# World development indicators

## Which country will develop more

Group 12:
Stefano Moawad
Leonardo Comandini
Diana Isaeva
Andrea Schiavon
Viktor Snesarevskii

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# Our Goals


Abstract: "... individuate the best countries where to invest, w.r.t. different economical and social fields"

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- Best = upcoming largest development
- Development = ?
- Invest = ?

# Raw dataset

## Indicators (5 656 458 x 6)

| | | | | | |
|---|---|---|---|---|---|
| Country name | Country code | Indicator name | Indicator code | Year | Value |

## Country (247 x 31)

| | | | | |
|---|---|---|---|---|
| Country code | Short name | Table name | Long name | Alpha 2 code |
| Currency unit | Special notes | Region | Indice group | etc... |

## Country notes (4 857 x 3)

| | | |
|---|---|---|
| Country code | Series code | Description |

## Series (1 345 x 20)

| | | | |
|---|---|---|---|
| Series code | Topic | Indicator name | Short definition |
| Long definition | Unit of measure | Periodicity | etc... |

## Series notes (369 x 3)

| | | |
|---|---|---|
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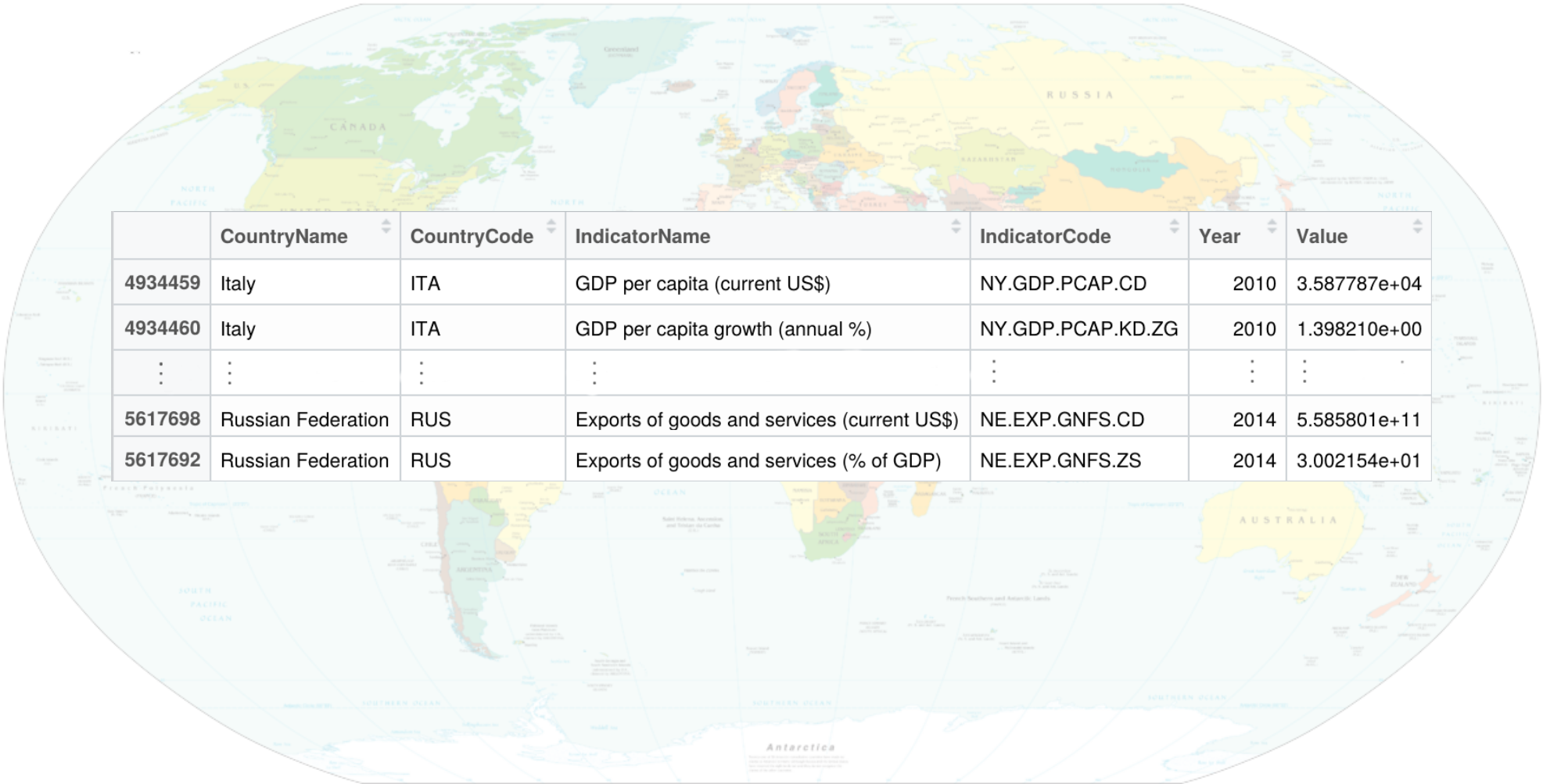
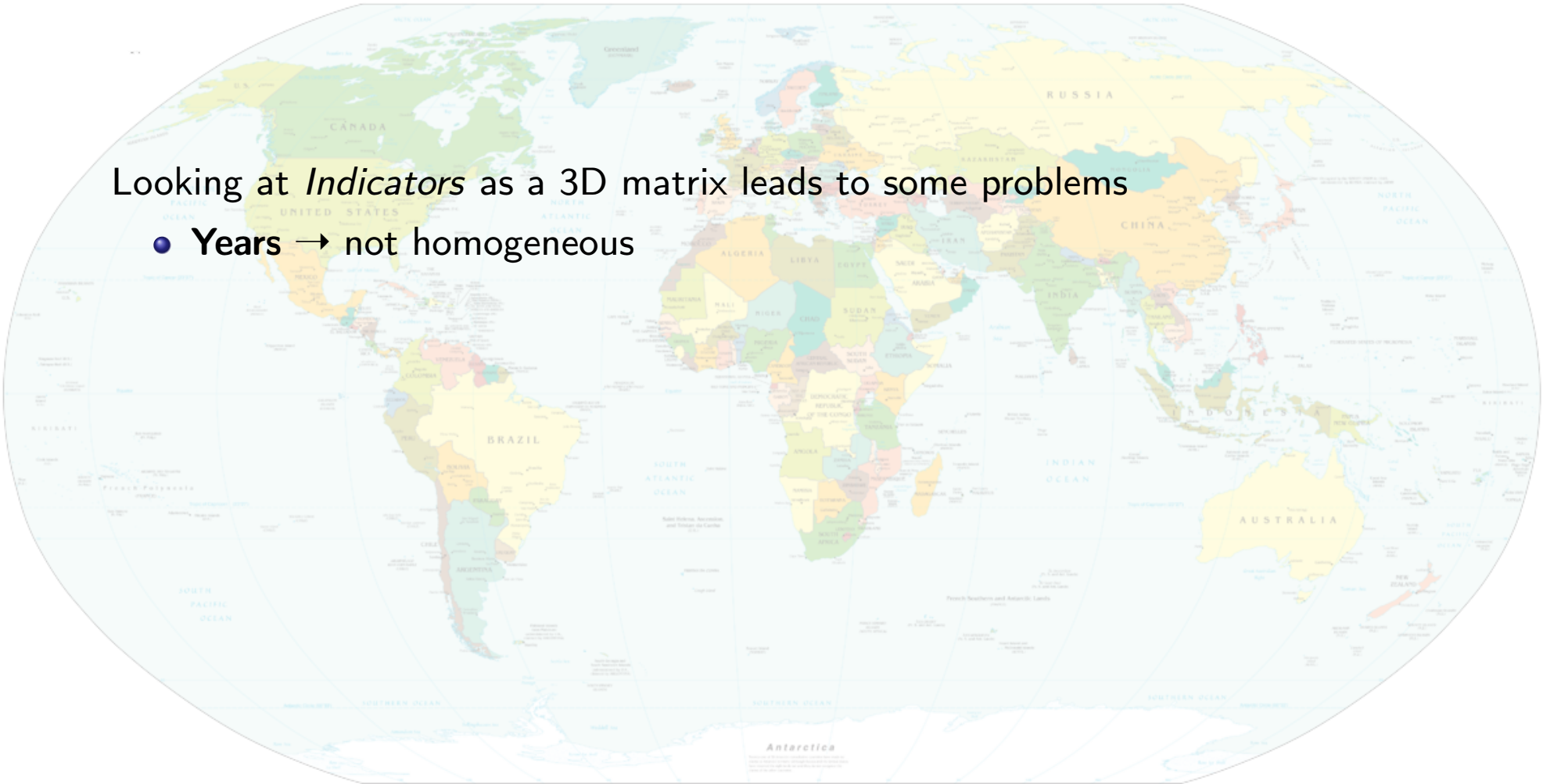
# Examples of indicators



