World development indicators

Which country will develop more

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Leonardo Comandini
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April-May 2017

Our Goals

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

- best = ?

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- best = ?
- best = upcoming largest development
- development = ?
- Invest = ?

Raw dataset

Indicators (6 columns)

Country name	Country code	Indicator name	Indicator code	Year	Value

Country (31 columns)

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

Country notes (3 columns)

Country code	Series code	Description

Series (20 columns)

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

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Series code	Year	Description

Raw dataset

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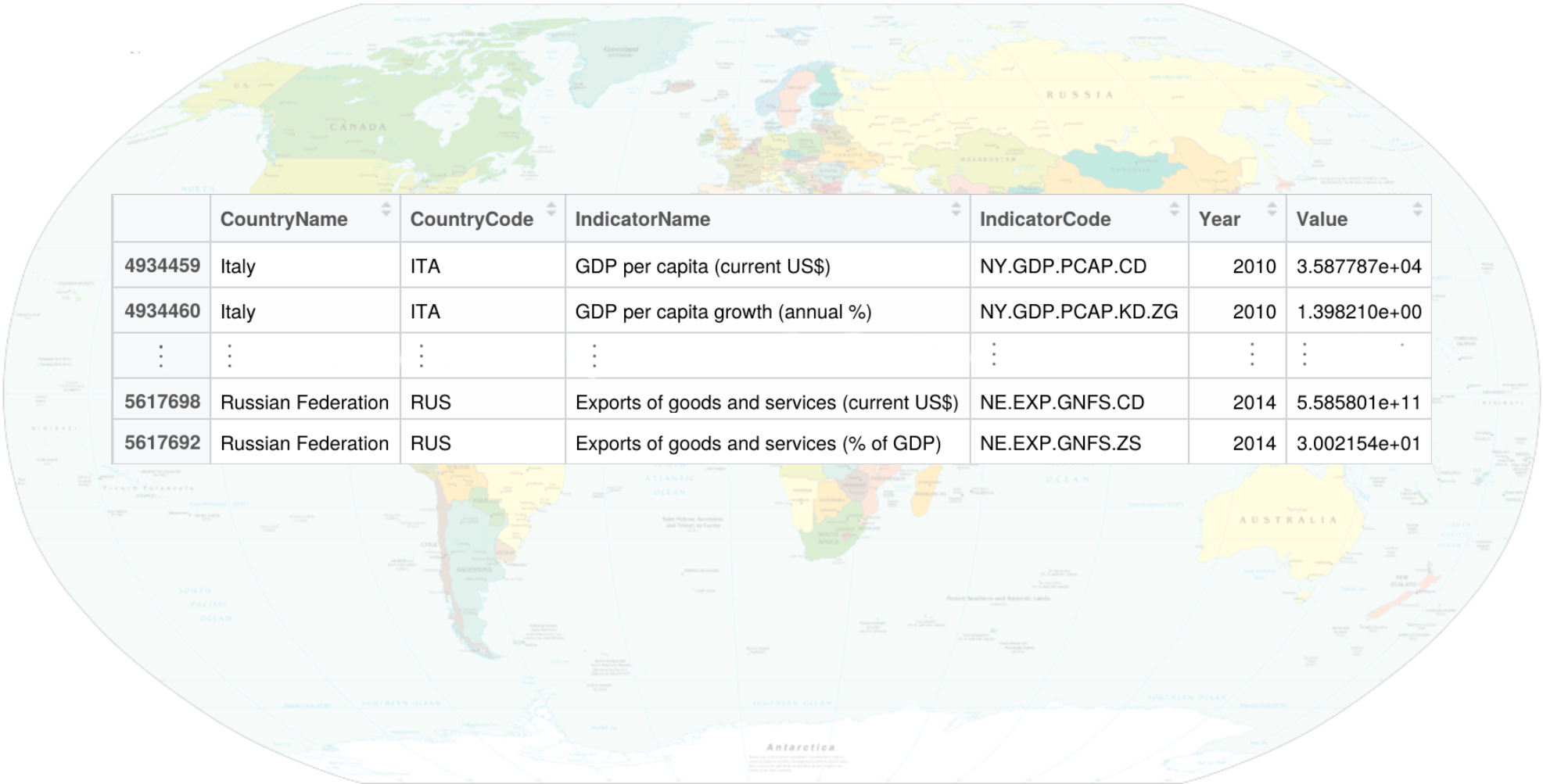
Examples of indicators



	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

	Countrycode	Seriescode	Description
1	ABW	EG.EGY.PRIM.PP.KD	Sources: Estimated based on UN Energy Statistics (2014…
2	ABW	EG.ELC.RNEW.ZS	Sources: UN Energy Statistics (2014)
3	ABW	EG.FEC.RNEW.ZS	Sources: UN Energy Statistics (2014)
4	ABW	SM.POI	
5	ABW	SM.POI	
6	ABW	SP.DYN	
7	ABW	SP.DYN	
8	ABW	SP.DYN	
9	ABW	SP.DYN	
10	ABW	SP.DYN	
11	ABW	SP.DYN	
12	ABW	SP.DYN	
13	ABW	SP.DYN	
14	ABW	SP.POP	

	CountryName	CountryCode	IndicatorName	IndicatorCode	Year	Value
5415624	Bulgaria	BGR	Portfolio equity, net inflows (BoP, current US$)	BX.PEF.TOTL.CD.WD	2013	-1.910000e+07
5415625	Bulgaria	BGR	Portfolio investment, bonds (PPG + PNG) (NFL, current …	DT.NFL.BOND.CD	2013	6.344960e+08
5415626	Bulgaria	BGR	Portfolio Investment, net (BoP, current US$)	BN.KLT.PTXL.CD	2013	1.543552e+08
5415627	Bulgaria	BGR	Poverty headcount ratio at national poverty lines (% of po…	SI.POV.NAHC	2013	2.180000e+01
5415628	Bulgaria	BGR	Power outages in firms in a typical month (number)	IC.ELC.OUTG	2013	1.200000e+00
5415629	Bulgaria	BGR	PPG, bilateral (AMT, current US$)	DT.AMT.BLAT.CD	2013	6.899600e+07
5415630	Bulgaria	BGR	PPG, bilateral (DIS, current US$)	DT.DIS.BLAT.CD	2013	9.600000e+04
5415631	Bulgaria	BGR	PPG, bilateral (DOD, current US$)	DT.DOD.BLAT.CD	2013	4.888450e+08
5415632	Bulgaria	BGR	PPG, bilateral (INT, current US$)	DT.INT.BLAT.CD	2013	1.514000e+07
5415633	Bulgaria	BGR	PPG, bilateral (NTR, current US$)	DT.NTR.BLAT.CD	2013	-8.404000e+07
5415634	Bulgaria	BGR	PPG, bilateral (TDS, current US$)	DT.TDS.BLAT.CD	2013	8.413600e+07
5415635	Bulgaria	BGR	PPG, bilateral concessional (AMT, current US$)	DT.AMT.BLTC.CD	2013	6.631000e+07
5415636	Bulgaria	BGR	PPG, bilateral concessional (DIS, current US$)	DT.DIS.BLTC.CD	2013	9.600000e+04
5415637	Bulgaria	BGR	PPG, bilateral concessional (DOD, current US$)	DT.DOD.BLTC.CD	2013	4.736750e+08
5415638	Bulgaria	BGR	PPG, bilateral concessional (INT, current US$)	DT.INT.BLTC.CD	2013	1.410900e+07
5415639	Bulgaria	BGR	PPG, bilateral concessional (NFL, current US$)	DT.NFL.BLTC.CD	2013	-6.621400e+07
5415640	Bulgaria	BGR	PPG, bilateral concessional (NTR, current US$)	DT.NTR.BLTC.CD	2013	-8.032300e+07
5415641	Bulgaria	BGR	PPG, bilateral concessional (TDS, current US$)	DT.TDS.BLTC.CD	2013	8.041900e+07

