WORLD DEVELOPMENT INDICATORS

DATA BUSTERS:

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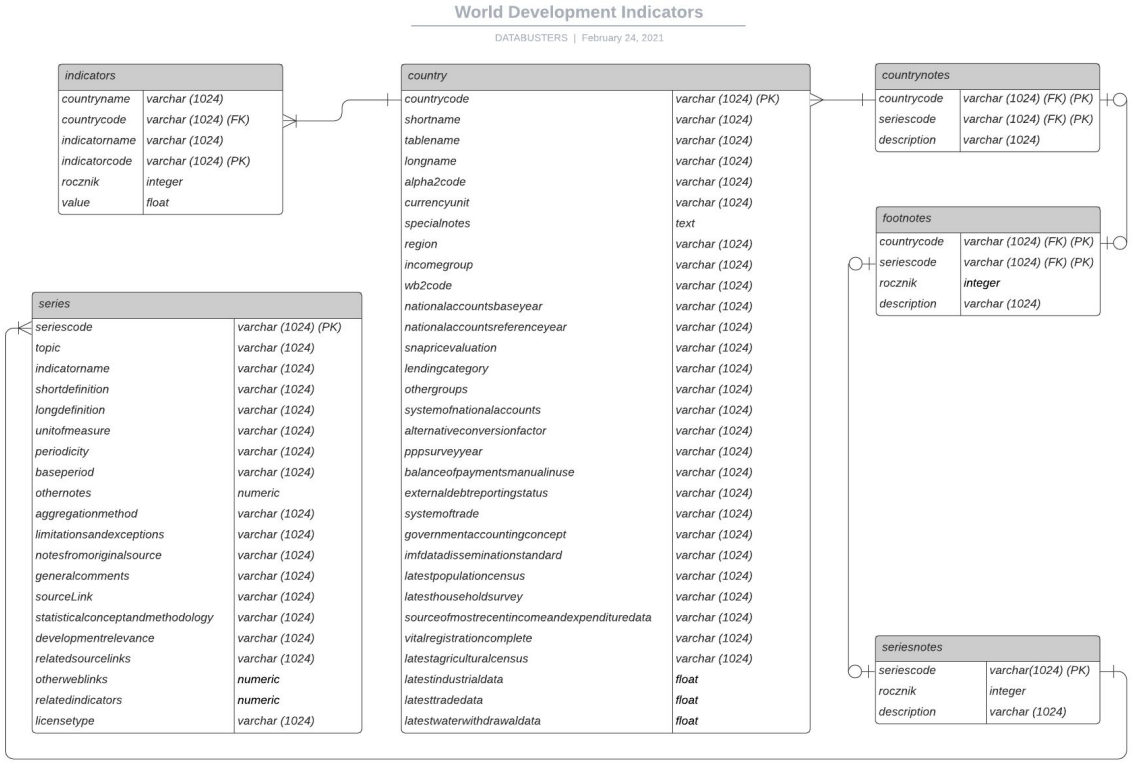
DEFINITION OF DONE

- code review by two other team members
- all tasks done in trello
- presentation to stakeholders / product owner

WORLD DEVELOPMENT INDICATORS

Number of indicators	1334
Number of topics	91
Number of countries	247
Number of data	5,5 mln
Number of HIPC	40
Years included	1960-2015



Research problems

1. Find top countries for each category.
2. Is there any correlation between indicators from different categories?
3. If there is any correlation probably there is a reason of the country success.

Topics

1. POPULATION - birth rate, mortality rate
2. ECONOMICS - GDP rate, debt, poverty
3. ENVIRONMENT - CO2 emissions, energy production
4. INFRASTRUCTURE - technology, telecommunication, internet
5. SCIENCE - R&D expenditures, trademarks, science articles

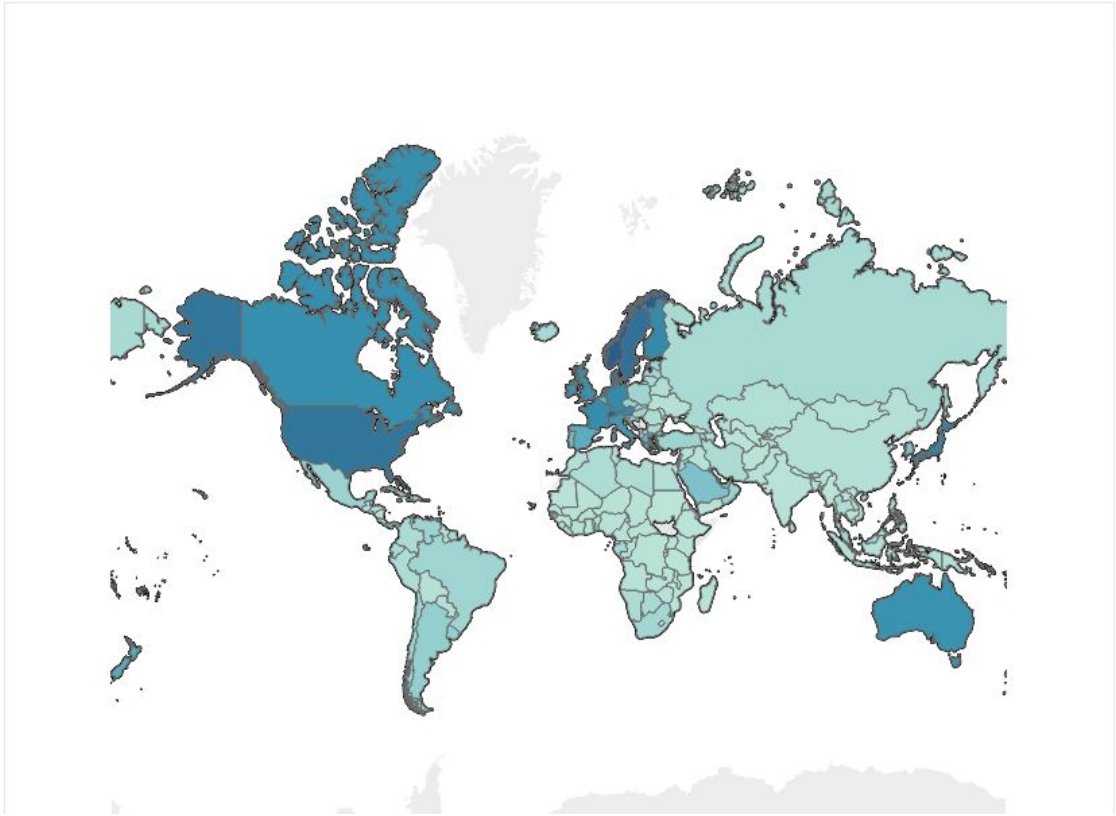
Economic growth: true paradise or deepening social divisions?

Analysis of indicators:

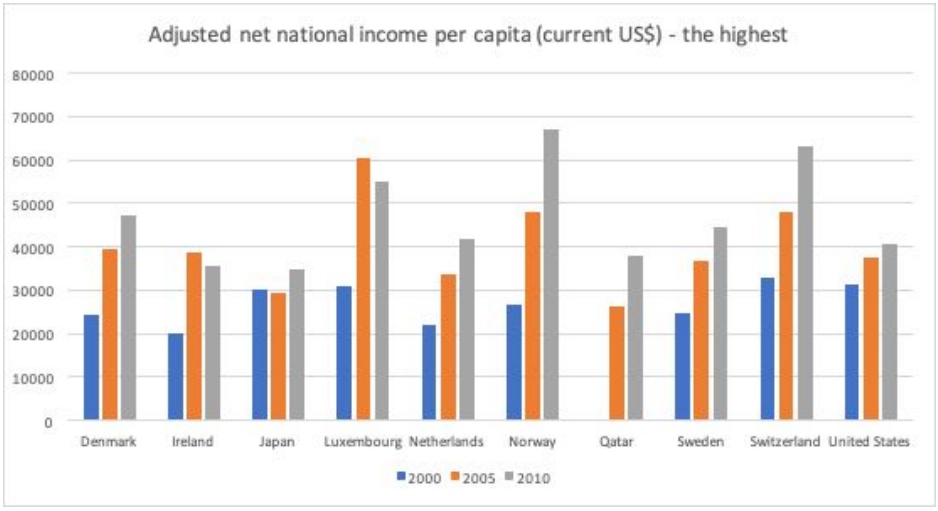
- Adjusted net national income per capita (current US$)
- GDP per capita (current US$)
- GDP per capita growth (annual %)
- Inflation, consumer prices (annual %)
- Gini index