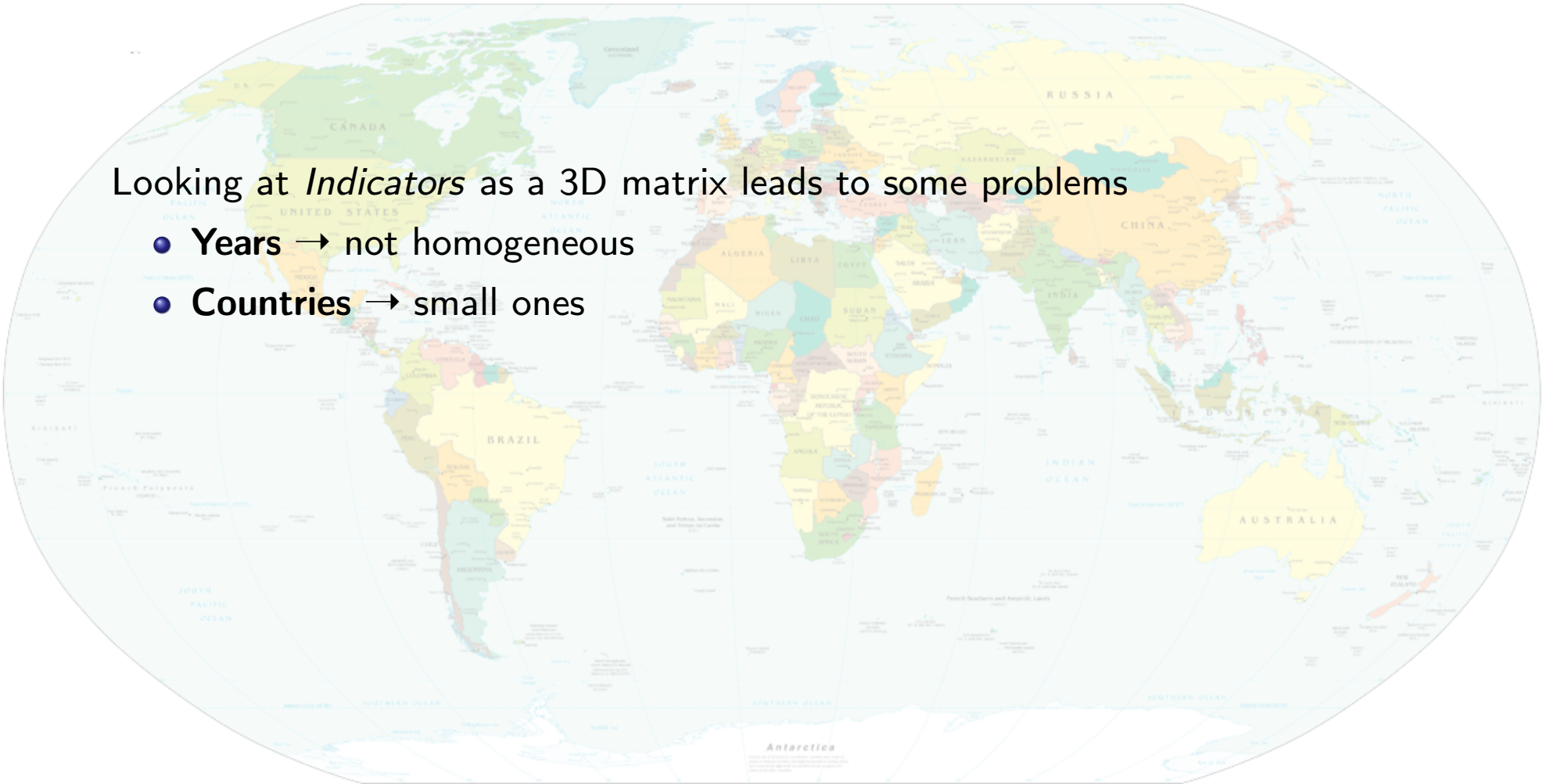
| | CountryName | CountryCode | IndicatorName | IndicatorCode | Year | Value |
|---|---|---|---|---|---|---|
| 4934459 | Italy | ITA | GDP per capita (current US$) | NY.GDP.PCAP.CD | 2010 | 3.587787e+04 |
| 4934460 | Italy | ITA | GDP per capita growth (annual %) | NY.GDP.PCAP.KD.ZG | 2010 | 1.398210e+00 |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 5617698 | Russian Federation | RUS | Exports of goods and services (current US$) | NE.EXP.GNFS.CD | 2014 | 5.585801e+11 |
| 5617692 | Russian Federation | RUS | Exports of goods and services (% of GDP) | NE.EXP.GNFS.ZS | 2014 | 3.002154e+01 |

| | CountryName | Access to electricity (% of population) | Agricultural land (sq. km) | Net income from abroad (current US$) | Urban population | . . . . |
|---|---|---|---|---|---|---|
| 1 | Canada | 100.00000 | 677680 | -21448405896 | 21282904 | |
| 2 | Cuba | 92.86102 | 67410 | -610497598 | 7763439 | |
| 3 | Italy | 100.00000 | 168400 | -15262429218 | 37846480 | |
| 4 | Japan | 100.00000 | 56930 | 20113271442 | 95542280 | |
| 5 | Mongolia | 79.81566 | 1256560 | -43600000 | 1245683 | |
| ⋮ | | | | | | |




