy** (GrowthHiAP) are the two most influential independent variables having standardized coefficients of 0.269 and 0.266 respectively, both

[4] https://info.worldbank.org/governance/wgi/Home/Documents#wgiDataSources

being highly statistically significant. It is possible that, when a need as basic as food is in short supply for a population, starving people become restive and opposition to a government or other disruptions (e.g., ethnic conflict, genocide, radical political shifts) emerge. However, impoverished masses rarely spontaneously organize and rise (Brinton, 1964; Maleckova, 2005). Another possibility is that elite challengers to the status quo use the immiseration of the poor as a political rallying point. The positive sign of the **risk sensitivity measure for the wealthy** indicates that as they become more risk acceptant, stability worsens. This is exactly what is expected; elites have the greatest status to gain or lose, and they have the means and skills to mobilize against a government that they feel is failing them. The **risk acceptance of the poor** (GrowthLoAP) was also statistically related to political stability, but more weakly (standardized beta = -0.178, p = 0.035) and with a negative sign, contrary to expectations. As the poor became less acceptant of risk, stability decreased. This puzzling result requires further research, although the weakness of the relationship may make it difficult to shed light on why this is the case.

The interactive effect of **fuel exports and corruption** (LnFuelCorruption) on political stability was almost as strong as food insecurity and the risk acceptance of the wealthy (standardized beta = 0.245, p = 0.001). This implies that countries dependent on energy exports with weak rule of law, which enables corruption, are less stable. This instability could come from competing group interests or popular resentment at unfair profiting by elites. Elements of both of these are apparent in Iraq, Nigeria, and South Sudan.

Following the interaction of fuel exports and corruption, **weak democracy** (PolityScore2sq), as measured by a positive coefficient for the square of a country's Polity2 score, was the next most influential variable (standardized beta = 0.212, p = 0.009). This indicates that the most stable countries are autocracies or well-developed mature democracies, and the least stable societies are democracies with weakly developed political institutions. This finding is consistent with previous research (Fearon & Laitin, 2003; Goldstone, 2008a; Iqbal & Starr, 2007; Miljkovic & Rimal, 2008).

Three independent variables had weaker effects on political stability. Consistent with earlier research (Fearon & Laitin, 2003), **mountainous terrain** (LnElevation) was associated with instability (standardized beta = -0.163, p =0.017), probably because it makes policing and controlling territory more difficult. **Open engagement with the world economy** (EconomicOpenness) was associated with political stability (standardized beta = 0.128, p = 0.073), consistent with previous studies (Iqbal & Starr, 2007). Engagement with a world economy may produce disincentives for political disruptions that in turn interfere with trade. Finally, **ethnic diversity** (LnELFsq) was associated with instability (standardized beta = 0.128, p = 0.073) in a non-linear fashion, consistent with previous research (Collier & Hoeffler, 1998; Vanhanen, 1999). When conflict emerges, it often occurs along ethnic cleavages, although as Collier and Hoeffler (1998) point out, intermediate levels of ethnic diversity appear to be the most volatile.

Terrorism

The dependent variable in this analysis was the Global Terrorism Index constructed by the Institute for Economics and Peace (2018). It provides an overall measure of the degree to which a country is impacted by terrorism ranging from 0 (no impact) to 10 (high impact). The resulting stepwise regression incorporated nine of the sixteen variables used to operationalize the independent variables, and seven of these variables were statistically significant at the 0.1 level.

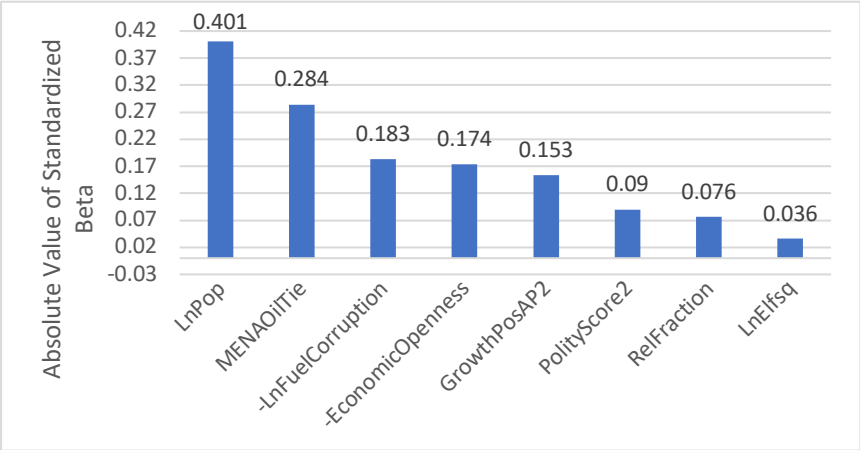

Figure 2. Terrorism Model Results I Standardized Betas, negative signs indicate negative effect.

Four of the eight independent variables retained in the stepwise regression were statistically significantly related to terrorism. The independent variable most influential on terrorism is having a **large population** (LnPop) (standardized beta = 0.401, p = 0.000). Terrorism is usually perpetrated by a vanishingly small proportion of a population; most terrorist groups only number in the hundreds or few thousands (Asal & Rethemeyer, 2008; Hoffman, 1998), yet they exist in societies of tens and hundreds of millions. It could be that the more people in a country, the more those rare individuals exist who might wish to carry out political violence for the sake of instilling fear.

The next most influential variable was **having ties with a Middle Eastern or North African oil producing country** (MENAOilTie) (standardized beta = 0.284, p = 0.002). This association extends the reach of terrorism beyond the borders of oil producing countries where terrorist groups originate into the countries that are involved with those oil producing nations. The **interaction of oil export and corruption** (LnFuelCorruption) had an especially influential effect (standardized beta = 0.183, p = 0.049). Given the internal debate in violent jihadist groups over whether to fight the near (corrupt regional tyrants) or far (Western) enemy (Lister, 2016; Zuhur, 2010), and al Qaeda's and ISIS's frequent and vociferous denunciations of Middle Eastern oil producing regimes (El-Badawy, Comerford, & Welby, 2015; Kuznar, 2017; Lister, 2016; McCants, 2015; Stern & Berger, 2015; Wood, 2015), it makes sense that these regimes, their neighbors to whom conflict can spread, and those Western nations involved with oil producing regimes are the targets of terrorism.

Economic isolationism (the opposite of economic openness) is also statistically related to terrorism (standardized beta = 0.174, p = 0.068). The mechanism behind this is not clear and should be investigated further. It could be that general exposure to the world's economic system might also expose a population to foreign ideas that broaden its population's views (Kuznar, 2019a). If so, this might refute the often cited proposition that globalization leads to fear of foreign influences, which in turn leads to fundamentalism and violent reactions (Boroumand & Boroumand, 2002; Brynjar & Skjolberg, 2004; Combs, 2003; Crenshaw, 1981; Hefner, 2002; Sharani, 2002; Stern, 2003).

The loss aversion adjusted **risk sensitivity of the middle class** (GrowthPosAP) had a weakly statistically significant effect on terrorism (standardized beta = 0.153, p = 0.08). This finding is consistent with case study research demonstrating that terrorist organizations have an underrepresentation of the poor and an overrepresentation of the middle class and wealthy (Krueger & Maleckova, 2003; Kuznar, 2007;

Maleckova, 2005). It is possible that middle class loss aversion may spark enough outrage to motivate political violence that has the aim of instilling fear in the broader population.

Three independent variables were retained in the models by the stepwise method because they improved the overall goodness-of-fit, but they were themselves not statistically significantly related to terrorism. These independent variables were, democracy (PolityScore2sq), religious fractionalization (RelFraction), and ethnic fractionalization (ELF, LnELFsq). Their inclusion is interesting because some researchers have suggested that democracies are more vulnerable to terrorism because of the ability of terrorists to operate freely (Boroumand & Boroumand, 2002; Ivanova & Sandler, 2006), religious fundamentalism has drawn much attention as a potential cause or intensifier of terrorism (Abrahms, Beauchamp, & Mroszczyk, 2017; Asal & Blum, 2005; Cottee, 2017; Jurgensmeyer, 2004; Nagle, 2017; Palazzi, 2007; Pelletier et al., 2016; Post, 2005; Post, Sprinzak, & Denny, 2003; Quantum Communications, 2015; Ranstorp, 2004; Rowland & Theye, 2008; Silber & Bhatt, 2007; Stern, 2003; Wood, 2015), as has ethnic fractionalization (Bloom, 2003; Byman, 1998; Eidelson & Eidelson, 2003; Sharani, 2002).

Migration

Migration was examined because of its destabilizing influence on the United States and its European allies (Cummings et al., 2015; Kuznar, 2019b). The dependent variable in this study was net migration, i.e., the difference between immigration and emigration. Countries with positive net migration rates receive more migrants than leave, and countries with negative net migration rates have more citizens leave than they receive. Taking a lead from case studies on migration, the following independent variables were operationalized. Economic opportunity was operationalized by the difference between a country's per capita GDP and the global median; poor countries will have negative values and wealthy countries will have positive values. Food insecurity (using the UN food deficit measure), youth bulge (percent population between 15 and 24), UN homicide rate, and the US Department of State Political Terror Scale (PTS) (a measure political oppression) were used to operationalize these variables.[5] To operationalize how climate change may undermine agrarian populations, an interaction variable, agricultural vulnerability, was calculated by multiplying GAIN exposure (a measure of environmental impact from climate change) by the percentage of a country's GDP accounted for by agriculture. Finally, the Migrant Integration Policy Index (MIPEX) assesses 167 policy, social and economic indicators of how welcome migrants are in the 38 UN designated developed countries (Huddleston, Bilgili, Joki, & Zvezda, 2015), and this index was used to measure the influence of migration policy.

Many of these variables are highly correlated, making multicollinearity a problem for identifying which variables were actual drivers of migration and not simply confounded by other independent variables. Therefore, the relative importance measures methodology described above was used.

Initial analyses of the data found that globally, the economic draw of developed countries, population growth, and hunger were the main drivers of migration (Kuznar, 2019b). However, subsequent research indicated that characteristics of countries may drive migration dynamics differently in wealthy developed nations (see Forte & Portes, 2017; Kim & Cohen, 2010) versus poorer countries (see Cummings et al., 2015; Medecins sans Frontieres, 2017). Therefore, the research presented here segments the analyses between undeveloped (defined by the UN as undeveloped or transitioning) countries and the 37 developed countries for which MIPEX indices are available.

[5] Migration due to war was not statistically related to net migration due to the fact that there are not enough major wars driving global population movements. War migration is a localized phenomenon (Kuznar, 2019b).

Net Migration in Undeveloped Countries

The model that best accounted for the variance in net migration for undeveloped countries (n = 109) had an R^2 of 0.119, which was statistically significant at the 0.0005 level. Considering every permutation of independent variables possible, on average, **food deficit** (LnFoodDeficit) explained over half of the variance in net migration (
Figure 3); hunger appears to be the primary driver of emigration in undeveloped countries. The second most influential variable on average, explaining 21.4% of the variance, is the **youth bulge**; the higher the proportion of young (15-24), the more people emigrate. Homicide accounts for about 10% of the variance in net migration; the higher the **homicide** rate (LnHomicide), the more people emigrate. Countries of the Northern Triangle (Honduras, El Salvador, and Guatemala) appear to be a clear case of homicide driven migration (Medecins sans Frontieres, 2017). Interestingly, the higher the **political terror scale** (PTS), the higher the more migrants a country receives than loses. This could be because countries that practice oppression might very well control violence in general, thereby mitigating homicide as an emigration factor, and/or not allowing their citizens the opportunity to emigrate. China would be a prime candidate for such a country.