			Nations World Population Prospects
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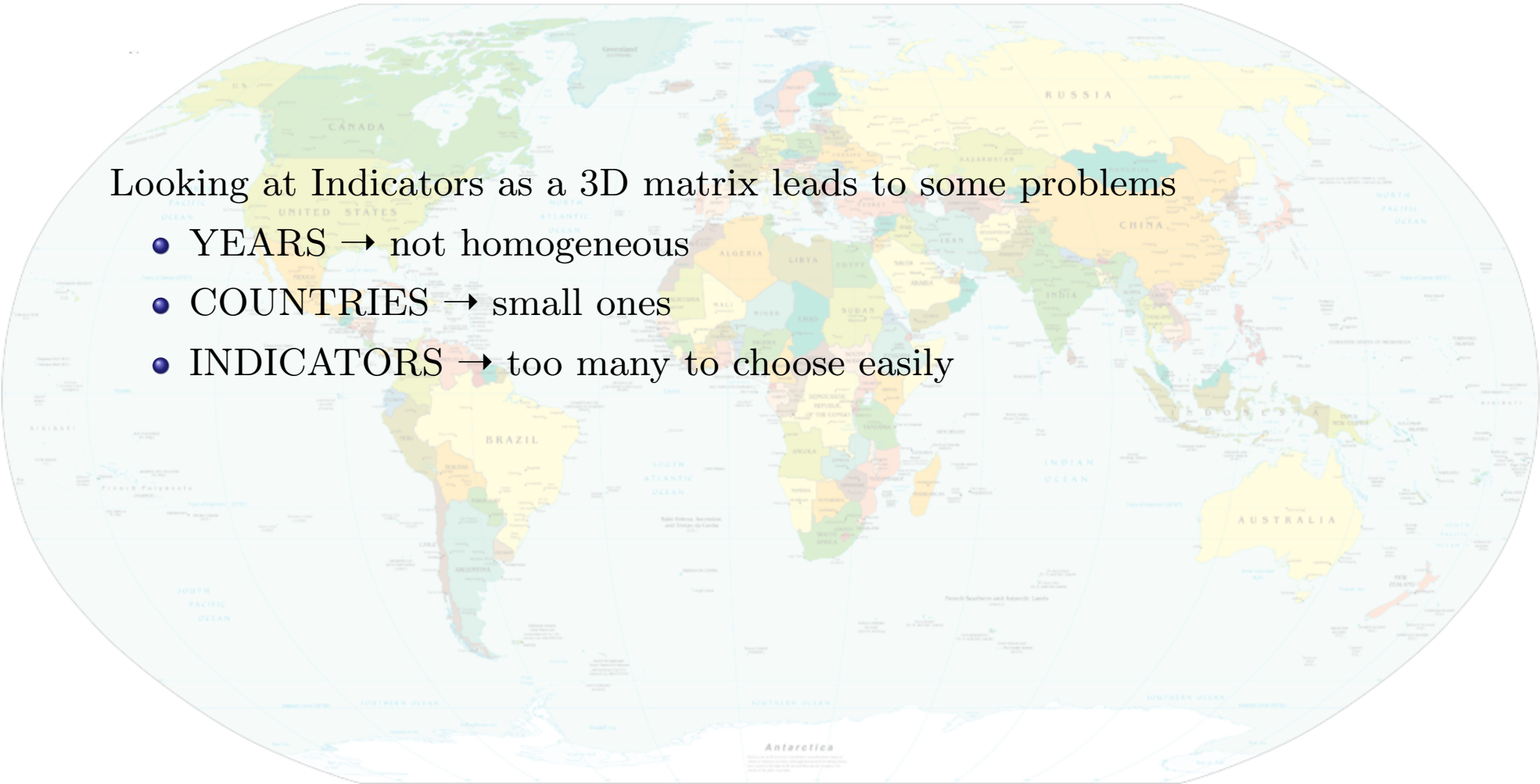
			d Nations World Population Prospects
			nd female life expectancy
			d Nations World Population Prospects
			d Nations World Population Prospects
14	ABW	SP.POP.GROW	Data sources: United Nations World Population Prospects
15	ABW	SP.POP.TOTL	Data sources : United Nations World Population Prospects
16	ADO	SM.POP.TOTL	Estimates are derived from data on foreign population. Fo…
17	ADO	SP.DYN.CBRT.IN	Data sources : Eurostat
18	ADO	SP.DYN.CDRT.IN	Data sources : Eurostat
19	ADO	SP.DYN.TFRT.IN	Data sources : Eurostat

