Capturing and comparing transboundary crises
A text-as-data measurement model

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What we know about crises (and why we need to know more)

What is a crisis?

"a serious **<u>threat</u>** to the basic structures or the fundamental values and norms of a system, which under **<u>time pressure</u>** and highly <u>**uncertain circumstances**</u> necessitates making critical decisions." (Rosenthal et al. 1989, p. 10)

IR research: *many important questions, few definitive answers!*

- More globalization (tech. advancement etc.) → more crises!?

- More crises → less liberal international order!?

- Crises → more/less cooperation & global governance?

- Crisis → more/less IO authority, autonomy etc.?

- Crises → regime complex integration/fragmentation?

> Problem:
> - Lack of large-scale comparative analyses across issue areas & time [Due to lacking comparable crisis data!]

Public Administration research: *not every crisis is the same!*

WILEY

The Transboundary Crisis: Why we are unprepared and the road ahead

Arjen Boin

→ Geographic and functional spread (Transboundariness)

RESEARCH AGENDA SECTION   OPEN ACCESS

Europe's fast- and slow-burning crises

Leonard Seabrooke and Eleni Tsingou

→ Temporal dynamics

Hiding in Plain Sight: Conceptualizing the Creeping Crisis

Arjen Boin, Magnus Ekengren and Mark Rhinard

→ Intensity

Problem:

- PA research remains conceptual, no empirical operationalization

- Single case studies, small-N comparisons of intuitive examples

- Lack of comparative crisis data:
    - Few datasets, e.g., for security (ICB), economy/finance (IMF)
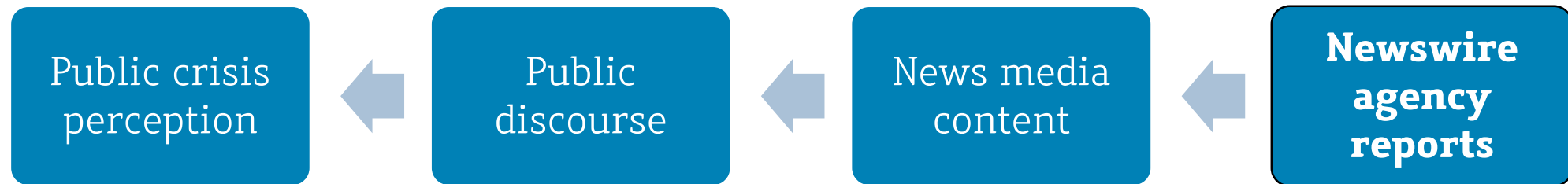   - Non-transversal (issue-area specific) indicators

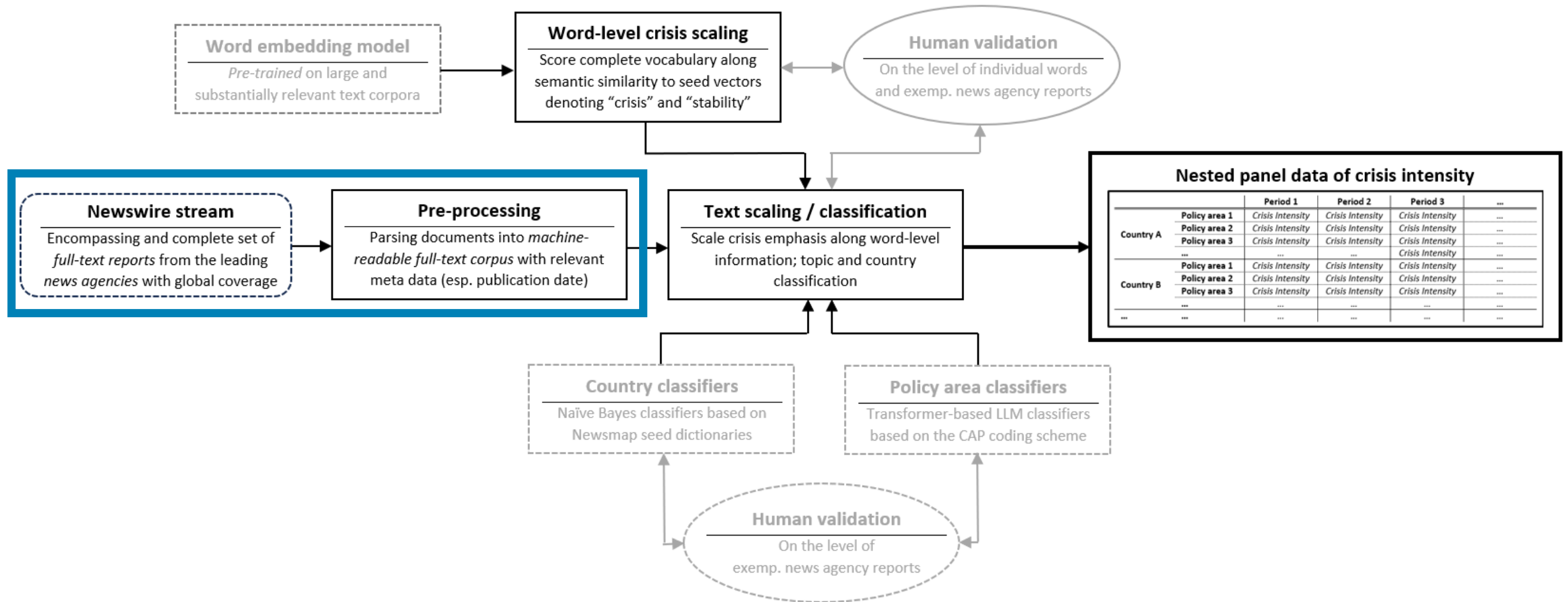# How to measure *crises* across policy areas, time, and space?

