

# Monitoring world geopolitics through Big Data

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Big Data Spain 2017

## Summary



**01** Introduction: why and how we use Big Data



**02** Geopolitical and social analysis



**03** The geography and the digital transformation

# 01

## **Introduction: why and how we use Big Data**

## Traditional data could not answer some relevant questions



**Geopolitical events**



**Political events and social reaction**



**Natural disasters and epidemics**



**The use of Big Data and Data science techniques allows us to quantify these trends**

## New framework in the digital era...



New availability of data



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**

New data may end up changing the way in which economists approach empirical questions and the tools they use to answer them

## Our working process

### Databases

**GDELT**  
(Global Database  
on Events,  
Location  
and Tone)

The GDELT Project

### SaaS

**BigQuery**  
Data  
Storage  
(SQL)

Google bigquery

### Analysis

Clean,  
Aggregate  
& transform  
the data

BBVA | Research

### Visualization

Fuse,  
visualize  
& analyze  
the data

CARTO Gephi

## What is GDELT?

### Global Database on Events Location and Tone

Open database of human society from every corner of the globe dating back to 1979 ...

... including over 300 events around the world and more than 30000 themes...

... georeferenced across the entire planet...

...and collecting emotions using some of the most sophisticated algorithms



## GDELT database and sentiment analysis

$$\text{Average tone} = \frac{\sum \text{Positive words} - \sum \text{Negative words}}{\sum \text{Total words}}$$



### Global Content Analysis Measures (GCAM)

**40** different **sentiment dictionaries**  
to capture  
more than **2300 emotions and dimensions**  
with a value score



# 02

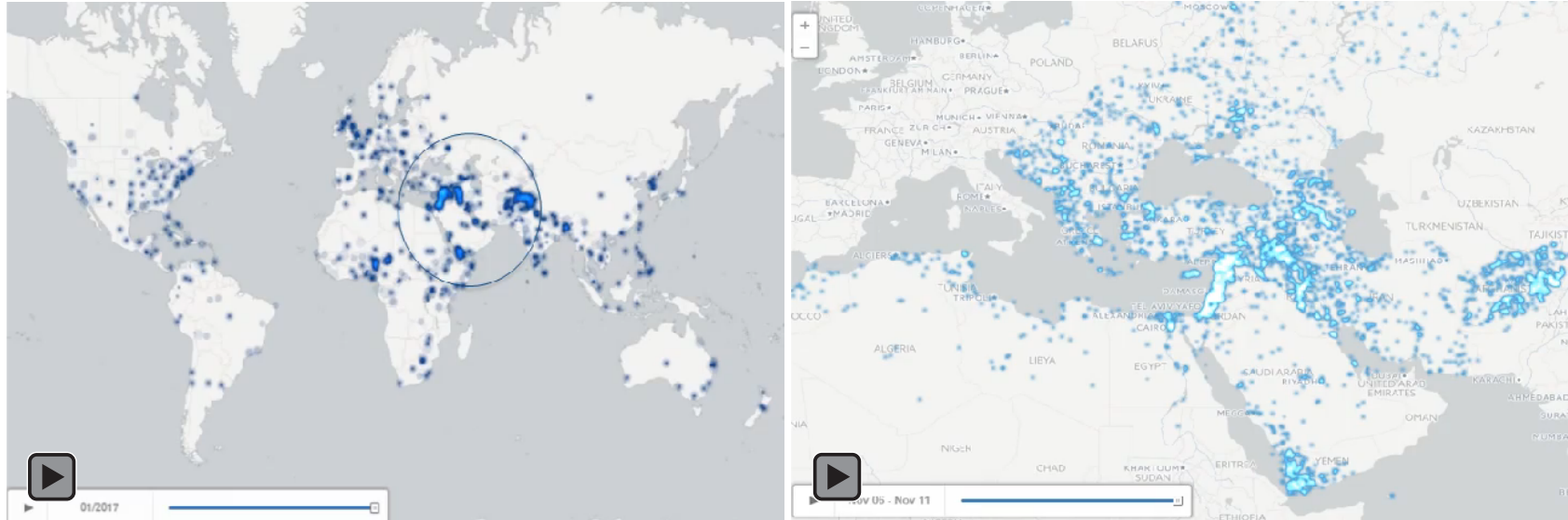
## Geopolitical and social analysis

# Tracking Geopolitics on real time

is useful to identify the main hot spots and potential spillovers

## Conflict Intensity Map Nov 2017

(Number of conflicts/ Total events)