Looking at *Indicators* as a 3D matrix leads to some problems

- **Years** → not homogeneous

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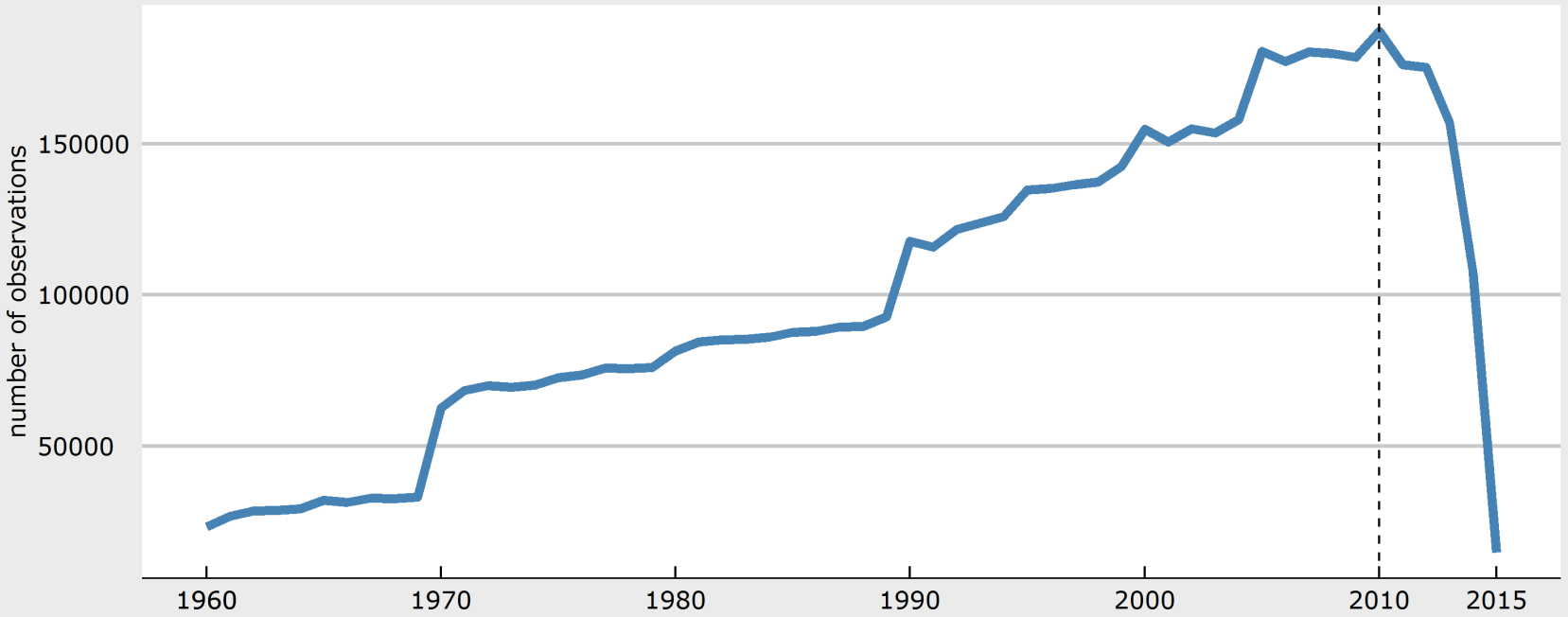
- **Years** → not homogeneous
- **Countries** → small ones
- **Indicators** → too varied to choose easily

## Number of observations is not homogeneous

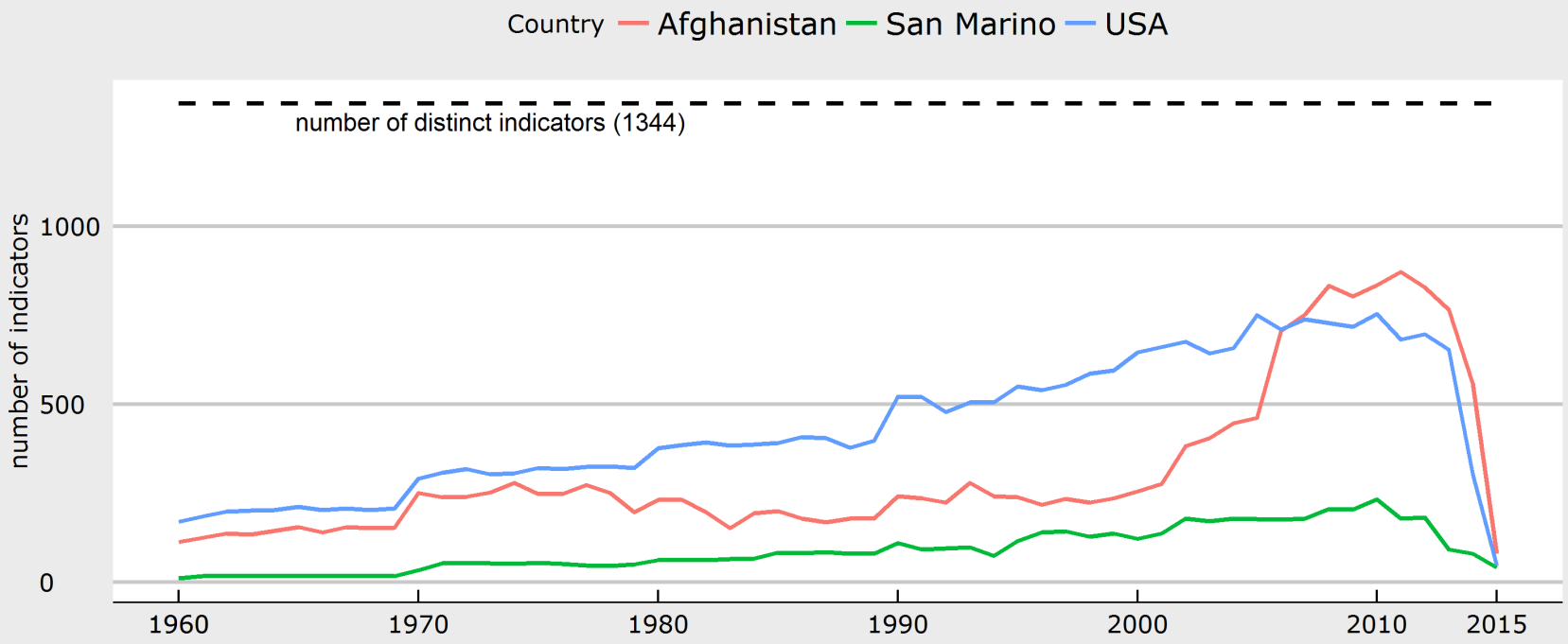
Increasing in the years, dropping in the very last due to the difficulty to find recent data




For each year, an indicator is counted multiple times if present for multiple countries

