18th NATO OPERATIONS RESEARCH AND ANALYSIS CONFERENCE

An Empirical Assessment of Social Unrest Dynamics and State Response in Eurasian Countries

MAPFRE ECONOMICS
Gonzalo de Cadenas-Santiago, Ph.D.

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MAPFRE Economics

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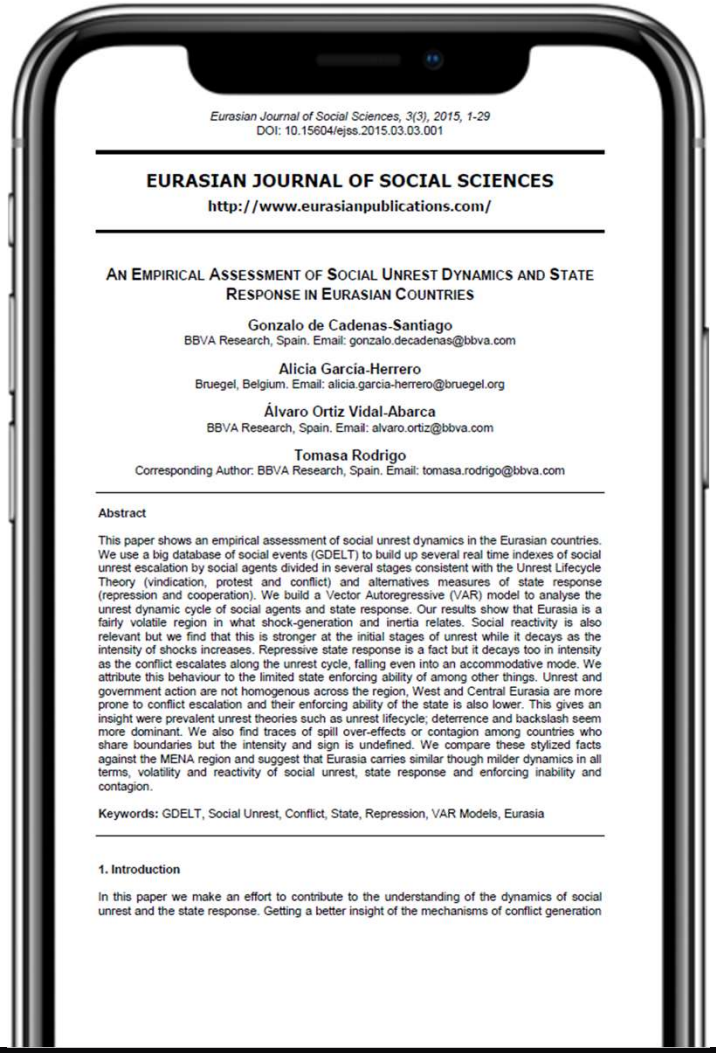

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http://www.eurasianpublications.com/

AN EMPIRICAL ASSESSMENT OF SOCIAL UNREST DYNAMICS AND STATE RESPONSE IN EURASIAN COUNTRIES

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Abstract

This paper shows an empirical assessment of social unrest dynamics in the Eurasian countries. We use a big database of social events (GDELT) to build up several real time indexes of social unrest escalation by social agents divided in several stages consistent with the Unrest Lifecycle Theory (vindication, protest and conflict) and alternatives measures of state response (repression and cooperation). We build a Vector Autoregressive (VAR) model to analyse the unrest dynamic cycle of social agents and state response. Our results show that Eurasia is a fairly volatile region in what shock-generation and inertia relates. Social reactivity is also relevant but we find that this is stronger at the initial stages of unrest while it decays as the intensity of shocks increases. Repressive state response is a fact but it decays too in intensity as the conflict escalates along the unrest cycle, falling even into an accommodative mode. We attribute this behaviour to the limited state enforcing ability of among other things. Unrest and government action are not homogenous across the region, West and Central Eurasia are more prone to conflict escalation and their enforcing ability of the state is also lower. This gives an insight were prevalent unrest theories such as unrest lifecycle; deterrence and backslash seem more dominant. We also find traces of spill over-effects or contagion among countries who share boundaries but the intensity and sign is undefined. We compare these stylized facts against the MENA region and suggest that Eurasia carries similar though milder dynamics in all terms, volatility and reactivity of social unrest, state response and enforcing inability and contagion.

Keywords: GDELT, Social Unrest, Conflict, State, Repression, VAR Models, Eurasia

1. Introduction

In this paper we make an effort to contribute to the understanding of the dynamics of social unrest and the state response. Getting a better insight of the mechanisms of conflict generation

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JULY 24-25, 2015
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IN COLLABORATION WITH

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The Institute of Economics of the Ural Branch of Russian Academy of Sciences

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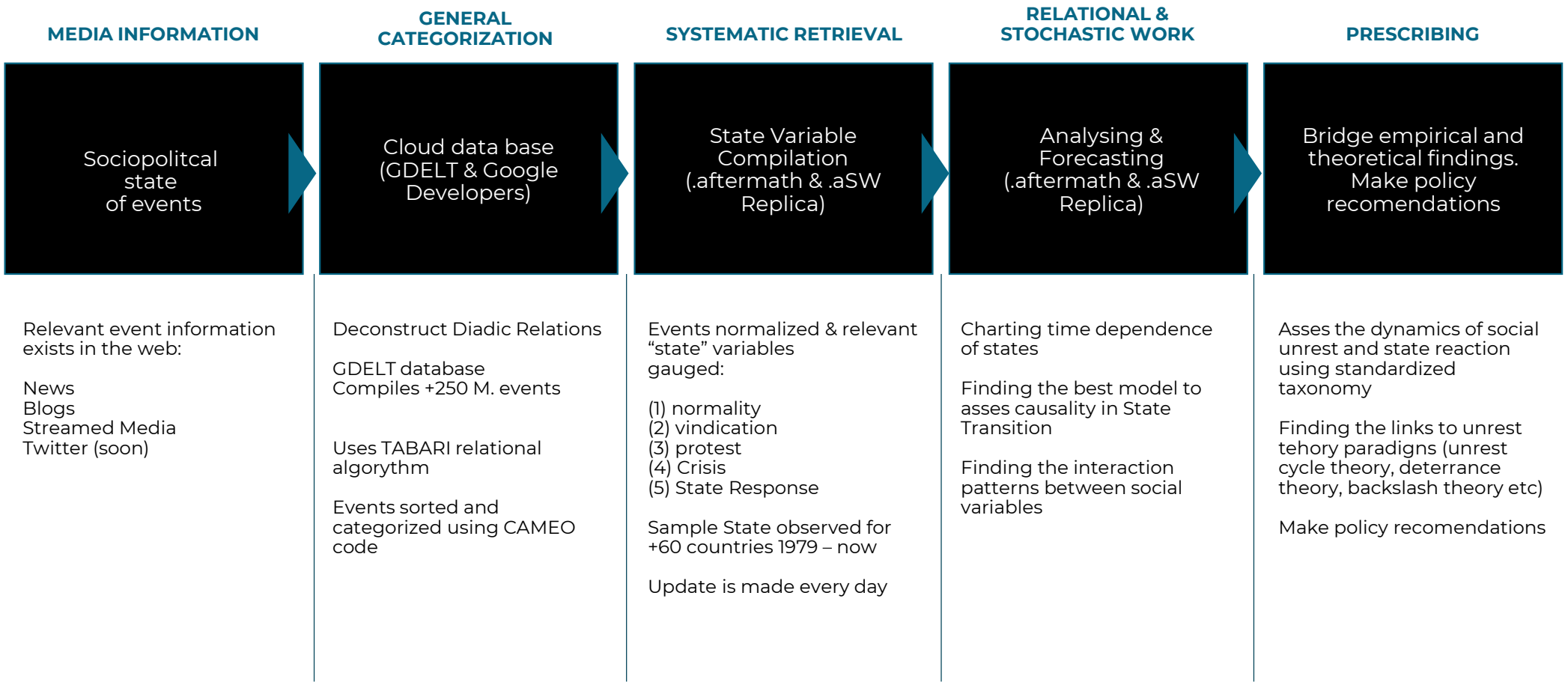
Main Ideas