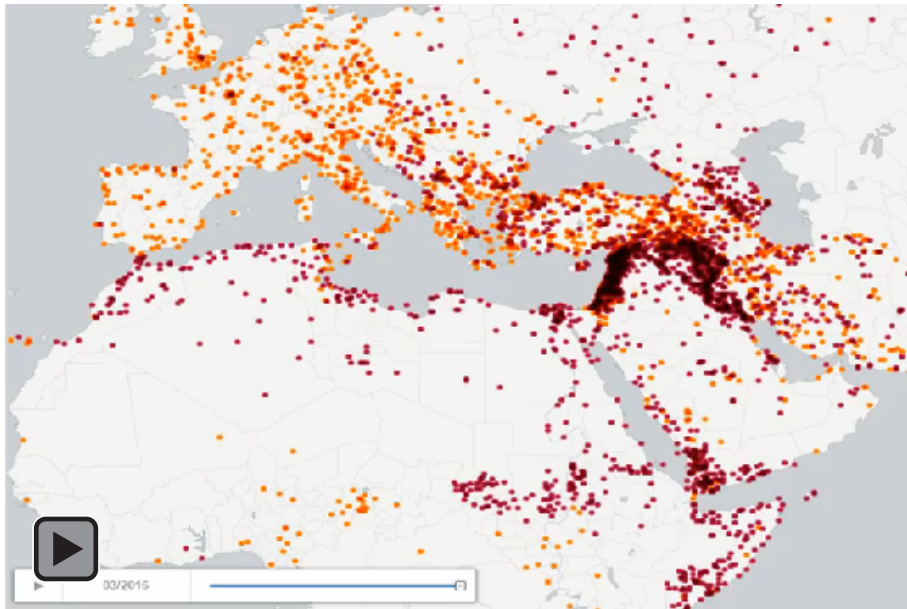




## ...to the current “hot” spots...

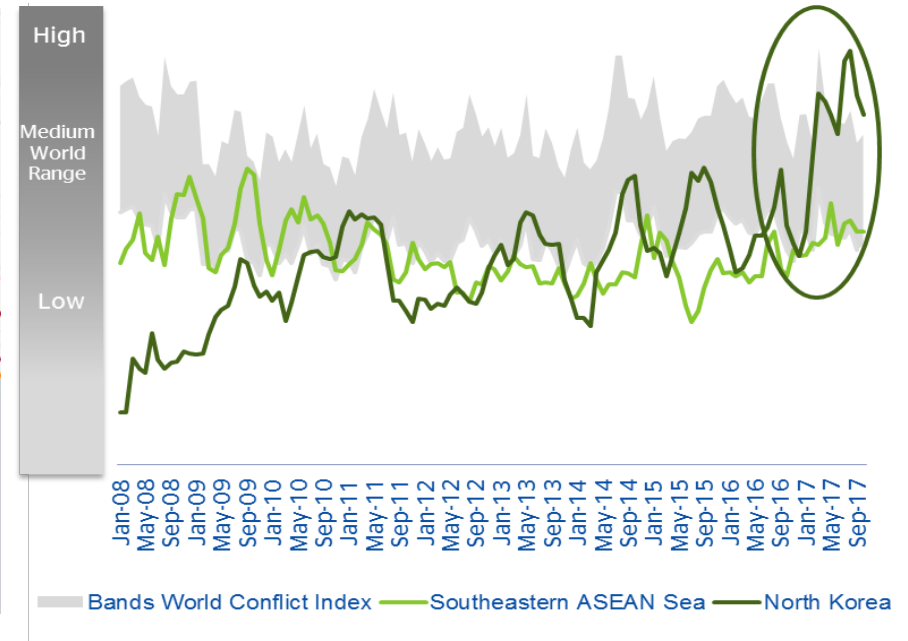
### BBVA Research Refugees Flows Map in 2015-17

