Economic Crises and Socio-Political Instability: An Analysis of Security Contingences of Economic Recession in Russia*

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Abstract

Does the current economic landscape, characterized by frequent economic shocks, creates distinctive conditions favorable to the rise in socio-political instability? The goal of this project is to identify, theorize, and test the causal pathways connecting economic crises to homegrown terrorist violence, extremism, drug trafficking, and crime. The recent economic crises in Russia provide a unique opportunity to study the socio-political effects of economic crises. We use several macro-level, industrial, and individual-level measures of economic crises and new province-level data to test hypotheses about the impact of economic crises on domestic terrorism, extremism, drug trafficking, and crime.

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Introduction

The rise and spread of terrorism is commonly attributed to a range of political and demographic factors in addition to radical, often religious, ideology. The impact of economic variables has been a subject of ongoing debate but many studies concluded that poverty, poor economic development, and economic growth were poor predictors of terrorist violence. The last decade has also witnessed repeated economic shocks, which have had devastating social, political, and economic consequences on governments and people. As multiple countries around the globe continue experiencing economic turmoil, the economic issues have been forced into the limelight of discussions about the root causes of homegrown radicalization, domestic terrorism, as well as other types of socio-political instability. Does the current economic landscape, characterized by frequent economic shocks, creates distinctive conditions favorable to the rise in socio-political instability?

The goal of this project is to identify, theorize, and test the causal pathways connecting economic crises to homegrown terrorist violence, extremism, drug trafficking, and crime. Economic crises refer to the sudden downturn of economy, typically brought up by a financial crisis, which result in significant changes in the real economy (e.g., negative GDP growth, inflation, and unemployment). This study argues that economic crises precipitate abrupt changes in socio-economic circumstances of poor and wealthy alike. The downfall in social welfare accompanied by uncertainty and growing social stratification can fuel discontent and alienation that make individuals susceptible to extreme and violent behavior. Consequently, the relationship between economic variables and socio-economic instability should be understood in the context
of a rapid decline in economic welfare that causes socio-economic instability, including terrorism.

The recent economic crises in Russia caused by the decline in the global prices of commodities (2008-2009) and falling energy prices and economic sanctions (2014-2016) offer a unique opportunity to identify important causal connections among economic and socio-political variables, and test the presumed relationship between economic crises and political violence and crime. The crises have had deleterious consequences for the Russian population. In 2008, Russia’s major industries and financial and telecommunication services reported significant layoffs. Food price inflation exceeded 15%. In 2015, the value of Russian currency fell by 76% against the US dollar triggering inflation for consumer goods. In response to the crises, the Russian government was forced to slash its spending on health care, education, infrastructure, and salaries in the government sector. The Kremlin was also forced to restructure and reorganize government institutions, including those responsible for interior affairs and security. The stabilization of the tumultuous North Caucasus region in Russia has been achieved with the help of federal money. In 2015, federal aid constituted about 80% of republican budget in Ingushetia, Chechnya and Dagestan, where 83% of all terrorist incidents took place in Russia in the past decade. The reduction in federal aid to the region represents a serious security risk to regional and international security.

Most of the studies of economic crises and socio-political instability have been performed at the state-level using national aggregate statistics and macro-economic indicators, such as Gross Domestic Product (GDP). National-level data often relies on country-level means, which posits a problem for studying countries with high levels of internal heterogeneity. We believe that this approach is not representative of the processes and relationships that occur at the
Subnational comparisons offer several advantages. The use of subnational units increases the number of observations and makes rigorous statistical analysis possible. Subnational level data reflects within-country variation and avoids these pitfalls. Since the subnational data are more accurate in describing the complex processes, it is also more suitable for theorizing those processes and relations (Snyder 2001). Further, the consequences of the crises are felt at the individual level where the decisions about participation in violent and criminal activity are made. Economic crises reduce individuals’ purchasing power. This, in turn, diminishes quality of life and individual security. By accelerating social disruption and increasing competition for resources, economic crises can set in motion a series of destabilizing processes in socio-political systems. Our study incorporate the measures of economic crises at the individual level as well.

The data on the Russian provinces’ socio-economic indicators was gathered from the Russian Federal State Statistics Service. We also use new data on the levels of democracy in Russia’s regions, the drug seizures data derived from the UNODC individual drug seizure reports and Drugs Monitoring Platform, a unique project initiated jointly by the Paris Pact Initiative and the Afghan Opiate Trade Project of the UNODC, and the terrorism data obtained from the Global Terrorism Database (GTD), maintained by the National Consortium for the Study of Terrorism and Responses to Terrorism (START) at the University of Maryland. We estimate a series of negative binomial models to test the purported relationship between

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1 Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/
2 UNODC Individual Drug Seizure Reports. Accessible at: https://data.unodc.org/
4 Available at http://www.start.umd.edu/gtd/.
economic crises and several types of socio-economic instability: domestic terrorism, drug trafficking, extremism, and crime.

We find some support for our expectation that economic crises increase the levels of socio-political instability. However, the inverse relationship between economic performance, on one side, and terrorism, extremism, and crime, on the other side, only holds when the variables of interest are measured by the official crime statistics. We find a reverse relationship in the models with variables measured by the GTD and UNODC data. However, we offer alternative interpretations of these data in light of the unique time period when these data were produced.