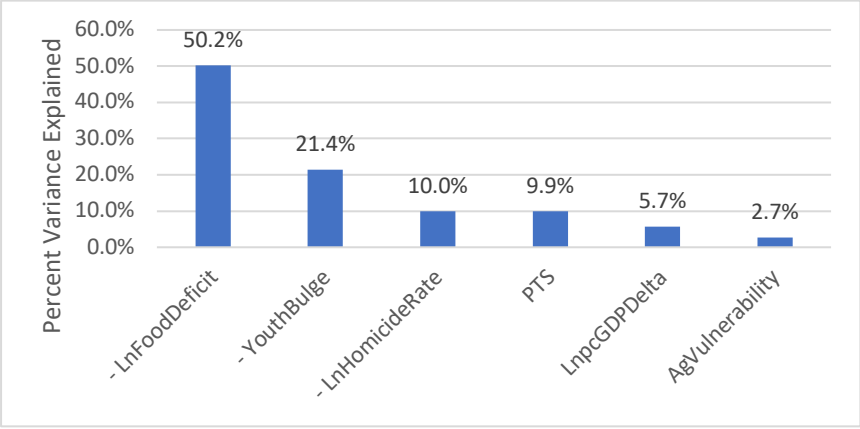

Figure 3. Undeveloped Countries Migration Model Results in Percent Variance Explained. Negative signs indicate negative effect.

Surprisingly, a country's relative economic poverty compared to the global mean (LnpcGDPDelta) only accounted for about 6% of the variance in net migration. This may be because the sample included only other impoverished countries, and not the wealthier countries that attract economic immigrants. Finally, the interactive effect of climate change on an agrarian economy (AgVulnerability) accounted for only 2.7% of the variance in net migration. There is vigorous debate among migration and meteorological experts over whether or not climate change is causing a massive global migration of climate change refugees (Black et al., 2011; Erian, Katlan, & Babah, 2010; Feng, Krueger, & Oppenheimer, 2010; Gemenne, 2011; Goodman, 2007; Kelley, Mohtadi, Cane, Seager, & Kushnir, 2015; Lilleør & Van den Broeck, 2011; McLeman, 2011; Nett & Ruttinger, 2016; Van Hear et al., 2012; Van Hear, Bakewell, & Long, 2018). There appear to be clear, specific, cases where climate change undermines rural economies, leading to immigration as in the cases of Mexico and Syria (Erian et al., 2010; Feng et al., 2010). But in general, the environmental effects of climate change and countries' abilities to mitigate these risks are so varied that no strong pattern linking climate change and global migration patterns exists at this time (Gemenne, 2011).

Net Migration in Developed Countries

37 of the 38 UN designated developed counties were transparent enough to allow assessment of their overall openness to migrants. Despite the small number of cases, some very strong results emerged. The best fitting model had an R^2 of 0.489, statistically significant at the 0.021 level. Three variables in particular seemed to explain almost all of the variance in their net migration (
Figure 4). Consistent with the argument that a country's **migration policy matters**, 37.5% of the variance in migration was explained by a country's openness to migration (MIPEX); countries with open doors receive migrants. For developed countries, their wealth relative to other countries (LnpcGDPDelta) matters; migrants are attracted to **wealthy countries**. The third most important variable was the **youth bulge**, or proportion of the population between 15 and 24; the higher this proportion the more migrants a country received, which is contrary to expectations (Hudson & Den Boer, 2002).

Finally, three variables accounted for less than 10% of the average variance in net migration. They were homicide (LnHomicide), food deficit (LnFoodDeficit) and the risk aversion of the middle class (GrowthPosAP). Individually, each of these variables accounted for so little variance that no reliable inference can be made regarding their effects on net migration. Whether or not food deficit and homicide would have an effect is doubtful because the rates for these are typically very low in developed countries. High risk aversion of the middle class, a measure of a strong middle class, should attract migration, but the small effect in the model indicates that this may not be a reliable result.

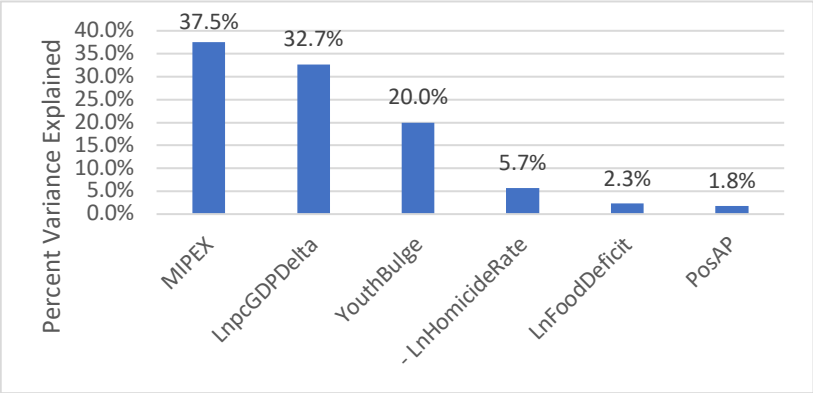

Figure 4. Developed Countries Migration Results in Percent Variance Explained. Negative signs indicate negative effect.

Summary of Model Findings

Three statistical models were developed in order to address population (i.e. influence environment) concerns in the J39 tasking. Each model was based on previous statistical modeling and then extended to improve it methodologically as well as to introduce more contemporary concerns such as climate change. The models were applied to recent single year data to simulate more realistic constraints in intelligence analysis.

Despite the restriction to a single year's data, previous research by the Political Instability Task Force (PITF) was generally supported. However, the introduction of new and newly operationalized variables such as risk sensitivity, food insecurity, the interaction of fuel export and corruption, and ties to MENA oil

producing nations demonstrated that the old models missed some highly relevant independent variables. Therefore, the models presented here are clear improvements.

In summary, hunger, risk acceptant elites, being a corrupt oil exporter, weak democracy, mountains, economic isolation, and ethnic fractionalization were all liabilities for a country's political stability. Terrorism was fueled by population size, ties to MENA oil producers, the interaction of fuel export and corruption, economic isolation and a risk acceptant middle class. Migration in undeveloped countries is driven by hunger, a youth bulge, homicide and political oppression, and migration to developed countries most clearly is driven by permissive immigration policy and national wealth.

Appendix A: Alignment of Aggrieved Populations Country Reports Study with J39 GCC Tasking

Part	Required Capability	Topic
Part I: Anticipating the Operating Environment 2019-2029	Concept element 1: understand the environment (required capability 2)	Nationalist counters to globalism amidst the resurgence of traditional values and processes; populist politics reshaping economic relationships and social bonds
		Operationalization of aggrieved populations
		Global environmental change
		Emergent risks such as mass migration of peaceful economic migrants?
Part II: Deep Dive: China's Global Outlook, Activities and Strategy	Concept element 1: understand the environment (required capability 1, 5)	What key sources of motivation / interests drive Chinese global activities and strategy? What are the fundamental issues contested? How do these impact enduring US national interests?
Part III: Deep Dive: Russia's Global Outlook, Activities and Strategy	Concept element 1: understand the environment (required capability 1, 5)	What key sources of motivation / interests drive Russian global activities and strategy? What are the fundamental issues contested? How do these impact enduring US national interests?
Part IV: Regional Challenges	Concept element 1: understand the environment (required capability 1, 5)	In which regions should the US expect significant challenges to its interests over the coming decade?
		What form will these challenges take (e.g., poor/instable governance, rising hegemons, aggrieved populations, violent non-state actors, external influence operations etc.)
		Which US interests will this impact?
		How will allied and neutral nations be impacted by: US, Chinese and Russian influence?

Excerpts from J39 Tasking Memo and J39 Questions

Relevant passages are underlined.

J39 Memo, Brigadier General Alexus G. Grynkewich
3. To that end, the SMA effort needs to address the geopolitics of Russian and Chinese activities while building an enhanced fundamental understanding of the contemporary and future influence environment. Directed to Tab A questions.

Part I: Anticipating the Operating Environment 2019-2029

Concept element 1: understand the environment (required capability 2)
How will global geopolitics be affected over the coming decade by factors such as: the intersection of social media, Fake News and AI challenging democratic governance; nationalist counters to globalism amidst the resurgence of traditional values and processes; populist politics reshaping economic relationships and social bonds; the dual use of new technologies to undermine and strengthen domestic political regimes?

How will the character of global competition and conflict change over the next decade? What are the new forms of conflict, such as cyber, economic and cognitive? How will technology change the character of competition? What is the nature of influence and its role in the emerging security environment? Key drivers of change may include:

- opportunities and vulnerabilities created by technology developments
- changing means of obtaining and producing material to assemble improvised explosive device (IED)
- increased speed and range of communication and information transfer
- expanded competition in space and cyber domains
- operationalization of aggrieved populations
- emerging challenges to liberal trade practices
- global environmental change
- "lawfare" undermining legitimacy of international institutions
- Decline in public conception of truth as an objective fact in deference to subjective individual "truths"

What considerations should inform DoD/DHS plans and practices to deal with emergent risks such as mass migration of peaceful economic migrants?

Part II: Deep Dive: China's Global Outlook, Activities and Strategy

Concept element 1: understand the environment (required capability 1, 5)
Demonstrates a systematic analytic approach for diagnosing and describing the environment, and evaluating the interests resolve, and capability of relevant actors
What key sources of motivation / interests drive Chinese global activities and strategy? What are the fundamental issues contested? How do these impact enduring US national interests?

Part III: Deep Dive: Russia's Global Outlook, Activities and Strategy
Concept element 1: understand the environment (required capability 1, 5)
Demonstrates a systematic analytic approach for diagnosing and describing the environment, and evaluating the interests resolve, and capability of relevant actors
What key sources of motivation / interests drive Russian global activities and strategy? What are the fundamental issues contested? How do these impact enduring US national interests?

Part IV: Regional Challenges
Concept element 1: understand the environment (required capability 1, 5)
Demonstrates a systematic analytic approach for diagnosing and describing the environment, and evaluating the interests resolve, and capability of relevant actors
In which regions should the US expect significant challenges to its interests over the coming decade? What form will these challenges take (e.g., poor/instable governance, rising hegemons, aggrieved populations, violent non-state actors, external influence operations etc.) and which US interests will this impact?
How will allied and neutral nations be impacted by:

- Chinese influence
- US maneuvers to protect its interests against Chinese actions?
- Russian influence
- US maneuvers to protect its interests against Russian actions?

Appendix B. Methodology

The goal of this study is to develop evidence-based statistical models that identify root causes of social unrest across diverse countries and societies. The starting point of this modeling is the previous statistical and case study research described in the theoretical section above. However, the data upon which those findings are based are for the most part, over a decade if not two decades old. The world is changing and the empirical basis for understanding social unrest must be updated, including new factors not considered in this body of research such as climate change. Furthermore, the old models were based on half a century of data, but they purported to provide indicators & warnings to intelligence analysts who monitor data in real time. Therefore, the standard models should be challenged by being applied to a single year's data in order to replicate the analyst's reality. The issue of climate change has emerged as a major concern of scientists and the Department of Defense since the PITF research, and an effort was made to test current effects of climate change. Finally, this study introduces a largely neglected variable in the literature with a new means of measurement and formulation, the willingness of a population to take risk based on the way wealth or status is distributed in a society.

Challenging Existing Models

Intelligence analysts often are tasked with making predictions based on a snapshot of data in a short time frame, and to consider factors perhaps not examined in the theoretical literature. Therefore, one objective of this research was to challenge existing statistical models of political stability, terrorism, and migration in order to gauge their explanatory and predictive value. The models were challenged in several ways.