"An Empirical Assessment of Social Unrest Dynamics and State Response in Eurasian Countries," explores the dynamics of social unrest and government responses across Eurasian nations. Here are the key ideas:

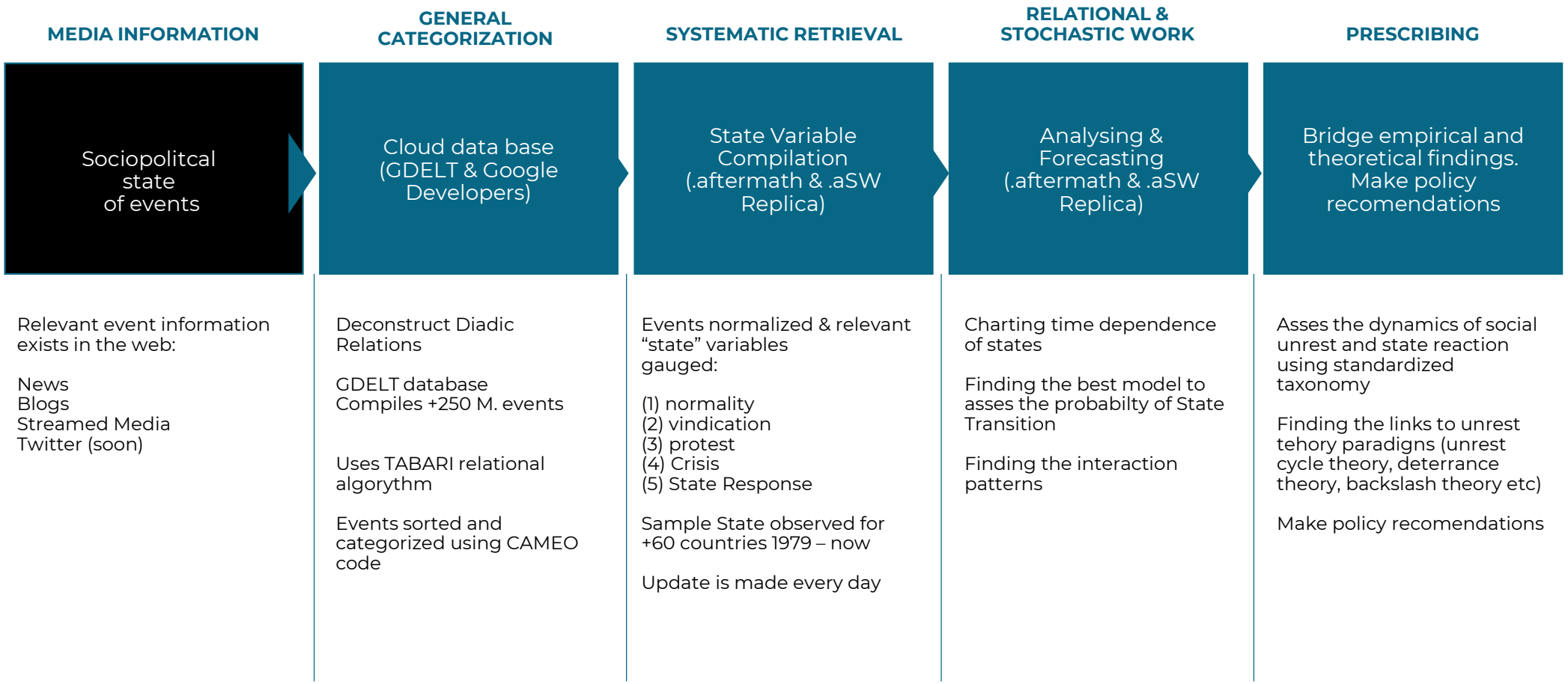
1. **Social Unrest Lifecycle**: The study categorizes unrest into phases: vindication (initial grievances), protest (intensified public dissent), and conflict (violent acts). This lifecycle framework helps in understanding the escalation patterns of social unrest.
2. **State Response Patterns**: Governments respond to unrest with either repression (using force) or cooperation (dialogue and concessions). The study finds that repressive responses are common but tend to weaken as unrest intensifies, with some states shifting toward cooperation as conflicts escalate.
3. **Regional Variation and Volatility**: Eurasia is highlighted as a volatile region, with distinct differences in social unrest dynamics between its western and central areas. These areas are more prone to conflict, often influenced by weaker state enforcement.
4. **Data and Methodology**: The analysis uses the GDELT database, which tracks global socio-political events, and applies a Vector Autoregressive (VAR) model to study the cyclical dynamics of unrest and state response. This data-driven approach provides real-time insight into unrest patterns and state actions.
5. **Comparative Analysis**: The paper contrasts Eurasian social unrest with dynamics in the MENA (Middle East and North Africa) region, finding that while both regions exhibit volatility, Eurasia shows relatively milder dynamics.
6. **Implications for Policy and Early Warning**: The study emphasizes the importance of understanding these patterns for developing early warning systems and informing policy responses to mitigate the impact of social unrest.

Overall, the paper sheds light on how unrest unfolds and how state responses vary, offering insights into managing and predicting social stability challenges.