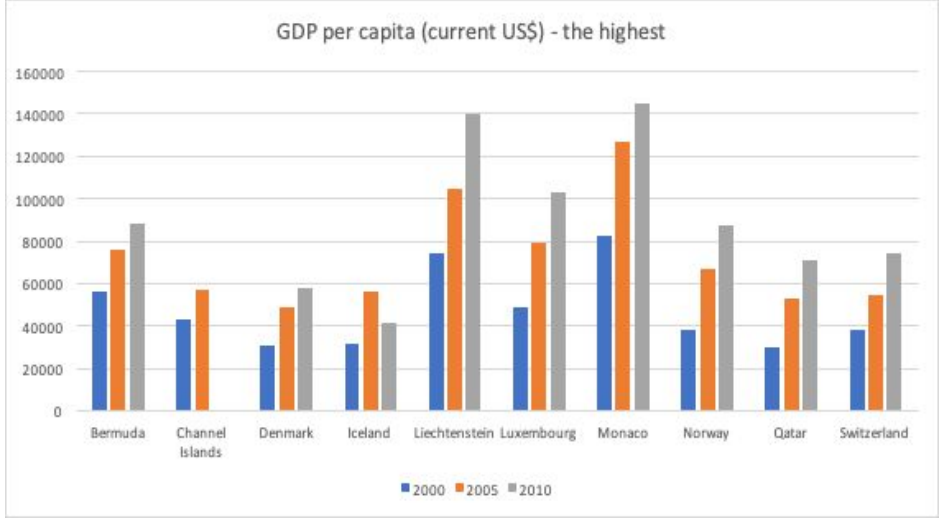
Source:https://www.dreamstime.com/stock-illustration-cartoon-vector-direction-sign-two-decision-arrows-poverty-doodle-hand-drawn-crossroad-wooden-pointing-left-right-as-image93603417

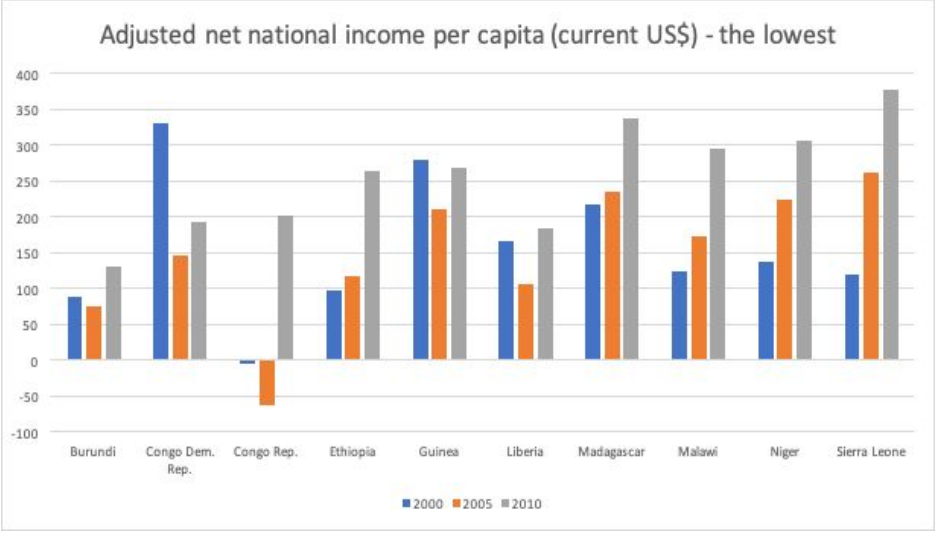
Adjusted net national income per capita (current US$)

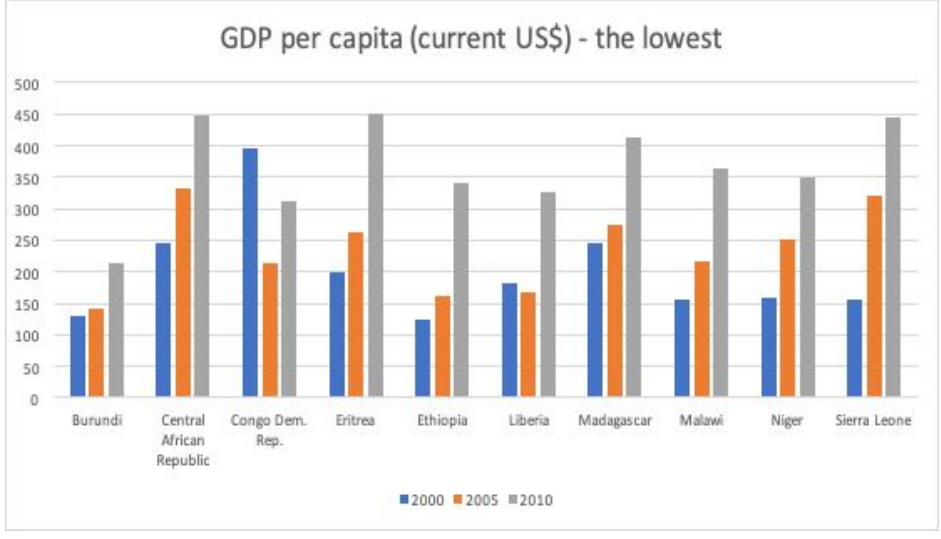


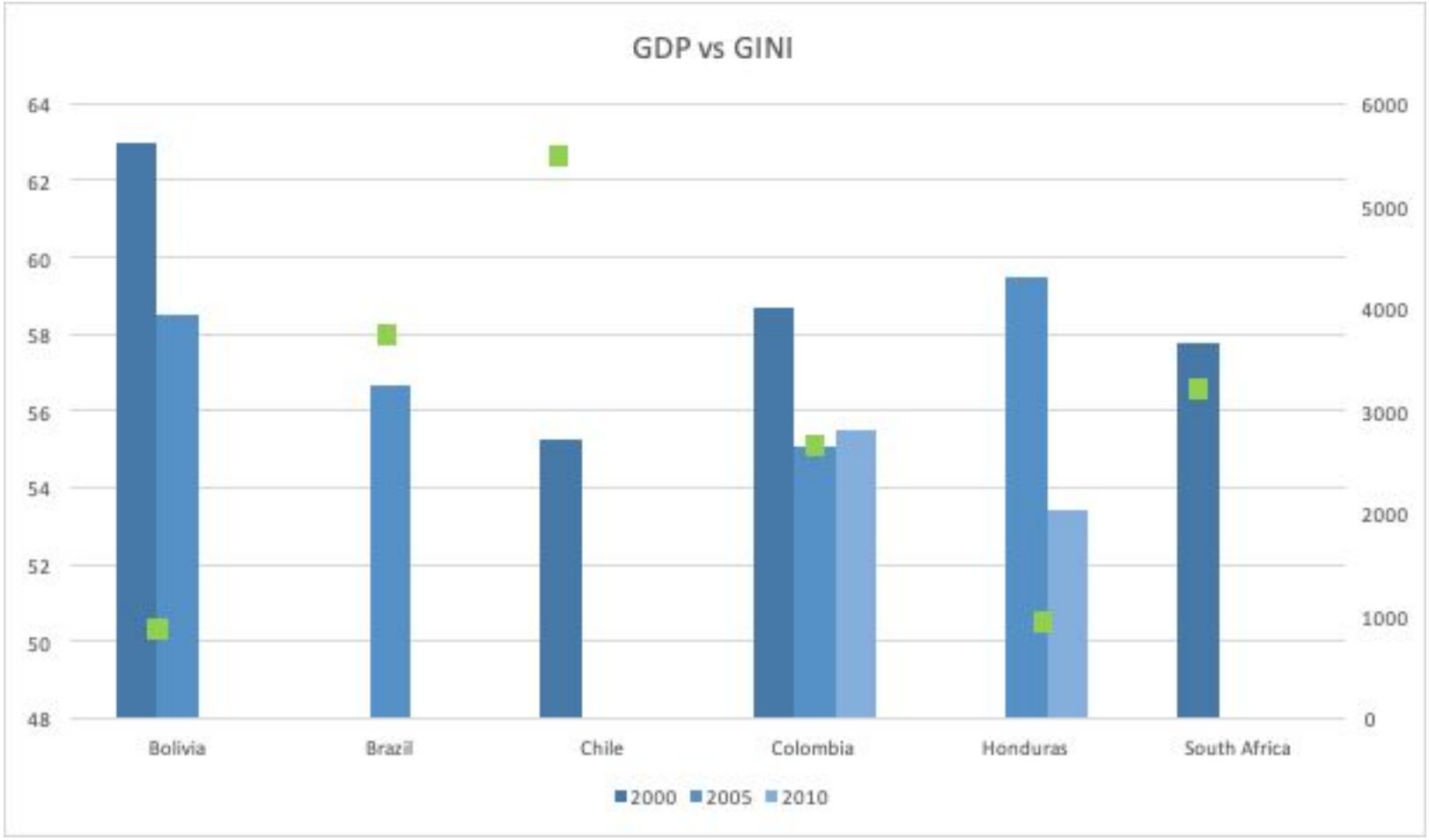
Countryname	Round
Switzerland	1,240,825.00
Norway	1,202,445.00
Sweden	1,028,021.00
Denmark	1,018,860.00
United States	989,083.00
Netherlands	881,694.00
Japan	871,454.00
Austria	830,962.00
Finland	823,405.00
Germany	816,820.00
France	796,715.00
Canada	772,943.00
United Kingdom	754,940.00
Australia	742,384.00
Luxembourg	735,501.00
Ireland	732,146.00
Italy	674,401.00
Kuwait	672,617.00