- Dependent variables used indices easily accessible to analysts
- Data from only recent years were used
- The effects of two new variables were tested:
    - Climate change
    - Inequality induced risk sensitivity

Indexing Social Unrest

The original, often cited models used actual events or rates of events as their dependent variables and also produced indices that have been maintained ever since in order to represent those variables. In the case of political instability, the Global Peace Index (GPI), Fragile States Index (FSI), the State Fragility Index (SFI), and the World Bank Political Stability scales are easily accessible to analysts. The GPI, FSI, and SFI are composite measures that intentionally contain many variables that were found to cause political instability. While this makes them more complete measures of instability, they cannot be used as dependent variables because they contain many of the independent variables that are purported to cause them. This situation is known as endogeneity and amounts to explaining a variable with itself. The dependent variable in these analyses was the World Bank's Political Stability Index, which ranges from -2.5 (unstable) to 2.5 (stable) and is largely based on global surveys, data from NGOs, and some data from the world bank.[6] It is the index of political stability that was the least endogenous and therefore the most independent of the independent variables purported to explain it.

[6] For a full description of the index see https://info.worldbank.org/governance/wgi/Home/Documents#wgiDataSources

Recent Data

Previous statistical models were based on country-years from a period of nearly 50 years. The country-year approach provides an abundance of cases (over 150 countries times 50 years), which enhances the ability to discover statistical trends. However, there are some statistical and conceptual liabilities in this approach that have not been addressed. Statistically, using country-years raises time dependency issues; the conditions of a previous year influence the conditions of the next year and therefore each country-year observation is not independent, violating a foundational assumption of inferential statistics. Conceptually, the purpose of the PITF program was to identify the indicators and warnings of social unrest that presumably intelligence analysts could monitor (Goldstone et al., 2005). This implies that the findings of 50 years of data are robust enough that any change in a short period of time should signal a threat. This implication ignores yearly fluctuations in social conditions that could mask true indications, ignoring the noise to signal ratio. In this study, the standard models were challenged by testing their ability to produce statistically and substantively meaningful results on essentially one year's data.

Global Climate Change

Most of the PITF publications predate 2010 and much has changed in the world since. In addition, new empirical studies demonstrate a correlation between global warming and violence (Erian et al., 2010; Hsiang, Burke, & Miguel, 2013; McLeman, 2011; Nett & Ruttinger, 2016), and future predictions by scholars and the US military anticipates dire consequences for global security and US national interests (Goodman, 2007; Ripple et al., 2017; US Joint Chiefs of Staff, 2016). A debate among scholars has emerged regarding whether or not global climate change is creating millions of climate change refugees, the propositions of which require testing (Black et al., 2011; Gemenne, 2011; Lilleør & Van den Broeck, 2011; Van Hear et al., 2012). The effects of global climate change were operationalized in this study.

A New Variable, Risk Sensitivity

A foundational proposition in economics is that the distribution of wealth and social status in a society impacts individuals' utility functions (satisfaction derived from status), which in turn influence an individual's willingness to take or avoid risks (Friedman & Savage, 1948). Risk sensitivity has been shown to influence the likelihood that people will engage in risky challenges to their political systems (Kuznar, 2002, 2007; Kuznar & Lutz, 2007). This section presents a means of operationalizing this concept.

Inequality

Inequality can be measured many ways including percentage of wealth owned by the top *x* percent, percent of a population living in poverty, or the commonly used Gini Coefficient.[7] Each of these measures provides insight into how wealth is distributed in a society, but each obscures subtle, and sometimes significant variations. In order to display more of this variation, the wealth of each percentile of society is measured in this study. Displaying wealth in this manner reveals any abrupt increases or levelling of wealth as one moves from the poorest to the wealthiest percentiles in a society. Wealth classes are defined by relatively flat sections of the curve that occur between abrupt increases in wealth. Figure 5 represents a wealth distribution curve typical of most societies, which have a tail of the very poor, followed by a sharp

[7] The Gini Coefficient is the difference between the Lorenz curve, defined by percent wealth of each percentile of a society, and the line of total equality, in which each percentile of society shares equally in society's wealth.

increase in wealth that is fairly level and defines a middle class, which is then followed by an extremely sharp increase that continues all the way to the wealthiest individuals in a society. Mathematically, this curve is monotonically increasing, with an initially concave upward section (the poor), followed by a concave downward segment (the middle class), followed by a strongly concave upward section (the wealthy). The curve reflects the fact that wealth is typically concentrated at the top.

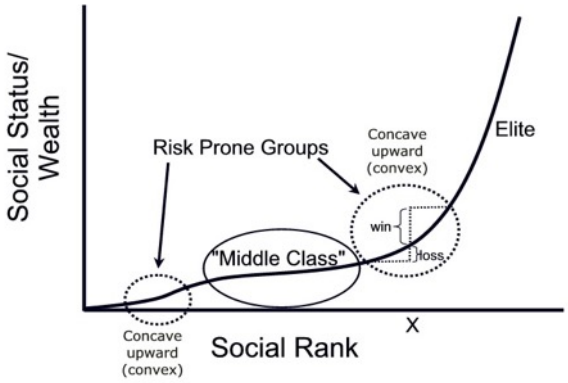

Figure 5. Wealth Distribution, Class, and Risk Sensitivity.

Research demonstrates that this pattern is found in societies as varied as small tribes to ancient kingdoms, modern states, and even the entire world economy (Kuznar, 2001, 2002). Given the length of time these societies are known to have existed, the implication is that extreme inequality has probably been a pervasive feature of human societies for the past 10,000 years.

Wealth and Status

The practical utility of wealth is obvious, it can be used to purchase goods and services people need or desire. However, wealth plays another social role that is often neglected in economic studies, it signals social status. Tribal societies use tokens, often made from exotic materials, that often have little or no practical use whatsoever. A few examples include metal arm bands in ancient Germanic societies, the shell arm bands and necklaces of the Trobriand Islanders in the south Pacific, and sheets of elaborately carved copper of indigenous tribes along the North American northwest coast (Malinowski, 1985; Mauss, 1967; Rosman & Rubel, 1986). Modern societies are no different. The conspicuous consumption (Veblen, 1994) of the wealthy is abundantly present in modern society; they build elaborate mansions and buy luxury cars whose cost far exceeds what is necessary to satisfy the basic needs of shelter and transportation. The wealthy are not the only people interested in tokens of status. A study of social media discussions among the US general public found a positive correlation between inequality and a desire for status goods (Walasek & Brown, 2015). Wealth has much greater significance than purchasing power, it signals one's position in society and consequently one's social worth.

Inequality, Wealth, and Status, and Risk Sensitivity

Wealth has great material and social value, and therefore one would expect people to compete for it. However, not everyone is equally motivated to compete. People whose utility functions (measures of satisfaction) are concave downward are expected to avoid risk and purchase insurance, which they do (Bernoulli, 1954; Cashdan, 1985). By its very nature, competition is risky because there is the possibility

of failure and loss of status. One would expect people to accept risks to achieve status when potential gains exceed potential losses, or when the probability of success far exceeds the probability of failure (Friedman & Savage, 1948; Markowitz, 1952). This pattern of risk taking behavior has been confirmed across an incredibly wide array of cultures around the world including hunting and gathering bands, tribes, ancient kingdoms and modern states (Kuznar, 2001, 2002; Pryor, 1976). Risk taking is represented by concave upward sections of the wealth distribution curve in Figure 5. Risk taking to gain status can take many forms. Legal and socially accepted forms of risk taking include investing in the stock market or starting a business. However, people may engage in unsanctioned or illicit forms of risk taking as well. Criminal forms of risk taking include dealing in illicit drugs, burglary or illegal migration. Engaging in unsanctioned protest, rioting, or political violence are by definition extremely risky. Therefore, only those who perceive the gains (in wealth, status, political goals) from such activity to be far greater than losses from failure are expected to engage in political challenges to a society's status quo. However, even risk averse preferences can be flipped to risk taking

Loss aversion is another pervasive pattern in human risk taking behavior. Gains give people satisfaction, and losses cause them disappointment. However, the amount of disappointment people feel from a loss is typically twice the satisfaction they feel from an equivalent gain (Kahneman & Tversky, 2000). The asymmetry between satisfaction and disappointment causes people to pay high costs or take risks in order to avoid losses; they are loss averse. Loss aversion is obviously manifest in the fact that people generally over-insure (Camerer, 2000; Wang & Fischbeck, 2004). Furthermore, loss aversion can be influenced by the frame, or manner, in which someone views a prospect, and frames can be easily manipulated. A classic study carried out on well-educated medical students found that they would adopt a treatment if they were told it saved 2/3 of their patients but rejected the treatment if they were told it could result in the deaths of 1/3 of their patients (Tversky & Kahneman, 1981). The two prospects are the same, the only thing that differs is the language used to frame the prospect to the medical students. In short, loss aversion can flip risk aversion to strong risk acceptance. Therefore, when assessing the risk sensitivity of any population, it is important to ascertain whether it is focused on the hope of gains or the fear of loss.

Theories of risk sensitivity and loss aversion have been applied widely in international relations and social unrest research. While not explicitly and mathematically expressed, the idea of resentment from perceived inequality is at the core of relative deprivation theory (Gurr, 1970) which has been widely applied for explaining revolutions (Besancon, 2005; Gurr & Moore, 1997; Henderson & Singer, 2000; Muller, Dietz, & Finkel, 1991; Tilly, 1978; Weede & Muller, 1998), and terrorism (Crenshaw, 1981; O'Neill, 2000; Thompson, 1989), and mass protest movements (Midlarsky, 1988). Collier & Hoeffler's (2004) greed and grievance approach to explaining social unrest and rebellion captures elements of both risk sensitivity and loss aversion. Loss aversion has been explicitly applied in explanations for the Gulf War, Korean War, and World War I (Boettcher, 2004; Jervis, 1992; Levy, 2000, 2003; McDermott, 2000), the decision to use the military in humanitarian operations (Boettcher, 2004), and terrorism (Kuznar, 2007; Kuznar & Lutz, 2007).

Measuring Risk Sensitivity

Concepts can be useful tools for guiding how we think, but they become scientifically useful when they are operationalized so that they can be measured and their effects on other measurable phenomena can be tested. John W. Pratt (1964) provided a measure of risk sensitivity for an individual at different levels

of wealth.[8] Subsequent work by Kenneth Arrow (1974) reinforced this notion and it is known as the Arrow-Pratt measure of risk aversion. The measure is calculated as:

Equation 1. Arrow-Pratt Measure of Risk Aversion

$$r(x) = -\left({U(x)''}/{U(x)'}\right)$$

Where *U(x)* is a utility function that measures satisfaction for differing levels of wealth, *x*.

The measure can range from - ∞ to + ∞, and negative values indicate the degree of risk acceptance and positive values indicate the degree of risk aversion. To the extent that wealth is a measure of social status, the distribution of wealth therefore becomes the function of its utility, which was implied in the original proposition for measuring utility by Friedman and Savage (1948). Therefore, by fitting a curve to a wealth distribution, one can measure wealth's utility for conveying social status, and the Arrow-Pratt measure can be applied to determine the risk sensitivity of an individual at any level of wealth. Fitting a curve to the typical wealth distribution of a complex society can be challenging, but Kuznar (2007) published a means by which such a distribution can be fit to a continuous function to which the Arrow-Pratt measure can then be applied. The fitted function is called the exposigmoid function because typical wealth distributions are generally exponential (wealth concentrates at the top), but exhibit sinusoid (S-shaped) oscillations that define wealth classes (Figure 5). The function is estimated as:

Equation 2. Expo-sigmoid utility function

$$S(rank) = e^{a+b(rank)+csin(rank)+dcos(rank)}$$

Where *S* is the exposigmoid fit to the wealth distribution, and *rank* is the rank from poorest to wealthiest in the society. The fit is achieved by logging wealth (*x*) over *rank* and then fitting a curve to *a + b(rank) + c*sin(rank)+d*cos(rank)*. This produces a monotonically increasing, twice differentiable function to which the Arrow-Pratt measure can be applied, yielding a measure of an individual's risk sensitivity at every level of wealth in a society.