Important cue:

"Crises do not exist independently of people's perceptions" (Boin et al. 2020, p. 121).

→ No intersubjective perception (of threat, urgency, uncertainty), no crisis

→ Perception travels across issue areas, time, and space

→ Public perception as possibly the most valid
   and possibly the only transversal crisis indicator!

How to measure *crisis perception* across policy areas, time, and space?

| Public crisis perception | ← | Public discourse | ← | News media content | ← | **Newswire agency reports** |

Measurement: *Tapping into the global newswire stream*

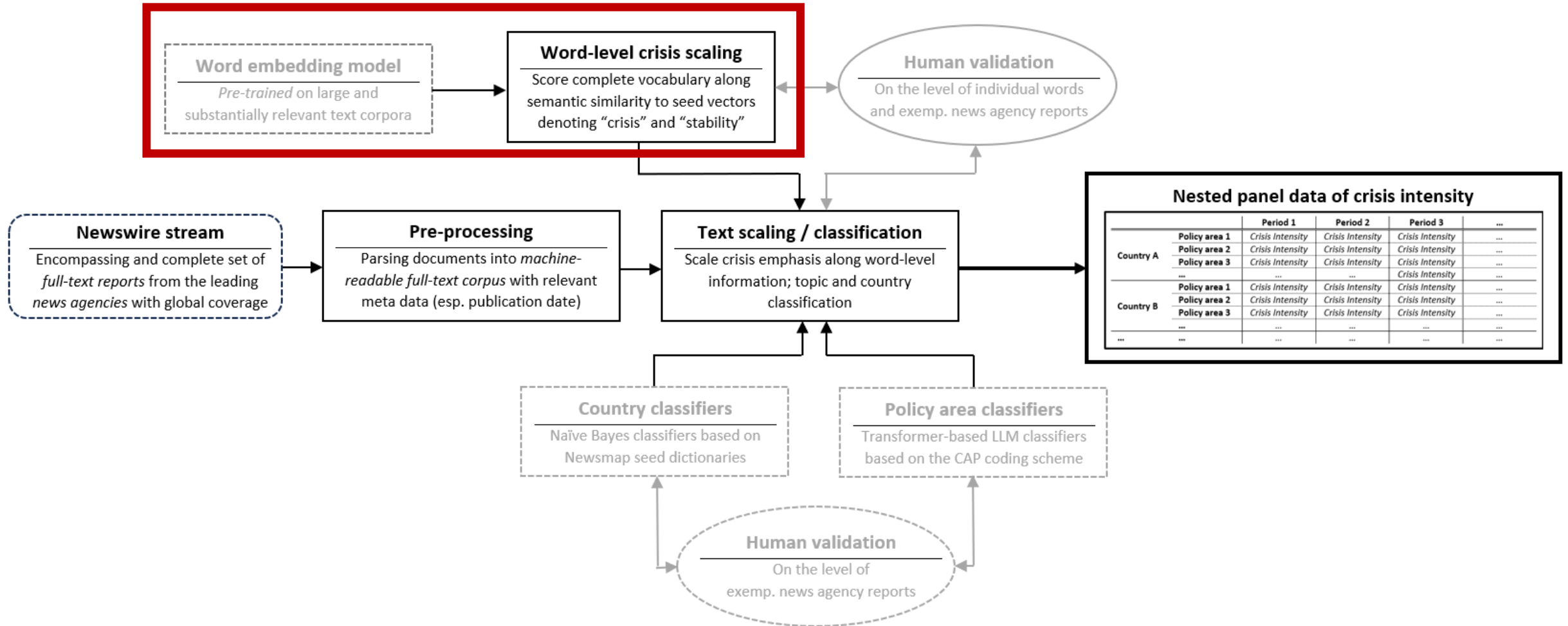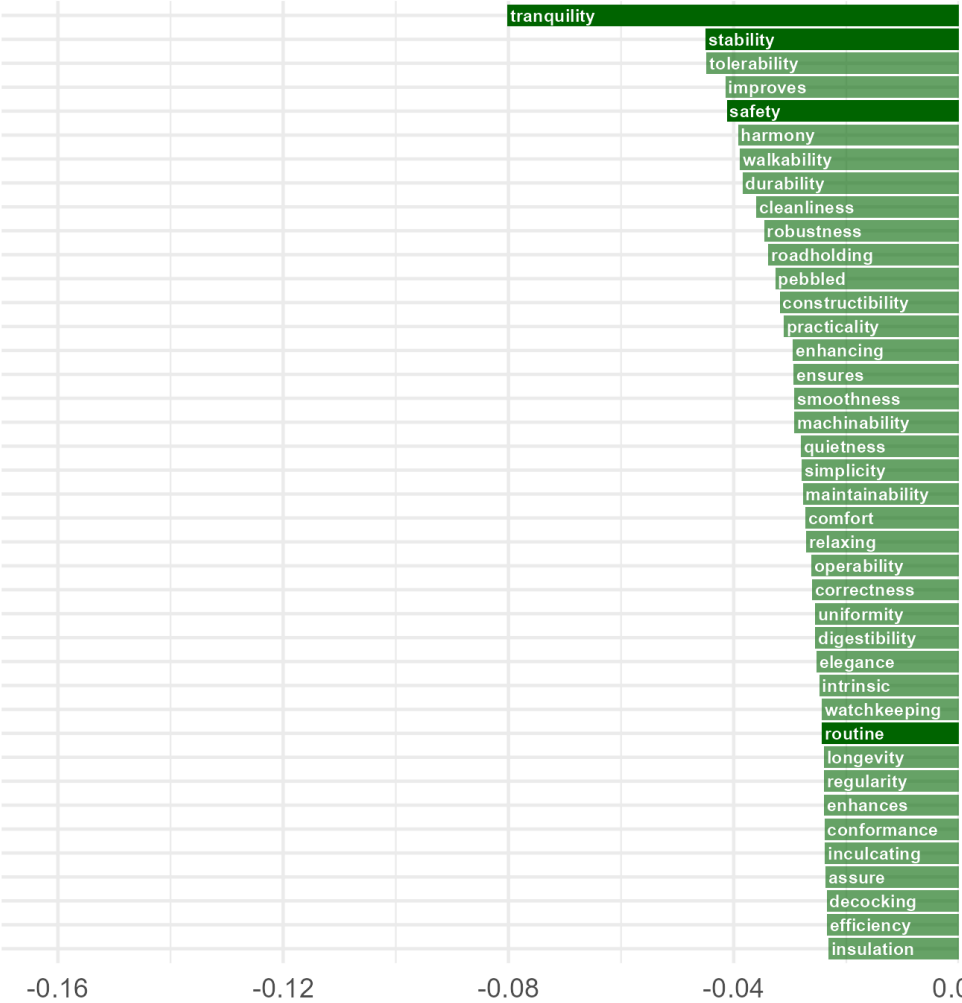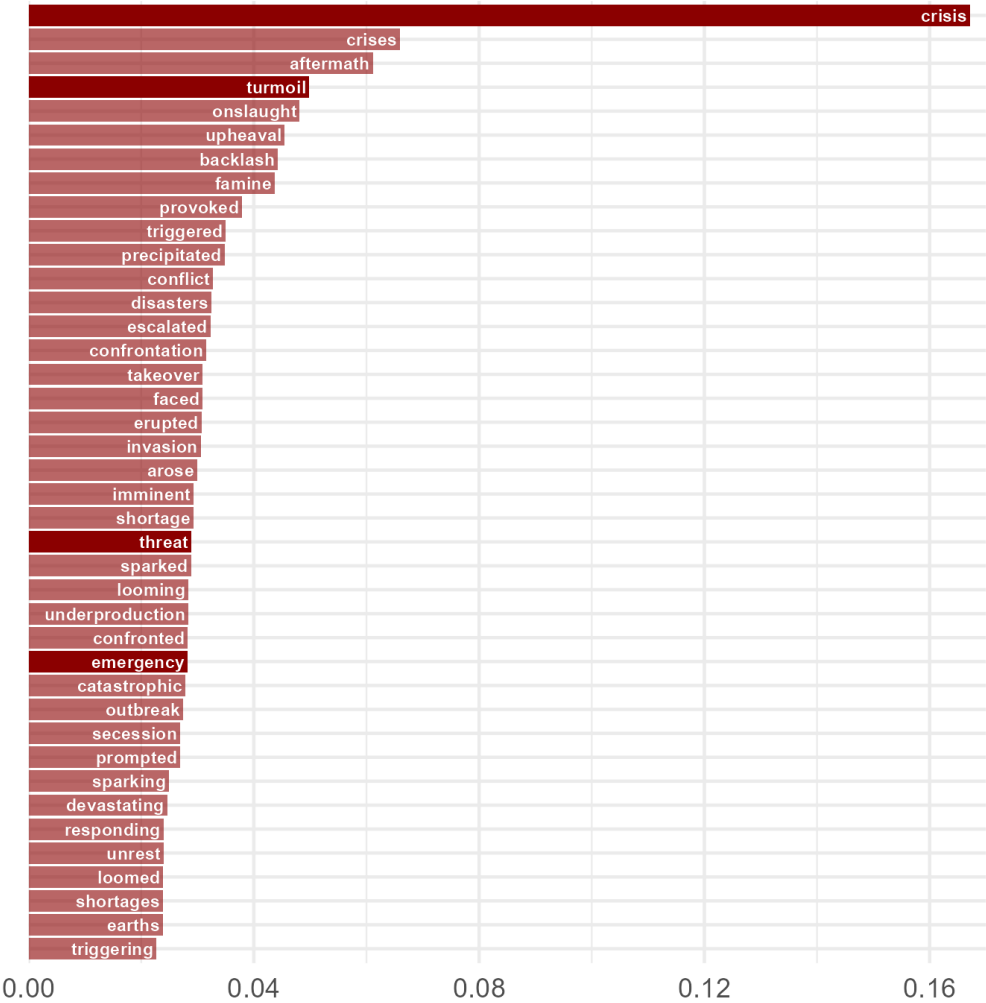# Measurement: *Scaling expressed crisis intensity with word vectors*

Illustration of word-weights

Derived from vector similarity of all words
to the average vector of researcher-selected seed terms (marked by bold bars)

