Population Change in Europe

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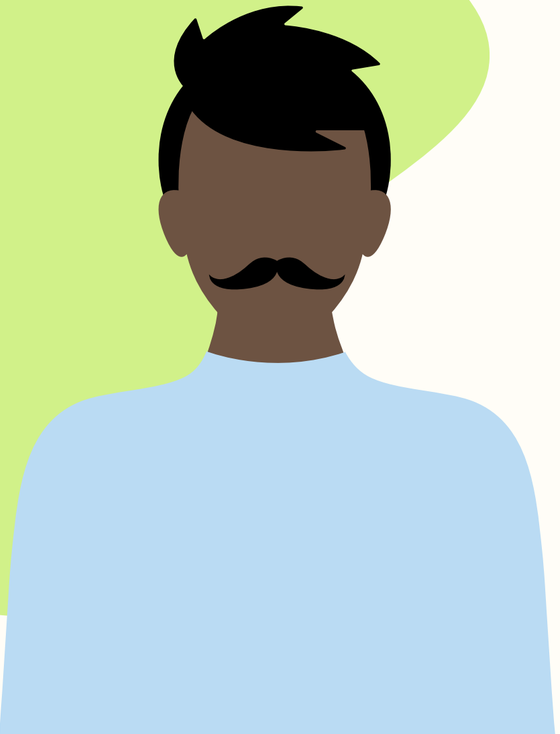
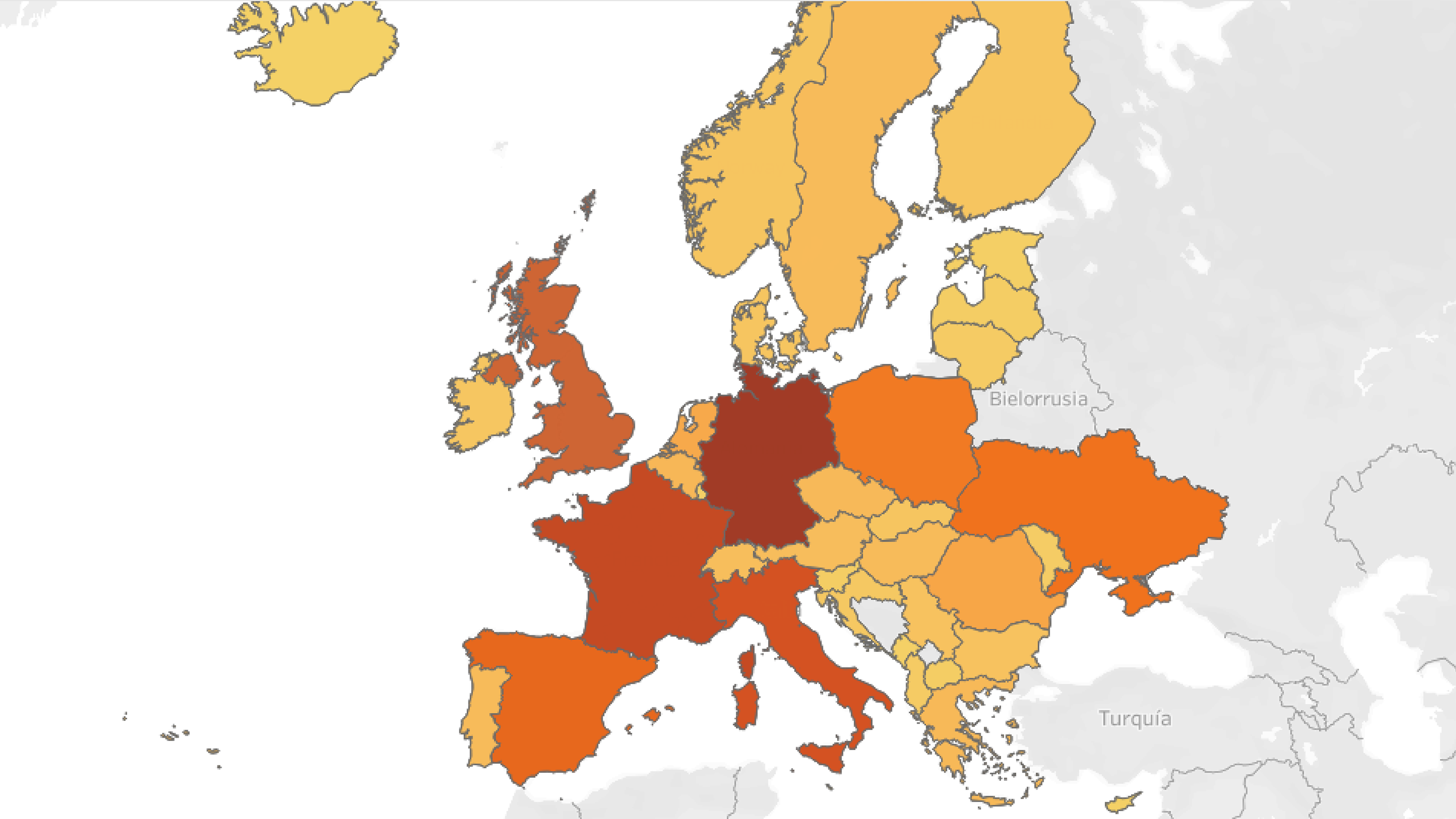
What are we going to see here?