This approach utilizes powerful theoretical insights from rational choice theory in economics on risk sensitivity, combined with the Friedman and Savage (1948) insight that differing levels of wealth in social classes powerfully influence utility functions, rendering a quantitative measure of risk sensitivity that correlates with political challenges (violent and non-violent) to the status quo (Kuznar, 2002, 2007; Kuznar, 2019a, 2019b; Kuznar & Lutz, 2007).

The pervasiveness of loss aversion demands that it, too, be taken into account in any estimation of risk sensitivity. The basic proposition of loss aversion is that a person averse to risk when considering gains is acceptant of risk when considering losses. Therefore, in every country study, attention is paid to whether segments of a society are experiencing measurable losses (recession, job losses) or perceived losses (influence by political messaging). In those cases, it is expected that segments of a society in concave downward areas of a wealth distribution curve would flip their sensitivity from risk aversion to risk acceptance.

[8] His formulation is based on the assumption that an individual's utility function (measure of satisfaction over differing levels of wealth) is twice differentiable, that is, it is monotonically increasing (increasing wealth does not decrease satisfaction), and non-linear.

Summary of Measuring Risk Sensitivity

Social status is the key good people seek and wealth is a key signal of one's social status. Wealth distributions therefore provide a utility function that can measure willingness to take or avoid risk. Wealth distributions provide monotonically increasing twice differentiable functions to which the Arrow-Pratt measure can be applied. The measure identifies risk acceptant segments of a society more likely to challenge the status quo through political action, with the caveat that if a population experiences real or perceived loss, their risk averse preferences will flip to risk acceptance. These basic propositions, empirically supported by a history of research, will be used to generate measures of risk sensitivity to be tested in the models.

Statistical Methods

OLS regression is the basic tool used for this analysis. However, a methodological issue that challenged the analysis was that some of the independent variables were highly intercorrelated (Table 1). This is known as multicollinearity, and it prevents discrimination of which variable is actually the cause and not an effect (Hanushek & Jackson, 1977).

Table 1. Highly Intercorrelated Independent Variables for Political Stability and Terrorism Models

	LnpcGDP	FoodDeficit	GainExposure	LnInfMort	LnFoodDeficit
LnpcGDP	1	-.445	-.381	-.866	-.547
FoodDeficit	-.445	1	.243	.415	.789
GainExposure	-.381	.243	1	.422	.274
LnInfMort	-.866	.415	.422	1	.541
LnFoodDeficit	-.547	.789	.274	.541	1

LnpcGDP – Ln per capita GDP; FoodDeficit – UN food deficit measure of calories required for malnourished population; GAINExposure – measure of climate change environmental impact; LnInfMort – Ln infant mortality rate; LnFoodDeficit – Ln food deficit

The traditional approach to this difficult situation is to run models with each highly correlated variable separately and examine whether or not there are any substantial differences in the variance explained by the models. If there are, then the competing variable that explains the greatest amount of variance is considered the true causal variable. In addition to the traditional approach, stepwise regression was used in this study to exclude independent variables that did not contribute meaningfully to explaining variance in the dependent variable because of confounding correlations with other independent variables.

Relative importance analysis is a recently developed alternative methodology for dealing with multicollinearity by comparing the average gain in explaining variance for each independent variable over models using every possible permutation of independent variables (Gromping, 2006). This method allows inclusion of highly intercorrelated variables in a model and provides an alternative means of measuring their effects on the dependent variable. However, the statistical significance of the independent variables cannot be assessed with this method.

The soundest results were obtained for the state stability and terrorism models using a combination of traditional and stepwise regression approaches. Many of the variables suggested for migration are highly correlated and the relative importance method was used for its statistical modeling.

Appendix D: Detailed Findings

Drivers of Political Instability

The dependent variable in these analyses was the World Bank's Political Stability Index, which ranges from -2.5 to 2.5 and is largely based on global surveys, and data from NGOs and the World Bank.[9]

Collectively, the research described in the literature review (Theoretical Basis for Understanding Political Instability, Terrorism, and Migration) explored 18 independent variables that could be drivers of instability (Table 2), not all of which were found to be causally related to political instability in those studies.

Table 2. Independent Variables Tested in Political Stability and Terrorism Models

Variable Type	Variable	Metric used in this study	Source
Demographic	Ethnic and Religious divisions	ELF (Ethnolinguistic Fractionalization Score)	Fearon 2003
	Human Development Index	Inequality adjusted Human Development Index	UN
	Infant Mortality	Infant Mortality Rate	UN
	Population Size	Population size	World Bank
Economic	Engagement in World Economy	Economic Openness (Trade as % GDP)	World Bank
	National Wealth	GDP	World Bank
	Economic Growth	Percentage decline or growth in GDP over 5 years	World Bank
	Poverty	Per capita GDP	World Bank
	Primary Commodity Exports	Oil Exports as % GDP	World Bank
	Uneven Development	Uneven Development dummy variable	Minorities at Risk Database
Geographic	Africa	Africa dummy variable	
	Mountainous Terrain	Minimum – Maximum Elevation difference	Fearon & Laitin 2003 validation data
Political	Neighboring Failed States	Countries scored as 66 in Polity IV dataset	Polity IV dataset
	Corruption	CPI Index	Transparency International
	Trust in Government	WB Governance	World Bank
	Regime Type	Polity Score 2	Polity IV dataset
	State Discrimination	Political Terror Scale	US Dept of State
	Age of Country	Years Independent	

In this study, these independent variables were re-considered and their ability to explain variance in the dependent variable was tested on the restricted dataset. Before modeling, several methodological issues not consistently addressed in previous research needed to be corrected (Table 3).

[9] For a full description see https://info.worldbank.org/governance/wgi/Home/Documents#wgiDataSources

From the outset one independent variable, the UN Human Development Index, was methodologically questionable because its elements (per capita GDP, life expectancy, education) are elements of all political stability indices.[10] This variable was necessarily excluded from the analysis. Many other variables radically departed from a normal distribution; normality is a foundational assumption of classical inferential statistics (Hanushek & Jackson, 1977).[11] However, taking their natural logs brought their distributions close to normality, solving the problem.

Table 3. Statistical Issues with Independent Variables

Variable	Statistical Issue
Ethnic and Religious divisions	Square of ELF is Non-normal
Human Development Index	Endogeneity, Multicollinearity, Non-normal
Infant Mortality	Non-normal, Multicollinearity, Causality vague
Population Size	Non-normal
Engagement in World Economy	Non-normal
National Wealth	Non-Normal
Economic Growth	none
Poverty	Non-normal, Multicollinearity
Primary Commodity Exports	Non-normal
Uneven Development	Difficult to measure
Africa	none
Mountainous Terrain	Non-normal
Neighboring Failed States	none
Corruption	Multicollinearity
Trust in Government	Multicollinearity
Regime Type	none
State Discrimination	none
Age of Country	none

In two cases, infant mortality and fuel exports, the causal connections between the variables and political stability were unclear. Infant mortality is one of the strongest indicators of political instability, and researchers have suggested that infant mortality is a barometer of governing capacity (Goldstone et al., 2000). However, there is no empirical research that actually establishes how this might be. Because of its strong correlation with political stability, infant mortality was retained in the analysis, but close attention was paid to other variables highly correlated with infant mortality that might have a more direct influence on political stability.

[10] This situation is known as endogeneity, in which the dependent variable to be predicted has elements of the independent variables that supposedly predict it. This creates a circular model that essentially causes itself and prevents identification of causal drivers.
[11] The Central Limit Theorem dictates that with sufficiently high numbers of cases (>30), the normality assumption is not necessary. However, some of the variables were excessively non-normal and it was best to transform them so that their distributions were closer to normality.

An economy dependent on primary commodity exports is another variable that is associated with political instability, but whose causal connection is unclear. Some researchers argue that primary commodities such as oil can be extorted by rebels to finance insurgencies (Bates, 2008; Collier & Hoeffler, 2004; De Soysa & Neumayer, 2013; Fearon, 2005; Ross, 2004). While oil theft has been a factor in the Niger delta and for ISIS, oil has not financed rebel movements in the rest of the world. Therefore, there is a need to make more explicit connections between dependence on oil exports and instability. In this project, two possibilities were explored. Fuel itself has no causal efficacy to destabilize a state, there have to be intervening variables that interact with the fuel export economy as Ross (2004) cautions. A series of models were run using the natural log of fuel exports alone (LnFuel), the interaction of Ln fuel exports and Polity2 score (LnFuelStateControl) which captures the interactive effect of fuel exports and the degree to which a state is autocratic, and the interaction of Ln fuel exports and corruption using the CPI (Corruption Perceptions Index) which captures the interactive effects of fuel exports and corruption (Transparency International, 2017). The LnFuel exports and the LnFuelStateControl interaction variables had no statistically significant effect on political stability. However, the interactive LnFuelCorruption variable consistently had a statistically significant effect on political stability across a variety of models and was therefore retained.

New variables were introduced based on theoretical developments since the groundbreaking work of PITF and the research it inspired, namely climate change and risk sensitivity. Recently, researchers have considered the relationship of state stability, food insecurity and climate change (Erian et al., 2010; Feng et al., 2010; Hsiang et al., 2013; Nett & Ruttinger, 2016; Roy, 1994). The Ln of the UN food deficit measure (LnFoodDeficit), the difference between the average dietary energy requirement and the average dietary energy consumption of the undernourished population in a country,[12] was used to measure food insecurity. The presence of environmental stresses due to climate change is measured by the GAIN Exposure index, an index calculated by the Notre Dame Global Adaptation Initiative that measures the extent to which a country experiences ecological effects from climate change.[13]

As described above, the average Arrow-Pratt measure of risk aversion was introduced into the analyses to explore the potential role inequality driven risk sensitivity may have on political stability. A separate measure was calculated for the poor (defined as the lowest income categories with a negative Arrow-Pratt), the segment that has a positive Arrow-Pratt measure (middle class), and the wealthy (defined as the highest income categories with a negative Arrow-Pratt measure) The measure was adjusted in the following manner in order to take greater account for the potential effect of loss aversion. As a measure of whether or not people in a country would be in a loss frame, the change in GDP was calculated over the latest five years for each country. Countries with a loss in GDP had their Arrow-Pratt measures changed in the following manner. The Arrow-Pratt metric for each segment was doubled, reflecting the general finding from loss aversion that people dislike losses about twice as much as they like gains. If the GDP change was a loss, the positive Arrow-Pratt measure for the middle class will by definition be negated, reflecting attraction to risk. For the risk acceptant poor and wealthy, the negative of the loss in GDP is used to preserve the negative sign of these risk acceptant segments. This yielded three measures of risk sensitivity: the risk sensitivity of the poor (GrowthLoAP), middle class (GrowthPosAP), and wealthy (GrothHiAP).

[12] See https://www.indexmundi.com/facts/indicators/SN.ITK.DFCT for a description.
[13] See https://gain.nd.edu for a description.

Political Stability Model Results

Four independent variables, per capita GDP, infant mortality, GAIN exposure (a measure of climate change), and food deficit (a measure of food insecurity and malnutrition) were highly correlated. Therefore, four different models were run, each with only one each of these variables. The best performing model was the one containing food deficit (

Table 4). Its overall goodness of fit was very high ($R^2 = 0.607$, $p < 0.00001$).