**Top-40 words
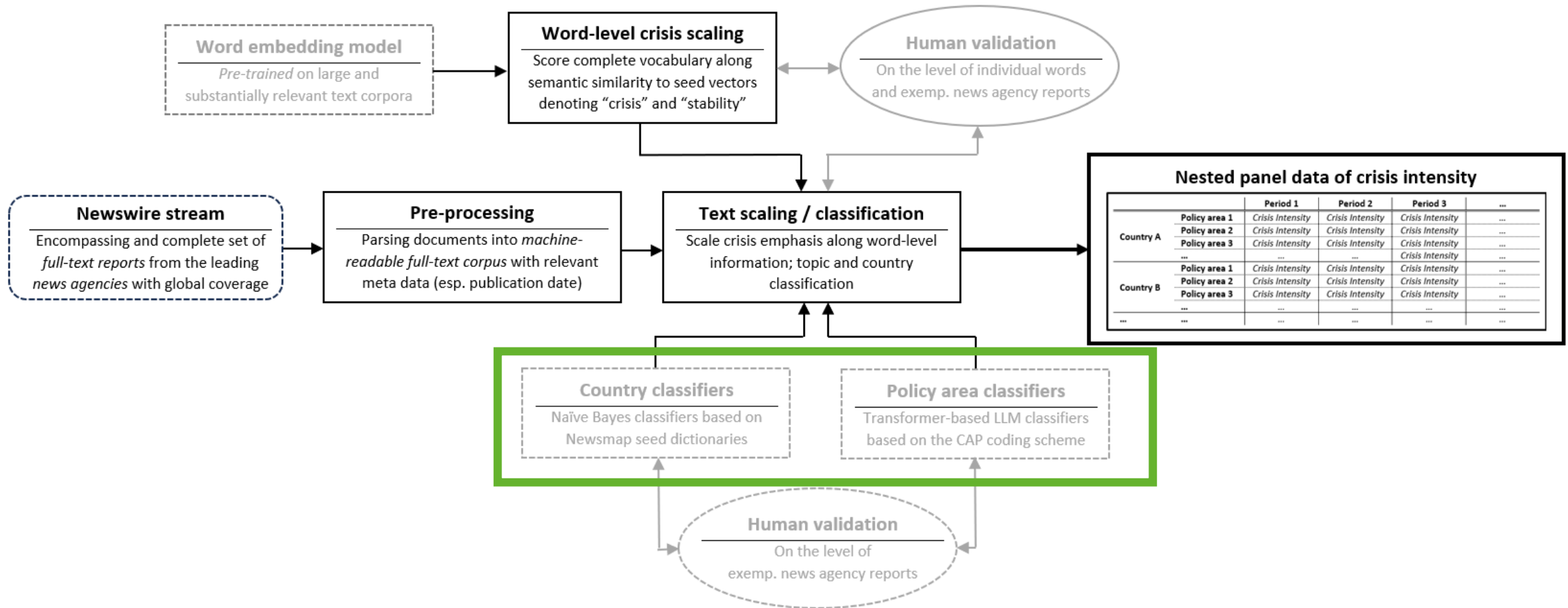pulling into the 'stability' direction**

tranquility
stability
tolerability
improves
safety
harmony
walkability
durability
cleanliness
robustness
roadholding
pebbled
constructibility
practicality
enhancing
ensures
smoothness
machinability
quietness
simplicity
maintainability
comfort
relaxing
operability
correctness
uniformity
digestibility
elegance
intrinsic
watchkeeping
routine
longevity
regularity
enhances
conformance
inculcating
assure
decocking
efficiency
insulation

**Top-40 words
pulling into the 'crisis' direction**

crisis
crises
aftermath
turmoil
onslaught
upheaval
backlash
famine
provoked
triggered
precipitated
conflict
disasters
escalated
confrontation
takeover
faced
erupted
invasion
arose
imminent
shortage
threat
sparked
looming
underproduction
confronted
emergency
catastrophic
outbreak
secession
prompted
sparking
devastating
responding
unrest
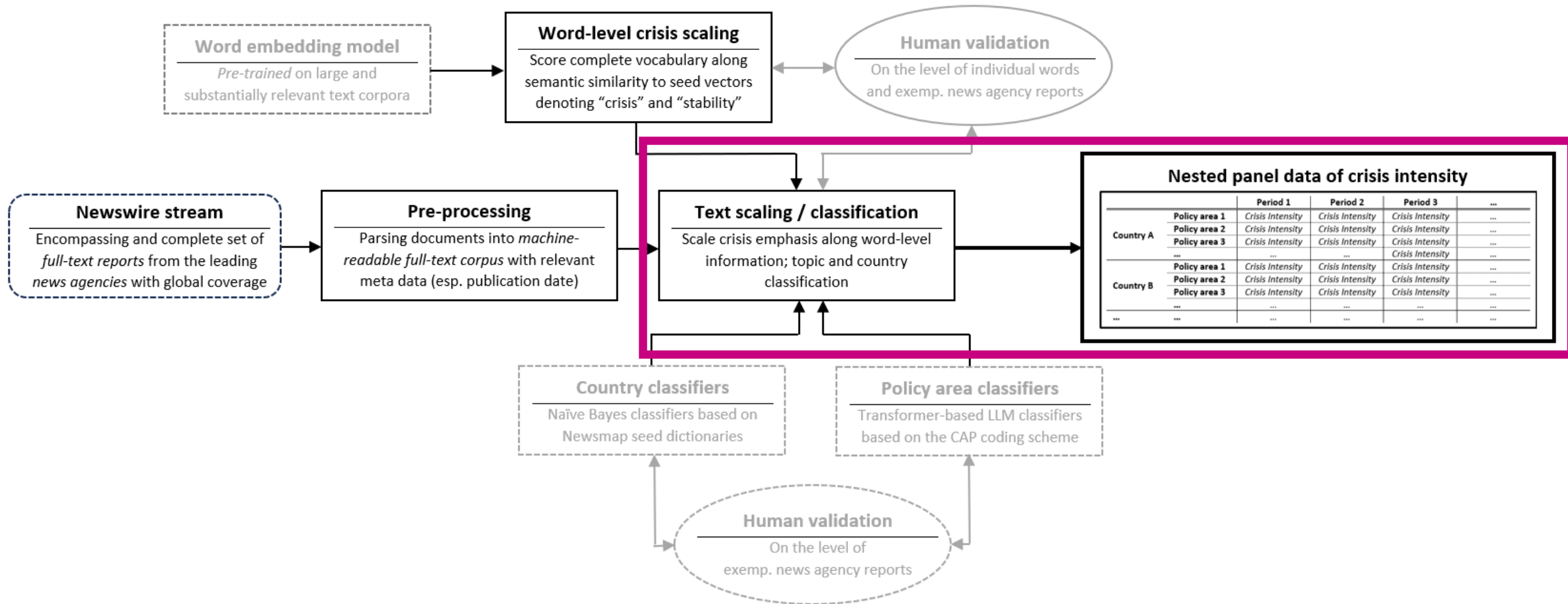loomed
shortages
earths
triggering