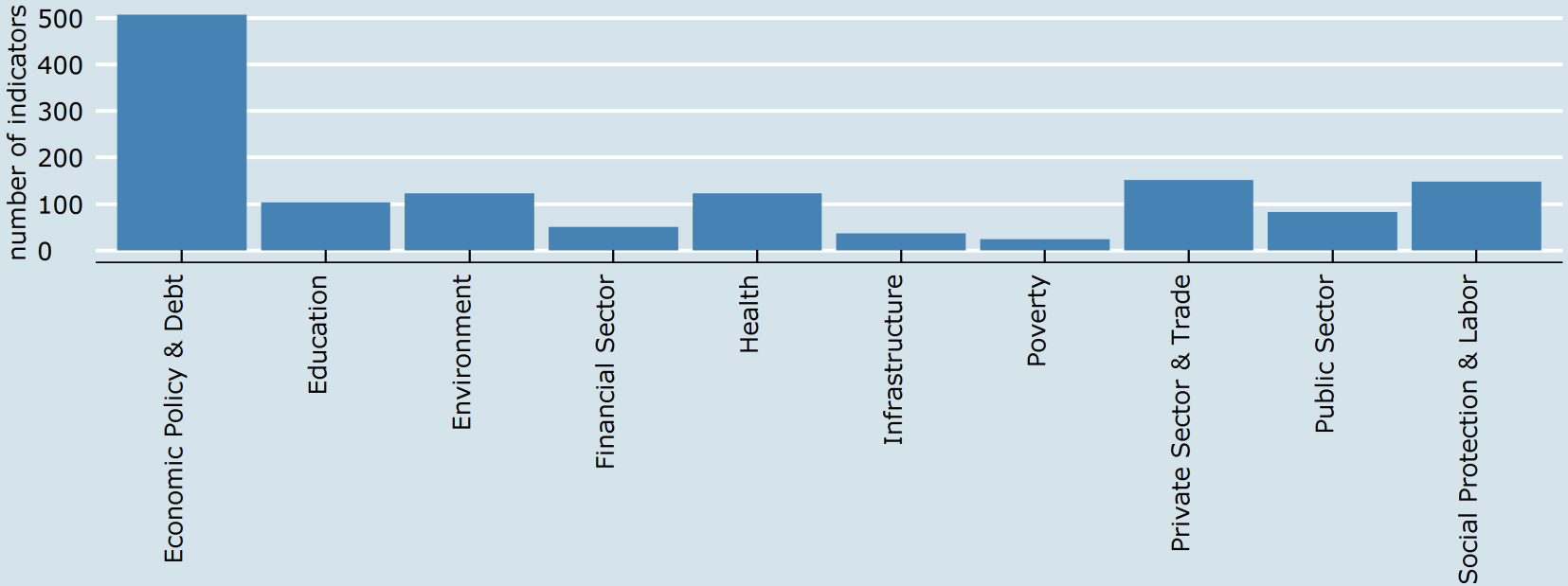
## Three different countries behaviour

USA are normal, San Marino is small, Afghanistan is problematic



## Number of indicators for each supertopic

Prevalence of economic indicators: great for our analysis




The supertopic is not present in the raw dataset but comes naturally from the topic.
(e.g. topic = Infrastructure: Transportation, supertopic = Infrastructure)

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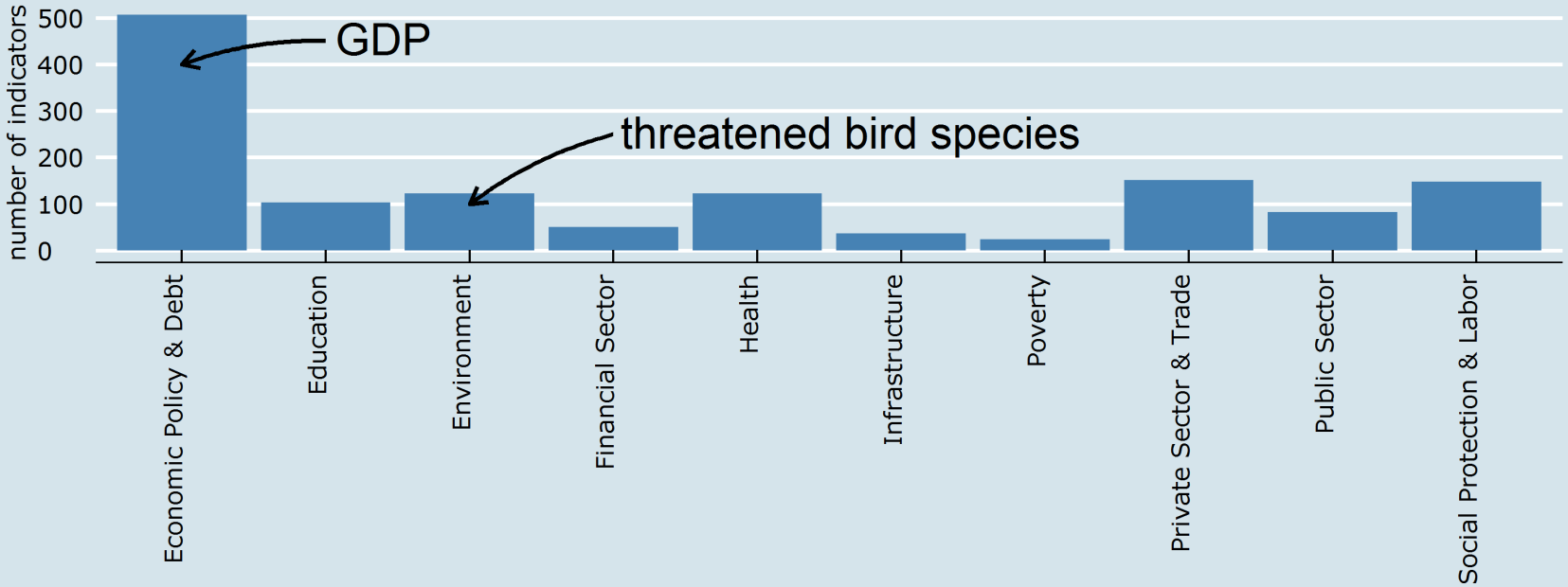