Adjusted net national income per capita (current US$) - the highest
80000
70000
60000
50000
40000
30000
20000
10000
0
Denmark
Ireland
Japan
Luxembourg
Netherlands
Norway
Qatar
Sweden
Switzerland
United States
2000
2005
2010


GDP per capita (current US$) - the highest
160000
140000
120000
100000
80000
60000
40000
20000
0
Bermuda
Channel Islands
Denmark
Iceland
Liechtenstein
Luxembourg
Monaco
Norway
Qatar
Switzerland
2000
2005
2010


Adjusted net national income per capita (current US$) - the lowest
400
350
300
250
200
150
100
50
0
-50
-100
Burundi
Congo Dem. Rep.
Congo Rep.
Ethiopia
Guinea
Liberia
Madagascar
Malawi
Niger
Sierra Leone
2000
2005
2010


GDP per capita (current US$) - the lowest
500
450
400
350
300
250
200
150
100
50
0
Burundi
Central African Republic
Congo Dem. Rep.
Eritrea
Ethiopia
Liberia
Madagascar
Malawi
Niger
Sierra Leone
2000
2005
2010

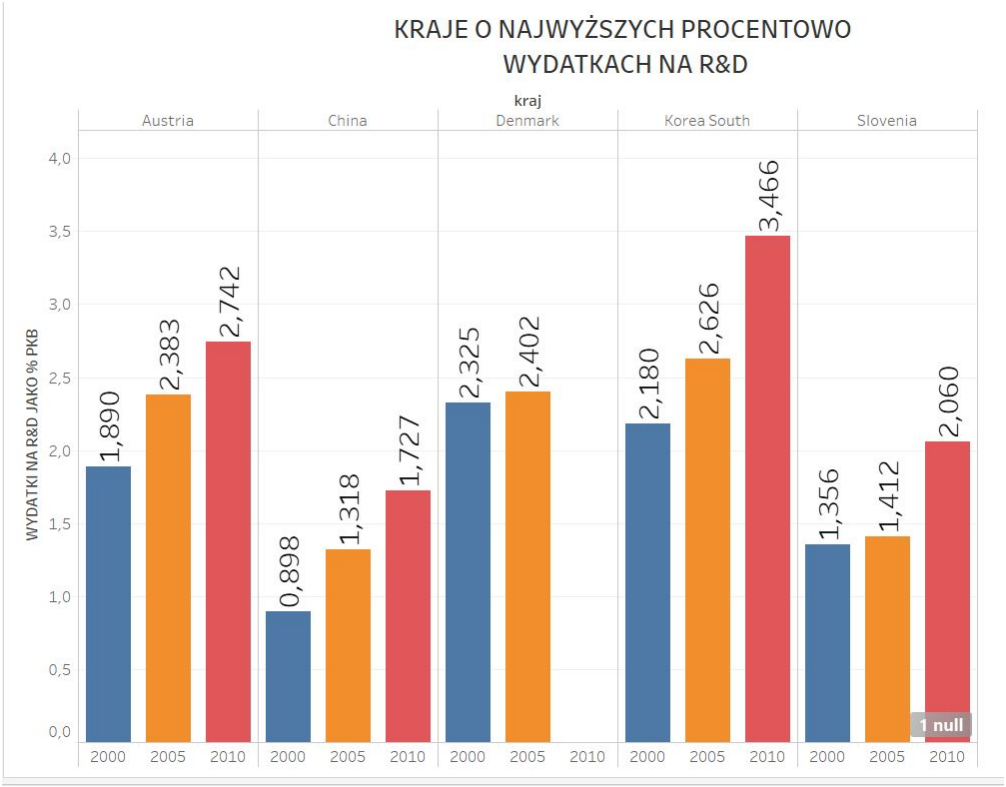

GDP vs GINI
64
62
60
58
56
54
52
50
48
6000
5000
4000
3000
2000
1000
0
Bolivia
Brazil
Chile
Colombia
Honduras
South Africa
2000
2005
2010

SCIENCE - R&D expenditures, trademarks, science articles

Analysis of indicators:

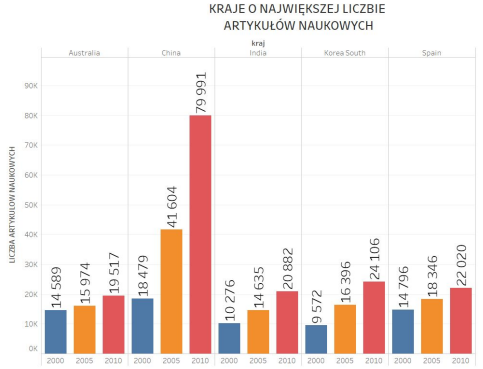
- Trademark applications, total
- R&D Expenditures
- Science Articles

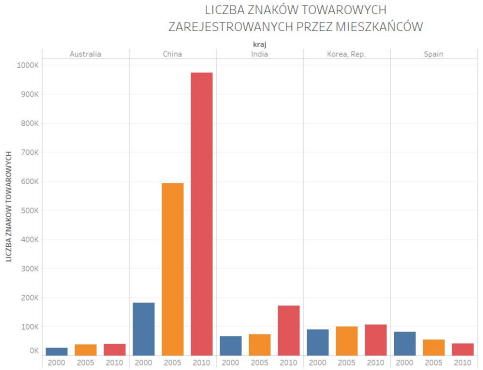
R&D Expenditures -> Science Articles -> Trademarks



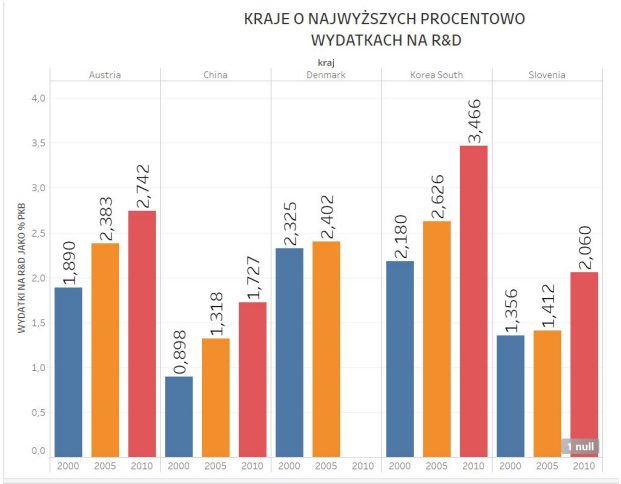
CHINA
AUSTRIA
DENMARK
SLOVENIA
STH KOREA