Stability/crisis weight

Stability/crisis weight

10

Measurement: *Geographic and functional transboundariness*

Measurement: *Crisis intensity across policy areas, time and space*
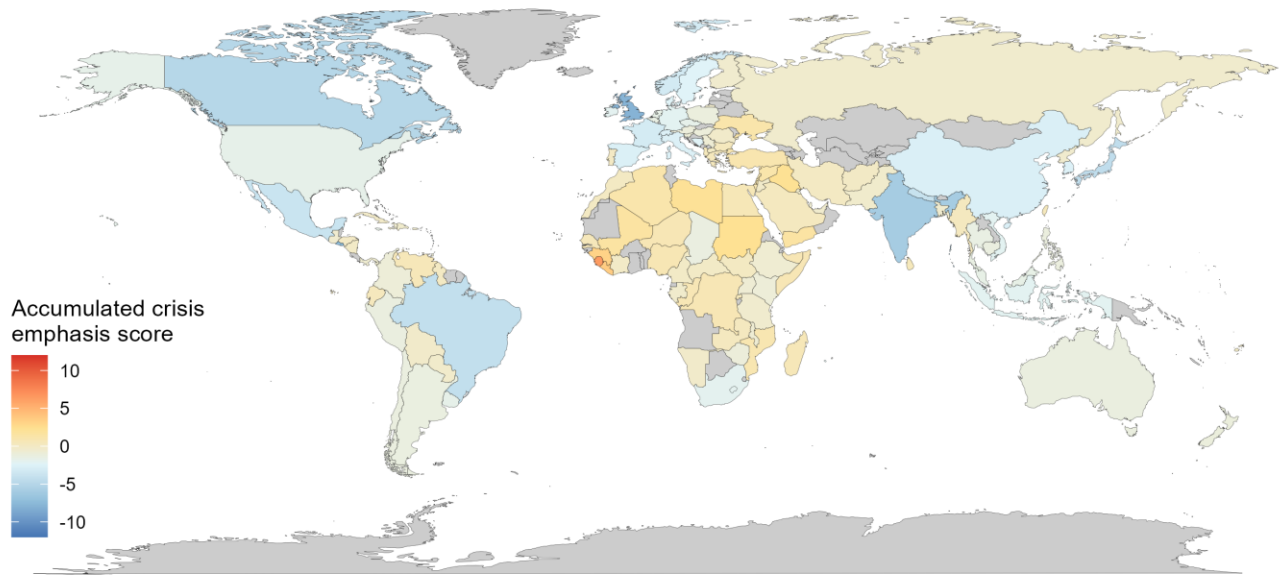
Initial proof-of-concept studies

- Confined sample of the global newswire stream

    - Associated Press (AP), "International News" section

    - January 2014 to July 2017

    - Should **cover two crises** that are well discussed in IO/EU literature: *Ebola Outbreak* and *(European) migration crisis*

- ➤ Manual download (sigh...) of **98,565 newswire reports**

- ➤ Application of the full measurement pipeline (well...)