THE ANALYTICAL CHOICE



THE ANALYTICAL CHOICE



EXTRACTING THE INFORMATION FROM THE MEDIA

State of Sociopolitical Events as given in the Media

USAID FROM THE AMERICAN PEOPLE

The Washington Post
WorldViews
By the Washington Post Foreign Staff
What big data can tell us about the relationships between world leaders

BBC NEWS Technology

WORLD ECONOMIC FORUM

DEPARTMENT OF DEFENSE · UNITED STATES OF AMERICA

FP's Favorite Reads of 2013
Great books from the past year as selected by the FP staff.
FP Foreign Policy

The New York Times
SundayReview | NEWS ANALYSIS
Spreadsheets and Global Mayhem

COUNCIL on FOREIGN RELATIONS

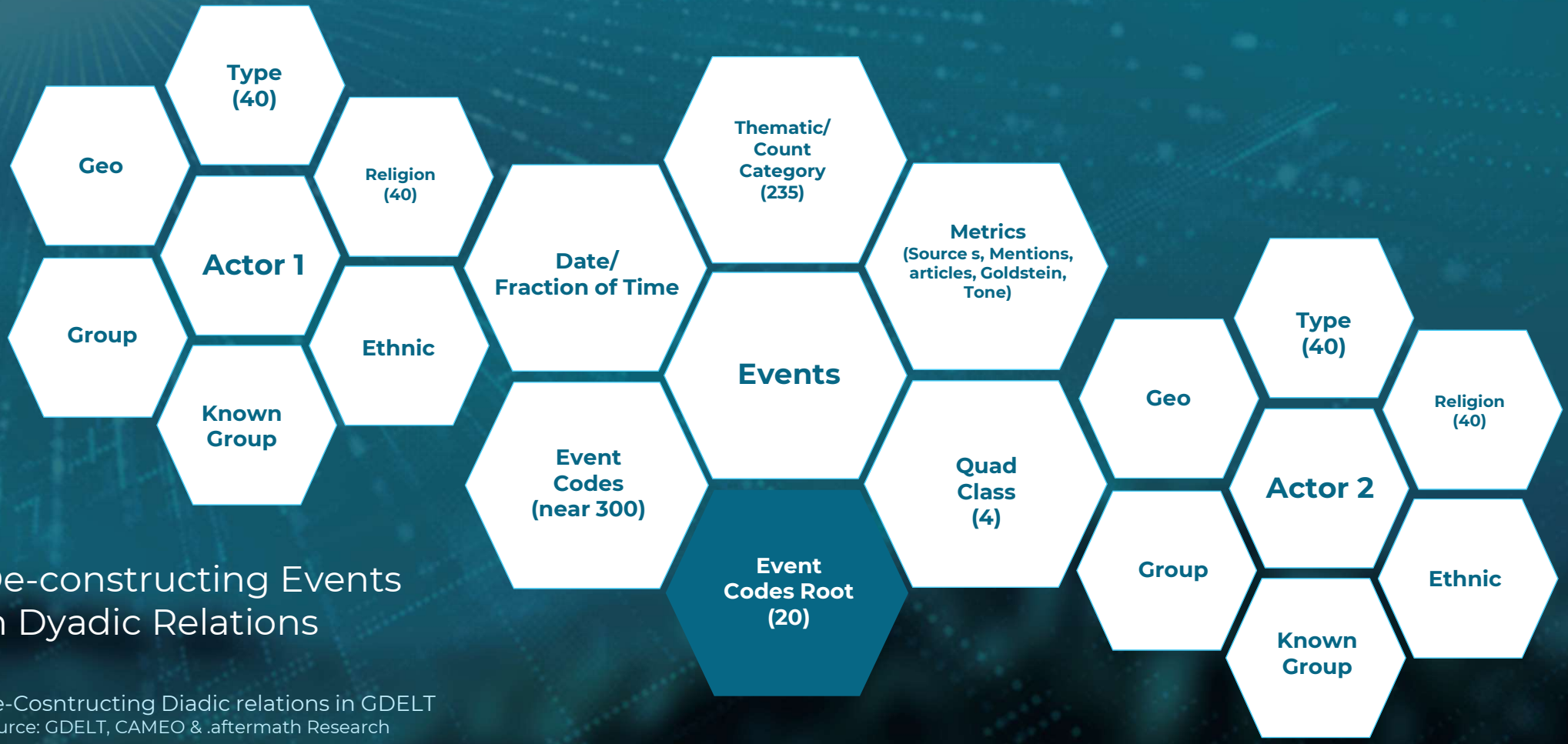
Wilson Center

theguardian
News › Datablog
DATABLOG
Facts are sacred

THE ANALYTICAL CHOICE

MEDIA INFORMATION	GENERAL CATEGORIZATION	SYSTEMATIC RETRIEVAL	RELATIONAL & STOCHASTIC WORK	PRESCRIBING
Sociopolitcal state of events	Cloud data base (GDELT & Google Developers)	State Variable Compilation (.aftermath & .aSW Replica)	Analysing & Forecasting (.aftermath & .aSW Replica)	Bridge empirical and theoretical findings. Make policy recomendations
Relevant event information exists in the web: News Blogs Streamed Media Twitter (soon)	Deconstruct Diadic Relations GDELT database Compiles +250 M. events Uses TABARI relational algorythm Events sorted and categorized using CAMEO code	Events normalized & relevant "state" variables gauged: (1) normality (2) vindication (3) protest (4) Crisis (5) State Response Sample State observed for +60 countries 1979 – now Update is made every day	Charting time dependence of states Finding the best model to asses causality in State Transition Finding the interaction patterns between social variables	Asses the dynamics of social unrest and state reaction using standardized taxonomy Finding the links to unrest tehory paradigns (unrest cycle theory, deterrance theory, backslash theory etc) Make policy recomendations

CONSTRUCTING THE VARIABLES ON THE SEARCH FOR DIADIC RELATIONS



De-constructing Events in Dyadic Relations

De-Cosntructing Diadic relations in GDELT
Source: GDELT, CAMEO & .aftermath Research

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CONSTRUCTING THE VARIABLES EXTRACTING THE SOCIAL ESTATE PROXIES

We first transform all events into four single indicators related to social and geopolitical states...

Cameo Quads	Cameo Events (events)	Code	Goldstein Scale
Verbal Cooperation	MAKE PUBLIC STATEMENT (11)	1	0
	APPEAL (28)	2	3
	EXPRESS INTENT TO COOPERATE (29)	3	4
	CONSULT (8)	4	1
	ENGAGE IN DIPLOMATIC COOPERATION (9)	5	3.5
Material Cooperation	ENGAGE IN MATERIAL COOPERATION (6)	6	6
	PROVIDE AID (7)	7	7
	YIELD (26)	8	5
	INVESTIGATE (6)	9	-2
Verbal Conflict	DEMAND (27)	10	-5
	DISAPPROVE (13)	11	-2
	REJECT (27)	12	-4
	THREATEN (23)	13	-6
	PROTEST (27)	14	-6.5
Material Conflict	EXHIBIT FORCE POSTURE (6)	15	-7.2
	REDUCE RELATIONS (14)	16	-4.0
	COERCE (13)	17	-7.0
	ASSAULT (14)	18	-9.0
	FIGHT (8)	19	-10
	USE UNCONVENTIONAL MASS VIOLENCE (8)	20	-10