KIRIBATI
KOSOVO
SAMOA
TUVALU
CURACAO
BHUTAN
SAO TOME
ST VINCENT

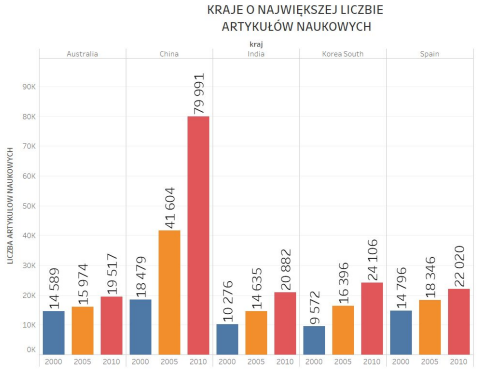




R&D Expenditures
vs. Science Articles
vs. Trademarks
vs. GDP



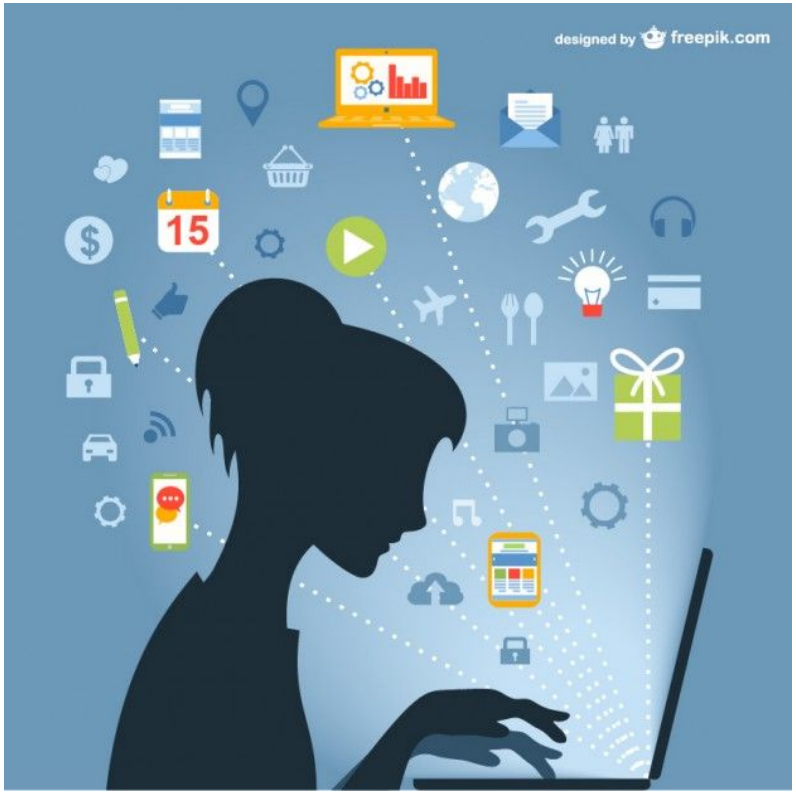
rd vs. tmk **-> +0,80**
gdp vs. art **-> +0,68**
rd vs. internet -> +0,50
gdp vs. tmk -> -0,45
rd vs. art -> +0,37
gdp vs. rd -> -0,19
rd vs. mob **-> +0,07**
gdp vs. internet **-> -0,05**



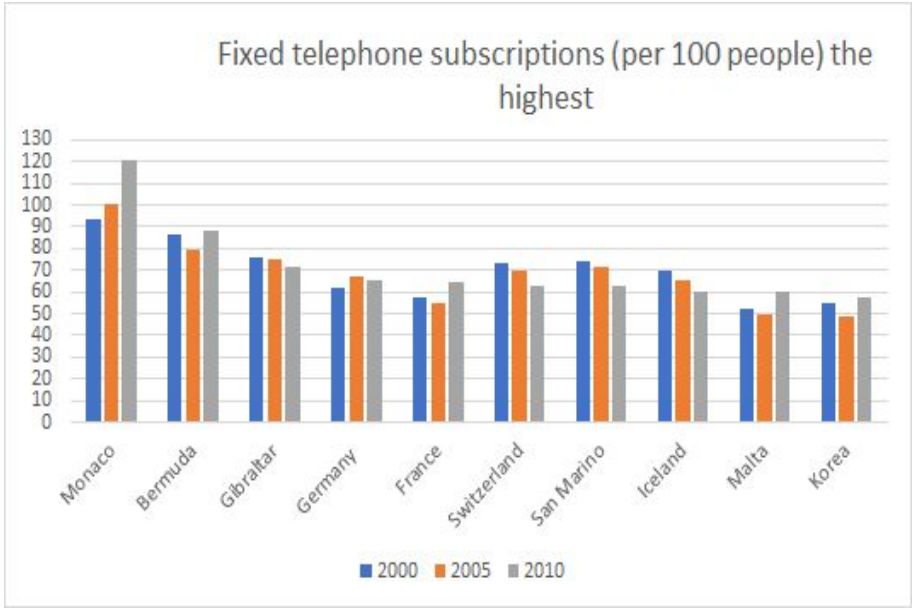
Infrastructure: Communications

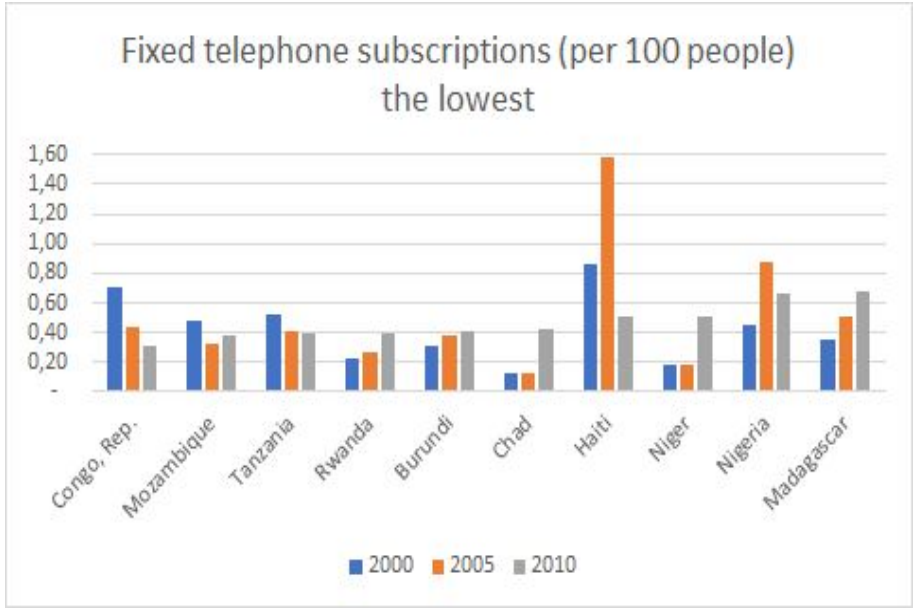
Analysis of indicators:

1. **Fixed telephone subscriptions (per 100 people)**
2. **Mobile cellular subscriptions (per 100 people)**
3. **Internet users (% of population)**

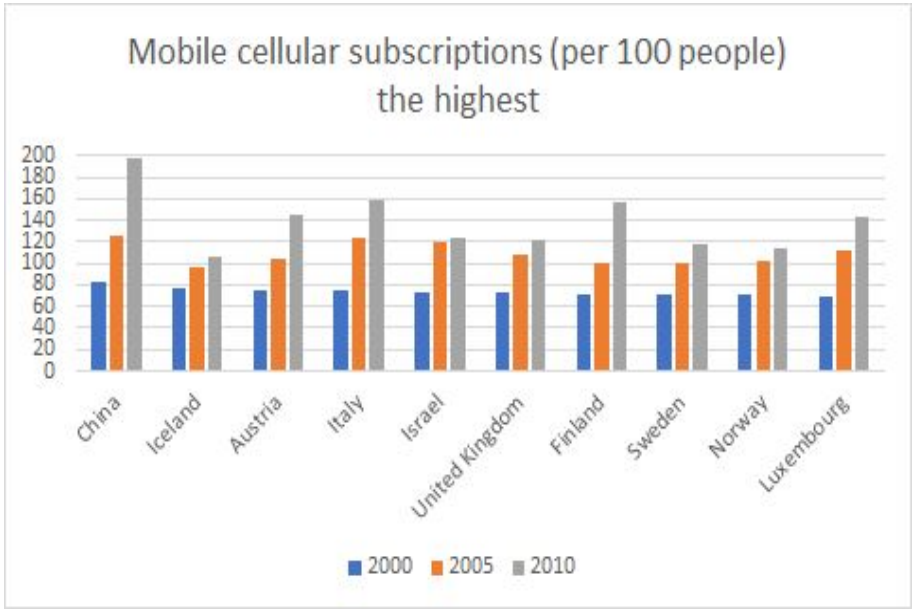


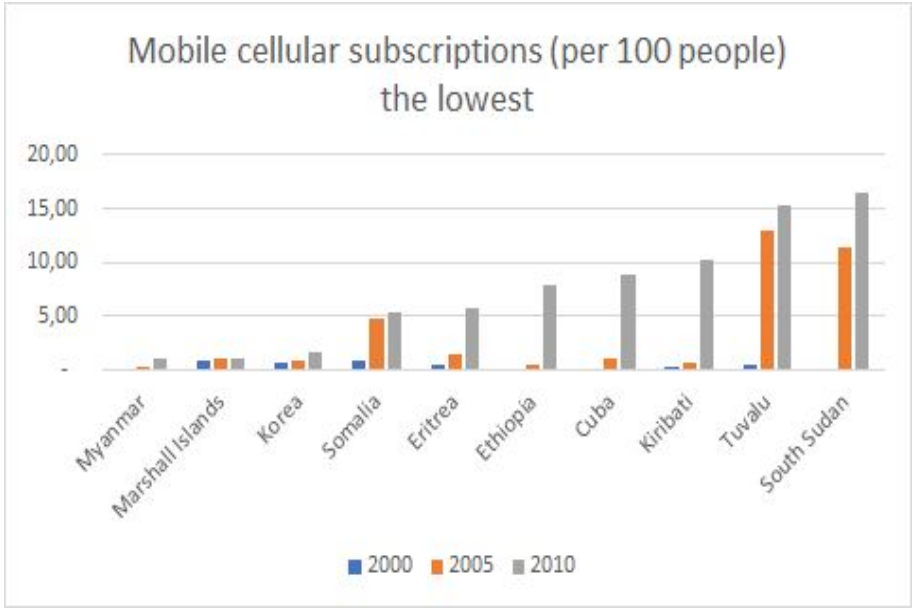
1. Fixed telephone subscriptions (per 100 people)