- ➤ **Does our approach track known variation in crisis intensity over time, countries, and issue areas?**
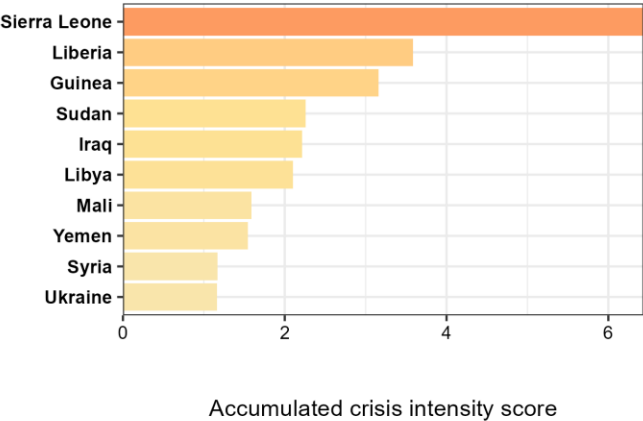
Case study 1: Ebola outbreak in 2014

In early 2014 Ebola broke out in Western Africa, starting in Guinea, spreading quickly to neighboring Liberia and Sierra Leone, and reaching major cities during spring.
Only in August 2014, the WHO declared a public health emergency of international concern.
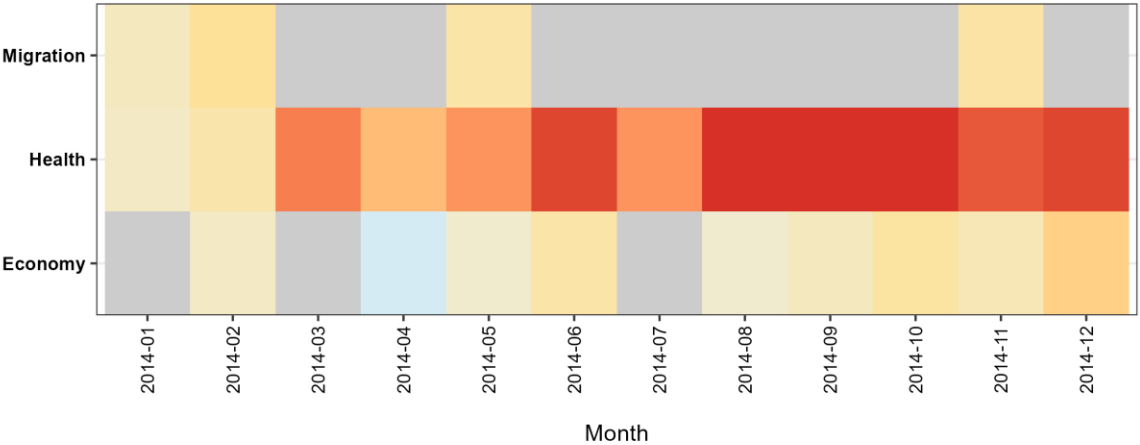Does our measurement approach capture this particular health crisis?

Worldwide crisis intensity in newswires covering health topics in 2014

Accumulated crisis
emphasis score

**Countries with highest crisis intensity
related to health topics during 2014**

Accumulated crisis intensity score

**Crisis intensity in newswire coverage of
Ebola countries (SL, GN, LR) across selected topics and time**
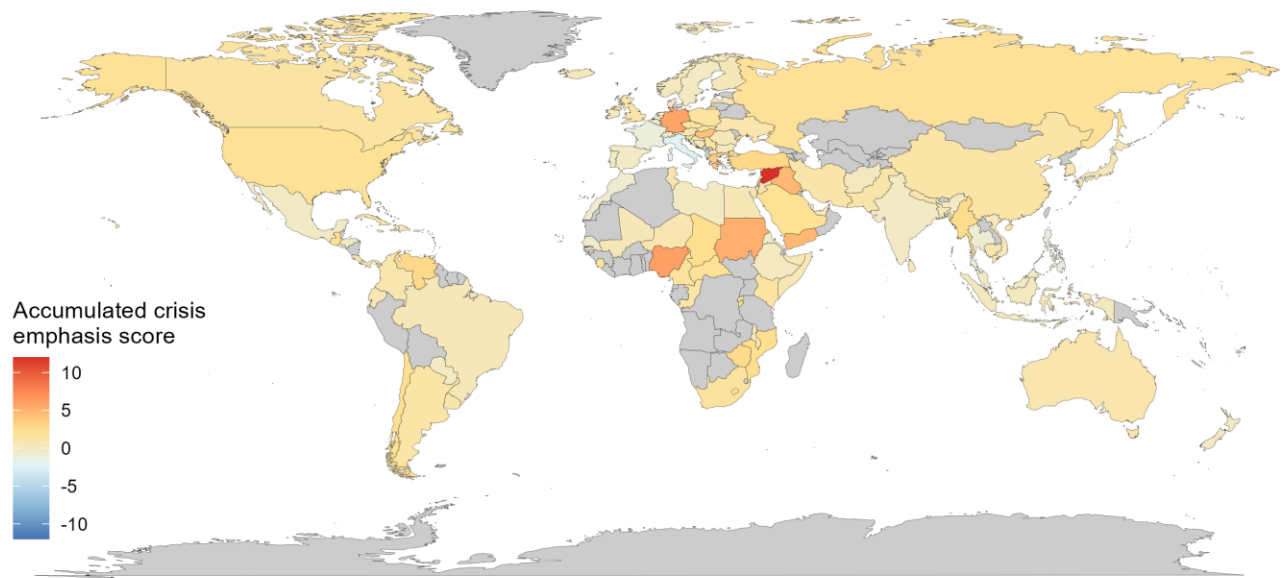