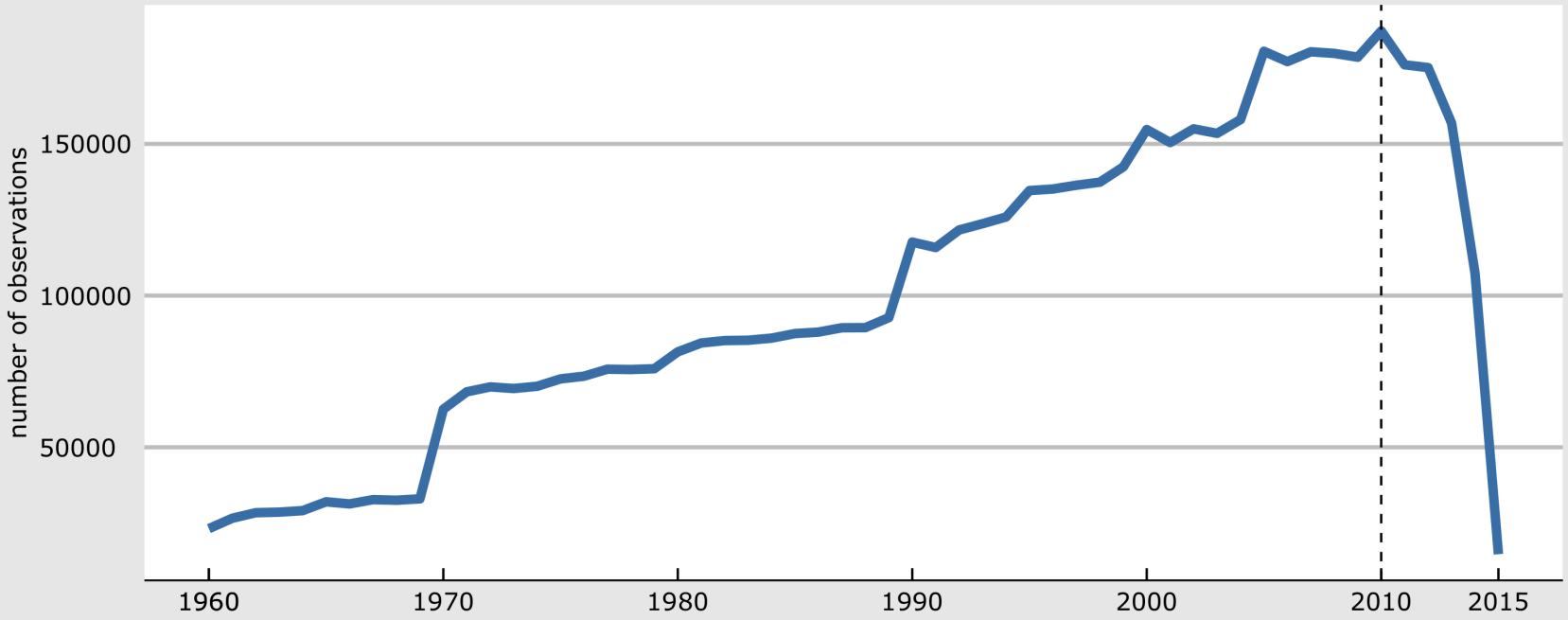


Looking at Indicators as a 3D matrix leads to some problems

- YEARS → not homogeneous
- COUNTRIES → small ones
- INDICATORS → too many to choose easily

Number of observations for each year

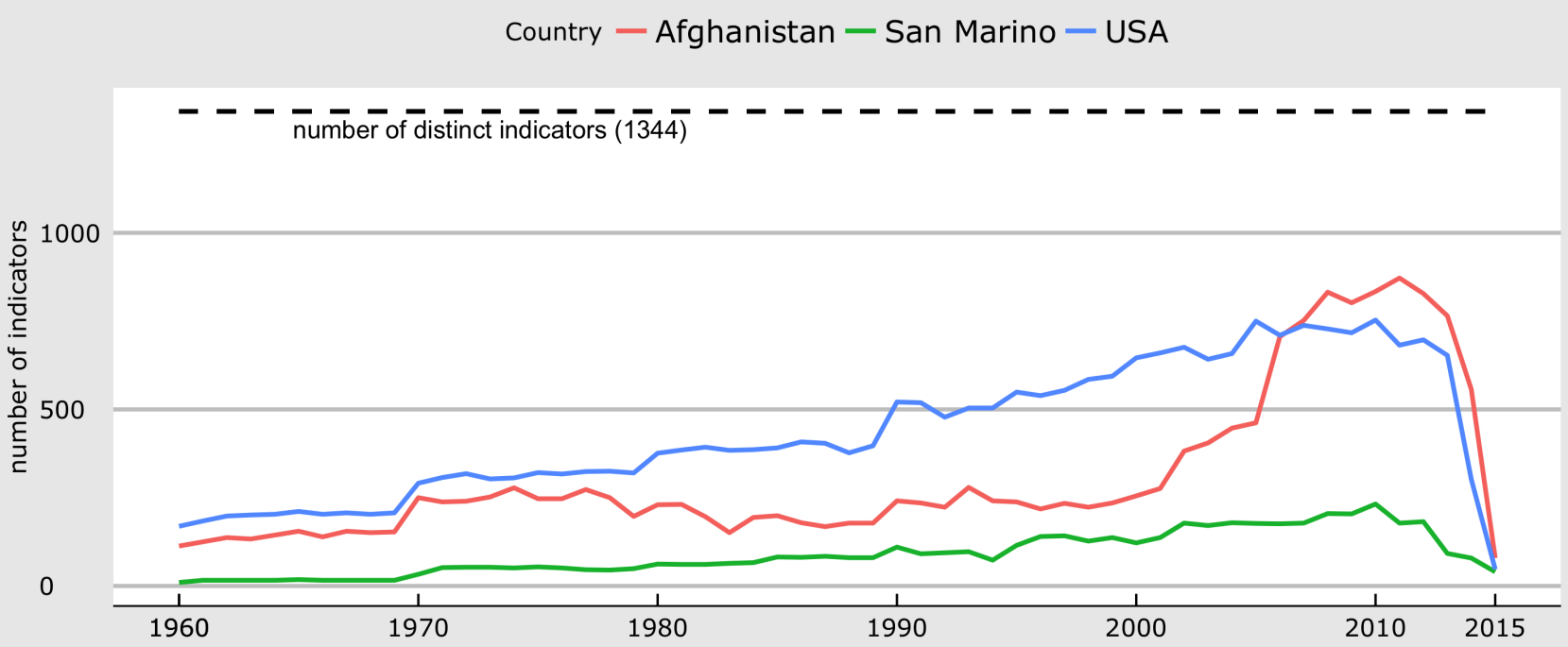
Increasing in the years, dropping in the very last due to the difficulty to find recent data