Number of media citations about refugees' inflows and outflows



Source: [www.gdelt.org](http://www.gdelt.org) & BBVA Research

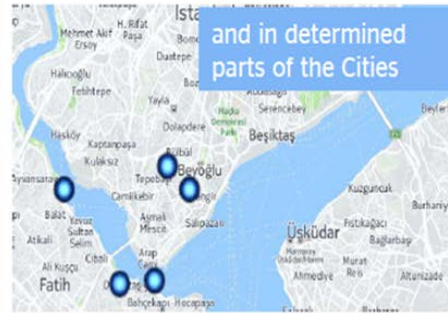
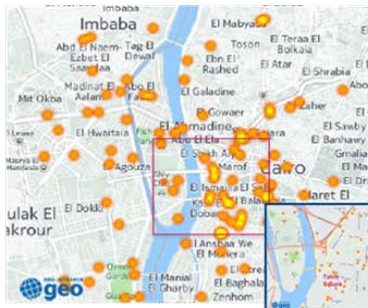
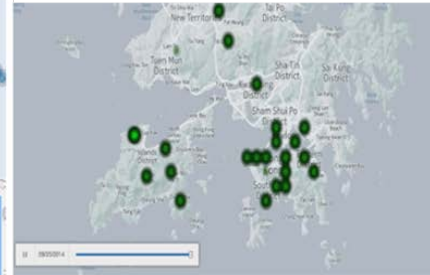
### BBVA Research Asia Conflict Intensity Index 2008-17