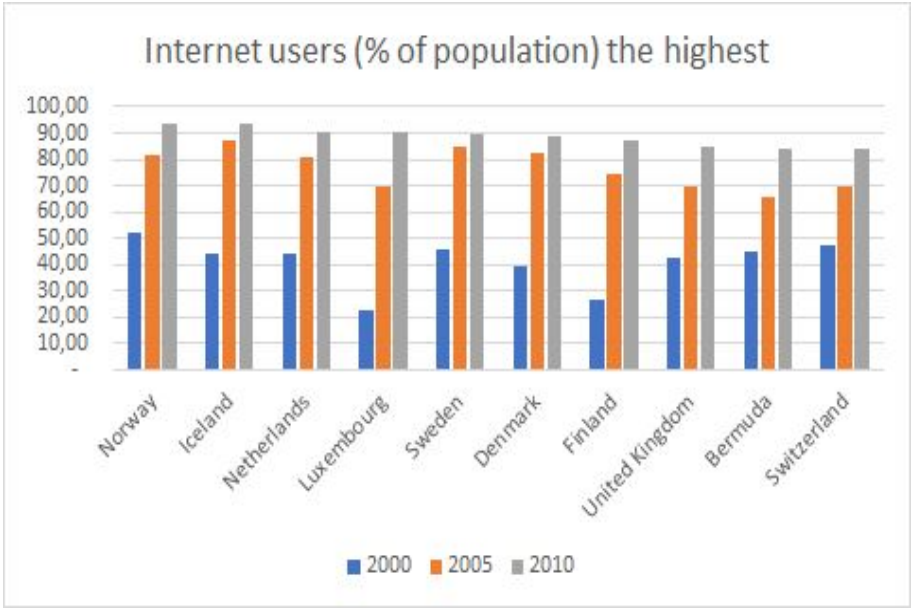


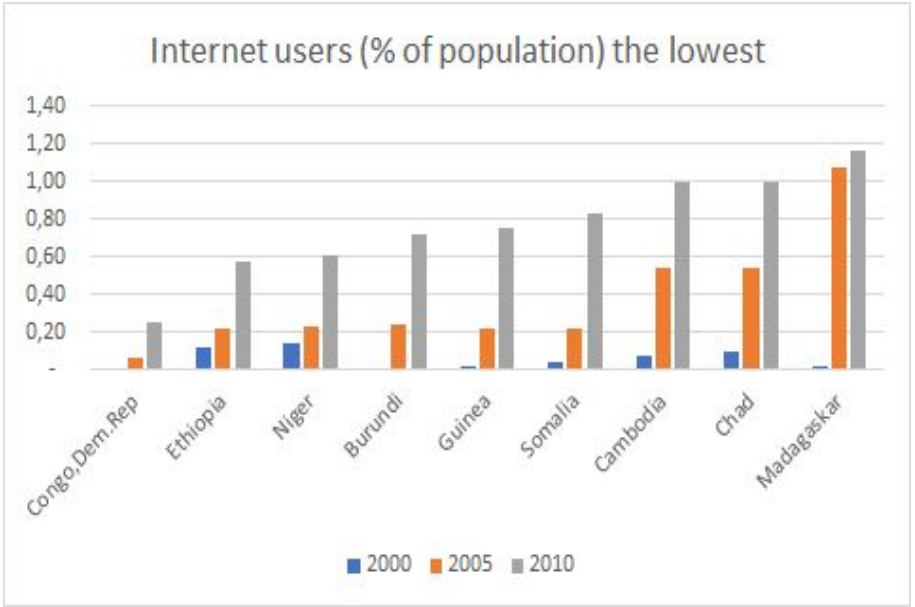
2. Mobile cellular subscriptions (per 100 people)





3. Internet users (% of population)

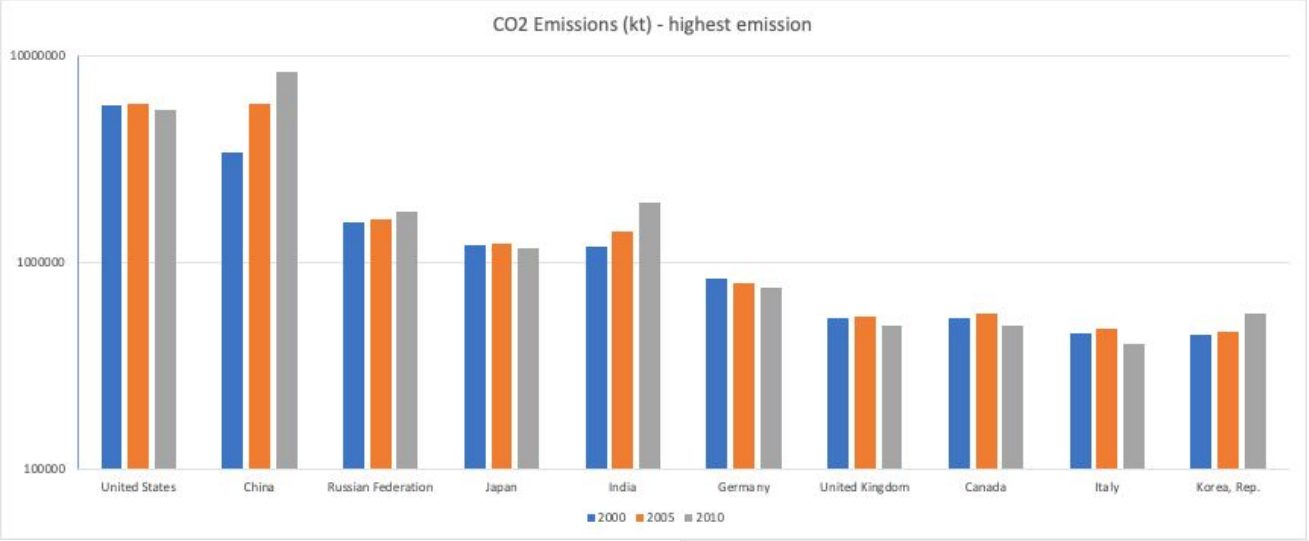




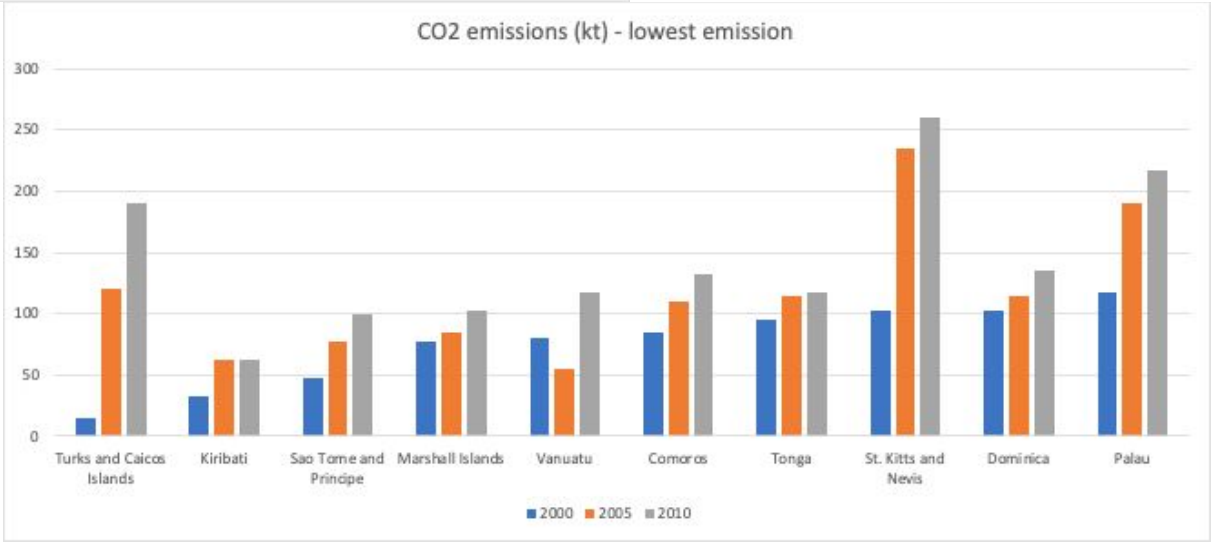
Environment: Emissions, Energy Consumption