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

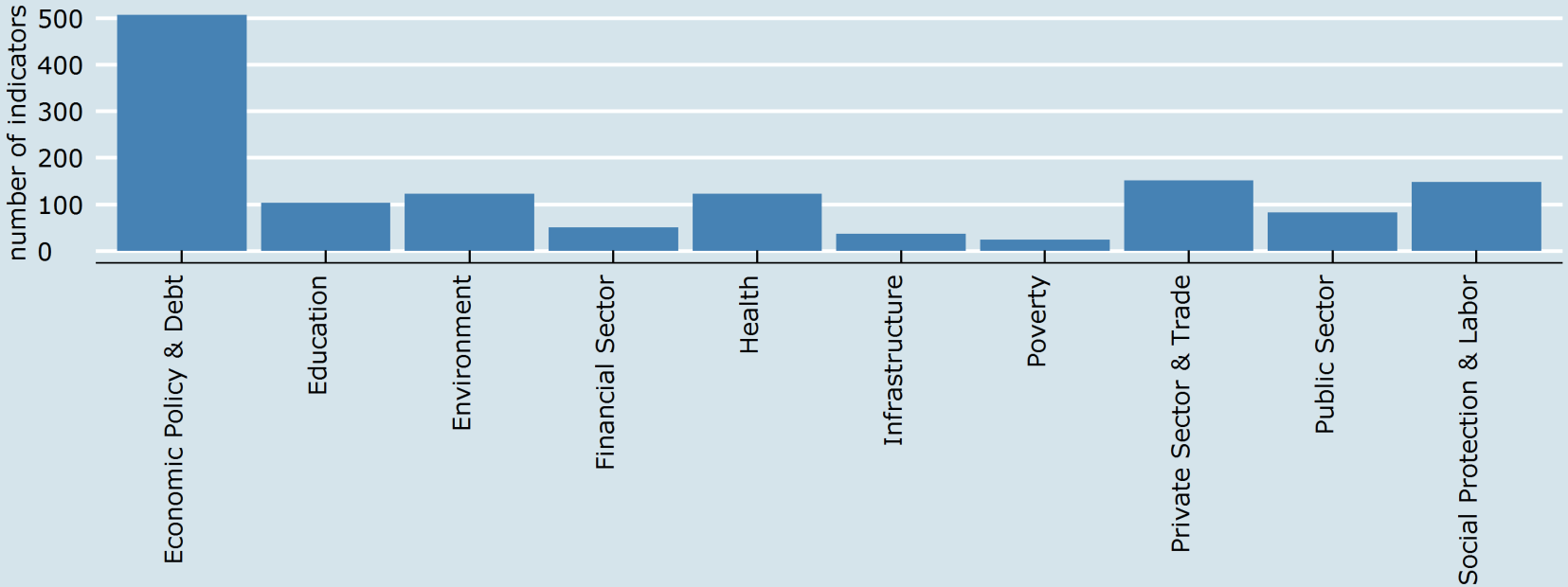
Number of indicators for some significative countries

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



Number of indicators for each supertopic

Prevalence of economic indicators: our field of 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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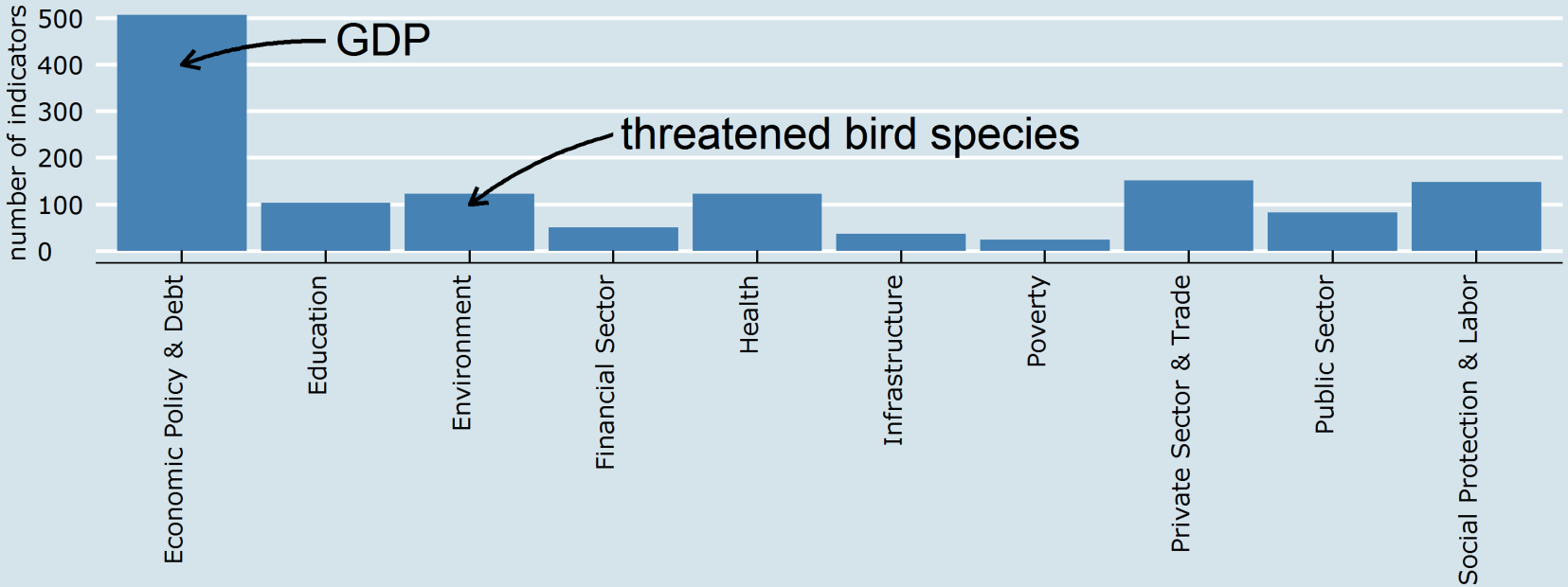
Prevalence of economic indicators: our field of analysis