# ... in “high definition”

## Social unrest events across the world: Cairo, Istanbul and Hong Kong cases

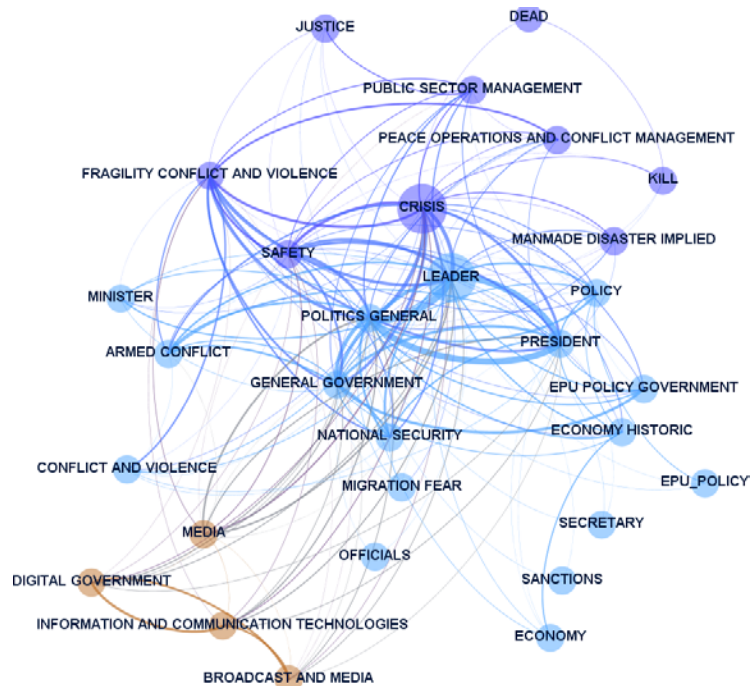
Protest events



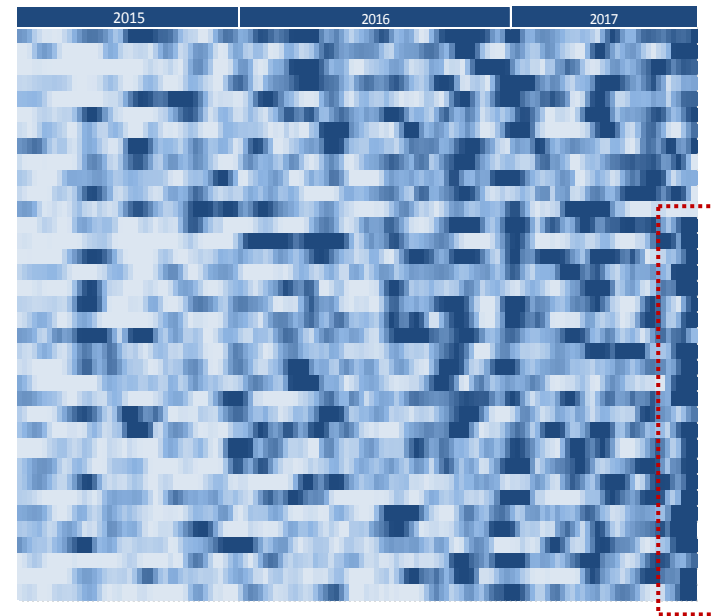
# We can check hot spots like North Korean tensions in detail...

Topics network related with North Korea 2017

Topics colormap related with North Korea 2015- 17



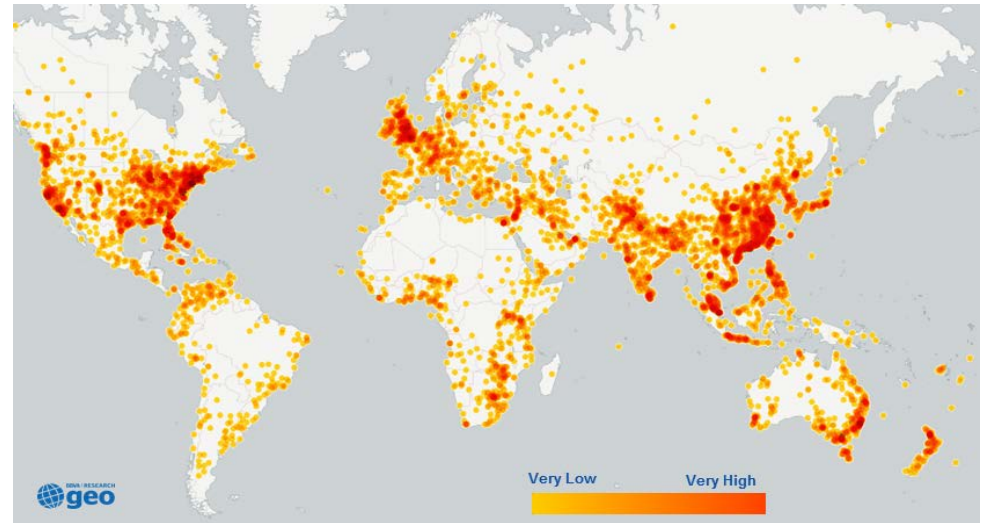
- Democracy
- Education
- Election
- Leader
- Media msm
- Self identified human rights
- Broadcast and media
- Public sector management
- Governance
- Political party republican
- Anti corruption
- Peace operations and conflict management
- Arrest
- Criminal justice
- Social development
- Human rights
- Dictatorship
- Communist
- Soldiers
- Fragility conflict and violence
- Conflict and violence
- Political violence and war
- Nuclear and chemical war
- Military
- Manmade disaster implied
- Political violence and civil war
- Weapons of mass destruction
- Nuclear energy
- Weapons bomb
- Weapons cruise missile
- Weapons surface to air missile
- Weapons warhead
- Terror
- Armedconflict
- Bombthreat
- Kill