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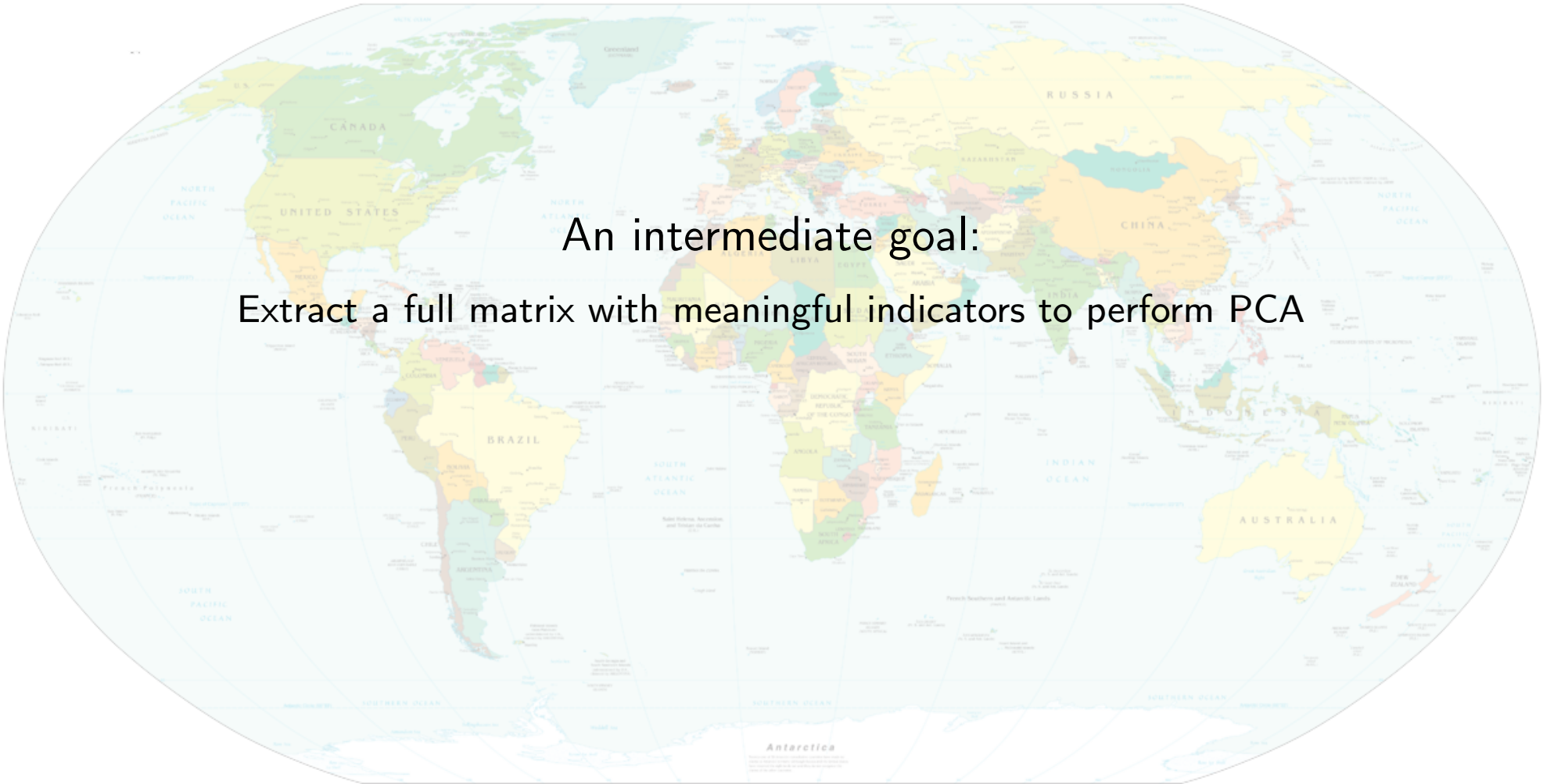
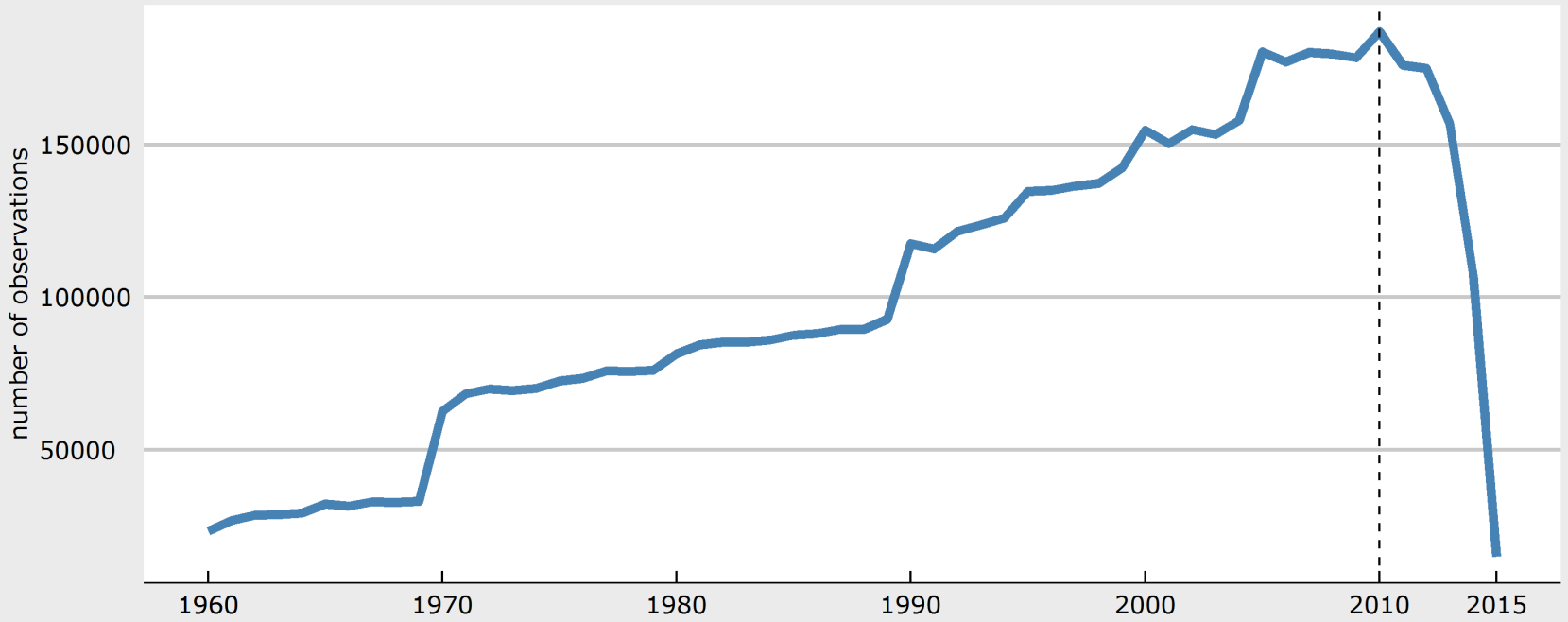



An intermediate goal:

Extract a full matrix with meaningful indicators to perform PCA

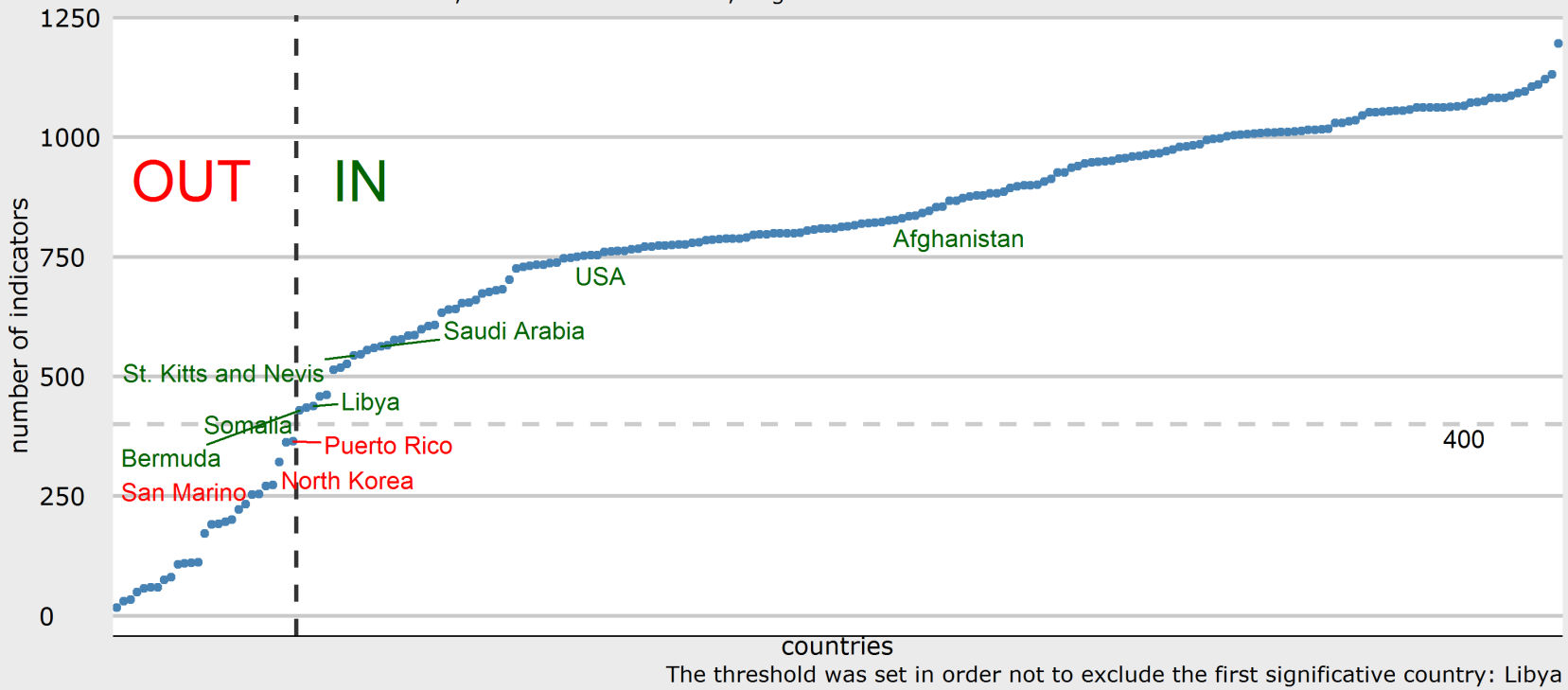
## 1. Fix the best year: 2010

Put aside the year dipendency for simplicity



## 2. Shrink the countries with too few indicators

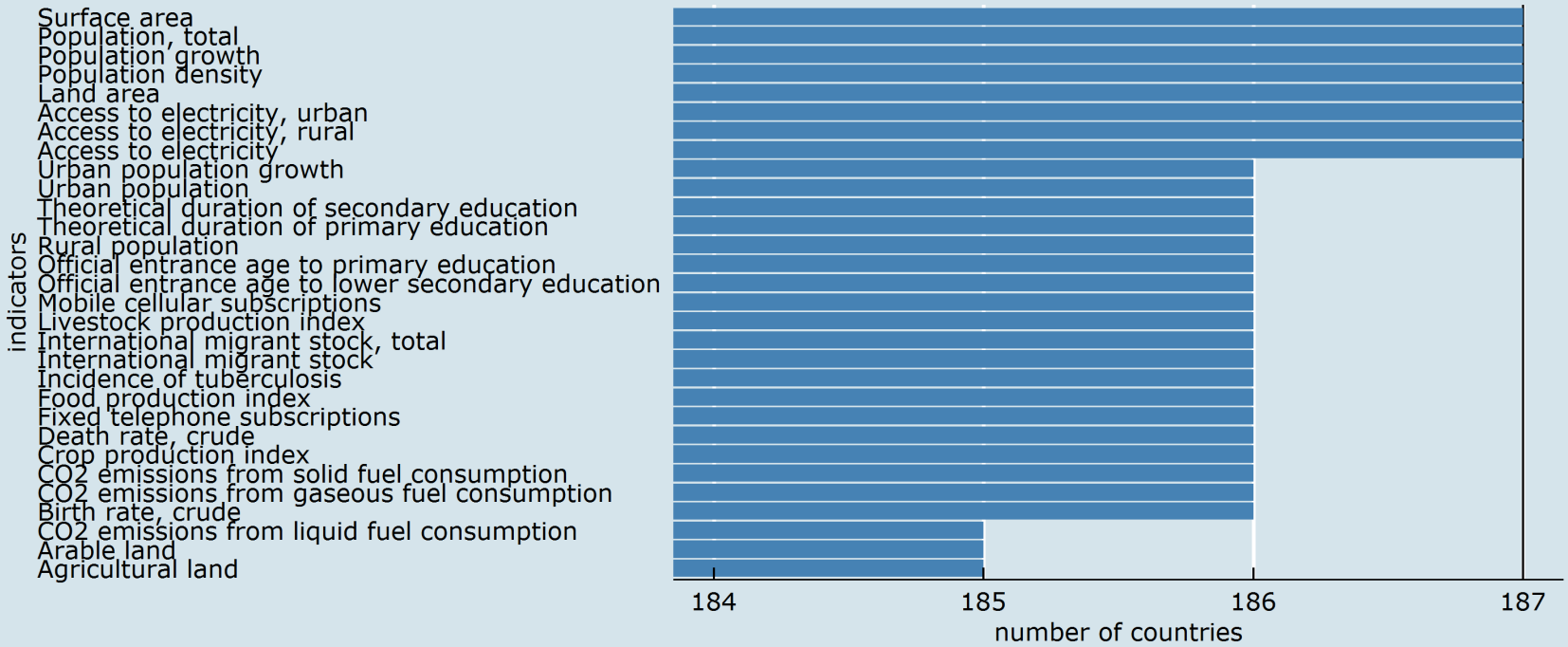
Threshold set at 400 indicators, in red the countries out, in green the countries in




The threshold was set in order not to exclude the first significative country: Libya