The study will deepen our understanding of the interface of economic and political instability and extend our knowledge of the consequences of economic crises beyond their impact on conflict, voting behavior, and radicalization processes in European democracies (Bloom et al. 2011; De Bromhead et al. 2012; Funker et al 2015; Gruner and Bruckner 2010; Mian et al (2010). Political rhetoric and policies aimed at preventing homegrown terrorist activity continue presenting poverty and unemployment as the main determinants of extremism and terrorism. This research will highlight a rigorously tested set of conditions triggered by economic crises that facilitate terrorist violence and crime. Further, most of the conclusions about the relationship between socio-economic factors and terrorism are drawn from the studies of transnational terrorism. This research shifts the focus on far more numerous incidents of domestic terrorism disaggregated by sex and age. As such, this study will address the primary source of the terrorist threat in many countries making it timely.

Our paper proceeds as follows. We begin by situating our research question in the pertinent literature on economic conditions and socio-political instability. Next, we present out theory connecting economic crises to terrorism and crime rooted in the psychological accounts of
violent and criminal behavior. In the following section, we detail a research design for the study. The presentation of the findings and their discussion conclude the study.

**Background on the Research Problem**

The scholarship of terrorism has long debated the role of economic factors, such as poverty, inequality, poor economic development, and economic growth in generating more widespread and deadly terrorist attacks. Many researchers of terrorism concluded that neither poverty nor other economic conditions are direct causes of terrorist activity at national, subnational, or individual level (Abadie 2006; Berrebi 2007; Krueger 2007; Kruger and Laitin 2008; Krueger and Maleckova 2003; Piazza 2006, 2009; Sageman 2004). Still others have provided empirical support for the impact of economic conditions on the nature, type, and geography of terrorism (Benmelech et al. 2012; Blombert et al 2004b; Caruso and Schneider 2011; Freytag et al. 2011). The critics of the economic roots of terrorism arguments argue that political violence stems from political and demographic conditions, such as state failure, government repression, ethnic conflict, and foreign policy behavior (Choi 2010; Krueger and Laitin 2008; Piazza 2008).

The recent effort to bridge these two lines of reasoning have suggested that the relationship between economic variables and terrorism is *conditional* on the political, demographic, and pre-existing economic factors. Economic contractions, for example, have been found to affect high-income democratic states more than low income and authoritarian states, making democracies in economic crisis more prone to experience heightened terrorism violence and other forms of political destabilization (Blomberg et al. 2004). Poverty becomes a strong predictor of terrorist violence if it disproportionately affects ethnic minorities subjected to economic discrimination (Piazza 2011). Economic underdevelopment can also motivate terrorist groups launch international attacks against more economically developed and prosperous states.
This shift in the debate from whether economic variables matter to how they might influence participation in or support for terrorist groups offers an opportunity for considering the role of economic crises in terrorism, but also other types of socio-political instability.

There has been more consensus on the impact of economic crises on other types of violent and “deviant” behavior, such as crime (Box and Hale 1982; Deflem 2011; Falagas et al. 2011). It has been shown, for example, that economically destitute individuals have been more likely to break the law. The growing unemployment, which is a common occurrence in a deepening economic crisis, decreases social bonds that act as “brakes” for criminal behavior. Political scientists has also turned their attention to the role of economic crises in triggering conflict and rebellion (Bloomberg and Hess 2002; Hess and Orphanides 1995, 2001), affecting voting patterns, increasing the attraction of the political rhetoric and parties of the extreme right, and contributing to the factionalization and polarization of parliaments that diminish the quality of governance (Funke et al. 2016).

Until recently, however, there has been little interfacing between the study of economic crises and the study of terrorism (some notable works in this area include Blomberg et al. 2004a). Those analyses that looked into the relationship between the crises and terrorist violence examined this relationship on a subset of democratic states (Blomberg et al 2004b) or focused on the economic consequences of terrorist violence (Ender and Sandler 1996; Lenain et al. 2002). Overall, however, the scholarly interest in the study of economic crises and their impact on political violence and crime has followed the pattern of economic crises spiking in the immediate aftermath of intense and highly consequential economic turbulence. The present day is a time for serious reflection and reexamination of economic crises.
Theory

Many studies of socio-political instability, including terrorism, rely on the concepts of motive and incentives that describe a range of considerations that are featured in the decision-making of a purpose actor. These concepts serve as a bridge between the micro-level of illegal activities, where data acquisition is plagued with challenges, and the macro-level where the data suitable for a systematic analysis is more readily available. These concepts can also assist with the integration of insights from psychology into the rational choice frameworks.

*Motive* refers to a need or a grievance that causes a person to act. While individuals can experience a range of grievances and social frustrations, the supporters of the socio-economic determinants of violence have pinned explanatory value on the economic grievances due to inequalities in income and wealth. Their critiques underscore the primacy of political grievances due to discrimination and oppression. *Incentive* refers to the evaluation of the opportunity structure, or the costs and benefits of involvement in a violent or criminal act. The supporters of the economic explanations of terrorist violence have asserted that poor economic conditions lower individual opportunity costs for a rational individual to engage in a violent behavior favoring recruitment by terrorist groups (Caruso and Schneider 2011; Freytag at al 2008).