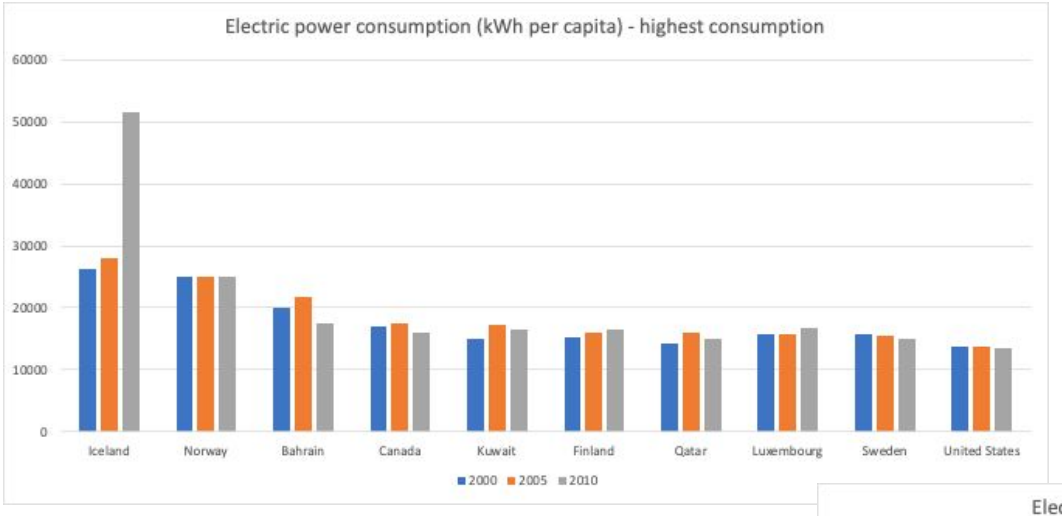
Analysis of indicators:

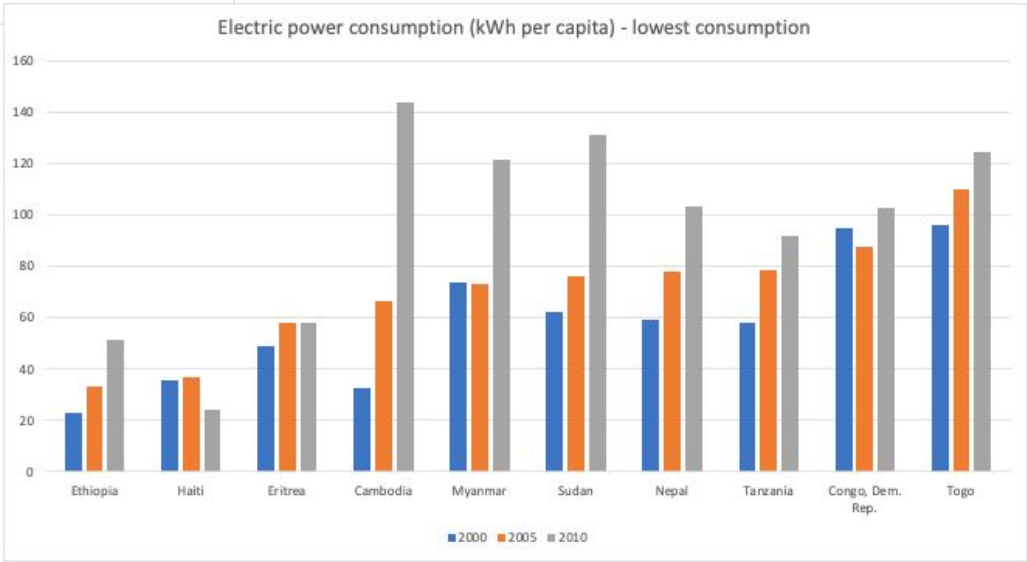
- CO2 emissions (metric tons per capita)
- CO2 emissions (kt)
- Electric power consumption (kWh per capita)
- Energy use (kg of oil equivalent per capita)
- Electricity production from renewable sources, excluding hydroelectric (% of total)



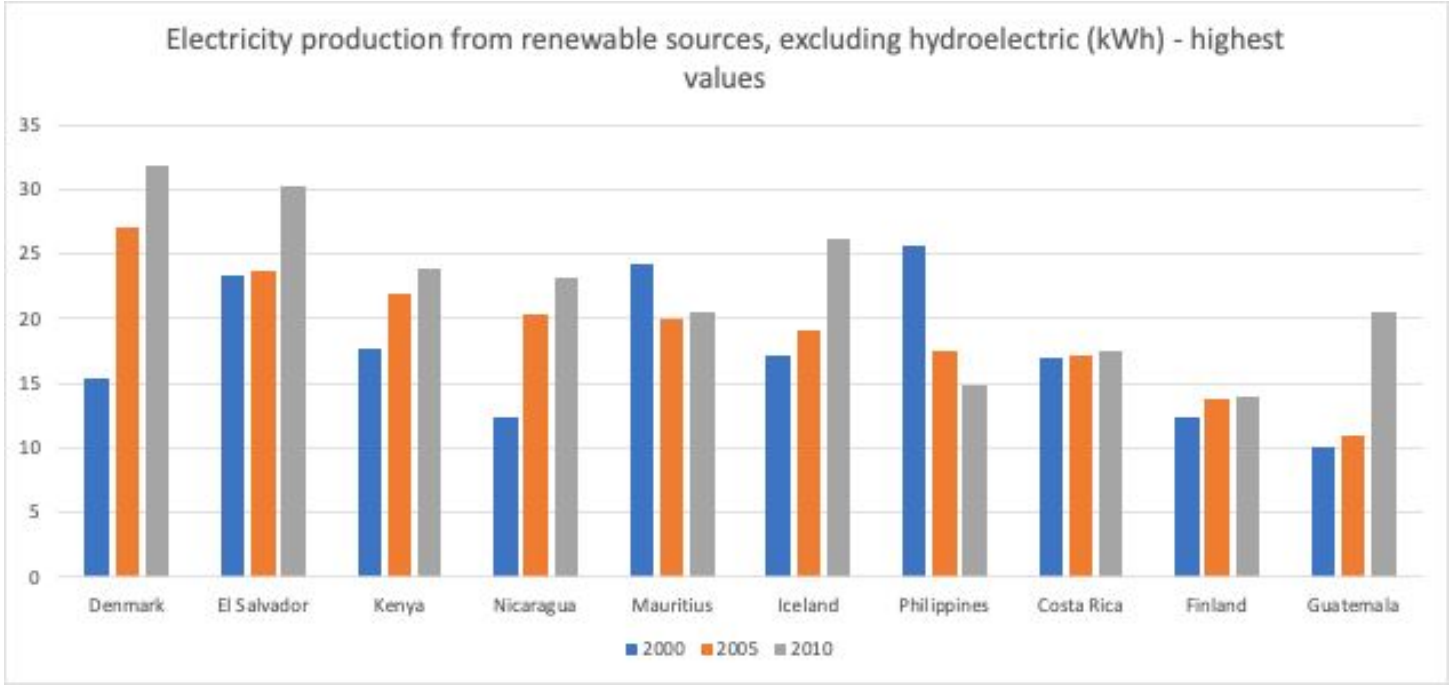
- Small islands are emitting the lowest amount of CO2.
- China and the USA are the “leaders” of CO2 emissions.
- Upward emissions trend is being observed in general.







- Highest power consumption for Scandinavic countries
- Lowest consumption mostly for African countries, but noticeable growth in 2010


Electricity production from renewable sources, excluding hydroelectric (kWh) - highest values
35
30
25
20
15
10
5
0
Denmark
El Salvador
Kenya
Nicaragua
Mauritius
Iceland
Philippines
Costa Rica
Finland
Guatemala
2000
2005
2010

Correlations with GDP per capita

CO2 emissions (kt)
0.5294617809679051

Electric power consumption (kWh per capita)
0.543625126852166

- GDP has a positive effect on both

- energy consumption and CO2 emissions.