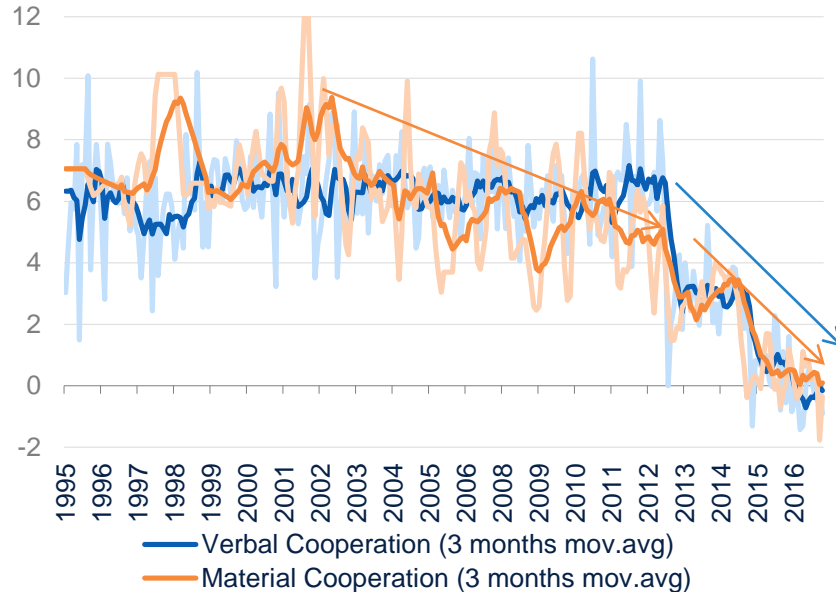
# ... the China's links with the rest of the world...