## 3. Select the indicators among the fullest

Look at the indicators manually and select the most significative

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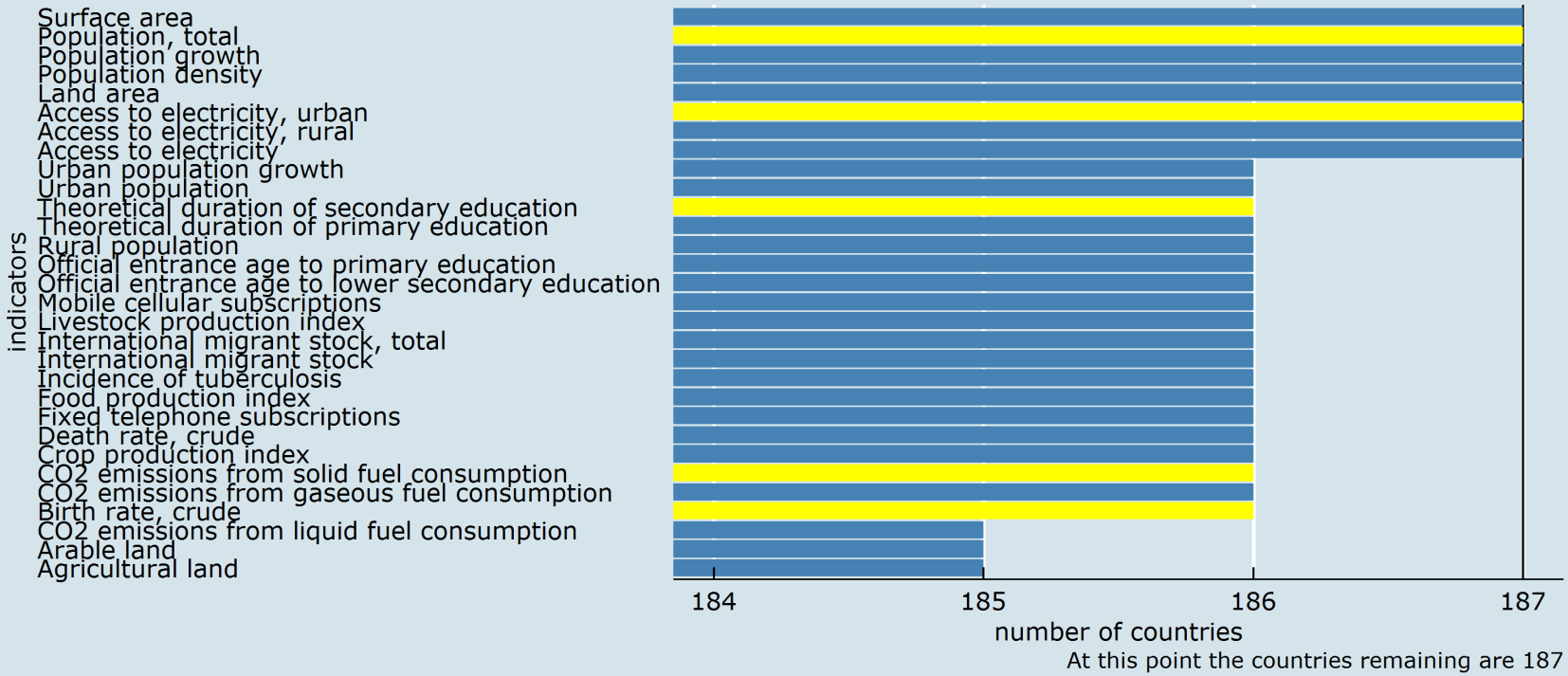


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7. Expand the shrunk matrix over years