Month

Note: Grey color indicates that no newswire texts covered the respective combination of country, topic, and time.
Data derived from scaling and classifying 98,565 newswire texts from AP's 'international news' section. (@ChRauh)
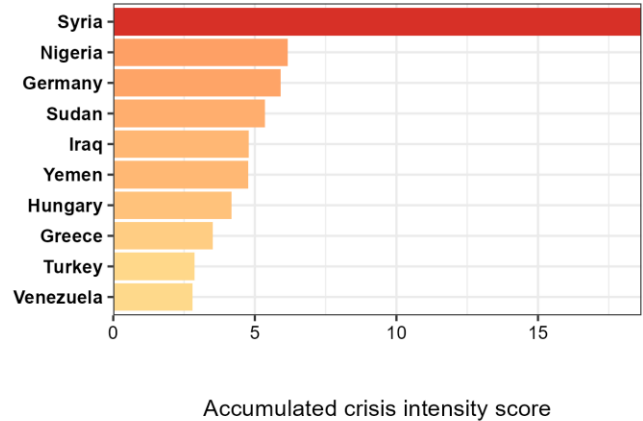
Case study 2: Migration crisis in 2015

The year 2015 saw huge migration movements, not the least due to refugees fleeing Syria and other conflict-torn countries in the Middle East or central Africa.
EU-countries, especially Germany, experienced increasing numbers of asylum-seekers in spring and particularly during autumn, with Greece and Hungary as major entry points.
Does our measurement approach capture this particular migration crisis?
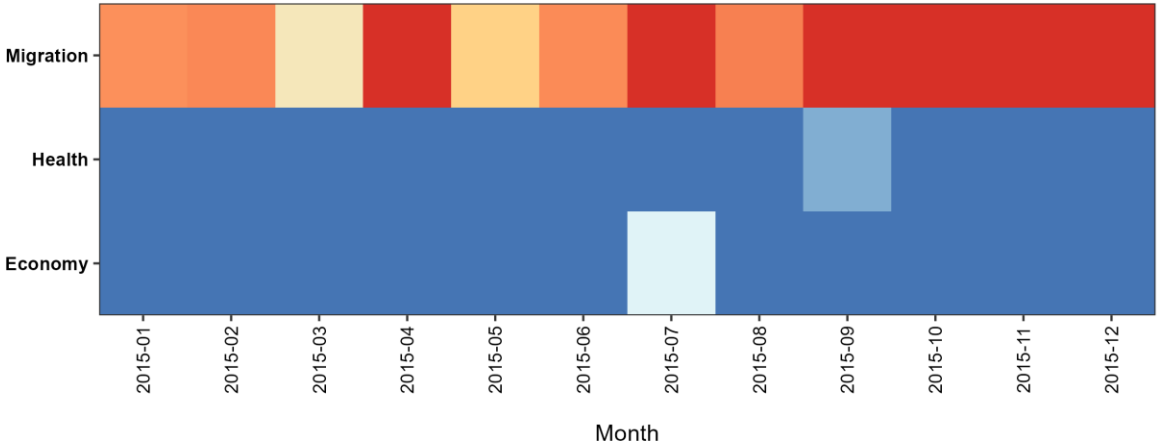
Worldwide crisis intensity in newswires covering migration topics in 2015

Countries with highest crisis itensity related to migration topics during 2015

Accumulated crisis intensity score

Crisis intensity in newswire coverage of EU-28 countries across selected topics and time

Month

Note: Grey color indicates that no newswire texts covered the respective combination of country, topic, and time.
Data derived from scaling and classifying 98,565 newswire texts from AP's 'international news' section. (@ChRauh)

Conclusions and outlook

➤ Highly encouraging face validity in the two initial proof–of–concept studies!

➤ A truly comparative and linkable data set on transboundary crises is tangible!

▪ **Key bottleneck**: *Accessing the global newswire stream at scale*

▪ **Further challenges ahead**

 – *External validation* of the aggregate crisis scales (suggestions welcome!)