New State

State 0
NORMALITY

State 1
Vindicate

State 2
Protest

State Response

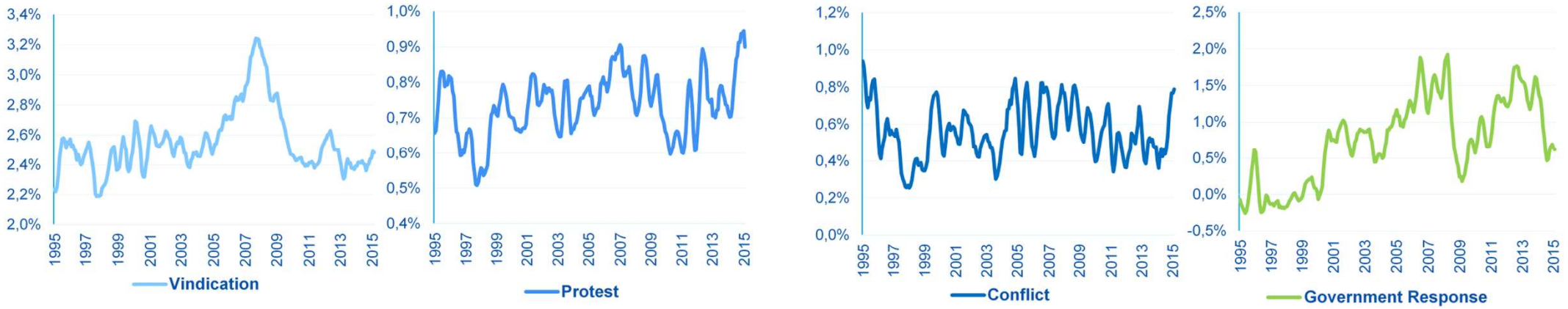
State 3
Conflict

GDELT: Event Codes
Source: GDELT & CAMEO

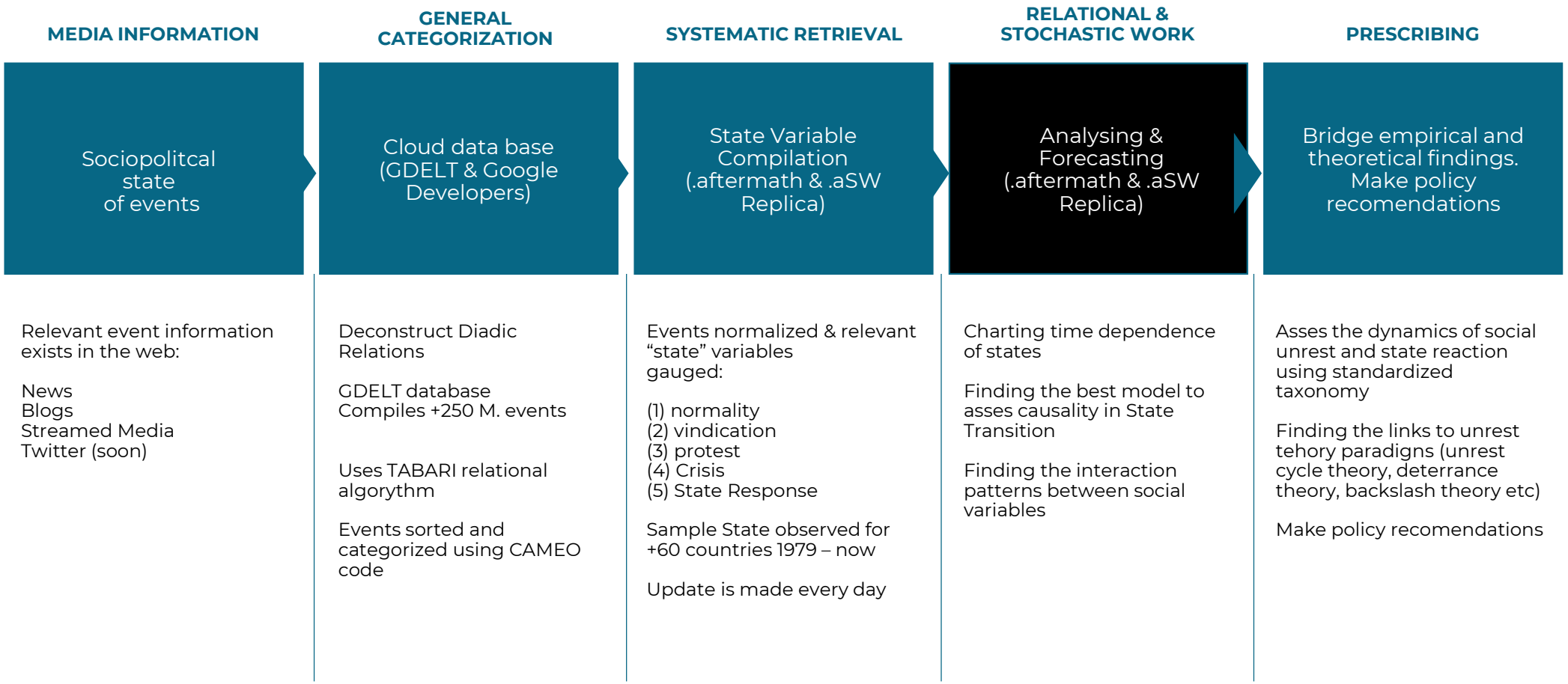
CONSTRUCTING THE VARIABLES OUR SOCIAL STATE VARIABLES

Indices of Social Unrest Variables and Government Response in Eurasia

(As share of news of each category to total news, in)



OUR ANALYTICAL CHOICE



THE VAR MODEL

$$Y_{t=}AY_{t-l} + E_t \quad \text{Where } E_t \sim (0, \Sigma_t) \qquad (1)$$

$$Y_{t=}(V_t, P_t, C_t, G_t) \qquad (1.b)$$

and

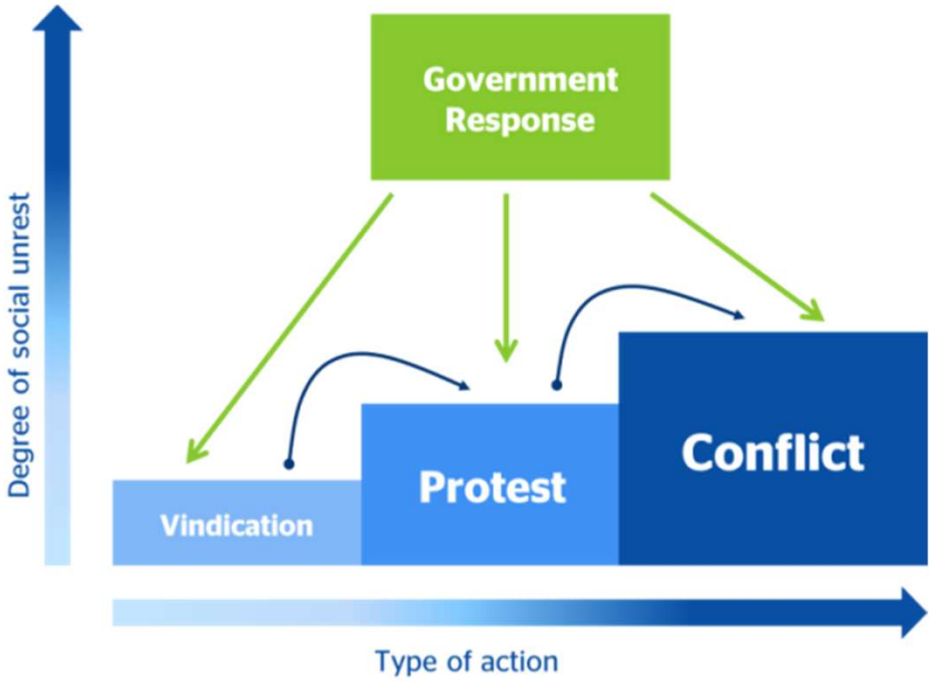
$$Y_{t=}AY_{t-l} + E_t \quad \text{Where } E_t \sim (0, \Sigma_t) \qquad (2)$$