Since the existing literature remains inconclusive of whether economic needs, grievances, or [dis]incentives feeds socio-economic instability, this study reconsiders these causal connections by looking at how economic crises influence the decision-making framework of individuals affected by them. We agree with the findings of the earlier literature that economic destitution, by itself, does not cause violent behavior. As stated by Choi and Luo (2013), poor don’t turn to violence simply because they are poor. Instead, we argued that poor and wealthy
alike can become violent when they experience some form of personal crisis or a triggering event that changes their life circumstances. Economic crisis can be conceived of as such a catalyst.

Severe and sudden changes in income levels due to unemployment, debt, and other losses of income that increase in the period of crises alter psychological status of individuals. Uncertainty about the future and the need to adapt to other life changes, including the work prospects, have been associated with increased levels of stress, depression, and other negative impacts on physical and mental health (Falagas et al. 2009; Gili at al. 2012). The loss of economic status and the growing social stratification amplified by austerity measures that reinforce social inequalities can fuel the feelings of discontent, alienation, and disempowerment. The psychological studies of terrorism have found that individuals become more open to terrorist recruitment and radicalization when they feel angry, alienated, and powerless (Horgan 2005, 2009).

The shockwaves of change arouse anxiety and uncertainty, which not only make individuals more susceptible to extreme ideas, but also make the part of their identity that is perceived to be under the threat more salient (Hogg et all. 2007, 2010; Maalouf 2011). This, for example, has been used to explain a high rate of homegrown terrorist attacks committed by the second and third generation immigrants and Muslim converts. Their personal convictions have been shaken by the growing anti-Muslim and anti-immigrant sentiments, themselves strengthened by the economic crisis.5

Economic crises can accelerate disruptions to the social and family bonds. Stressors, such as job loss or home foreclosure, place strain on the parental and family relations and can affect mental health of the youth. Such emotional responses may be enhanced within social networks of

5 Overall, identity crisis has been name among the most significant catalysts in the radicalization process.
individuals with similar concerns (Falagas et al. 2009). Communities struck by the crisis may lack resources for maintaining opportunities for youth socialization. In this context, radical groups offering status, identity and power (Abrahms 2008; Harrison 2006; Wintrobe 2006), and, possibly, family-like structures will be particularly attractive to youth.

Lastly, psychological distress associated with unfavorable changes in life circumstances can trigger changes in personal habits, including alcohol and drug abuse. The latter has been identified as important risk factors for suicide, crime, and other types of violent behavior, including terrorism (Basra and Neumann 2016; Falagas et al. 2009). Escalating crime and violence triggered by growing unemployment, particularly among young men, and growing alcohol and drug abuse, threaten individuals’ safety making them reluctant to engage socially. This, in turn, may reduce community participation further eroding social capital necessary for prevention of violent behavior and crime (Moser 1996). Our expectation, therefore, that economic crises will be associated with the heightened levels of terrorist and extremist activity, drug trade, and crime.

Research Design

Presenting the Case
We chose to study the socio-political effects of economic crises using pooled cross sectional time series data on 85 Russian “provinces”, which are the constituent units of the Russian Federation (2008-2016). Between 2008 and 2016, Russia experienced two economic crises. The economic crisis of 2008-2009 came through three channels. First, the world financial crisis destabilized Russian financial markets. In 2008 alone, Russian stocks lost more than $1 trillion

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6 Two of these federal subjects – the Republic of Crimea and the Federal City of Sevastopol – were annexed by Russia in 2014 and are internationally recognized as part of Ukraine.
Second, oil prices collapsed precipitating a sharp decline in Russia’s revenue from the export of oil. The economic volatility was compounded by political fears following Russia’s August 2008 war with Georgia leading to a rapid capital flight from Russia. As a consequence, Russia’s fiscal decline – from about 7 percent growth before 2008 to a loss of 7.9 percent GDP in 2009 – was highest among G20 countries (Sutela 2010). According to the World Bank, Russia’s strong short-term macroeconomic fundamentals moderated the consequences of financial crisis, but its underlying structural weaknesses and high dependence on oil exports made its impact more preannounced (World Bank 2008).

The recent economic crisis (2014-2016) was triggered by Western economic sanctions, Russia’s counter-sanctions, and the collapse of global oil prices. Oil and gas constitute over 60% of Russia’s exports (and account for over 70% of export income). The oil price plunge eroded the basis of Russia’s economic growth. Accordingly, Russia’s GDP declined to 0.6 percent in 2014, and contracted 2.8 percent the following year, according to the World Bank Group. Western sanctions triggered a large-scale exodus of financial capital from Russia—a $47 billion reduction in foreign direct investments in 2014, and a further decrease of $16 billion in 2015. Russia’s counter-sanctions on European and American foods amplified inflationary pressures. As the value of the Russian ruble fell by 76 percent against the U.S. dollar in 2015 (the highest recorded), the prices for basic consumer goods increased by 30 percent. Although, Russia’s energy-dependent economy was on the mend in 2016 and 2017 on the backdrop of some recovery in oil prices, its industrial output contracted 3.6 percent in November 2017 compared to the previous year.