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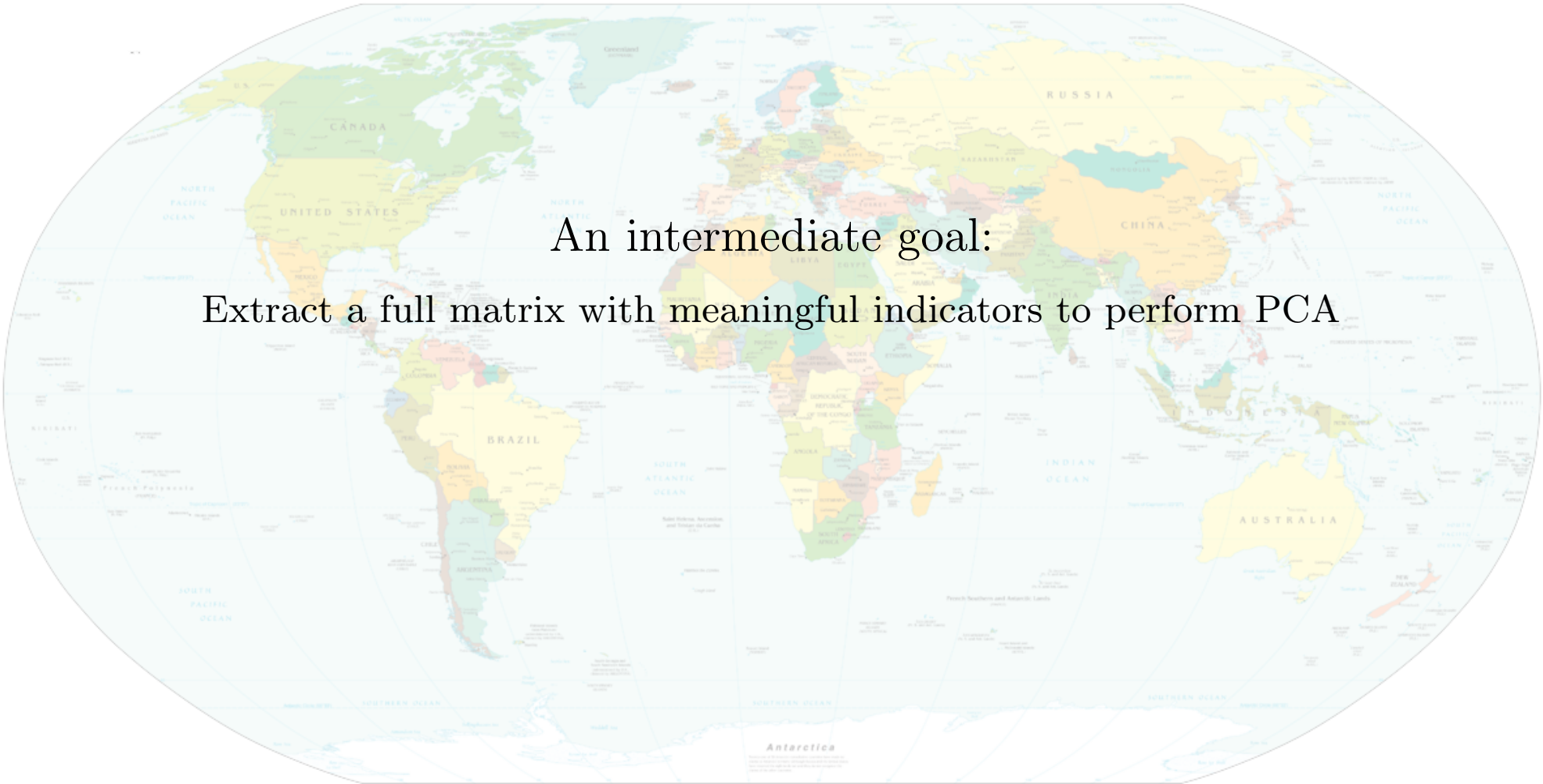
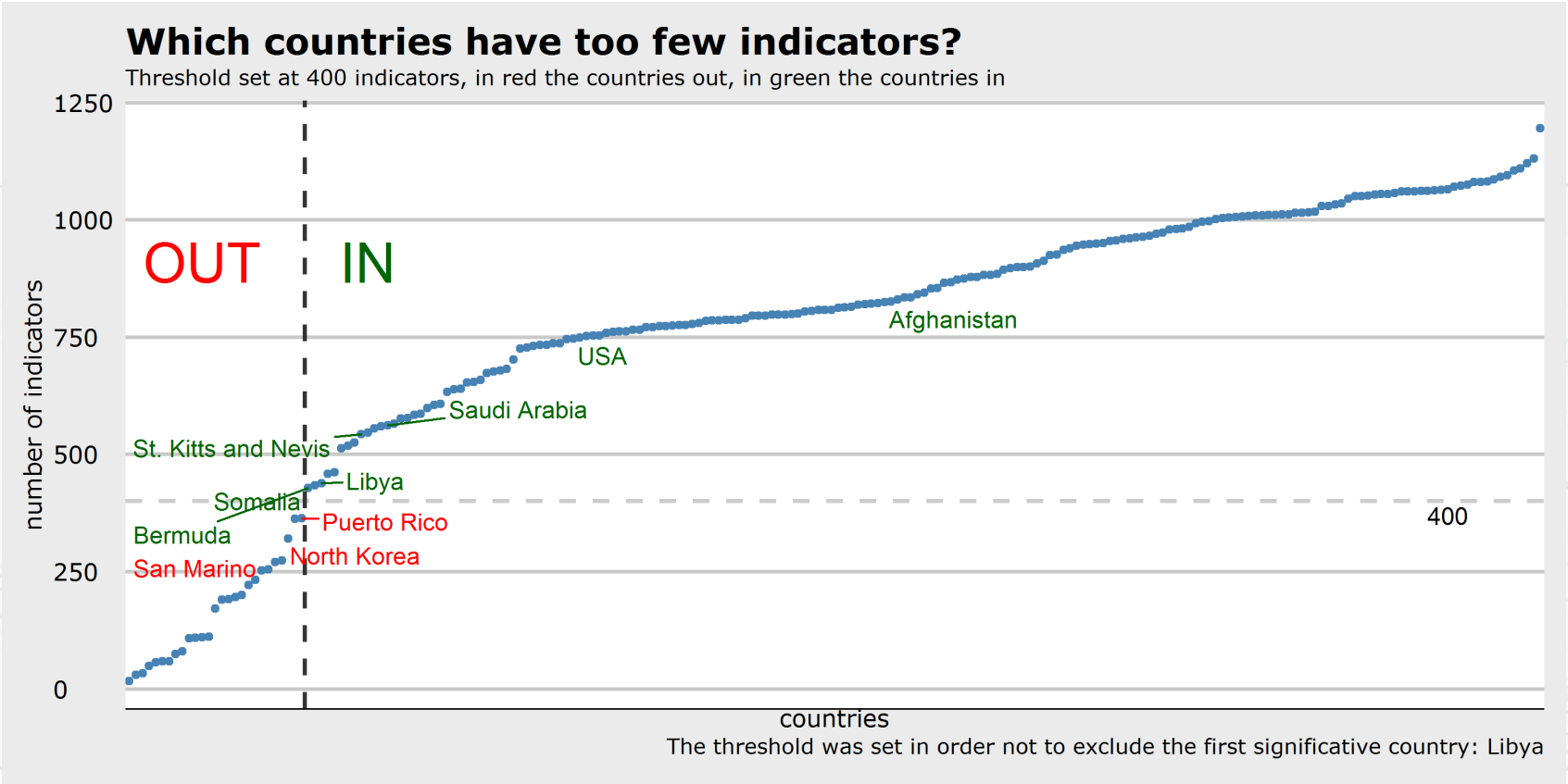


