Monitoring social and geopolitical events with Big Data

Boston University Alumni Club of Spain

Tomasa Rodrigo

April 2018
Index

01 Opportunities in the digital era. Big Data at BBVA Research

02 Monitoring geopolitical and social events
01

Opportunities in the digital era.
Big Data at BBVA Research
Traditional data could not answer some relevant questions…

- Social awareness and the Arab Spring
- Political events and social reaction
- Natural disasters and epidemics

… preventing us to measure their economic impact…
… in a world with increasing risks and uncertainty

The use of Big Data and Data science techniques allows us to quantify these trends
New framework in the digital era

**Novel data-driven computational approaches** are needed to exploit the new opportunities in the **new digital era** where data can be used to study the world in real time, both at micro or macro level.

- New data availability
- Better and faster infrastructure
- New answers to old questions
- Combination of historical data with real-time data
- Advanced data science techniques and algorithms
- Higher computational abilities to face more data granularity
… which needs the development of new competences to take advantage of it

- Making the right questions
- Developing the data management and programming capabilities to work with large-scale datasets
- Deepening the statistical and econometric skills to analyze and deal with high-dimensional data
- Interpreting the results: summarize, describe and analyze the information
Big Data at BBVA Research

**Our work**
- We analyze geopolitical, political, social and economic issues using large-scale databases and quantitative data-driven methods rather than just qualitative introspection

**Our datasets**
- **Media data** to exploit news intensity, geographic density of events (location intelligence) and emotions across the world (sentiment analysis)
- **BBVA aggregate and anonymized data** from clients’ digital footprint
- **Data from the web** (Central Banks’ reports among others)

**Our results**
- We are at the research frontier in the geopolitical and economic area contributing to the innovation and increasing our internal and external reach
Monitoring geopolitical and social events
External databases: GDELT

**Global Database on Events Location and Tone**

- Open database of human society from every corner of the globe dating back to 1979...
- ...georeferenced across the entire planet...
- ...including over 300 events around the world and more than 30000 themes...
- ...and collecting emotions using some of the most sophisticated algorithms

(More information can be found in the [annex](#))
Tracking Geopolitics on real time…
is useful to identify the main hot spots and potential spillovers

Conflict Intensity Map  2017-18
(Number of conflicts/ Total events)

Source: www.gdelt.org & BBVA Research
Monitoring economic, social and geopolitical events with Big Data

... getting the historical perspective, main hot spots and contagion effects

BBVA Research World Protest and Conflict Intensity Index 1979-2018

![Graphs showing protests and conflict intensity over time](image)

Source: [www.gdelt.org](http://www.gdelt.org) & BBVA Research
Instability in the MENA region had an important spill over effect: the refugee crisis

ISIS presence in the Middle East and the neighborhood in 2016
(Number of news referring to ISIS presence / Total events)

BBVA Research Refugees Flows Map in 2015-18
(Number of media citations about refugees’ inflows –orange- and outflows –red)

Caucasus
ISIS expanded to the North Caucasus as part of its wider international strategy.

Afghanistan
ISIS presence in Afghanistan was also important.

North Africa
ISIS stronghold in Libya and its expansion around the neighborhood deteriorated the already critical situation.

Middle East
Despite some ISIS setbacks in Syria and Iraq thanks to the International Coalition, threats and risks remained.

Europe
Attacks in Europe revived fears and threats, as well as nationalist claims.
Understanding the refugees transit corridors through the media and high frequency data

Country network on refugees: media coverage
(Edges thickness reflect how often each pair of countries were mentioned together. Nodes size show the centrality. Clusters capture the potential transit corridors.

**Turkey, Italy and Greece** appear as central hubs for refugees crossing the Mediterranean, before they transit to other **European countries**.

**Syria** has become the world’s largest driver of migration in recent years. The neighboring countries like **Iran and Lebanon** have also host a significant number of refugees.
The refugee crisis has awakened interest in the world media, specially in some regions.
This situation led to the EU & Turkey deal on refugees to reduce the number of refugees that goes to Europe.

Daily and Weekly Average Refugee Arrivals to Greece (UNHCR estimates)

Media sentiment on Turkey – European Union relationship (Lower values indicate a deterioration of Turkey-EU relations)

Source: BBVA Research and UNHCR

Source: [www.gdelt.org](http://www.gdelt.org) & BBVA Research
Economic effects of the refugee inflows in Europe

MACROECONOMIC IMPACT

**Short term**

Increase of aggregate demand

Fiscal expansion

**Medium - Long term**

Labour market

GDP

Fiscal sustainability

POLICY RESPONSE

High uncertainty and heterogeneous effects depending on the country

A comprehensive policy response and a long-term strategy is necessary to turn into positive the macroeconomic effects in the medium to long term.
You can find us at:

bbvaresearch.com

bbva-research
Tomasa Rodrigo

@BBVAResearch
@TomasaRodrigo

Thank you!
Monitoring social and geopolitical events with Big Data

Boston University Alumni Club of Spain

Tomasa Rodrigo

April 2018