The effects of economic crises have not been uniform across Russia’s subjects of the federation that we refer to as “provinces”. While some provinces saw a precipitous economic
decline, others experienced little or no economic volatility. There has been high variation across Russia’s provinces on every measure of macroeconomic performance, industrial output, and individual socio-economic wellbeing (see descriptive statistics in Table 1). This high level of internal heterogeneity is concealed in the country-level data but suitable for sub-national cross sectional analysis.

Russia has also been plagued by socio-economic instability that did not abate in the recent decade. During the period of the study (2008-2016), the Global Terrorism Database (GTD),7 maintained by the National Consortium for the Study of Terrorism and Responses to Terrorism (START) at the University of Maryland, registered 1079 unambiguous terrorist incident in Russia.8 Its intentional homicide rate that fluctuated between 16 people per 100,000 population in 2010 to 11 people per 100,000 population in 2015 has been considerably higher than a global average of 6.2 per 100,000 population for 2012.9 In 2010, 2.29 percent of Russia’s 142.8 million population used opioids, including opiates and other illicit opioids and prescription opioids.10 UNODC has noted that the growing number of young people (18-30 years old) abusing drugs and committing a large number of crimes as a serious concern (UNODC 2012; US Department of State 2014, 218). Russia is a major destination country for Afghan opiates. Between 75 and 80 metric tons of some 90 metric tons transported annually from Afghanistan

7 Available at http://www.start.umd.edu/gtd/.
8 To qualify as a terrorist event, according to the GTD guidelines, an incident must conform to three criteria: (1) The violent act has to be aimed at attaining a political, economic, religious, or social goal; (2) The violent act must include evidence of an intention to coerce, intimidate, or convey some other message to a larger audience (or audiences) other than the immediate victims; and (3) The violent act has to be outside the precepts of International Humanitarian Law. If an incident that appears to be terrorist in nature based on the GTD definition (“intentional act of violence or threat of violence by a non-state actor”) does not fit one of these criteria, the GTD records a reservation. This means that the GTD analysts doubt that the incident in question is truly terrorism. Such uncertainty, however, was not deemed to be sufficient to disqualify the incident from inclusion into the GTD. The analyses reported in this study were performed on both the total number of incidents included into the GTD, as well as only those, which were deemed “unambiguous” by the GTD analysts.
9 The homicide data is available on the UNODC statistics online at https://data.unodc.org/. See also UNODC (2013).
10 UNODC data. Available at: https://data.unodc.org/.
through Central Asia onward to the Russian Federation are consumed in the country (UNODC 2012).

**Dependent Variables**

We are interested in examining the impact of economic crises on four types of socio-political instability: homegrown terrorist violence, extremism, drug trafficking, and crime. Terrorist activity is measured using several empirical indicators. The first is the count of all domestic terrorist events that took place in a province/year (*Terror Count*). We also single out only domestic terrorist attacks (*Domestic Terror Count*). The second is the sum of all those killed and injured in terrorist incidents in province-year (*Terror Casualties*). The third is an index of terrorism that captures its intensity by assigning weights to the counts of domestic terrorist incidents (each is multiplied by 1), the total number of fatalities caused by terrorist incidents (each fatality is multiplied by 3), and the total number of injuries caused by terrorism (each injury is multiplied by 0.5) in a province/year (*Terror Index*) (Hyslop 2014). The last measure is the total number of crimes of terrorist nature registered by Russian law enforcement agencies in a province/year (*Total Terror*). The data on terrorist incidents is derived from the Global Terrorism Database. The data on terrorist crimes come from Legal Statistic Portal maintained by the General Procurator’s Office of the Russian Federation.

*Extremism* is measured by the total number of crimes of extremist nature registered by the law enforcement agencies in a province/year. In the context of Russia, these crimes are defined by twenty four articles of the Federal Criminal Code and are further articulated in the

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11 The original index also accounts for the property damage.
12 These crimes include terrorist act, involvement in terrorist activity or abetting terrorist activity, hostage taking, public calls for committing terrorism, making an internationally false report about terrorist act, forming an illegal armed group and participating in it.
2002 Law on Countering Extremist activity.\textsuperscript{14} These acts include violent (e.g., murder and serious bodily harm) and non-violent forms of extremism (e.g., vandalism and appeals to extremist activity) and are based on the determination of a prejudicial motive (hatred or enmity). To determine the presence of extremist content, the Russian authorities rely on conclusions of experts. Both individuals and organizations can be charged with extremism.\textsuperscript{15}

We use multiple measures of drug trafficking. First, we calculate the total volume of all reported drug seizures of opioids (opium and heroin) and cannabis (in kilograms) in a province-year (\textit{Opiates Seizures} and \textit{Cannabis Seizures}) as well as the total volumes of all types of drugs seized (\textit{Total Drug Seizures}). The data on drug seizures was derived from the UNODC individual drug seizure reports\textsuperscript{16} and Drugs Monitoring Platform, a unique project initiated jointly by the Paris Pact Initiative and the Afghan Opiate Trade Project of the UNODC.\textsuperscript{17} Second, we used the total number of crimes related to drug trafficking (\textit{Drug Crimes}). According to the Russian criminal law, the drug trafficking crimes include illegal purchase, storage, transfer, production, and sale of narcotic, psychotropic substances, and their analogs. The data comes from the General Procurator’s Office Legal Statistical Portal. Lastly, we used the total number of all types of crimes in a province-year (\textit{Crime}), the total number of individuals persecuted for all types of crime in a province-year (\textit{Total Criminals}), and the total number of crimes associated with giving and receiving bribes (\textit{Take Bribes} and \textit{Give Bribes}) as measures of crime. The data on these crimes come from the General Procurator’s Office Legal Statistical Portal.