Food insecurity (LnFoodDeficit) and loss aversion adjusted **risk acceptance of the wealthy** (GrowthHiAP) are the two most influential independent variables with standardized coefficients of 0.269 and 0.266 respectively, both highly statistically significant. It is possible that, when a need as basic as food is in short supply for a population, starving people become restive and opposition to a government or other disruptions (ethnic conflict, genocide, radical political shifts) emerge. However, the impoverished masses rarely spontaneously organize and rise (Brinton, 1964; Maleckova, 2005). Another possibility is that elite challengers to the status quo use the immiseration of the poor as a political rallying point. The positive sign of the **risk sensitivity measure for the wealthy** indicates that as they become more risk acceptant, stability worsens. This is exactly what is expected; elites have the greatest status to gain or lose, and they have the means and skills to mobilize against a government that they feel is failing them. The **risk acceptance of the poor** (GrowthLoAP) was also statistically related to political stability, but more weakly (standardized beta = -0.178, $p = 0.035$) and with a negative sign, contrary to expectations. As the poor became less acceptant of risk, stability decreased. This puzzling result requires further research, although the weakness of the relationship may make it difficult to shed light on why this is the case.

The interactive effect of **fuel exports and corruption** (LnFuelCorruption) was almost as strong as food insecurity and risk acceptance of the wealthy (standardized beta = 0.245, $p = 0.001$). This implies that countries dependent on energy exports with weak rule of law, which enables corruption, are less stable. This instability could reasonably come from competing group interests or popular resentment at unfair profiting by elites. Elements of both of these are apparent in Iraq, Nigeria, and South Sudan.

Table 4. Political Stability Model Results. P-values in parentheses. Excluded means that the measure was excluded by the stepwise regression.

Model	Poverty	Infant Mortality	Climate Change	**Hunger**
Adjusted R^2	0.571	0.551	0.551	**0.607**
LnpcGDP	0.275 (0.015)	Excluded	Excluded	Excluded
LnInfMort	Excluded	Excluded	Excluded	Excluded
GAIN.Exposure	Excluded	Excluded	Excluded	Excluded
LnFoodDeficit	Excluded	Excluded	Excluded	**-0.269** **(0.001)**
LnElevation	-0.161 (0.002)	-0.141 (0.041)	-0.141 (0.041)	**-0.163** **(0.017)**
LnElfSq	-0.081 (0.259)	-0.117 (0.106)	-0.117 (0.106)	**-0.128** **(0.067)**
EconomicOpenness	0.129 (0.075)	0.133 (0.072)	0.133 (0.072)	**0.128** **(0.073)**
LnFuelCorruption	0.225 (0.002)	0.252 (0.001)	0.252 (0.001)	**0.245** **(0.001)**
LnPopulation	Excluded	Excluded	Excluded	Excluded
PolityScore2	Excluded	Excluded	Excluded	Excluded
PolityScore2sq	0.203 (0.024)	0.312 (0.000)	0.312 (0.000)	**0.212** **(0.009)**
GrowthLoAP	-.117 (0.168)	-.161 (0.059)	-0.161 (0.059)	**-0.178** **(0.035)**
GrowthPosAP	Excluded	Excluded	Excluded	Excluded
GrowthHiAP	0.199 (0.076)	0.352 (0.000)	0.352 (0.000)	**0.266** **(0.006)**
Percentage of Statistically Significant IVs	67% (6/8)	62.5% (5/8)	62.5% (5/8)	**87.5% (7/8)**

Following the interaction of fuel exports and corruption, **weak democracy**, as measured by a positive coefficient for the square of a country's Polity2 score (PolityScore2sq), was the next most influential variable (standardized beta = 0.212, p = 0.009). This indicates that the most stable countries are autocracies or well-developed mature democracies, and the least stable societies are democracies with weakly developed political institutions. This finding is consistent with previous research (Fearon & Laitin, 2003; Goldstone, 2008a; Iqbal & Starr, 2007; Miljkovic & Rimal, 2008).

Three independent variables had weaker effects on political stability. Consistent with earlier research (Fearon & Laitin, 2003), **mountainous terrain** (LnElevation) was associated with instability (standardized beta = -0.163, p =0.017), probably because it makes policing and controlling territory more difficult. **Open engagement with the world economy** (EconomicOpenness) was associated with political stability (standardized beta = 0.128, p = 0.073), consistent with previous studies (Iqbal & Starr, 2007). Engagement with a world economy appears to produce disincentives for political disruption that may in turn interfere with trade. Finally, **ethnic diversity** (LnELFsq) was associated with instability (standardized beta = 0.128, p = 0.073) in a non-linear fashion, consistent with previous research (Collier & Hoeffler, 1998; Vanhanen, 1999). When conflict emerges, it often occurs along ethnic cleavages, although as Collier and Hoeffler (1998) point out, intermediate levels of ethnic diversity appear to be the most volatile.

Terrorism

The dependent variable in this analysis was the Global Terrorism Index constructed by the Institute for Economics and Peace at the University of Maryland (Institute for Economics and Peace, 2018). It provides an overall measure of the degree to which a country is impacted by terrorism ranging from 0 (no impact) to 10 (high impact). The resulting stepwise regression incorporated nine of the sixteen variables used to operationalize the independent variables, and seven of these variables were statistically significant at the 0.1 level.

Compared to political instability, there is much less statistical modeling designed to identify the independent variables that might be root causes of terrorism. Previous analyses (Coggins, 2015; Plummer, 2012) have used population size, corruption, regime type, political collapse of neighbors, and war. Common causes cited in policy and proposed in qualitative research include poverty and youth bulges (Brynjar & Skjolberg, 2004; Bush, 2002; Gore, 2002). Some researchers dismiss poverty arguments and instead argue that education increases political awareness and leads to terrorism (Berrebi, 2003; Krueger & Maleckova, 2003). Others have suggested that ethnic and religious fractionalization, closure to the world economic system, and fuel exports could cause terrorism (Byman, 1998; Eidelson & Eidelson, 2003; Haq, 1995; Sharani, 2002). All of these variables were operationalized and their combined and competing influences on terrorism were measured. The issue regarding the significance of oil exportation was addressed with two different variables. The LnFuelCorruption interactive term described for the Political Stability model was used here. It may not so much be oil exports that are associated with terrorism but rather, having ties to corrupt Middle Eastern and North African oil exporting countries. This was operationalized with a dummy variable that recorded countries that had ties, either through direct military involvement in (US, Russia, China, United Kingdom) or by bordering oil producing countries (MENAOilTie). These two measures were almost completely independent of one another (correlation was nearly zero), indicating that they address the issue of oil and terrorism in very different ways. It is important to note that although these countries happen to have majority Muslim countries, regressions with other independent variables did not find a relationship between Islam and terrorism.

The resulting stepwise regression incorporated nine of the sixteen variables used to operationalize the independent variables, and seven of these variables were statistically significant at the 0.1 level (Table 5).

Table 5. Terrorism Model Results. P values in parentheses

Model	Standardized Beta
Adjusted R^2	0.384
LnpcGDP	Excluded by stepwise
YouthBulge	Excluded by stepwise
YrsEducation	Excluded by stepwise
LnPop	0.401 (0.000)
ELF	Excluded by stepwise
LnElfSq	0.036 (0.678)
RelFraction	0.076 (0.379)
EconomicOpenness	-0.174 (0.068)
LnFuelCorruption	-0.183 (0.049)
MENAOilTie	0.284 (0.002)
PolityScore2	0.090 (0.340)
PolityScore2sq	Excluded by stepwise
BadNeighborsCollapse	Excluded by stepwise
GrowthLoAP	Excluded by stepwise
GrowthPosAP	0.153 (0.080)
GrowthHiAP	Excluded by stepwise

Four of the eight independent variables retained in the stepwise regression were statistically significantly related to terrorism. The independent variable most influential on terrorism is having a **large population** (standardized beta = 0.401, $p = 0.000$). Terrorism is usually perpetrated by a vanishingly small proportion of a population; most terrorist groups only number in the hundreds or few thousands (Asal & Rethemeyer, 2008; Hoffman, 1998), yet they exist in societies of tens and hundreds of millions. It could be that the more people in a country, the more those rare individuals exist who might wish to carry out political violence for the sake of instilling fear.

The next most influential variable was **having ties with a Middle Eastern or North African oil producing country** (MENAOilTie) (standardized beta = 0.284, $p = 0.002$). This association extends the reach of terrorism beyond the borders of oil producing countries where terrorist groups originate into the countries that are involved with those oil producing nations. The **interaction of oil export and corruption** (LnFuelCorruption) had the next most influential effect (standardized beta = 0.183, $p = 0.049$). Given the internal debate in violent jihadist groups over whether to fight the near (corrupt regional tyrants) or far (Western) enemy (Lister, 2016; Zuhur, 2010), and al Qaeda's and ISIS's frequent and vociferous denunciations of Middle Eastern oil producing regimes (Casebeer, 2008; El-Badawy et al., 2015; Fenstermacher, Kuznar, Yager, & Shellman, 2014; Kuznar, 2017; Kuznar & Moon, 2014; Lister, 2016;

McCants, 2015; Page, Challita, & Harris, 2011; Pelletier et al., 2016; Quantum Communications, 2015; Skillicorn & Reid, 2014; Stern & Berger, 2015; Wood, 2015), it makes sense that these regimes, their neighbors upon which conflict can spread, and those Western nations involved with oil producing regimes are the targets of terrorism.

Economic isolationism (the opposite of economic openness) is also statistically related to terrorism (standardized beta = 0.174, $p = 0.068$). The mechanism behind this is not clear and should be investigated further. It could be that general exposure to the world's economic system might also expose a population to foreign ideas that broaden its population's views (Kuznar, 2019a). If so, this might refute the often cited proposition that globalization leads to fear of foreign influences, which in turn leads to fundamentalism and violent reactions (Boroumand & Boroumand, 2002; Brynjar & Skjolberg, 2004; Combs, 2003; Crenshaw, 1981; Hefner, 2002; Sharani, 2002; Stern, 2003).

The loss aversion adjusted **risk sensitivity of the middle class** (GrowthPosAP) had a weakly statistically significant effect on terrorism (standardized beta = 0.153, $p = 0.08$). This finding is consistent with case study research demonstrating that terrorist organizations have an underrepresentation of the poor and an overrepresentation of the middle class and wealthy (Krueger & Maleckova, 2003; Kuznar, 2007; Maleckova, 2005). It appears middle class loss aversion sparks enough outrage to motivate political violence with the aim of instilling fear in the broader population.

Three independent variables were retained in the models because they improved the overall goodness-of-fit, but they were themselves not statistically significantly related to terrorism. These independent variables were, democracy (PolityScore2sq), religious fractionalization (RelFraction), and ethnic fractionalization (ELF, LnELFsq). Their inclusion is interesting because some researchers have suggested that democracies are more vulnerable to terrorism because of the ability of terrorists to operate freely (Boroumand & Boroumand, 2002; Ivanova & Sandler, 2006), religious fundamentalism has drawn much attention as a potential cause or intensifier of terrorism (Abrahms et al., 2017; Asal & Blum, 2005; Cottee, 2017; Jurgensmeyer, 2004; Nagle, 2017; Palazzi, 2007; Pelletier et al., 2016; Post, 2005; Post et al., 2003; Quantum Communications, 2015; Ranstorp, 2004; Rowland & Theye, 2008; Silber & Bhatt, 2007; Stern, 2003; Wood, 2015), as has ethnic fractionalization (Bloom, 2003; Byman, 1998; Eidelson & Eidelson, 2003; Sharani, 2002).

Migration

Migration was examined because of its destabilizing influence on the United States and its European allies (Cummings et al., 2015; Kuznar, 2019b). Broad comparative research has found that the basic drivers of migration are economic opportunity, demographic characteristics such as a youth bulge or an overabundance of males (Hudson & Den Boer, 2002; Lee, 1966; Ravenstein, 1885), personal security and political oppression (Cummings et al., 2015), and possibly climate change (Cummings et al., 2015; Van Hear et al., 2012). Finally, some researchers argue that policy drives migration and that countries with more permissive policies toward accepting immigrants attract migration and fuel its global rise (Forte & Portes, 2017).