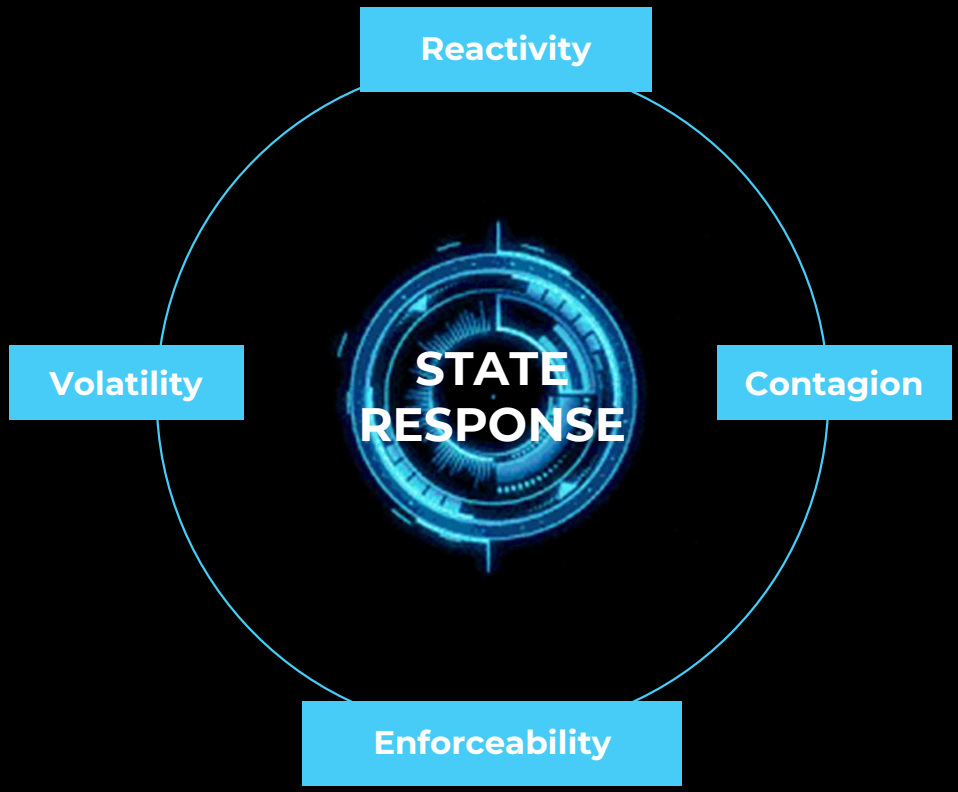
$$Y_{t=}(V_{Nt}, P_{Nt}, C_{Nt}, G_{Nt}, V_t, P_t, C_t, G_{t.}) \qquad (2.b)$$

THE DATA

- 4 variables, 25 Countries, Sample 1994m1 2015m2 (avoid regime changes)
- One control samle (MENA) vs Our Eurasia Setup
- Stationarity granted
- Non colinear
- Identification
- Non structural model but Cholesky leaves room to decide relations

The time interdependdce of the variables shuld Help to portrait the stylez facts of social dynamics





Granger Causality Tests Confirm Prior intuition about social behavior

Dependent variable: PSVINDICATION

Excluded	Chi-sq	Prob.
PSPROTEST	4.109309	0.3914
PSCONFLICT	3.139065	0.5348
GOVRESPONSE	0.877303	0.9278
All	7.395765	0.8304

Dependent variable: PSPROTEST

Excluded	Chi-sq	Prob.
PSVINCICATION	8.394849	0.0481
PSCONFLICT	3.895887	0.0403
GOVRESPONSE	15.354549	0.0228
All	38.30861	0.001

Dependent variable: PSCONFLICT

Excluded	Chi-sq	Prob.
PSVINCICATION	5.303688	0.0575
PSPROTEST	2.227042	0.0641
GOVRESPONSE	27.162272	0
All	35.5228	0.0008

Dependent variable: PSPROTEST

Excluded	Chi-sq	Prob.
PSVINCICATION	8.11017	0.0876
PSPROTEST	0.350147	0.0364
PSCONFLICT	13.303107	0.0084
All	32.16286	0.0043

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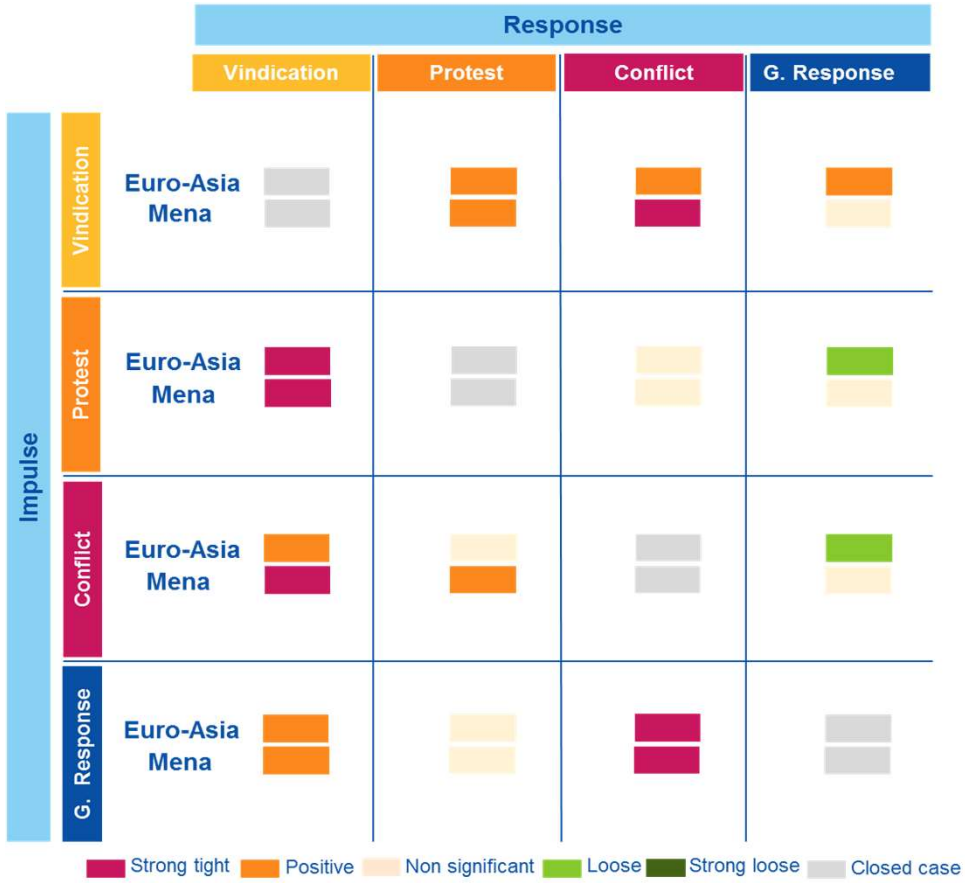
REGIONAL AGGREGATE ANALYSIS