\textsuperscript{14} For a full list of crimes of extremist nature, see Sova, “Shto Yavlyaetskya ‘Prestupleniem Ekstremistkoi Napravlennosti’ “, Analtyical Center SOVA, 2014, \url{http://www.sova-center.ru/directory/2010/06/d19018/}
\textsuperscript{16} UNODC Individual Drug Seizure reports. Accessible at: \url{https://data.unodc.org/}
\textsuperscript{17} UNODC Drugs Monitoring Platform. Accessible at \url{http://drugsmonitoring.unodc-roca.org/}
Independent Variables
Our key independent variable of interest is economic crisis. First, we used a crude measure of crisis by creating a dummy variable coding all those years when Russia was in crises as “1” and “0” otherwise. Second, we measured the performance of regional economies at three levels: (1) macro-economic indicators; (2) industry-level indicators; and (3) individual level socio-economic indicators.

The macro-economic indicators include Gross Regional Product (GRP), which is an aggregate measure of the region’s economic activity characterizing manufacturing and services for final consumption (in mln of rubles); and Financial Result (Financial) of economic activity of all types of enterprises in a province/year calculated as a difference between profits and losses from all types of economic activity (in mln rubles).

The industry-level indicators include four indices that measure changes (as a percentage relative to previous year) in the production levels of various sectors of the regional economies: Industrial denotes the change in the levels of production of all types and sectors of the regional economy; Production measures changes in the level of manufacturing; Resources variable measures changes in the levels of natural resources extraction, processing and sales; and Energy measures changes in the total volume of production and distribution of electricity, gas, and water.

The individual level socio-economic indicators include Unemployment, which is an annual average of unemployment rate in the region (a percentage of those unemployed relative to the working age population) based on the analysis of labor market; Inflation, which is measured by the cost of a fixed set of consumer goods and services used for interregional comparisons (in roubles); Below-Minimum is a percentage of population with income below the cost of living;
and Subsistence, which is a measure of subsistence levels at the end of the year (in roubles). All province-level socio-economic data come from Russia’s Federal State Statistics Service.\textsuperscript{18}

**Control Variables**

In addition to the key dependent and independent variables, we included a number of co-variates measuring important political, demographic, and topographic factors identified as contributors to terrorist activity in the scholarship on terrorism. Political regime has been identified as one of the determinant of terrorist activity. In particular, democracy has been associated with the higher levels of terrorist activity than authoritarianism (Piazza 2013; Qvortrup and Liphart 2013; Wilson and Piazza 2013). To measure the levels of electoral democracy in Russia’s regions (\textit{Democracy}), we used the democracy index developed by Titkov (2016). It is a modified Vanhanen democracy index (Vanhanen 1984, 1990) adapted to the post-Soviet context. The index is calculated by the following formula:

\[
\text{Democracy} = \text{Context} \times \left( \frac{\text{Voice} + \text{Exit}}{2} \right)
\]

Where Contest is the level of political competition during elections calculated by Laakso and Taageper (1979) effective number of parties; Voice is the measure of degree of electoral participation; and Exit is the percentage of votes “against all”. The three measures of the index are converted into 1-5 scales and the ratings are used in the formula. We calculated the index using the average scores from the regional parliamentary elections and elections to Russia’s Duma. The data on the elections’ outcomes was extracted from the Central Election Commission of the Russian Federation.\textsuperscript{19}

Other controls include gender ratio (Gender-Ratio), the number of women per 1,000 men; urban population (Urban), the count of individuals residing in cities, both genders; road density (Road-Density), measuring the total length of public roads with hard surface (km per 10,000 sq km); and migration (Migration) measuring the net ratio of in- and out-migration (in persons).

Research Design
The dependent variables described above are count variables. Table 1 shows the summary statistics for the different variables. The variables are listed in the first column. The unit of observation is region-year. The minimum and maximum counts per region-year are listed in columns two and three, the means and variances of the counts are listed in columns four and five, and the number of zero values for each variable. The values presented in Table 1 suggest that each of the counts is overdispersed. The variance for each variable is larger than the mean for each variable. Many of the variables are characterized by a large range and a large number of zeros. Based on the features of these count data, we chose to estimate a series of negative binomial regression models.