The dependent variable in this study was net migration and therefore this study aims to explain the net loss or gain in population, not immigration or emigration per se. Taking a lead from case studies on migration, the following independent variables were operationalized. Economic opportunity was operationalized by the difference between a country's per capita GDP and the global median (LnpcGDPDelta); poor countries will have negative values and wealthy countries will have positive values. Food insecurity (LnFoodDeficit) operationalized as the UN food insecurity measure, youth bulge (percent population between 15 and 24) (YouthBulge)), UN homicide rate (LnHomicide), and the US Department of State Political Terror Scale (PTS) (a measure of political oppression) were used to operationalize these variables.[14] To operationalize how climate change may undermine agrarian populations, an interaction variable (agricultural vulnerability), was calculated by multiplying GAIN exposure and the percentage of a country's GDP accounted for by agriculture (AgVulnerability). Finally, the migrant integration policy index (MIPEX) assesses 167 policy, social and economic indicators of how welcome migrants are in the 38 UN designated developed countries (Huddleston et al., 2015).

Many of these variables are highly correlated (

[14] Migration due to war was not statistically related to net migration due to the fact that there are not enough major wars driving global population movements. War migration is a localized phenomenon (Kuznar, 2019b).

Table 6), making multicollinearity a problem for identifying which variables were actual drivers of migration and not simply confounded by other independent variables. For instance, poorer countries strongly tend to be agricultural and undergoing disruptive effects from climate change. Therefore, LnpcGDPDelta and AgVulnerability are almost perfectly negatively correlated. Most other variables have a very high correlation with LnpcGDPDelata such as MIPEX, food surplus, and the inverse of the political terror scale. Therefore, the relative importance measures methodology described above was used.

Table 6. Correlation Matrix of Migration Model Independent Variables

	LnpcGDPDelta	MIPEX	LnFoodDeficit	LnHomicideRate	AgVulnerability	PTS
LnpcGDPDelta	1	.614	-.545	-.483	-.823	-.586
MIPEX	.614	1	-.020	-.175	-.318	-.439
LnFoodDeficit	-.545	-.020	1	.342	.443	.332
LnHomicideRate	-.483	-.175	.342	1	.390	.392
AgVulnerability	-.823	-.318	.443	.390	1	.509
PTS	-.586	-.439	.332	.392	.509	1

Initial analyses of the data found that globally, the economic draw of developed countries, population growth, and hunger were the main drivers of migration (Kuznar, 2019b). However, subsequent research indicated that different characteristics of countries may drive migration dynamics in wealthy developed (see Forte & Portes, 2017; Kim & Cohen, 2010) versus poorer countries (see Cummings et al., 2015; Medecins sans Frontieres, 2017). Therefore, the research presented here segments the analyses between undeveloped (defined by the UN as undeveloped or transitioning) countries and the 38 developed countries for which MIPEX indices are available.

Net Migration in Undeveloped Countries

The model that best accounted for the variance in net migration for undeveloped countries (n = 109) had an R^2 of 0.119, which was statistically significant at the 0.0005 level (

Table 7). Considering every permutation of independent variables possible, on average, **food deficit** (LnFoodDeficit) explained over half of the variance in net migration; hunger appears to be the primary driver of emigration in undeveloped countries. The second most influential variable on average, explaining 21.4% of the variance, is the **youth bulge** (YouthBulge); the higher the proportion of young (15-24) the more people emigrate. Homicide accounts for about 10% of the variance in net migration; the higher the **homicide** rate (LnHomicide) the more people emigrate. The Northern Triangle countries (Honduras, El Salvador, and Guatemala) are examples. Interestingly, the higher the **political terror scale** (PTS), the higher the gain from migration. This could be because countries that practice oppression might very well control violence in general, mitigating homicide as an emigration factor, and/or not allow their citizens the opportunity to emigrate. China would be a prime candidate for such a country.

Table 7. Results of Undeveloped Countries Migration Model

Variable	Average Coefficient	Relative Influence
LnFoodDeficit	-0.0027	50.2%
YouthBulge	-0.0607	21.4%
LnHomicideRate	-0.0015	10.0%
PTS	0.0016	9.9%
LnpcGDPDelta	0.0004	5.7%
AgVulnerability	0.0016	2.7%

Surprisingly, a country's relative economic poverty compared to the global mean (LnpcGDPDelta) only accounted for about 6% of the variance in net migration. This is most likely because the undeveloped country sample did not contain the wealthy countries that actually attract economic migrants. Finally, the interactive effect of climate change on an agrarian economy (AgVulnerability) accounted for only 2.7% of the variance in net migration. There is vigorous debate among migration and meteorological experts over whether or not climate change is causing a massive global migration of climate refugees (Black et al., 2011; Erian et al., 2010; Feng et al., 2010; Gemenne, 2011; Goodman, 2007; Kelley et al., 2015; Lilleør & Van den Broeck, 2011; McLeman, 2011; Nett & Ruttinger, 2016; Van Hear et al., 2012, 2018). There appear to be clear, specific, cases (Mexico and Syria) where climate change undermines rural economies and leads to immigration (Erian et al., 2010; Feng et al., 2010). But in general, the environmental effects of climate change and countries' abilities to mitigate these risks are so varied that no strong pattern linking climate change and global migration patterns exists at this time (Gemenne, 2011).

Net Migration in Developed Countries

37 of the 38 UN designated developed counties were transparent enough to allow assessment of their overall openness to migrants. Despite the small number of cases, some very strong results emerged. The best fitting model had an R^2 of 0.489, statistically significant at the 0.021 level (Table 8). Three variables in particular seemed to explain almost all of the variance in their net migration. Consistent with the argument that a country's **migration policy matters**, 37.5% of the variance in net migration was explained by a country's openness to migration (MIPEX); countries with open doors receive migrants. For developed countries, their wealth relative to other countries matters (LnpcGDPDelta); migrants are attracted to **wealthy countries**. The third most important variable was the **youth bulge** (YouthBulge), or proportion of the population between 15 and 24; the higher this proportion the more migrants a country received, which is contrary to expectations (Hudson & Den Boer, 2002).

Finally, three variables accounted for less than 10% of the average variance in net migration. They were homicide (LnHomicide), food deficit (LnFoodDeficit) and the risk aversion of the middle class (GrowthPosAP). Individually, each of these variables accounted for so little variance that no reliable inference can be made regarding their effects on net migration. Whether or not food deficit and homicide would have an effect is doubtful because their rates are typically very low in developed countries. High risk aversion of the middle class, a measure of a strong middle class, should attract migration, but the small effect in the model indicates that this may not be a reliable result.

Table 8. Results of Developed Counties Migration Model

Variable	Average Coefficient	Relative Influence
MIPEX	**0.0009**	37.5%
LnpcGDPDelta	**0.0081**	32.7%
YouthBulge	0.7953	20.0%
LnHomicideRate	-0.0065	5.7%
LnFoodDeficit	0.0029	2.3%
GrowthPosAP	0.0012	1.8%

References Cited

Abrahms, M., Beauchamp, N., & Mroszczyk, J. (2017). What Terrorist Leaders Want: A Content Analysis of Terrorist Propaganda Videos. Studies in Conflict and Terrorism(8 March, 2017), 1-18. Retrieved from http://dx.doi.org/10.1080/1057610X.2016.1248666

Arrow, K. J. (1974). General Economic Equilibrium: Purpose, Analytic Techniques, Collective Choice. American Economic Review, 64(3), 253-272.

Asal, V., & Blum, A. (2005). Holy Terror and Mass Killings? Reexamining the Motivations and Methods of Mass Casualty Terrorism. International Studies Review, 7, 153-155.

Asal, V., & Rethemeyer, R. K. (2008). The Nature of the Beast: Organizational Structures and Organizational Lethality. Journal of Politics, 70(2), 437-449.

Asal, V., & Rethemeyer, R. K. (2009). Islamist Use and Pursuit of CBRN Terrorism. In G. Ackerman & J. Tamsett (Eds.), Jihadists and Weapons of Mass Destruction (pp. 335-358). Boca Raton, FL: CRC Press.

Atran, S., Axelrod, R., Davis, R., & Fischoff, B. (2017). Challenges in researching terrorism from the field. Science, 355(6323), 352-354.

Bates, R. H. (2008). The Logic of State Failure: Learning from Late-Century Africa. Conflict Management and Peace Science, 25, 297-314.

Bernoulli, D. (1954). Exposition of a New Theory on the Measurement of Risk. Econometrica, 22, 23-36.

Berrebi, C. (2003). Evidence about the Link between Education, Poverty and Terrorism among Palestinians. Princeton University Industrial Relations Sections Working Paper #477, Princeton University.

Besancon, M. L. (2005). Relative Resources: Inequality in Ethnic Wars, Revolutions, and Genocides. Journal of Peace Research, 42(4), 393-415.

Black, R., Adger, W. N., Arnell, N. W., Dercon, S., Geddes, A., & Thomas, D. S. G. (2011). The effect of environmental change on human migration. Global Environmental Change, 21S(2011), S3-S11. doi:doi:10.1016/j.gloenvcha.2011.10.001

Bloom, M. M. (2003). Ethnic Conflict, State Terror and Suicide Bombing in Sri Lanka. Civil Wars, 6(1), 54-84.

Boettcher, W. A. (2004). Military Intervention Decisions Regarding Humanitarian Crises. Journal of Conflict Resolution, 48(3), 331-355.

Boroumand, L., & Boroumand, R. (2002). Terror, Islam, and Democracy. Journal of Democracy, 13(2), 5-20.

Brinton, C. (1964). The Anatomy of Revolution, Revised and Expanded Edition. New York: Vintage Books.

Brynjar, L., & Skjolberg, K. (2004). Causes of Terrorism: An Expanded and Updated Review of the Literature. Kjeller, Norway: Forsvarets Forskningsintitutt Nowegian Defence Research Establishment FFI/Rapport-2004/04307.

Bush, G. W. (2002). Remarks by the President at the United Nations Financing for Development Conference, Cintermax Convention Center, Monterrey, Mexico. Retrieved from http://www.whitehouse.gov/news/releases/2002/03/print/20020322-1.html

Byman, D. (1998). The Logic of Ethnic Terrorism. Studies in Conflict and Terrorism, 149-169.

Camerer, C. (2000). Prospect Theory in the Wild: Evidence from the Field. In D. Kahneman & A. Tversky (Eds.), Choices, Values, and Frames (pp. 288-300). New York: Cambridge University Press.

Carment, D. (2003). State Failure: Implications for Theory and Policy. Third World Quarterly, 24(3), 407-427.