- **Eurasia a fairly volatile region.**
  - Shocks are moderately intense and generate resilient dynamics consistently with the inertia paradigm.
  - They generate resilient and intense unrest responses that obey to the escalation potential of the region:
  - Unrest escalates smoothly and with significant intensity helped by self-reinforcing forces. (Unrest Life-cycle Theory).

- **Government policy has limited enforcing ability**
  - Coercive or repressive action contains but does not suffocate the escalation of unrest into conflict. (Deterrence and Backslash Theories of government repression
  - Could be the rationale to explain why Governments switch from coercive to cooperative or accommodative measures as the level of unrest escalates (repressive/coercive when unrest is vindication but cooperative/accommodative as it turns intense protest or conflict).

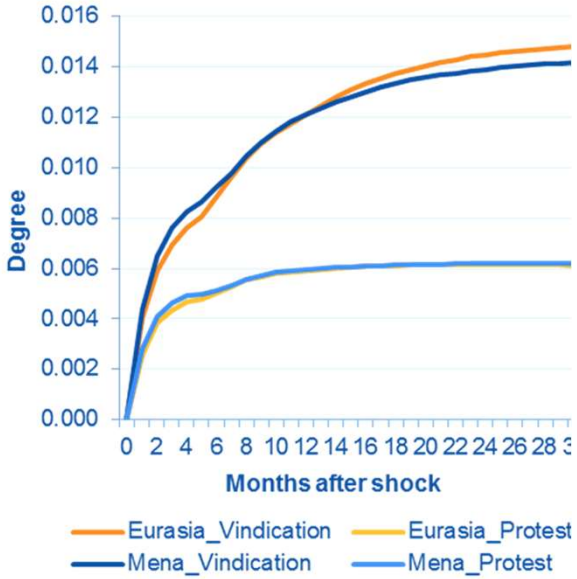
- **Eurasia and MENA share similar features in terms of volatility and reactivity but in MENA**, the unrest generation and government reaction are in general more extreme (see chart) This is believed because the region might also have comparably less enforcing ability than Eurasia has.

IMPULSE RESPONSE ANALYSIS

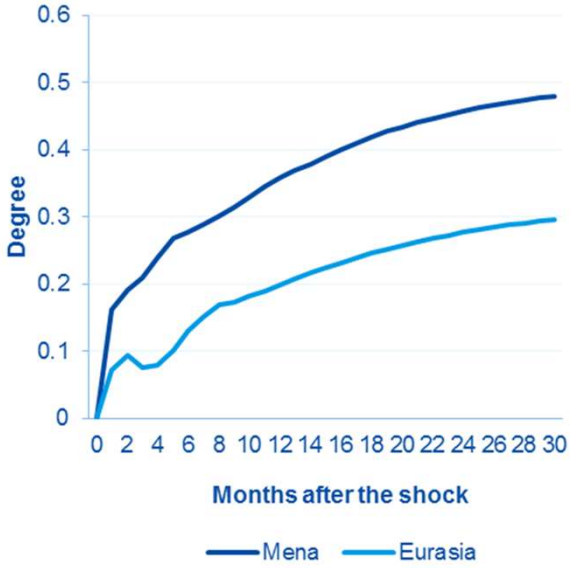


REGIONAL AGGREGATE ANALYSIS

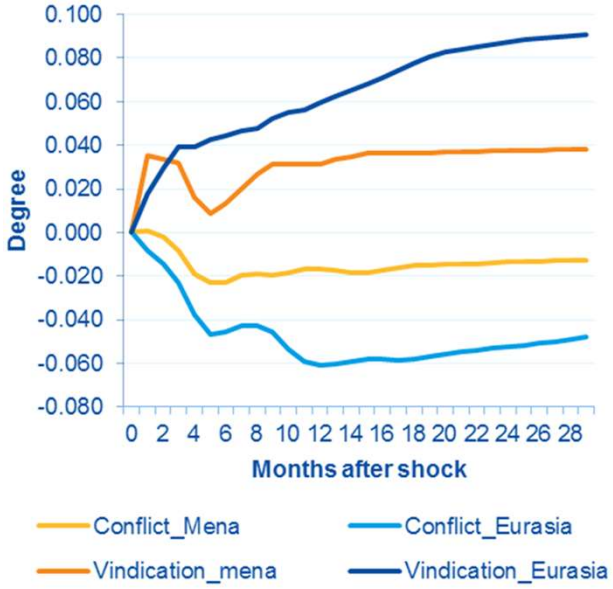
Regional case
Volatility
(Intensity and resiliency of Shocks)



Enforceability Slack
(Reaction of conflict to coercion)