 – *Human validation* of the semantic scaling on word and document level

 – *Thresholds and cutoffs …*

WZB
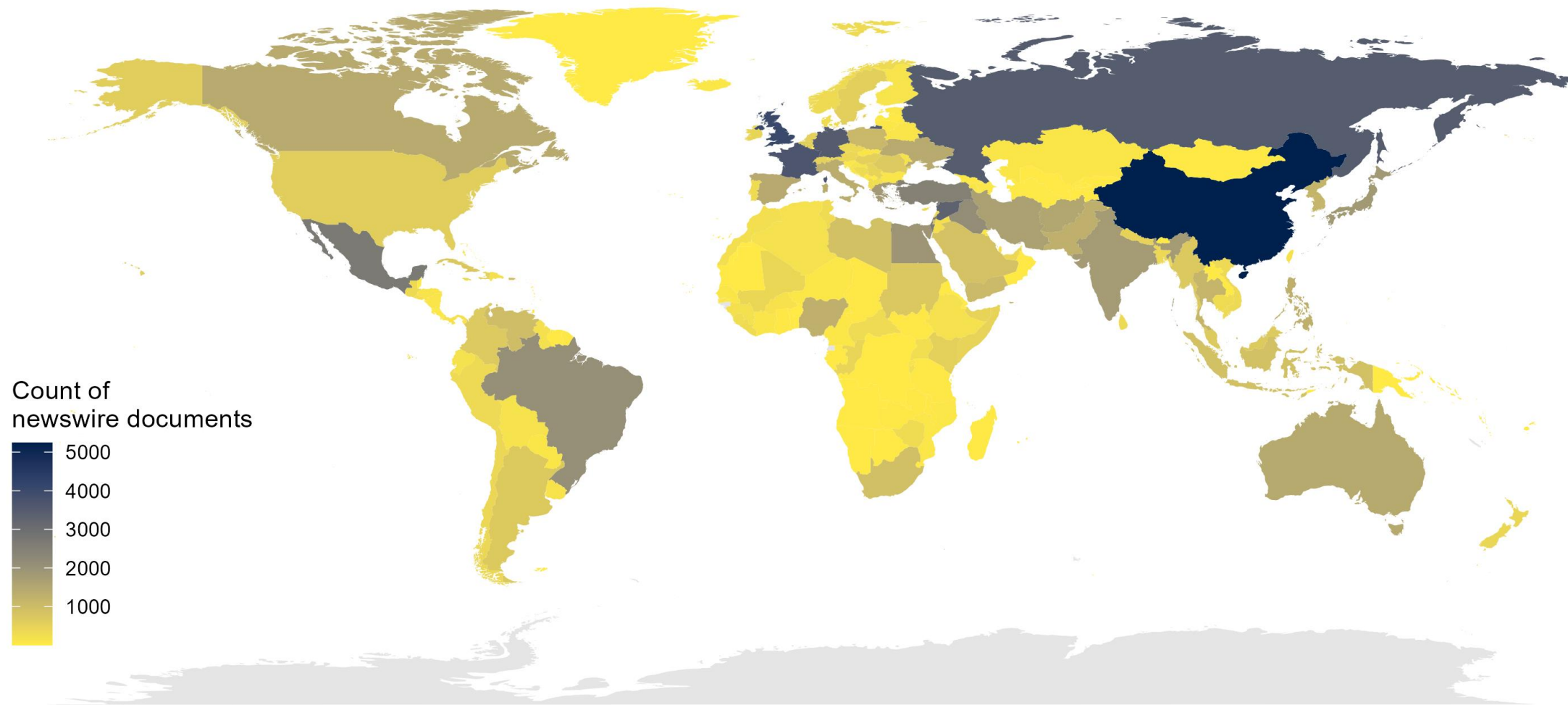Berlin Social Science Center

Universität Potsdam

FRIEDRICH-SCHILLER-UNIVERSITÄT JENA

Thanks for your attention and feedback!

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Country coverage in newswire sample (based on newsmap classification of wire texts)

Count of
newswire documents

- 5000
- 4000
- 3000
- 2000
- 1000

Example for high expressed crisis intensity
EU Council president rejects criticism over migrant crisis. (August 31, 2015; Score: 0.013)
European Council president Donald Tusk has rejected criticism of Europe's handling of the migrant crisis and promised further measures to deal with the issue. Tusk said Monday after meeting Slovenia's Prime Minister Miro Cerar that "Europe cannot be blamed for the migration crisis." But, he acknowledged the EU needs to do more "to alleviate the unbearable human suffering and tragedies that have become everyday news." The EU has been criticized as too slow in dealing with the migrant crisis. The International Organization for Migration says so far this year over 332,000 migrants have arrived in Europe. "The migrant crisis will remain a key issue for Europe in the years to come," Tusk said. Slovenia's Cerar noted that "nobody could have imagined that this issue would grow so large."
Example for high expressed crisis intensity *UN blames South Sudan's leaders for 'catastrophe'*. (December 15 2014; Score: 0.004)
The U.N. Security Council is blaming South Sudan's "man-made political, security and humanitarian catastrophe" and the threat of famine on its feuding leaders. The council again threatened targeted sanctions against those impeding the peace process. A year after the outbreak of clashes between fighters loyal to President Salva Kiir and supporters of former vice president Riek Machar, the council issued a presidential statement Monday strongly condemning the serious human rights violations and abuses that have caused the death of tens of thousands of civilians and displaced nearly two million people. It demanded that Kiir and Machar end the violence and "make the necessary compromises for peace." Without a credible peace agreement, the council warned, "the risks of famine, state failure and regionalization of the conflict persist.

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Example for low expressed crisis intensity
Europe's bathing water excellent, except in Albania - agency. (May 25 2016; Score: -0.0014)

The European Environment Agency says vacationers can safely take dips at bathing sites across the continent. The Copenhagen-based agency said Wednesday that water quality was excellent at 87 percent of the more than 21,000 coastal and lakeside bathing sites it measured last year. It said aquatic quality has consistently improved since 1991, when only 56 percent of sites had excellent water. Luxembourg topped the list, with excellent water quality at all of its 11 bathing sites. It was followed by Cyprus, Malta, Greece, Croatia, Italy, Germany and Austria. Albania was at the bottom of the list, with the highest number of sites with poor water quality. The EEA said that overall, only 1.6 percent of sites were deemed unsuitable for bathing, down from 1.9 percent the previous year.

Example for low expressed crisis intensity
Jamaica to invest $22M for aviation safety. (March 21 2014; Score: -0.0023)

Jamaica is investing $22 million in the next two years to improve aviation safety and security. The director general of Jamaica's Civil Aviation Authority says most of the money will be used to upgrade or replace aging technology to meet international standards. Leroy Lindsay said Friday that the government hopes to install satellite surveillance for air traffic controllers by 2017. He said the government also plans to install a communication network that will allow automatic contact between air traffic control and aircraft systems. Lindsay said the changes will allow air traffic controllers to do less controlling and more monitoring, leading to increased safety.

Measurement model