An intermediate goal:

Extract a full matrix with meaningful indicators to perform PCA

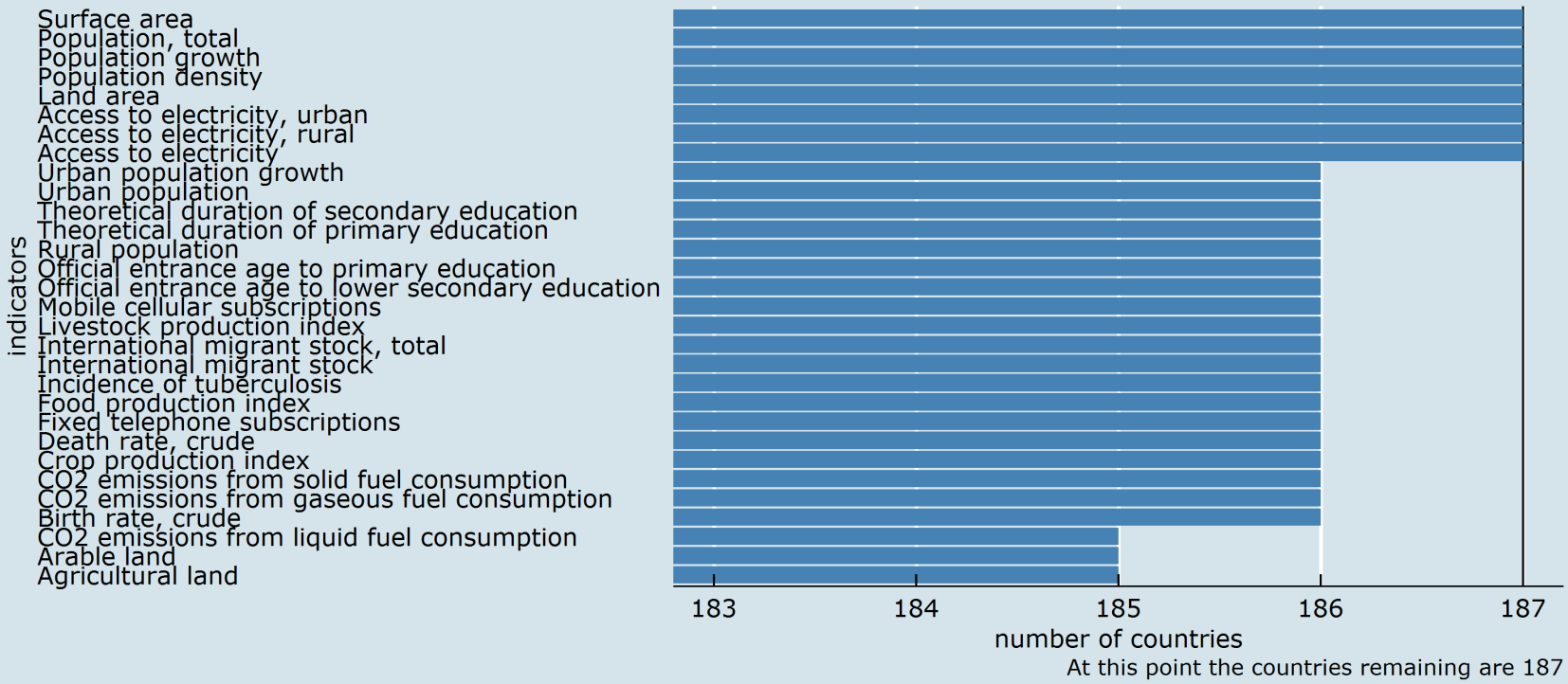
Fix the best year:

2010


Which countries have too few indicators?
Threshold set at 400 indicators, in red the countries out, in green the countries in
1250
1000
750
500
250
0
number of indicators
OUT
IN
Afghanistan
USA
Saudi Arabia
St. Kitts and Nevis
Libya
Somalia
Puerto Rico
Bermuda
North Korea
San Marino
400
countries
The threshold was set in order not to exclude the first significative country: Libya

The fullest indicators

Look at the indicators manually and select the most significative



At this point the countries remaining are 187

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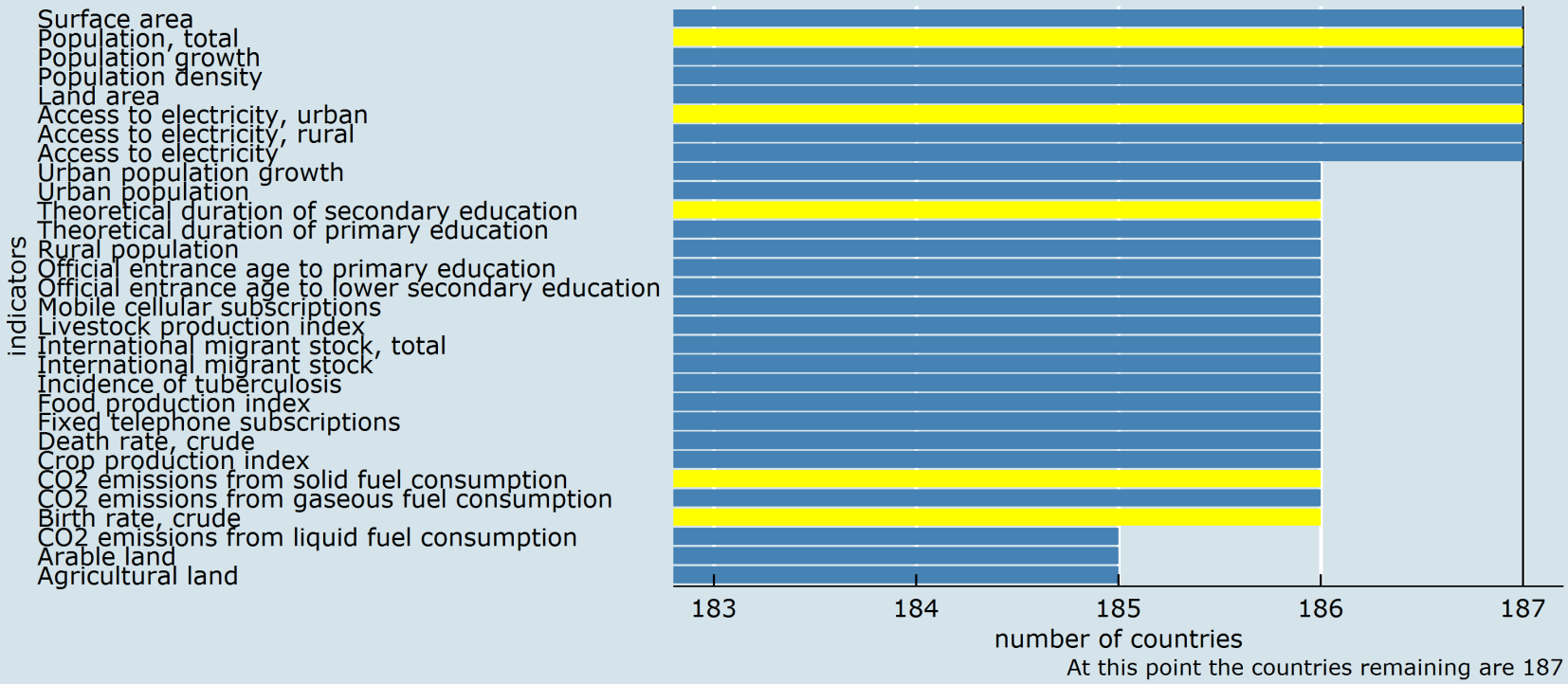