General outcomes:

- Energy consumption has been increasing for most of the countries
- CO2 emission has been increasing for most of the countries
- Lower values has been observed for african countries and smaller islands
- Renewable energy production has been increasing for most of the countries

- Those observations are caused by general welfare growth

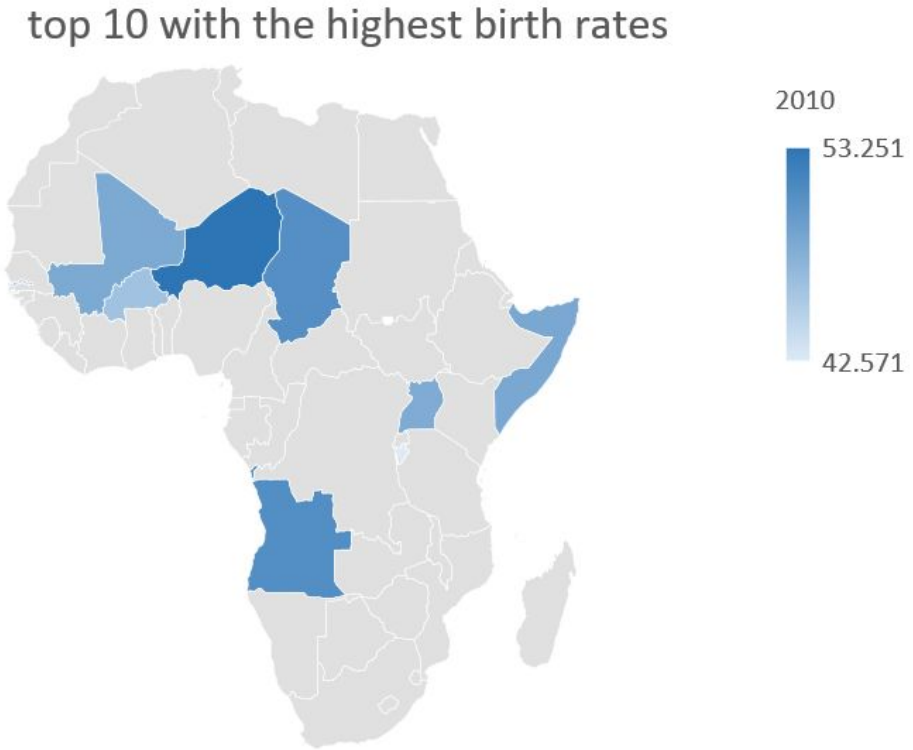
Health: Population: Dynamics, Mortality

Analysis of indicators:

- Birth rate, crude (per 1,000 people),
- Life expectancy at birth, total (years),
- Births attended by skilled health staff (% of total) versus Mortality rate, neonatal (per 1,000 live births)

Birth rate, crude (per 1,000 people)

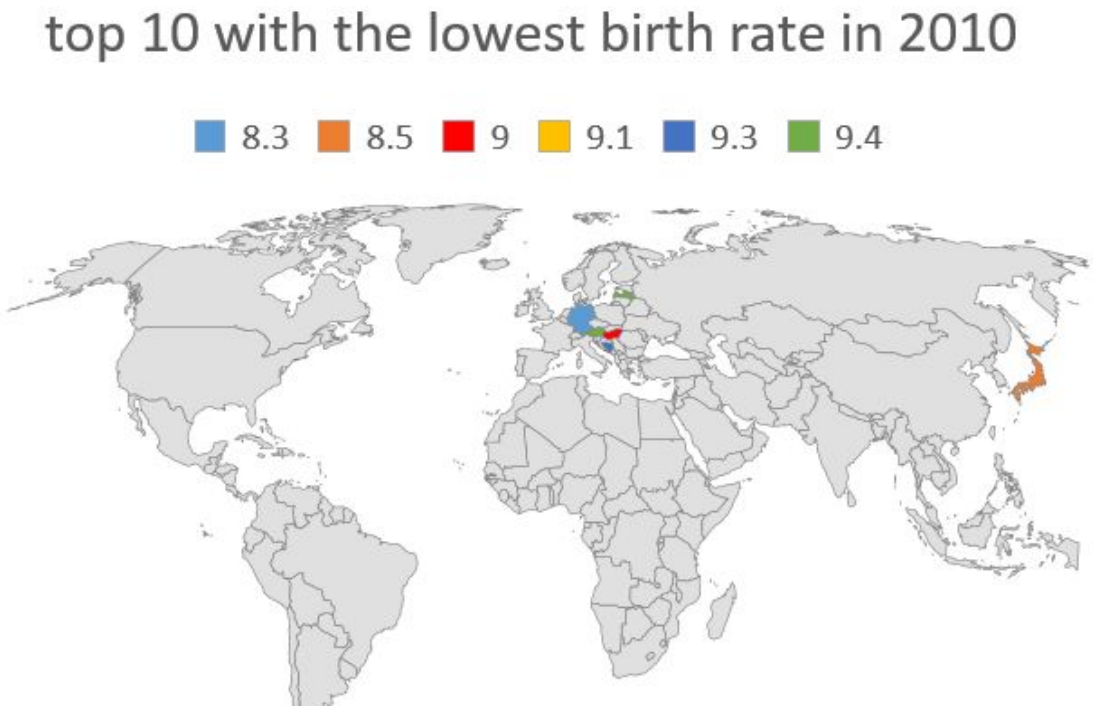
	2000	2005	2010
Niger	50.278	51.561	53.251
Angola	47.529	49.592	51.009
Chad	47.24	49.473	50.855
Mali	45.895	47.929	48.466
Somalia	45.028	46.771	48.668
Uganda	44.944	47.088	48.355
Burundi	44.53	43.3	42.571
Congo, Dem. Rep.	43.702	45.774	47.089
Gambia, The	43.325	44.208	45.269
Burkina Faso	42.261	44.794	46.256



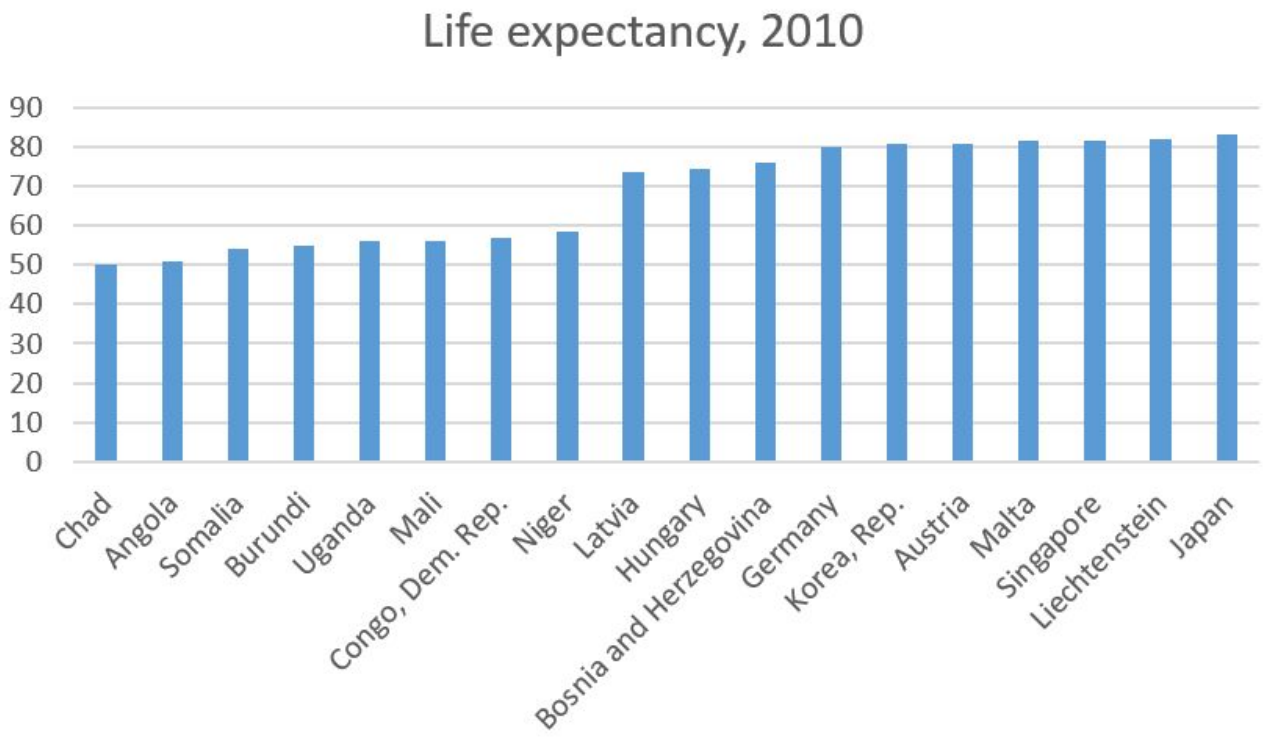
The results shows, the highest birth rate is in Africa. In almost all countries the trend is increasing (Burundi is an exception)

Birth rate, crude (per 1,000 people)