## Chinese slowdown: the country network and the media perception

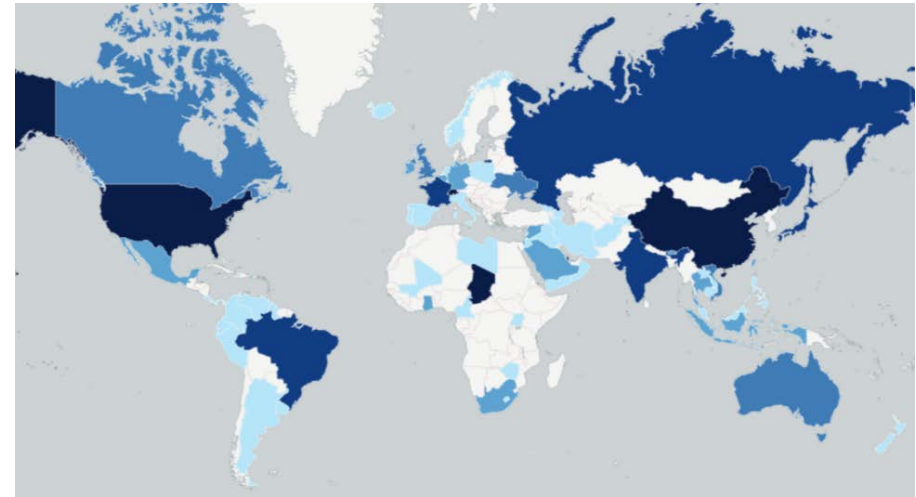


# ... the world trade evolution from an historical perspective...

**BBVA Research World Trade Support Index**  
(Tone & Coverage verbal cooperation at WTO)



**BBVA Research Trade Support Index Changes 2008-17**



## ... and even the Spanish economic perception around the world

### Spanish perception around the world according to the media



Positive tone