[Table 1 Here]

We are agnostic about the possibility of unobserved heterogeneity among the regional units. Our knowledge of the data suggests that there may be important, baseline, differences in the expected counts across regions. The number of terrorist events and drug crimes, for example, may be higher in the more populated regions of Russia than in the less populated regions. Whether these differences are large enough to have an important effect on our estimates is an empirical question. We estimated three sets of negative binomial models. One set of models assumes there are no major baseline differences among the regions, the pooled model; one set of models assumes the baseline differences among the regions are normally distributed, the random effects model; and one set of models assumes the baseline differences among the regions are
sufficiently large that the data need to be transformed to accommodate these differences; the fixed effects model. The fixed effects models represent the most conservative approach. The fixed effects models also fit the data better. We present the fixed effects estimates in the next section.20

Findings
In this section we present the results from our analyses of the effects of economic crisis on various forms of sociopolitical stability. Table 2 shows the estimates from a series of models regressing predictors on Total Terror, a variable that measure total number of terrorism and terrorism-related crimes registered by the Russian government. The coefficients from the fixed effects negative binomial regression models are given along with the standard errors in parentheses. The first column of Table 2 lists the independent variables, columns two through twelve show the regression results. Model 1 in column two is a baseline model where Total Terror is regressed on the control variables – democracy, road density, urban population, gender ratio, and migration. The results are consistent with previous work. Regions with higher levels of electoral competition and participation have lower counts of terrorism-relate incidents. Regions with higher proportion of women relative to men also have lower counts of terrorism-related incidents. The rate of terrorist incidents is higher in region-years with larger urban populations and higher road densities. The latter has been used as a proxy for the infrastructure development.21 The finding suggests that regions with more developed infrastructure experience

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20 The random effects and pooled estimates are presented in the Appendix.
21 Road density has also been used to tap economic development and investments.
higher levels of terrorism-related incidents. Migration does not reach conventional levels of
significance. These results are generally consistent across the remaining specifications.22

[Table 2 Here]

The estimates from the economic crises models are shown in columns three through
twelve. The measures of economic crises can be split into three groups. The first group of
measures are macroeconomic measures of economic performance – GNP, Financial Result, and
Crisis. Two of the three results are consistent with expectations. The rate of terrorist incidents is
cy lower in region-years with higher GNP and increases during periods of economic crisis.
Financial result does not reach conventional levels of significance. The second group of
measures operationalize economic performance in terms of individual level indicators.
Unemployment and proportion of the workforce earning below the minimum wage needed for
subsistence are relevant to jobs. Inflation and the subsistence level are relevant to prices. These
results are also consistent with expectations. The coefficients for unemployment, inflation, and
subsistence are positive and statistically significant. The rate of terrorist incidents increases with
rising unemployment and prices. Below-minimum does not reach conventional levels of
significance.

The third group of measures operationalize economic performance in terms of industrial
performance. Production is a measure of the productivity of all industries in the economy,
industrial is a measure of the productivity of the manufacturing and industrial sectors, resources
is a measure of the productivity of the natural resources extraction industry, and energy is a
measure of the productivity of the energy production industry. These results are also consistent
with our expectation. Only the industrial and production measures reach conventional levels of

22 There is one notable exception, the sign of the gender-ratio changes in the model that includes inflation. This
result merits further exploration.
significance, but all four measures are negative. As productivity increases (relative to previous year), the rate of terrorist incidents falls. The results presented in Table 2 are generally consistent with our expectation. There is an inverse relationship between economic performance and terrorism. We provide various measures that operationalize economic performance in different ways. We find evidence of the hypothesized relationship across the three types of measurement of economic crisis. While the results presented in Table 2 are illuminating, this only represents one kind of sociopolitical instability.

We estimated a similar series of models for the various forms of sociopolitical instability described above. We examined four more measures of terrorism taken from the global terrorism database (GTD); the count of crimes characterized as “extremist” crimes by the Russian criminal legislation; totals of drug seizures in the different regions extracted from the UNODC drug seizures reports (in kg) for cannabis, opiates, and total drugs of all categories; and four additional measures of crime taken from the Russian government statistical sources including drug crime, total crime, and crimes involving the taking and giving of bribes. Presenting the full set of results for each measure of sociopolitical instability would be impractical. Instead, we report the coefficients and standard errors for each measure of the economy on each measure of sociopolitical instability. These results are presented in Table 3.

[Table 3 Here]

Table 3 summarizes the results for the remaining forms of sociopolitical instability. The first column of Table 3 lists the different measures of economic crisis. The table is broken into three panels. Each panel corresponds to a different group of the economic crisis variables. The first panel includes the macroeconomic crisis variables (GNP, Financial, and Crisis), the second panel includes the microeconomic crisis variables (Unemployment, Inflation, Below-Minimum,
The results for the different terrorism variables are shown in columns two through six. The results in column two are the results presented in Table 2. The results for the models using the GTD data tell a slightly different story. Again, there are several instances where the coefficients do not reach conventional levels of statistical significance, but there are a number of cases where the coefficients are statistically significant. The inferences from the GTD models are opposite of those from the models based on the Russian data. The coefficients for GNP are positive for all of the GTD models and significant in two instances, the coefficients for crisis are negative and statistically significant in all of the GTD models. The coefficients for inflation and subsistence are negative and statistically significant across all of the GTD models. Across all of these models, the results from the GTD results suggest a positive correlation between measures of economic crisis and sociopolitical instability. Most of the coefficients for the industrial variables do not reach conventional levels of statistical significance. There is only one case (Energy) where the inference is inconsistent with expectations. The differences in the results for the Russian and GTD terrorism variables poses an important question. How can we explain the differences in the inferences across the different measures of terrorism?