	2000	2005	2010
Germany	9.3	8.3	8.3
Japan	9.4	8.4	8.5
Hungary	9.6	9.7	9
Liechtenstein	12.9	11	9.1
Bosnia and Herzegovina	10.2	8.8	9.3
Singapore	11.8	10.2	9.3
Austria	9.8	9.5	9.4
Korea, Rep.	13.3	8.9	9.4
Latvia	8.6	9.8	9.4
Malta	11.5	9.6	9.4

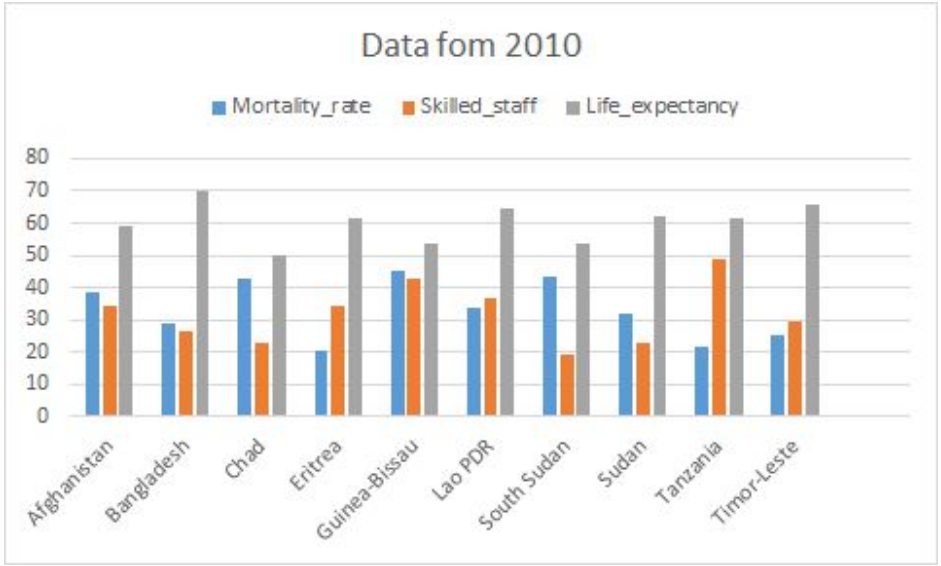


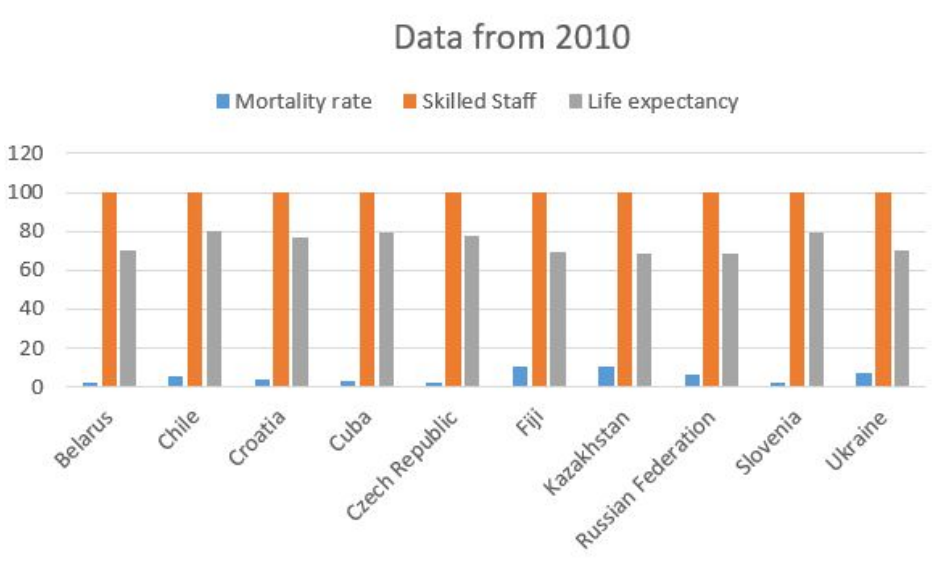
Republic of Korea and Liechtenstein recorded the highest decline. Most ageing countries are in Europe.



Result based on countries from previous slides. Countries with a low birth rate have a higher life expectancy.

10 countries with the lowest and the highest births attended by skilled health staff (% of total) rate, and their mortality rate, neonatal. (The first 28 days of life) and life expectancy.

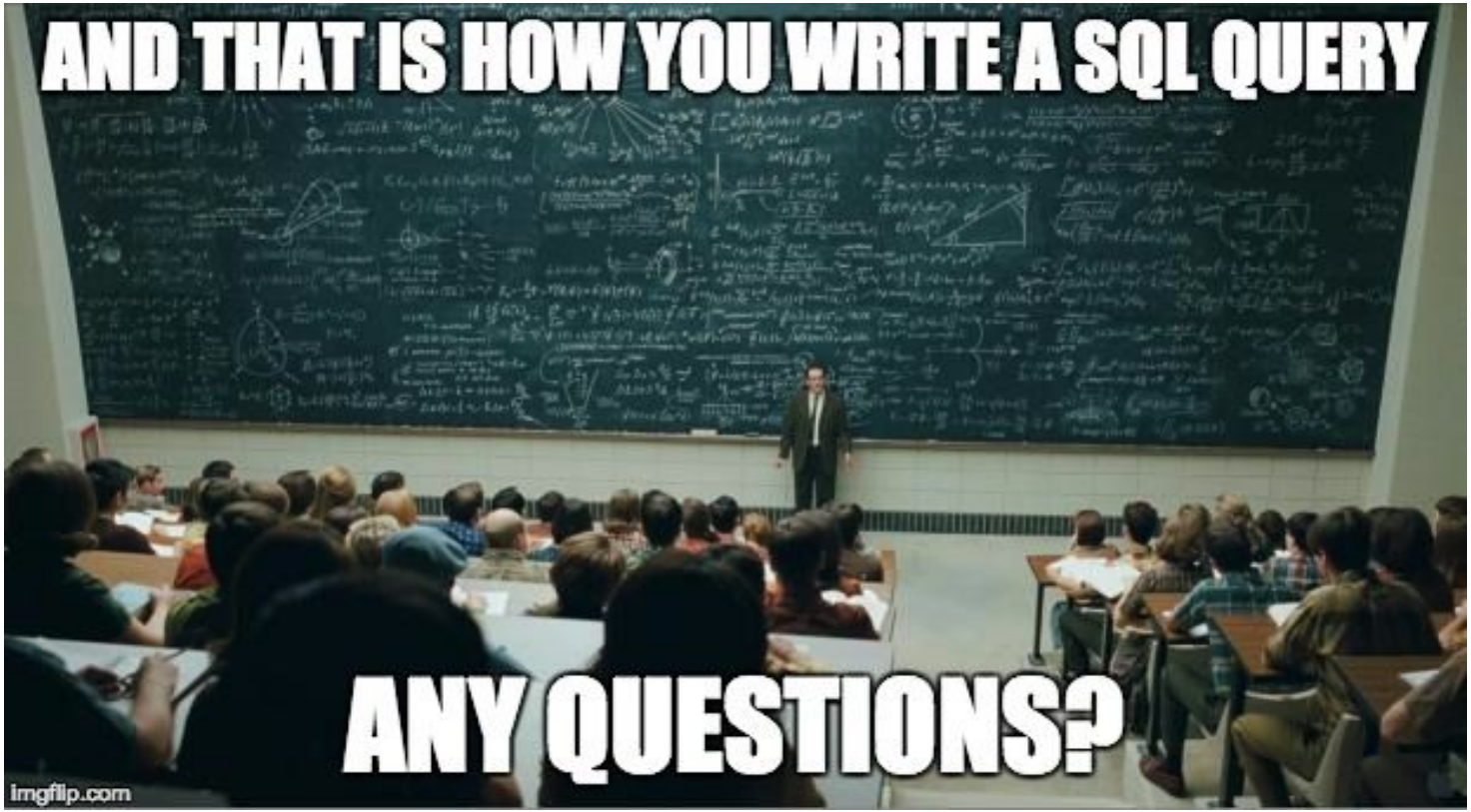




Lessons learned

1. LOADING DATA FROM CSV - does not work
2. LOADING DATA FROM SQLITE - works
3. MOVING DATA FROM SQLITE TO POSTGRES - works
4. IMPROVING DATA FORMATTING - difficult
5. KEYS IN THE TABLES DO NOT MATCH - it’s a trap!
6. DATA ARE INCOMPLETE and MIXED UP - countries / regions
7. LACK OF DATA IN YEARS - missing data

The End


AND THAT IS HOW YOU WRITE A SQL QUERY
ANY QUESTIONS?
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