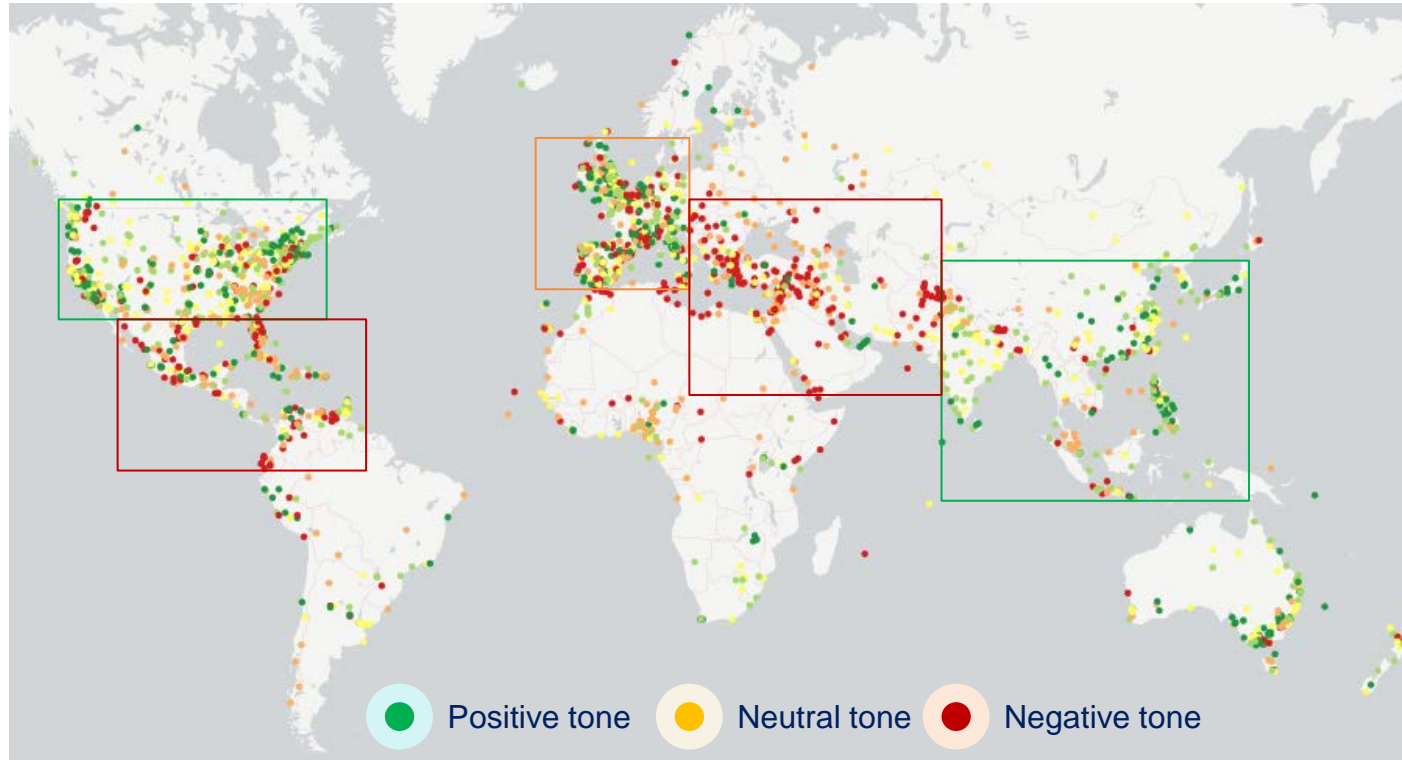
Neutral tone

Negative tone

# 03

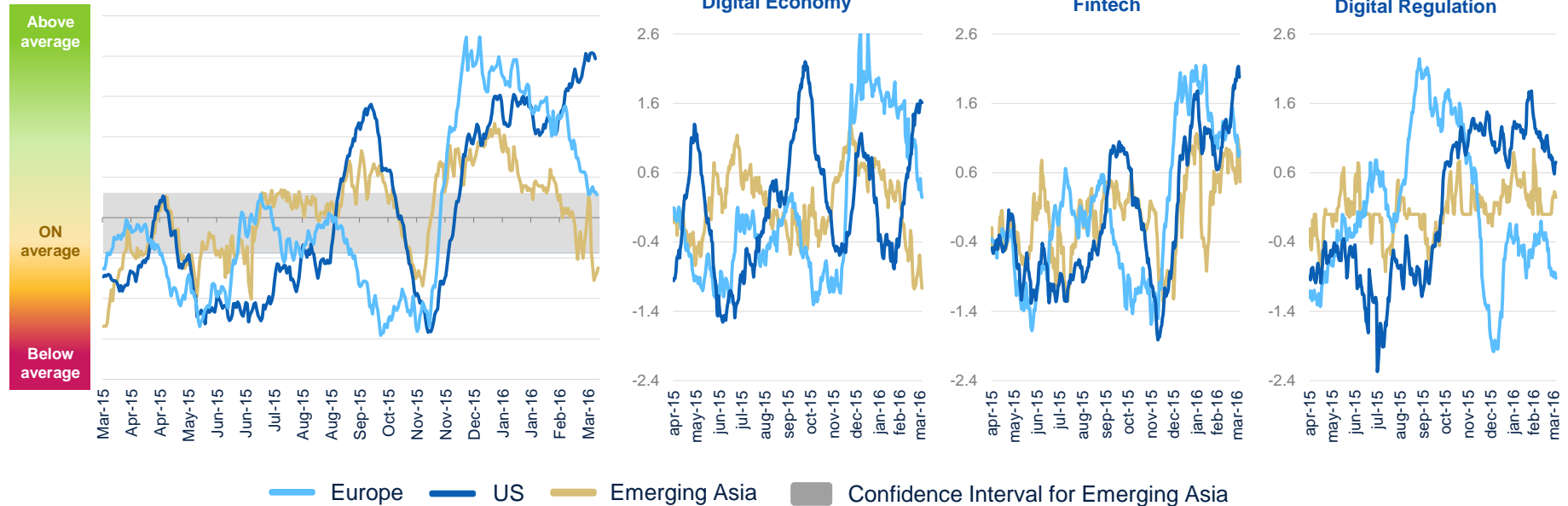
## The geography and the digital transformation

# Media digital sentiment over the world in 2017 varies between regions...



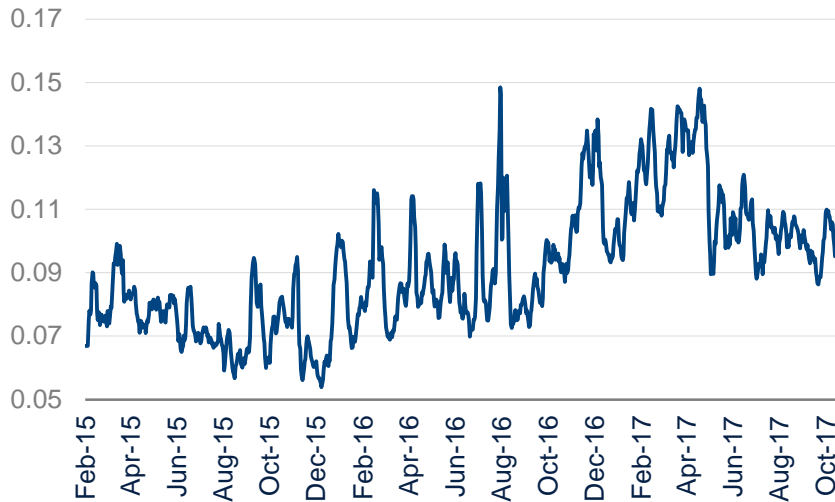
...and over time. Our index allows us to understand the driving forces behind this evolution...