Carment, D., Samy, Y., & Prest, S. (2008). State Fragility and Implications for Aid Allocation: An Empirical Analysis. Conflict Management and Peace Science, 25, 349-373.
Casebeer, W. D. (2008). Identity, culture and stories: Empathy and the war on terrorism. Minnesota Journal of Law, Science and Technology, 9(2), 653-688.
Cashdan, E. (1985). Coping with Risk: Reciprocity among the Basarwa of Northern Botswana. Man, 20, 454-474.
Coggins, B. L. (2015). Does State Failure Cause Terrorism? An Empirical Analysis (1999–2008). Journal of Conflict Resolution, 59(3), 455-483.
Collier, P., & Hoeffler, A. (1998). On Economic Causes of Civil War. Oxford Economic Papers, 50(4), 563-573.
Collier, P., & Hoeffler, A. (2004). Greed and Grievance in Civil War. Oxford Economic Papers, 56, 563-595.
Combs, C. C. (2003). Terrorism in the Twenty-First Century, Third Edition. Upper Saddle River, New Jersey: Prentice-Hall, Inc.
Cottee, S. (2017). "What ISIS Really Wants" Revisited: Religion Matters in Jihadist Violence, but How? Studies in Conflict and Terrorism, 40(6), 439-454.
Crenshaw, M. (1981). The Causes of Terrorism. Comparative Politics, 13(4), 379-399.
Cummings, C., Pacitto, J., Lauro, D., & Foresti, M. (2015). Why People Move: Understanding the Drivers and Trends of Migration to Europe. Overseas Development Institute: London.
Davis, P. K., & Jenkins, B. M. (2002). Deterrence and Influence in Counterterrorism: A Component in the War on al Qaeda. Santa Monica, California: RAND.
De Soysa, I., & Neumayer, E. (2013). Resource Wealth and the Risk of Civil War Onset: Results from a New Dataset of Natural Resource Rents, 1970–1999. Conflict Management and Peace Science, 24(3), 201-218.
Eidelson, R. J., & Eidelson, J. I. (2003). Dangerous Ideas: Five Beliefs that Propel Groups toward Conflict. American Psychologist, 58(3), 182-192.
El-Badawy, E., Comerford, M., & Welby, P. (2015). Inside the Jihadi Mind: Understanding Ideology and Propaganda. London: Tony Blair Foundation.
Elbawadi, I., & Sambanis, N. (2002). How Much War Will We See? Explaining the Prevalence of Civil War. Journal of Conflict Resolution, 46(3), 307-334.
Erian, W., Katlan, B., & Babah, O. (2010). Drought Vulnerability in the Arab Region: Special Case Study: Syria. New York: United Nations Office for Disaster Risk Reduction.
Fearon, J. D. (2005). Primary Commodity Exports and Civil War. Journal of Conflict Resolution, 49(4), 483-507.
Fearon, J. D., & Laitin, D. D. (2003). Ethnicity, Insurgency, and Civil War. American Political Science Review, 97(1), 75-90.
Feng, S., Krueger, A. B., & Oppenheimer, M. (2010). Linkages among climate change, crop yields and Mexico–US cross-border migration. Proceedings of the National Academies of Science, 107(32), 14257-14262. Retrieved from https://www.pnas.org/content/107/32/14257
Fenstermacher, L., Kuznar, L. A., Yager, M., & Shellman, S. (2014). Meaning Making Regarding Threat Narrative Based on Discourse Analysis. In S. Schatz, J. Cohn, & D. Nicholson (Eds.), Advances in Cross-Cultural Decision Making (pp. 61-71). Krakow, Poland: AHFE Conference.
Forte, G., & Portes, J. (2017). Macroeconomic Determinants of International Migration to the UK. GLO Discussion Paper, No. 69, Global Labor Organization (GLO), Maastricht.
Friedman, M., & Savage, L. J. (1948). The Utility Analysis of Choices Involving Risk. Journal of Political Economy, 4, 279-304.

Gemenne, F. (2011). Why the numbers don't add up: A review of estimates and predictions of people displaced by environmental changes. Global Environmental Change, 21S(2011), S41-S49.
Goldstone, J. A. (2008a). Pathways to State Failure. Conflict Management and Peace Science, 25, 285-296.
Goldstone, J. A. (2008b). Using Quantitative and Qualitative Models to Forecast Instability. Special Report, United States Institute of Peace, Washington, D.C.
Goldstone, J. A., Bates, R. H., Gurr, T. R., Lustik, M., Marshall, M. G., Ulfelder, J., & Woodward, M. (2005). A Global Forecasting Model of Political Instability. Paper prepared for presentation at the Annual Meeting of the American Political Science Association, Washington, DC, September 1-4, 2005.
Goldstone, J. A., Gurr, T. R., Harff, B., Levy, M. A., Marshall, M. G., Bates, R. H., . . . Unger, A. N. (2000). State Failure Task Force Report: Phase III Findings. SAIC, MacLean, Virginia.
Goodman, S. (2007). National Security and the Threat of Cimate Change. CNA (Center for Naval Analyses) Corporation.
Gore, A. (2002). A Commentary on the War against Terror: Our Larger Tasks" Speech for the Council on Foreign Relations, Februrary 12, 2002. Retrieved from http://www.gwu.edu/~action/2004/gore/gore021202t.html
Gromping, U. (2006). Relative Importance for Linear Regression in R: The Package relaimpo. Journal of Statistical Software, 17(1), 1-27. Retrieved from http://www.jstatsoft.org/
Gupta, D. K., & Mundra, K. (2006). Suicide Bombing as a Strategic Weapon: An Empirical Investigation of Hamas and Islamic Jihad. Terrorism and Political Violence, 17, 573-598.
Gurr, T. R. (1970). Why Men Rebel. Princeton: Princeton University Press.
Gurr, T. R., & Moore, W. H. (1997). Ethnopolitical Rebellion: A Cross-sectional Analysis of the 1980's with Risk Assessments for the 1990's. American Journal of Political Science, 41(4), 1079-1103.
Hanushek, E. A., & Jackson, J. E. (1977). Statistical Methods for Social Scientists. New York: Academic Press.
Haq, F. (1995). Rise of the MQM in Pakistan: Politics of Ethnic Mobilization. Asian Survey, 35(11), 990-1004.
Hefner, R. (2002). Global Violence and Indonesian Muslim Politics. American Anthropologist, 104(3), 754-765.
Henderson, E. A., & Singer, J. D. (2000). Civil War in the Post-Colonial World, 1946-92. Journal of Peace Research, 37(3), 275-299.
Hoffman, B. (1998). Inside Terrorism. London: Victor Gollancz.
Hsiang, S. M., Burke, M., & Miguel, E. (2013). Quantifying the Influence of Climate on Human Conflict. Science, 341(1651), 1212. doi:Climate http://dx.doi.org/10.1126/science.1235
Huddleston, T., Bilgili, O. z., Joki, A.-L., & Zvezda, V. (2015). Migrant Integration Policy Index. Barcelona/ Brussels: CIDOB (Barcelona Centre for International Affairs) and MPG (European Unioin Migration Policy Group).
Hudson, V. M., & Den Boer, A. (2002). A Surplus of Men, a Deficit of Peace. International Security, 26(4), 5-38.
Institute for Economics and Peace. (2018). Global Peace Index 2018: Measuring Peace in a Complex World. Sydney: Institute for Economics and Peace.
Iqbal, Z., & Starr, H. (2007). State Failure: Conceptualization and Determinants. Paper prepared for the 39th Annual Meeting of the International Studies Association, February 28-March 2, 2007, Chicago, IL.
Ivanova, K., & Sandler, T. (2006). CBRN Incidents: Political Regimes, Perpetrators, and Targets. Terrorism and Political Violence, 18, 423-448.

Jervis, R. (1992). Political Implications of Loss Aversion. Political Psychology, 13(2), 187-204.
Jones, R. C. (2019). "Queen Me:" The Evolution of Populations in Great Power Competition. In G. Ligon, R. Jones, & M. Yager (Eds.), The Age of Disruption: How Power Shifts Create More Conflict. Arlington, Virginia: Strategic Multilayer Assessment (SMA) Periodic Publication, OSD/ASD (R&E)/RSD/RRTO.
Jordan, J. (2009). When Heads Roll: Assessing the Effectiveness of Leadership Decapitation. Security Studies, 18, 719–755.
Jurgensmeyer, M. (2004). The Logic of Religious Violence. In R. D. Howard & R. L. Sawyer (Eds.), Terrorism and Counterterrorism: Understanding the New Security Environment (pp. 140-158). Guilford, Connecticut: McGraw-Hill/Dushkin.
Kahneman, D., & Tversky, A. (2000). Prospect Theory: An Analysis of Decision under Risk. In D. Kahneman & A. Tversky (Eds.), Choices, Values, and Frames (pp. 17-43). Cambridge: Cambridge University Press.
Kelley, C. P., Mohtadi, S., Cane, M. A., Seager, R., & Kushnir, Y. (2015). Climate change in the Fertile Crescent and implications of the recent Syrian drought. Proceedings of the National Academies of Science, 112(11), 3241-3246. doi:www.pnas.org/cgi/doi/10.1073/pnas.1421533112
Kim, K., & Cohen, J. E. (2010). Determinants of International Migration Flows to and from Industrialized Countries: A Panel Data Approach Beyond Gravity. International Migration Review, 44(4), 899-932. Retrieved from https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1747-7379.2010.00830.x
Krueger, A. B., & Maleckova, J. (2003). Education, Poverty and Terrorism: Is There a Causal Connection? Journal of Economic Perspectives, 17(4), 119-144.
Kuznar, L. A. (2001). Risk Sensitivity and Value among Andean Pastoralists: Measures, Models and Empirical Tests. Current Anthropology, 42(3), 432-440.
Kuznar, L. A. (2002). Evolutionary Applications of Risk Sensitivity Models to Socially Stratified Species: Comparison of Sigmoid, Concave and Linear Functions. Evolution and Human Behavior, 23(4), 265-280.
Kuznar, L. A. (2007). Rationality Wars and the War on Terror: Explaining Terrorism and Social Unrest. American Anthropologist, 109(2), 318-329.
Kuznar, L. A. (2017). The Stability of the Islamic State (IS) Narrative: Implications for the Future. Dynamics of Asymmetric Conflict, 9(1-3), 40-53. doi:http://dx.doi.org/10.1080/17467586.2017.1347694
Kuznar, L. A. (2019a). Metrics of Social Disruption and the Role of Risk Sensitivity in Greed and Grievance. In G. Ligon, R. Jones, & M. Yager (Eds.), The Age of Disruption: How Power Shifts Create More Conflict. Arlington, Virginia: Strategic Multilayer Assessment (SMA) Periodic Publication, OSD/ASD (R&E)/RSD/RRTO.
Kuznar, L. A. (2019b). Migration: The Relationship between Inequality, Risk Sensitivity and Violence. In G. Ligon, R. Jones, & M. Yager (Eds.), The Age of Disruption: How Power Shifts Create More Conflict. Arlington, Virginia: Strategic Multilayer Assessment (SMA) Periodic Publication, OSD/ASD (R&E)/RSD/RRTO, .
Kuznar, L. A., Asal, V., Rethemeyer, R. K., Pattipati, K. R., Popp, R., & Shellman, S. (2009). Fingerprinting Leading Indicators of WMD Terrorism: An Integrated Modeling Approach. Proceedings of the Technosocial Predictive Analytics 2009 AAAI Spring Symposium, March 23-25, 2009. Retrieved from http://www.aaai.org/Library/Symposia/Spring/2009/ss09-09-014.php
Kuznar, L. A., & Lutz, J. M. (2007). Risk Sensitivity and Terrorism. Political Studies, 55(2), 341-361.
Kuznar, L. A., & Moon, W. H. (2014). Thematic Analysis of ISIL Messaging. In H. Cabayan & S. Canna (Eds.), Multi-Method Assessment of ISIL (pp. 47-54). Arlington, VA: Strategic Multilayer Assessment (SMA) Periodic Publication, OSD/ASD (R&E)/RSD/RRTO