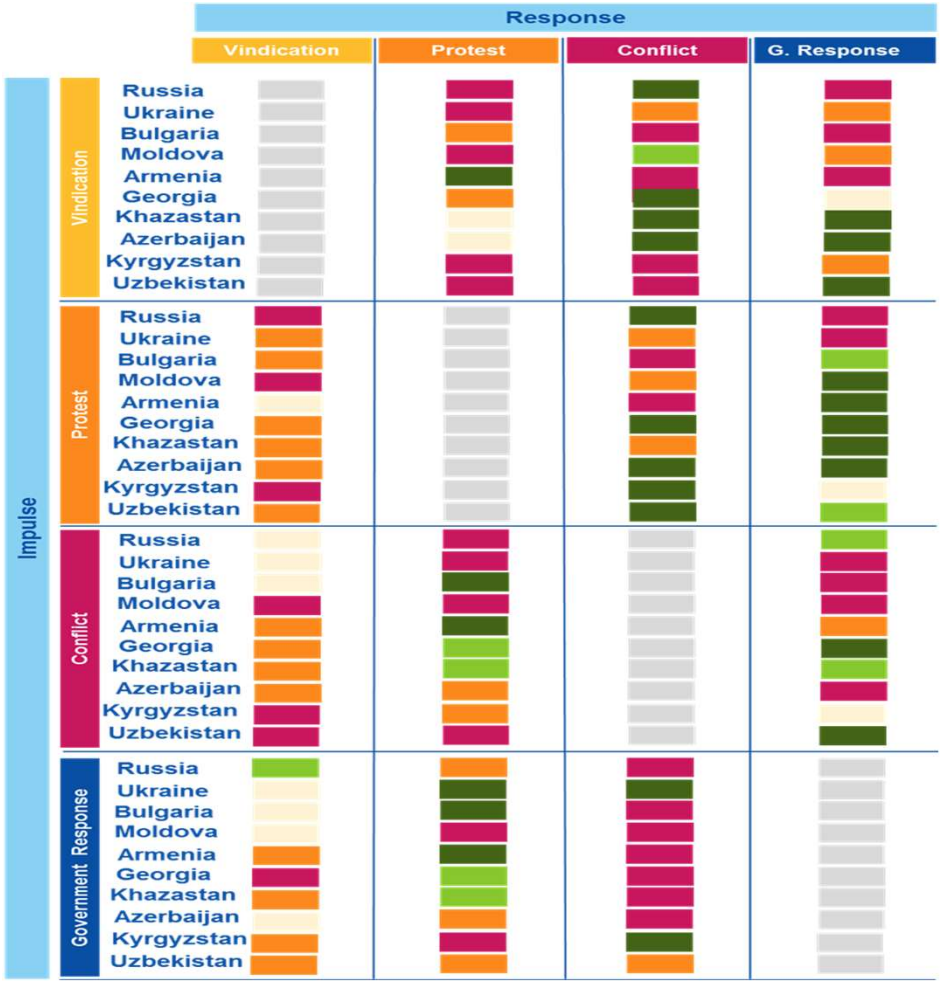
Policy Option
(Government response to unrest)



SUB-REGIONAL ANALYSIS

- The features of aggregate unrest dynamics (intensity, reactivity and enforceability) conceal divergent patterns across the sub-regional levels.
- The most volatile and thus prone to create stronger and swifter shocks are Western and Central countries that stand above the regional average.
- The intensity of social shocks is decaying as we move to the East.
- Most reactive countries are countries in the Caucasus to a large extent due to the feed-back effects of social unrest responses.
- That is to say: the Unrest Lifecycle Theory and the Inertia Theory are more palpable as we move to the West of the region.
- Enforceability is weak in the West and in the East, meaning that Conflict increases when Government policy enters into action no matter if it prefers repressive (West) or cooperative (East) action.
- In the Caucasus however, Government Response has some effect as it dampens the escalation of unrest into conflict.

IMPULSE RESPONSE ANALYSIS



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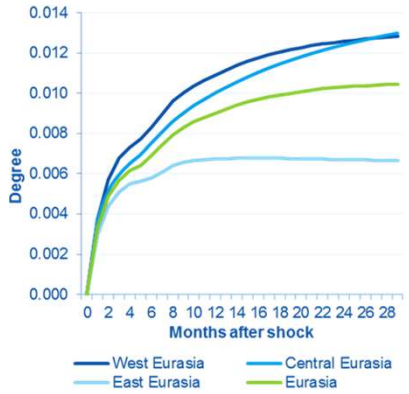
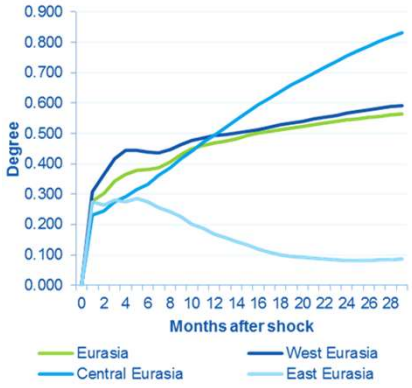
IMPULSE RESPONSE ANALYSIS

Inside Eurasia

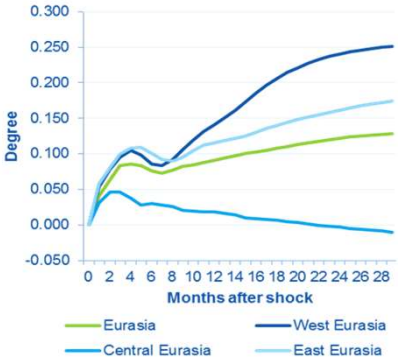
Social Volatility
(Intensity and resiliency of Shocks)



Escalation Potential (from vindication to protest)
(Transmission or response to shocks)



Escalation Potential (from protest to conflict)
(Transmission or response to shocks)



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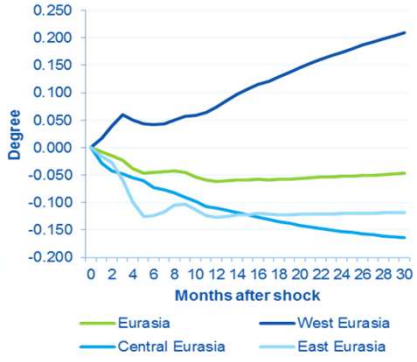
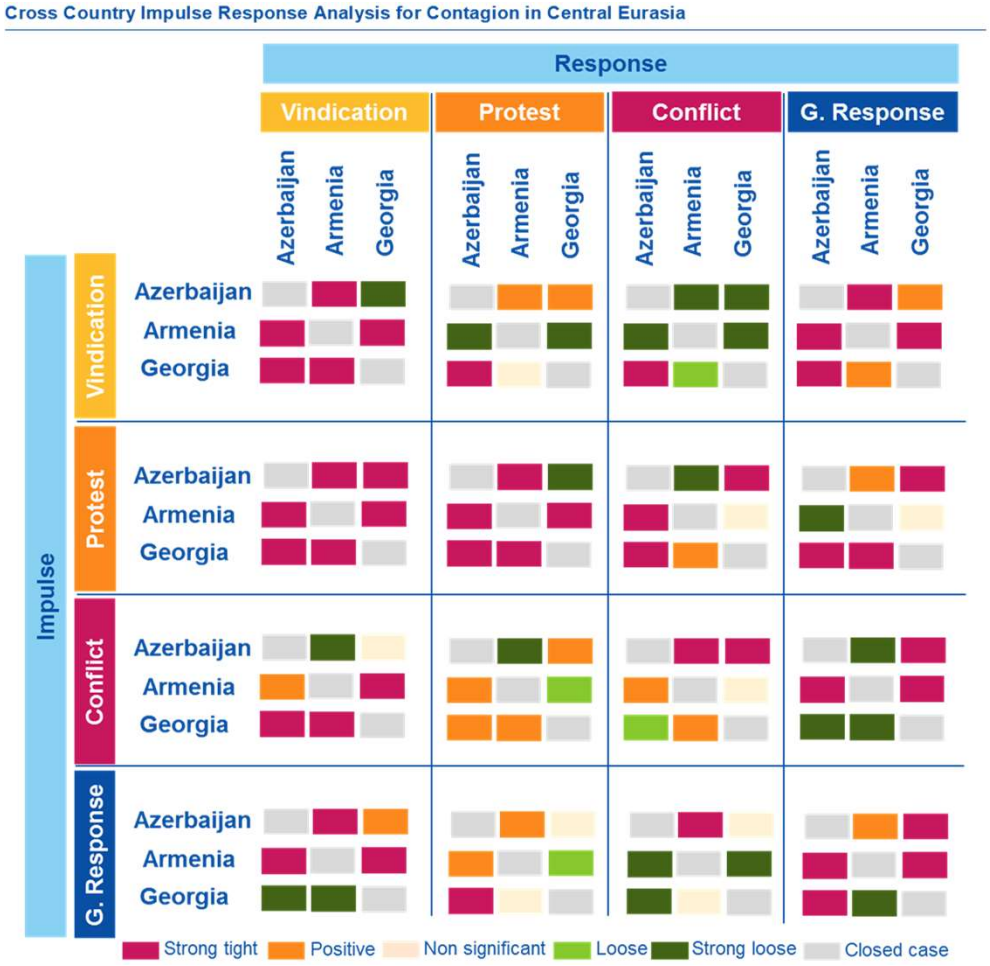