23 These results will be made available in an appendix.
We believe the differences in the results from the various models are a consequence of the way the data were collected. There are two major differences. First, the GTD data are collected based on news stories published in the western media outlets. These are the so-called “media-worthy” incidents that get captured by the media sources. The GTD data that is based on these stories does not reflect foiled terrorist incidents, assistance and abetting of terrorism, false threats of terrorism, or other types of radicalization in the population. According to the GTD data for Russia, the number of terrorism incidents (those that have been covered in the western media) declined between 2008 and 2016, but particularly since 2014.

There are, however, several important developments that took place during this time period in Russia that the GTD data is agnostic about. First, by different estimates, between 900 and 2,800 Islamic fundamentalist fighters left Russia for Syria. Several cells within the Caucasus Emirate, an umbrella organization unifying various Islamist groups in the North Caucasus, pledged allegiance to ISIS causing fragmentation and weakening of the Caucasus Emirate. Second, the Russian government put in place heightened security measures associated with the Sochi Olympics in 2014, and, allegedly, facilitated the departure of mujahidin from Russia’s tumultuous North Caucasus.

The Russian terrorism crime data, on the other hand, includes more than terrorist acts. Terrorism crimes include the acts of conspiring to commit terrorism, funding terrorism, and endorsing terrorism among other crimes designated by the state. As such, the count of terrorism crimes will be higher relative to terrorist attacks because terrorism crimes include a large number of crimes that do not involve acts of terrorism and cases where terrorist attacks were unsuccessful. Thus, while the results for the GTD terrorism events are not consistent with our
expectations, we are wary of interpreting the results as evidence that economic growth increases terrorism.

The results for the extremism variable are shown in column seven. The results for the macroeconomic variables are mixed. The coefficient for GNP is negative and statistically significant. This is consistent with the findings from the terrorism crime models. The rates of extremist crimes are lower in region-years where GNP is higher. This is consistent with the inference from the crisis variable. The crisis coefficient is positive and statistically significant, indicating that the rates of extremist crime increased during periods of economic crises. The financial balance result is not consistent with these findings. The coefficient for financial balance is positive and statistically significant. This suggests the rate of extremist crimes is higher in province years with higher net balances. One could interpret this result as evidence that there are regions that tend to have higher financial balances and higher rates of extremist crime, but the fixed effects specification should account for any unobserved heterogeneity in the levels. The results presented in column seven suggest that the rate of extremist crimes increased within regions as the financial balances improved. The results for the micro level variables are also mixed. The coefficients from the unemployment and below-minimum models are negative and statistically significant, suggesting that the rate of extremist crimes falls as the number of unemployed and living below the subsistence increases. The coefficients for inflation and subsistence, on the other hand, are positive and statistically significant. This is consistent with expectations. Extremist crimes increase with prices. Only one of the sectoral measures reaches conventional levels of statistical significance, as the productivity of the resource sector increases extremist violence decreases.
While the results on the extremism variable are mixed, they provide an intuitive explanation that is consistent with our theorized relationship between economic crises and extremism. Both Inflation and Subsistence variables reflect rising costs of living. Inflation reflect increases in the costs of a fixed set of consumer goods and services used for interregional comparison. Subsistence denotes changes in the cost of living. These two measures are not the same as unemployment. Individuals who are employed will experience higher anxiety and uncertainty about their ability to make means available to meet the ends and this, in turn, may make them predisposed toward more extreme types of behavior. The unemployment and below-minimum variables, on the other hand, may reflect desperation, a situation where individuals may channel all of their energy to find the means to support themselves and their families, or, under the right circumstances, this desperation may push them over the edge toward violent radicalization. These finding, however, bare further exploration.

The remaining columns of the table show the effects of economic crisis on various measures of crime. The first four variables are drug crime. Three of the variables are drug seizures variables from the UNODC – total drug seizures, cannabis seizures, and opiates seizures. Upon the first reading, the results are inconsistent with expectations. The GNP coefficients are positive and statistically significant and the crisis coefficients are negative and statistically significant. This suggests that seizures increase when the economy is performing well. This signs and significance of the unemployment, below-minimum, and sectoral variables are consistent with this interpretation as well.

These findings call for reassessment of the drug seizures variable and its interpretation. Instead of (or in addition to) reflecting the volume of drug trafficking, drug seizures may also denote government capacity: higher drug seizures reflect improved government capacity to
interdict the drug trade. Interpreted this way, the findings on the drug seizures variable are consistent with our line of thinking about the impact of economic crises on socio-political instability. Another plausible explanation is that drug seizures data never perfectly reflect the levels of drug trafficking. One can presume that, in the situation of economic crises, the law enforcement personnel will be more likely to collude in the drug trade, i.e., intentionally underreport the volume of seizures and use the income generated from “taxing” illicit drug trade to enrich themselves. The incentives for corruption would be higher in dire economic situations. The data may reflect this pattern and, in this case (as with the government capacity interpretation), the findings will be consistent with our expectations.