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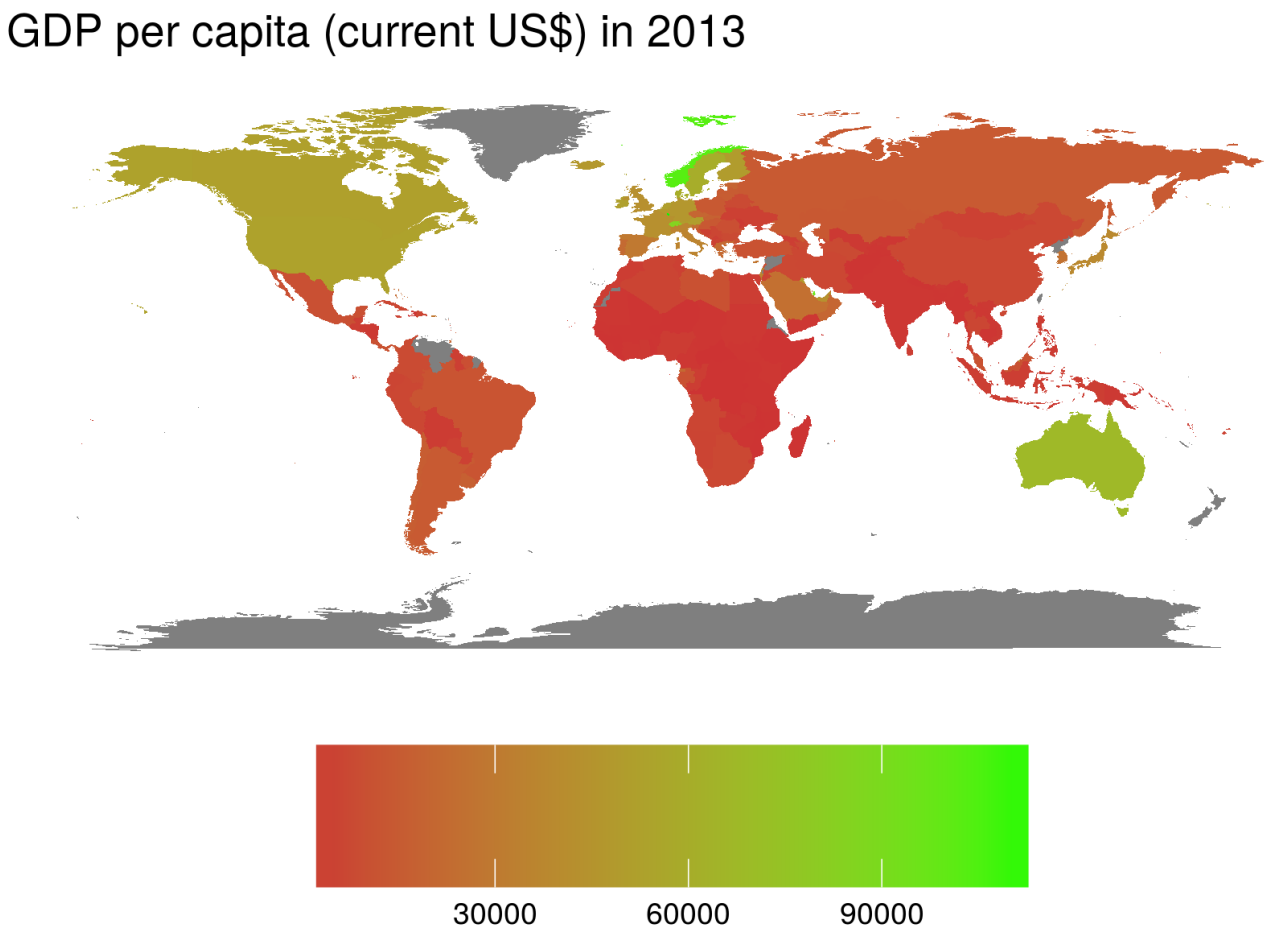