Lee, E. S. (1966). A Theory of Migration. Demography, 3(1), 47-57.
Legault, R. (2010). Where is Terrorism Happening? Numbers, Locations, and Representative Histories In L. Fenstermacher, L. A. Kuznar, T. Rieger, & A. Speckhard (Eds.), Current Multi-Disciplinary Perspectives on Root Causes, the Role of Ideology, and Programs for Counter-radicalization and Disengagement (pp. 26-34). Washington, D.C.: Topical Strategic Multi-Layer Assessment (SMA) Multi-Agency and Air Force Research Laboratory Multi-Disciplinary White Papers in Support of Counter-Terrorism and Counter-WMD, Strategic Multi-layer Assessment, Director Defense Research & Engineering, Office of the Secreatary of Defense.
Levy, J. S. (2000). Loss Aversion, Framing Effects, and International Conflict: Perspectives from Prospect Theory. In M. I. Midlarsky (Ed.), Handbook of War Studies II (pp. 193-221). Ann Arbor: University of Michigan Press.
Levy, J. S. (2003). Applications of Prospect Theory to Political Science. Synthese, 135(2), 215-241.
Ligon, G., Derrick, D. C., Crowe, J. D., & Church, S. (2015). ISIL Futures: An Organizational Leadership and Cyber Profile. In A. Astorino-Courtois & S. Canna (Eds.), White Paper on SMA Support to SOCCENT: ISIL Influence and Resolve (pp. 15-18). Arlington, VA: Strategic Multilayer Assessment (SMA) Periodic Publication, OSD/ASD (R&E)/RSD/RRTO.
Lilleør, H. B., & Van den Broeck, K. (2011). Economic drivers of migration and climate change in LDCs. Global Environmental Change, 21S(2011), S70-S81.
Lister, C. (2016). Jhadi Rivalry: The Islamic State Challenges al-Qaeda. Brookings Doha Center Analysis Paper Number 16 January 2016, (Brookings Doha Center Analysis Paper Number 16 January 2016). Brookings Institution, Washington, D.C.
Lujala, P., Gleditsch, N. P., & Gilmore, E. (2005). A Diamond Curse? Civil War and a Lootable Resource. Journal of Conflict Resolution, 49(4), 538-562.
Maleckova, J. (2005). Impoverished Terrorists: Stereotype or Reality? In T. Bjorgo (Ed.), Root Causes of Terrorism: Myths, Reality, and Ways Forward (pp. 33-43). London: Routledge.
Malinowski, B. (1985). Argonauts of the Western Pacific. Prospect Heights, Illinois: Waveland Press.
Markowitz, H. (1952). The Utility of Wealth. Journal of Political Economy, 60, 151-158.
Mauss, M. (1967). The Gift. New York: W.W. Norton and Company.
McCants, W. (2015). The ISIS Apocalypse: The History, Strategy and Doomsday Vision of the Islamic State. New York: St. Martin's Press.
McDermott, R. (2000). Prospect Theory in International Relations: The Iranian Hostage Rescue Mission. In M. I. Midlarsky (Ed.), Handbook of War Studies II (pp. 73-99). Ann Arbor: University of Michigan Press.
McLeman, R. A. (2011). Settlement abandonment in the context of global environmental change. Global Environmental Change, 21S(2011), S108-S120. doi:doi:10.1016/j.gloenvcha.2011.08.004
Medecins sans Frontieres. (2017). Forced to Flee Central America's Northern Triangle: A Neglected Humanitarian Crisis. Medecins sans Frontiers: New York.
Midlarsky, M. I. (1988). Rulers and the Ruled: Patterned Inequality and the Onset of Mass Political Violence. American Political Science Review, 82(2), 491-509.
Miljkovic, D., & Rimal, A. (2008). The impact of socio-economic factors on political instability: A cross-country analysis. Journal of Socio-Economics, 37(2008), 2454-2463.
Muller, E. N., Dietz, H. A., & Finkel, S. E. (1991). Discontent and the Expected Utility of Rebellion: The Case of Peru. American Political Science Review, 85(4), 1261-1282.
Nagle, J. (2017). Fundamentalism: The Branch Davidians and the Islamic State. CTX, 7(1), 34-38. Retrieved from https://globalecco.org/table-of-contents71
Neer, T., & O'Toole, M. E. (2014). The Violence of the Islamic State of Syria (ISIS): A Behavioral Perspective. Violence and Gender, 1(4), 145 - 156.

Nett, K., & Ruttinger, L. (2016). Insurgency, Terrorism and Organised Crime in a Warming Climate. Berlin: Federal Foreign Office.
O'Neill, B. E. (2000). Insurgency and Terrorism: Inside Modern Revolutionary Warfare. Dulles, Virginia: Brasseys, Inc.
Page, M., Challita, L., & Harris, A. (2011). Al Qaeda in the Arabian Peninsula: Framing Narratives and Prescriptions. Terrorism and Political Violence, 23(2), 150-172.
Palazzi, A. H. (2007). Orthodox Islamic Perceptions of Jihad and Martyrdom. In Countering Suicide Terrorism (pp. 52-58). Herzliya, Israel: Institute for Counter-Terrorism.
Pelletier, I. R., Lundmark, L., Gardner, R., Ligon, G. S., & Kilinc, R. (2016). Why ISIS's Message Resonates: Leveraging Islam, Sociopolitical Catalysts, and Adaptive Messaging. Studies in Conflict and Terrorism, 39(10), 871-899.
Plummer, C. (2012). Failed States and Connections to Terrorist Activity. International Criminal Justice Review, 22(4), 416-449.
Post, J. M. (2005). The Psychology of WMD Terrorism. International Studies Review, 7, 148-151.
Post, J. M., Sprinzak, E., & Denny, L. M. (2003). The Terrorists in Their Own Words: Interviews with 35 Incarcerated Middle Eastern Terrorists. Terrorism and Political Violence, 15(1), 171-184.
Pratt, J. W. (1964). Risk Aversion in the Small and in the Large. Econometrica, 32, 122-136.
Pryor, F. L. (1976). The Friedman-Savage Utility Function in Cross-cultural Perspective. Journal of Political Economy, 84(1), 821-834. Retrieved from http://www.jstor.org/stable/1831335
Quantum Communications. (2015). Understanding Jihadists in Their Own Words. Retrieved from Beirut, Lebanon: https://now.mmedia.me/lb/en/specialreports/565067-understanding-jihadists-in-their-own-words
Ranstorp, M. (2004). Terrorism in the Name of Religion. In R. D. Howard & R. L. Sawyer (Eds.), Terrorism and Counterterrorism: Understanding the New Security Environment (pp. 125-139). Guilford, Connecticut: McGraw-Hill/Dushkin.
Ravenstein, E. G. (1885). The Laws of Migration. Journal of the Statistical Society of London, 48(2), 167-235.
Ripple, W. J., Wolf, C., Newsome, T. M., Galetti, M., Alamgir, M., Crist, E., . . . Laurance, W. F. (2017). World Scientists' Warning to Humanity: A Second Notice. Bioscience.
Rosman, A., & Rubel, P. G. (1986). Feasting with Mine Enemy: Rank and Exchange among Northwest Coast Societies. Prospect Heights, Illinois: Waveland Press.
Ross, M. L. (2004). How Do Natural Resources Influence Civil War? Evidence from Thirteen Cases. International Organization, 58(1), 35-67.
Rowland, R. C., & Theye, K. (2008). The Symbolic DNA of Terrorism. Communication Monographs, 75(1), 52-85.
Roy, S. M. (1994). From Hardship to Hunger: The Economic Impact of the Intifada on the Gaza Strip. In I. S. Lustick (Ed.), Palestinians Under Israeli Rule (pp. 241-264). New York: Garland Publishing, Inc.
Sharani, N. (2002). War, Factionalism, and the State in Afghanistan. American Anthropologist, 104(3), 715-722.
Shay, S. (2007). Suicide Terrorism in Lebanon. In Countering Suicide Terrorism (pp. 89-92). Herzliya, Israel: Institute for Counter-Terrorism.
Shellman, S., & Asal, V. (2010). The Effects of Counterterrorism: Empirical Political Dynamics. In L. Fenstermacher, L. A. Kuznar, T. Rieger, & A. Speckhard (Eds.), Current Multi-Disciplinary Perspectives on Root Causes, the Role of Ideology, and Programs for Counter-radicalization and Disengagement (pp. 197-207). Washington, D.C.: Topical Strategic Multi-Layer Assessment (SMA) Multi-Agency and Air Force Research Laboratory Multi-Disciplinary White Papers in

Support of Counter-Terrorism and Counter-WMD, Strategic Multi-layer Assessment, Director Defense Research & Engineering, Office of the Secreatary of Defense.
Silber, M. D., & Bhatt, A. (2007). Radicalization in the West: The Homegrown Threat. New York City Police Department, Counterterrorism Unit, New York.
Skillicorn, D. B., & Reid, E. F. (2014). Language use in the Jihadist magazines inspire and Azan. Security Informatics, 3(9). Retrieved from http://www.security-informatics.com/content/3/1/9
Stern, J. (2003). Terror in the Name of God: Why Religious Militants Kill. New York: Harper Collins.
Stern, J., & Berger, J. M. (2015). ISIS: The State of Terror. New York: Ecco.
Stevenson, J. (2014). Capital Gains: How Foreign Military Intervention and the Elite Quest for International Recognition Cause Mass Killing in New States. Dissertation, Departmet of Political Science, University of Chicago, Chicago, Illinois.
Thompson, J. L. P. (1989). Deprivation and Political Violence in Northern Ireland, 1922-1985. Journal of Conflict Resolution, 33(4), 676-699.
Tilly, C. (1978). From Mobilization to Revolution. Addison-Wesley: Reading, Massachusetts.
Transparency International. (2017). Corruption Perceptions Index 2017.
Tversky, A., & Kahneman, D. (1981). The Framing of Decisions and the Psychology of Choice. Science, 211, 453-458.
U.S. Joint Chiefs of Staff. (2016). Joint Concept for Human Aspects of Military Operations (JC-HAMO). Joint Publication, U.S. Joint Chief of Staff, Arlington, Virginia.
U.S. Joint Chiefs of Staff. (2018). Joint Concept for Integrated Campaigning. U.S. Joint Chiefs of Staff, Arlington, Virginia.
Van Hear, N., Bakewell, O., & Long, K. (2012). Drivers of Migration. Department for International Development (DFID) University of Sussex, Falmer, UK: Migrating Out of Poverty Research Programme Consortium Working Paper 1.
Van Hear, N., Bakewell, O., & Long, K. (2018). Push-pull plus: reconsidering the drivers of migration. Journal of Ethnic and Migration Studies, 44(6), 927-944. doi:https://doi.org/10.1080/1369183X.2017.1384135
Vanhanen, T. (1999). Domestic Ethnic Conflict and Ethnic Nepotism: A Comparative Analysis. Journal of Peace Research, 36(1), 55-73.
Veblen, T. (1994). The Theory of the Leisure Class. Mineola, New York: Dover.
Walasek, L., & Brown, G. D. A. (2015). Income Inequality and Status Seeking: Searching for Positional Goods in Unequal U.S. States. Psychological Science, 26(4), 527-533. doi:10.1177/0956797614567511
Wang, M., & Fischbeck, P. S. (2004). Incorporating Framing into Prospect Theory Modeling: A Mixture-Model Approach. The Journal of Risk and Uncertainty, 29(2), 181-197.
Weede, E., & Muller, E. N. (1998). Rebellion, Violence and Revolution: A Rational Choice Perspective. Journal of Peace Research, 35(1), 43-59.
Wood, G. (2015). What ISIS Really Wants. The Atlantic, 315(2), 78-94. Retrieved from http://www.theatlantic.com/features/archive/2015/02/what-isis-really-wants/384980/
Zuhur, S. (2010). Ideological Basis for Islamic Radicalism and Implications for Deradicalization. In L. Fenstermacher, L. A. Kuznar, T. Rieger, & A. Speckhard (Eds.), Current Multi-Disciplinary Perspectives on Root Causes, the Role of Ideology, and Programs for Counter-radicalization and Disengagement (pp. 267-279). Washington, D.C.: Topical Strategic Multi-Layer Assessment (SMA) Multi-Agency and Air Force Research Laboratory Multi-Disciplinary White Papers in Support of Counter-Terrorism and Counter-WMD, Strategic Multi-layer Assessment, Director Defense Research & Engineering, Office of the Secreatary of Defense.