The results from the Total Drug Crime models are consistent with expectations. The number of drug crimes in different regions increases as the economic performance in the different regions falls. The coefficients for GNP and financial result are negative and statistically significant. The coefficient for crisis is negative and statistically significant. The results for the micro-level variables are also consistent with expectations. Unemployment and Below-Minimum do not meet conventional levels of significance but the coefficients for inflation and subsistence are positive and statistically significant. This suggests that drug crimes became more likely as prices increased within the different regions. The results for the sectoral models are also consistent with expectations.

The results for the remaining crime variables are generally consistent with expectations. The rate of crimes, the number of criminals prosecuted, and the number of bribes taken and given increases during periods of economic hardship and falls when economic performance improves. There is one notable difference. The coefficients for inflation are negative and statistically significant. This could suggest that higher prices reflect higher wages, but this result
is not in keeping with the results for the inflation results from the previous models. This result will require additional exploration in the future.

**Discussion and Conclusions**
There are three broad conclusions that can be distilled from the presented results. First, the findings are generally consistent with our expectations. Economic hardship is positively related with various forms of socio-political instability. Economic hardship increases the rate of terrorist crimes, extremist crimes, drug crime, corruption, and other crimes. We find evidence of this relationship for measures of economic performance at the macro, micro, and sectoral levels. Second, the results suggest that the data collected form international organizations needs to be interpreted with caution as it does not pick up the context-specific influences influencing the rate of events used for collecting it. The GTD data is collected from the news sources that capture a range of news-worthy events. The years of 2013-2015 were noteworthy or the study of terrorism as the emergence of ISIS with its far-reaching propaganda and recruitment campaign affected the patterns of terrorist activity worldwide. In the context of Russia, the departure of the most hardened religiously driven fighters coincided with the spike in security measures in advance of and ruing the Winter Olympic Games in Sochi.

There is also a need to reconsider what the UNODC data on drug seizures measures and find ways to adapt these interpretations to specific contexts. The official regional criminal data offer a more accurate reflection of socio-political instability. Finally, one cannot read too deeply into results based on any combination of measures. Nearly forty percent of the coefficients presented in Table 3 (59 of 154) do not reach conventional levels of statistical significance. On balance, there is evidence that economic hardship increases sociopolitical instability, but one could easily reach the conclusion that there was no relationship.
From the theoretical standpoint, the findings of this study invite further analyses into the relationship between economic crises and socio-economic instability. Since some of the studies of economic determinants on terrorism suggest a conditional relationship between economic variables and violence, there is a need to think through the conditions that mediate the impact of economic factors on terrorism and test those interactive effects. One possibility is to examine an interaction of economic crisis with democracy. This is based on the idea that economic hardships may vitiate the impact of democracy on terrorism. The baseline levels of economic development is another plausible candidate. Our theory is premised on the assumption that it is the shock of economic crises that engender psychological and social changes making individuals more prone to criminal and violent behavior. The impact of the crises measures may be felt more in the units that were better off economically before the economic downturn.
Works Cited
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Table 2: FE Negative Binomial Regression of Economic Crisis on Total Terrorism

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Standard errors in parentheses
* p < .1, ** p < .05, *** p < .01
### Table 2: FE Negative Binomial Regression of Economic Crisis on Socio-Political Instability

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| **Unemployment**       | 0.034***     | 0.082***     | 0.082***              | 0.035**                    | 0.026*          | -0.077***           | -0.043***         | -0.043***         | -0.003           | 0.001       | 0.185***       | 0.010**     | 0.023***     | -0.031***   |
| **Inflation**          | 0.000***     | -0.000***    | -0.000***             | -0.000***                  | 0.000**         | -0.000***           | 0.000***           | 0.000***           | 0.000***          | -0.000***   | -0.000***      | 0.000***    | 0.000***     | 0.000***    |
| **Below-Minimum**      | 0.021        | -0.002       | -0.007                | -0.024                     | 0.001           | -0.025***           | -0.086***          | -0.082***          | -0.035***         | 0.002       | 0.000***       | 0.000***    | 0.012*       | 0.006      |
| **Substance**          | 0.000***     | -0.000***    | -0.000***             | -0.000***                  | 0.000**         | -0.000***           | 0.000***           | 0.000***           | 0.000***          | -0.000***   | -0.000***      | 0.000***    | 0.000***     | 0.000***    |

| **Industrial**         | -0.016***    | 0.002        | 0.002                 | -0.022*                   | 0.005           | -0.003              | 0.015***           | 0.016***           | 0.015***          | -0.001***   | -0.004***      | -0.001***   | -0.002       | -0.006***   |
| **Production**         | -0.015***    | -0.004       | 0.002                 | 0.022                      | 0.012           | -0.001              | 0.014***           | 0.016***           | 0.017***          | -0.001***   | -0.001***      | -0.001***   | 0.001       | 0.005***    |
| **Resources**          | -0.003       | 0.014        | -0.006                | -0.015*                   | 0.001           | 0.001*              | 0.001              | 0.001              | -0.000           | 0.001       | 0.000***       | 0.000***    | 0.000      | 0.000**     |
| **Energy**             | -0.002       | 0.177*       | 0.013                 | 0.130                      | 0.022           | 0.003               | 0.005*             | 0.005*             | 0.012***          | -0.010**    | -0.057**       | -0.001**    | -0.002       | -0.003     |

Standard errors in parentheses
* p < .1, ** p < .05, *** p < .01