Рис.: GDP per capita, 2013

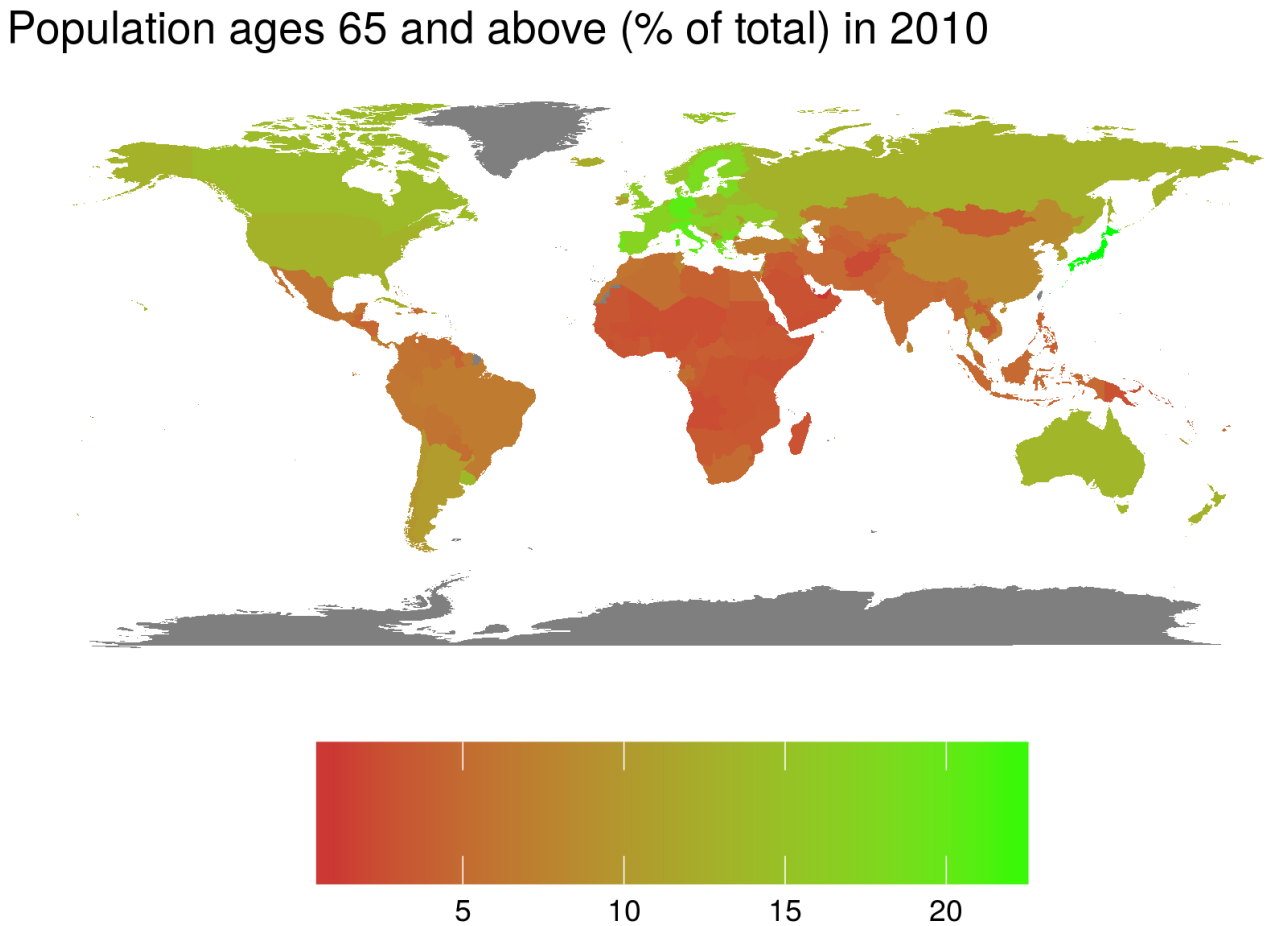

Рис.: Population aged over 65

Example 3

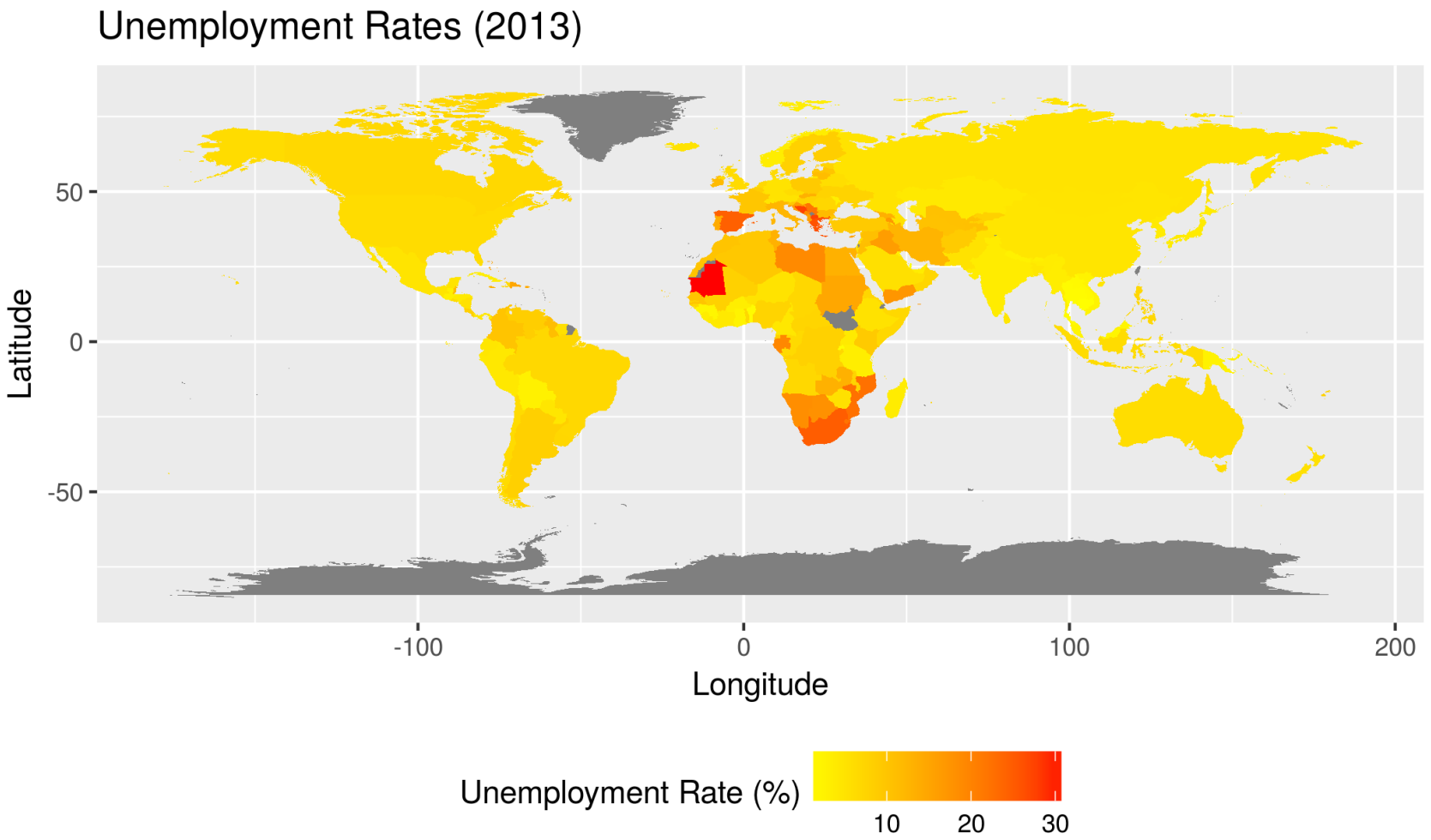

Рис.: World unemployment