# Example 1

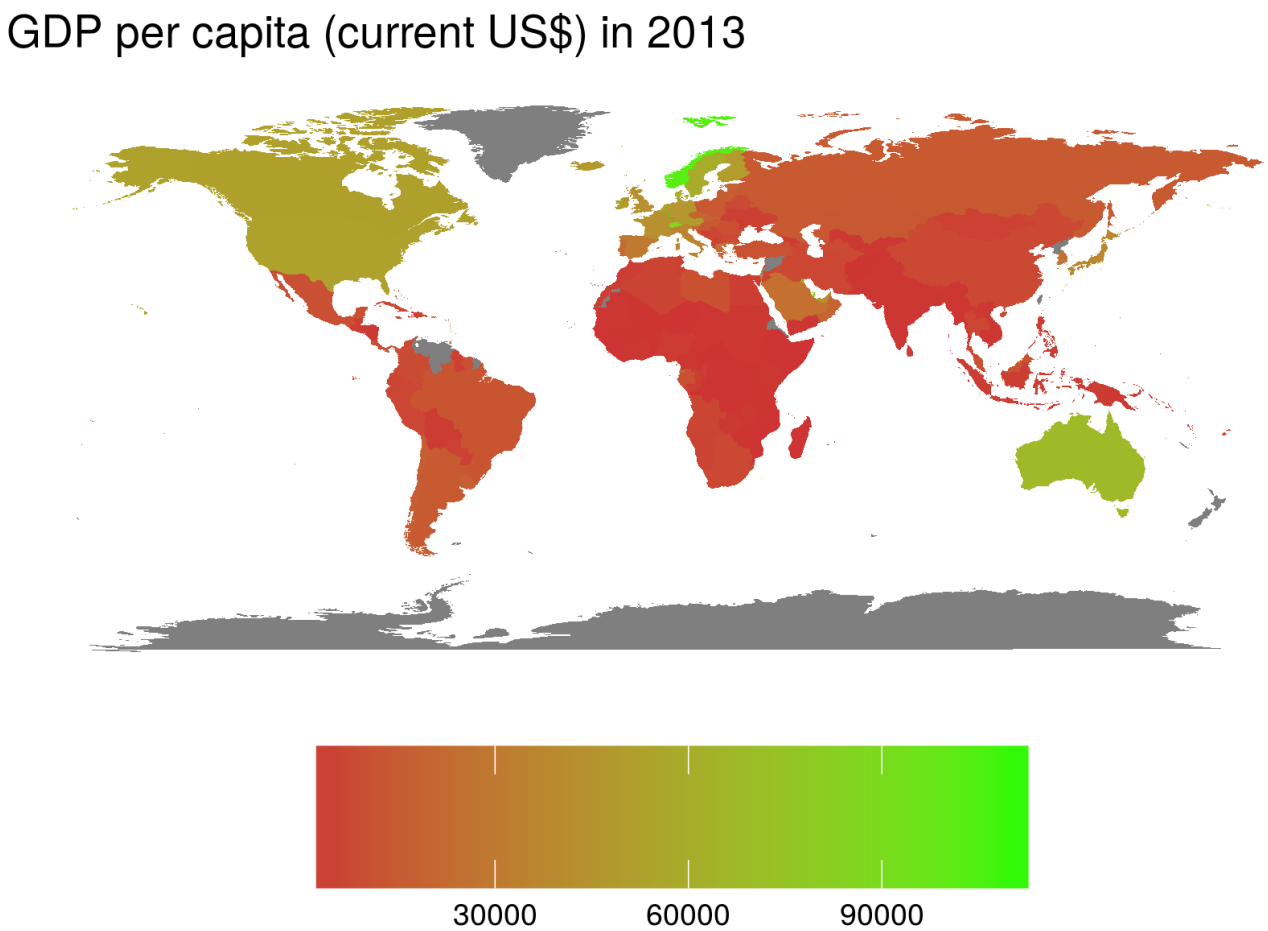


Рис.: GDP per capita, 2013

# Example 2

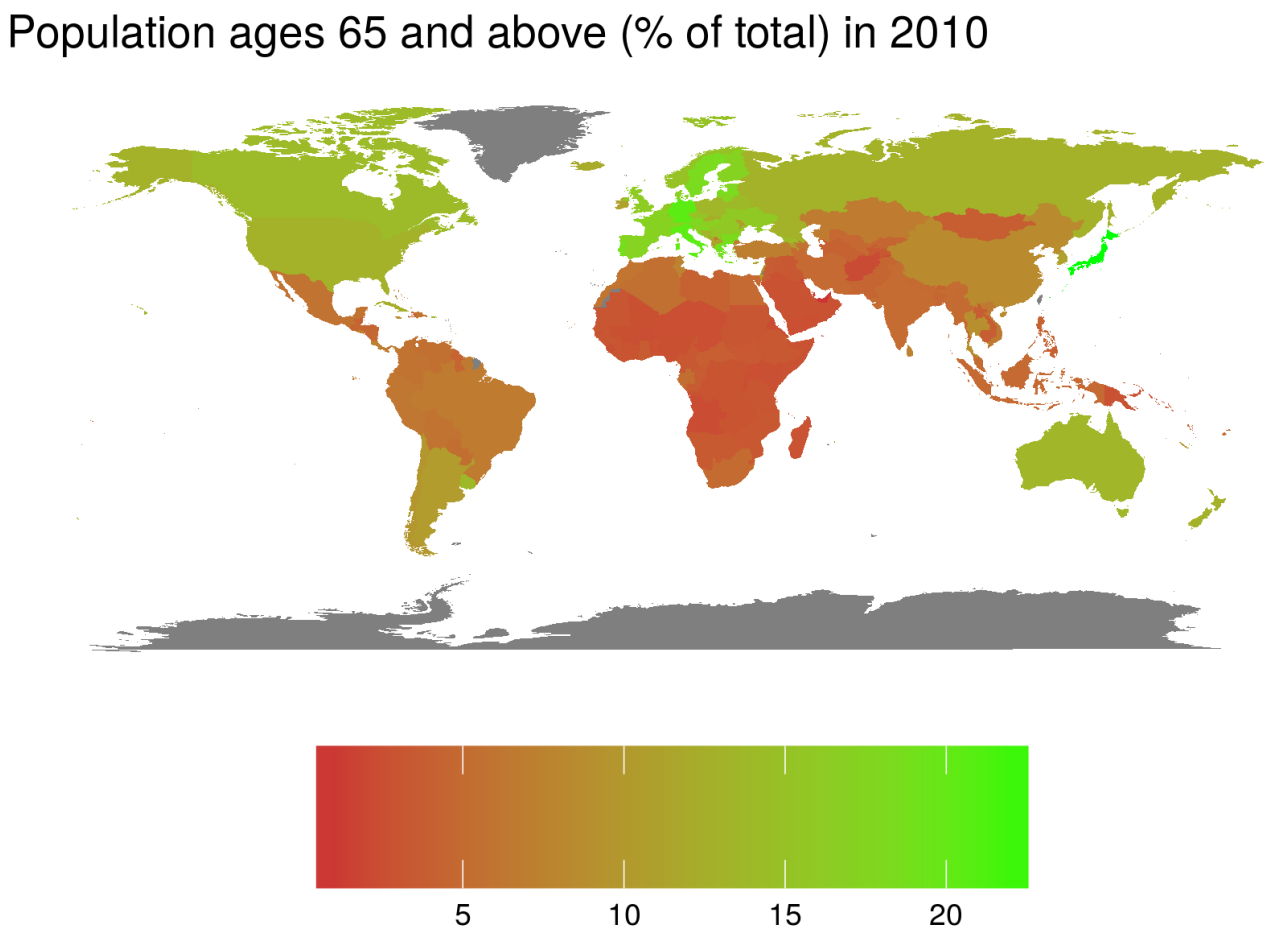


Рис.: Population aged over 65

# Example 3

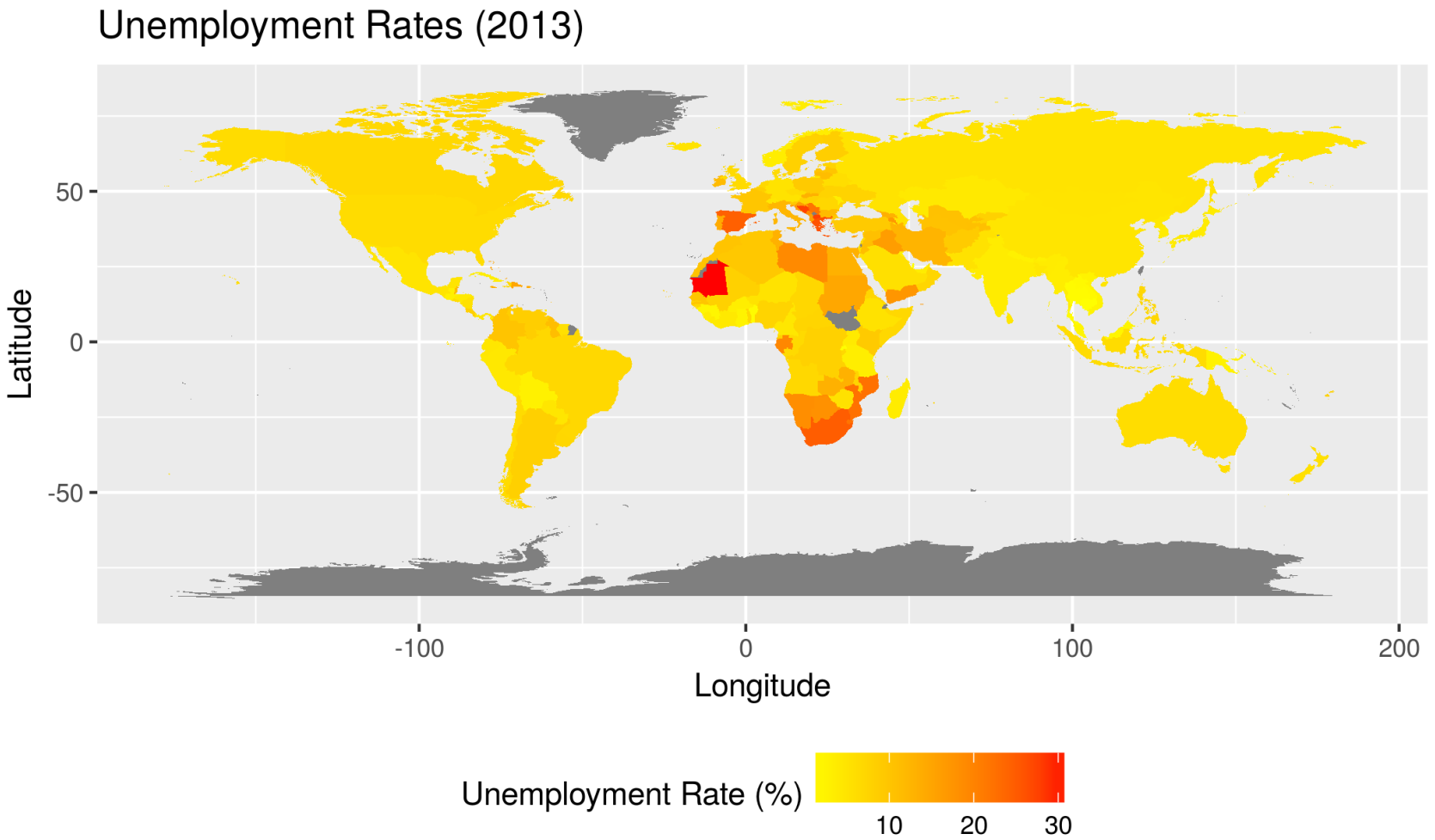


Рис.: World unemployment