## Media sentiment digital index and components

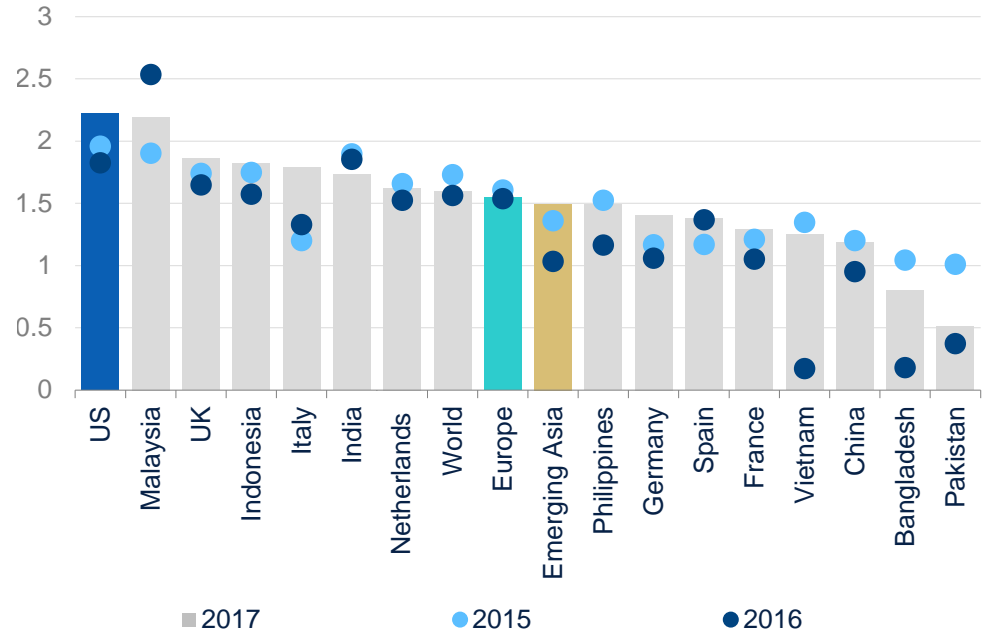


# ...focusing on particular cases such as the Big Data perception

## Big Data world media coverage over time

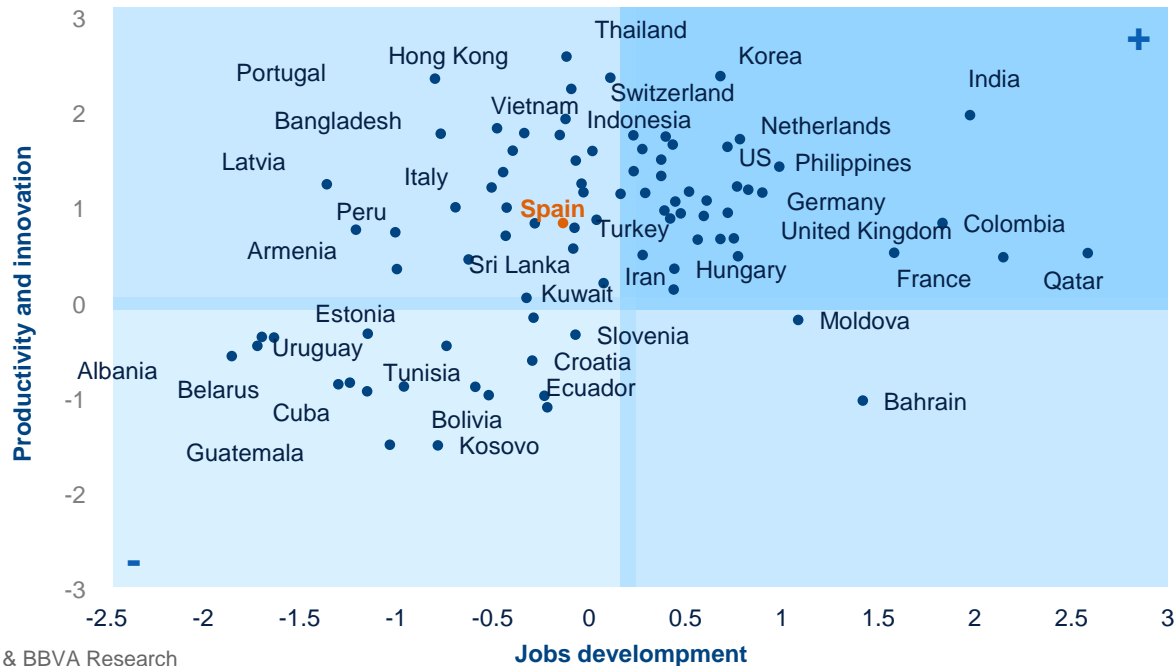


## Big Data media sentiment by countries



# Digital evolution and its impact on employment and productivity

## Importance of digital variables to explain job development and productivity according to the media





You can find us at:



[www.bbvaresearch.com](http://www.bbvaresearch.com)



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