CONTAGION ANALYSIS

- Contagion exists at every level of social unrest (from vindication to conflict) but
- Its is uneven in intensity and timing and conditional on the nature of the unrest event that has taken place in the neighbour.
- Low levels of unrest are likely to spread more swiftly and with higher intensity than conflict.
- Government policy option is replicated also unevenly across countries; some are prone to be heavy handed while others tend to be neutral or even loose when the neighbours exert coercion.
- The results of Central Eurasia countries are comparable with those of MENA

IMPULSE RESPONSE ANALYSIS



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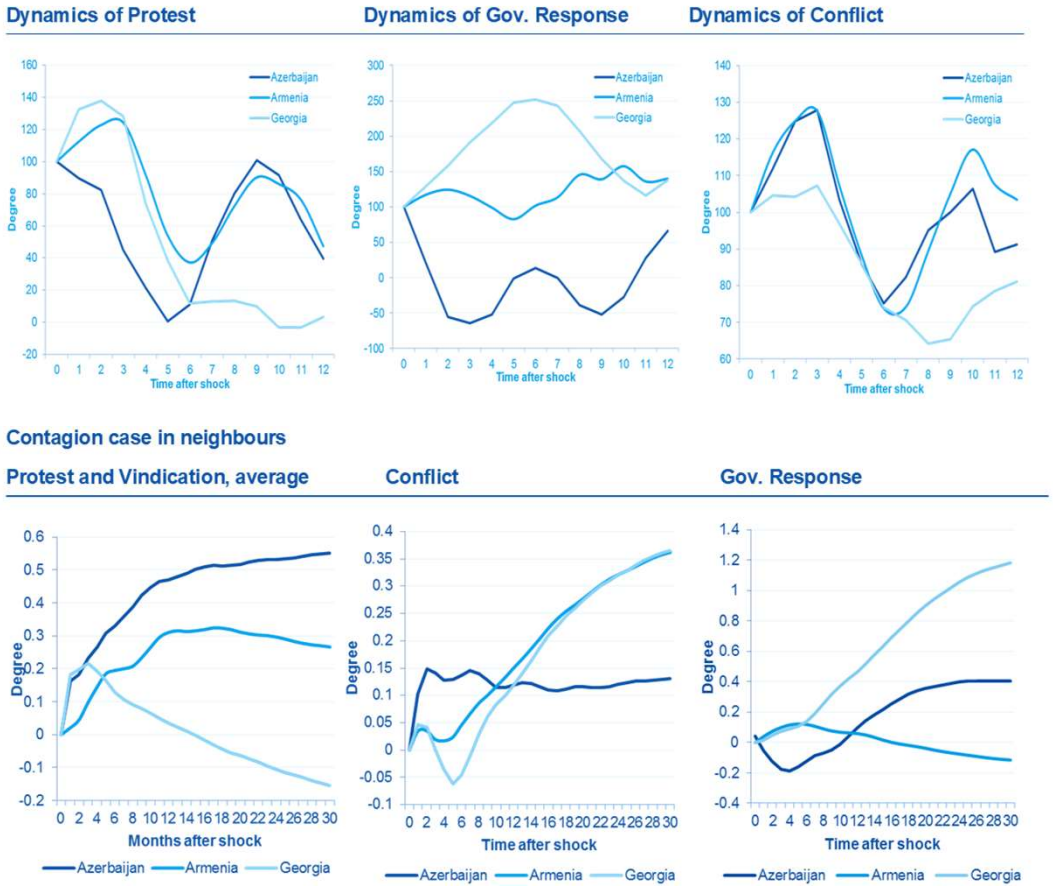
IMPULSE RESPONSE ANALYSIS

Median Event Normalized Unrest Dynamics and Government Response in Central Eurasia
(X-Axis means months since dated-event Y-Axis unrest variable is 100 in the origin, Source own calculations)



Consistency

- Comparing results with two similar pieces:
  - *"Stress Test Scenario: Millennial Uprising Social Unrest Scenario"Published by the Cambridge Centre for Risk Studies, October 2014.*
  - *"Profile of a Macro-Catastrophe Threat Type: Social Unrest"Published by the Cambridge Centre for Risk Studies, December 2013.*

- Drivers of Social Unrest: Social unrest is generally viewed as escalating from socio-economic grievances like unemployment and economic inequality. Specific triggers, such as austerity policies or lack of job opportunities for young people, often spark these events.
- Stages of Escalation: Each report describes a progression from peaceful demonstrations to more intense civil disorder. This escalation framework appears as a series of phases that begin with protests and can culminate in more disruptive actions under certain conditions.
- Economic Disruption: A shared concern is the economic impact of social unrest. Lost productivity, disrupted trade, and a decline in investor confidence are seen as major risks, with potential long-term effects on economic stability.
- Amplification by Social Media: Social media is noted as a key factor that enables rapid spread and coordination of unrest across different regions, turning isolated incidents into broader movements.
- Preparedness and Risk Management: All three reports stress the need for both organizations and policymakers to anticipate these risks and bolster their resilience against potential disruptions. The focus is on building a framework for recognizing early indicators and preparing for economic and operational challenges that unrest can bring.

W R A P U P

- A novel approach based on statistical analyisis and big data that breaks the boundaries of aggregation in defining social agents' behaviour.

- A simple (maybe simplistic) taxonomy of social behaviour to answer key questions for operative risk management (dynamics of unrest, contagion, and reaction to state action).

- Consistent with vast strands of the literature (Unrest life Cycle, State / Response Theories and Inertia of Social Dynamics).

- The case analysed shows these features hold in Eurasia in varying forms of increasing social volatility and resiliency of unrest, escalation potential and reinforcing dynamics, contagion potential and state response and enforcing ability. Though these features are uneven across the region are standard in characterising the social reactivity map of the region, key for foreign policy optimisation and the operative risk control.