- What are the most populated countries in Europe
- How the population has changed in the past 20 years?
- Why
- What is interfiring?/What is determinant?

Context: Population in Europe



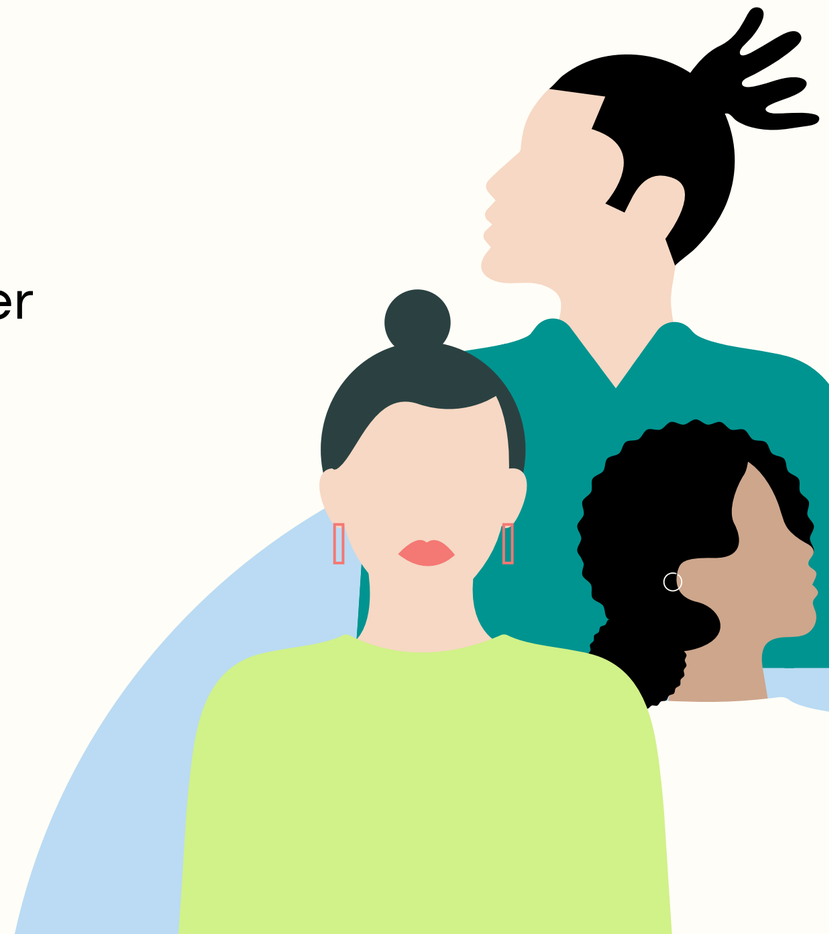

Bielorrusia
Turquía

Analysis

All the countries have **more population** now than 20 years ago?

Countries where the population has grown the most have a higher **birth rate?**

Countries where the population has grown the least or not gorwn at all have **death rates** higher than the rest?



Analysis

1

Is there a direct relation between **immigration/emmigration** and increase of the population)

More **GDP** more population increase?

What **SEX** has increased the most?

Data?

eurostat

	DATAFLOW	LAST UPDATE	freq	indic_de	geo	TIME_PERIOD	OBS_VALUE	OBS_FLAG
0	ESTAT:DEMO_GIND(1.0)	13/07/23 23:00:00	A	AVG	AL	2001	3060169.0	NaN
1	ESTAT:DEMO_GIND(1.0)	13/07/23 23:00:00	A	AVG	AL	2002	3051006.0	NaN
2	ESTAT:DEMO_GIND(1.0)	13/07/23 23:00:00	A	AVG	AL	2003	3039612.0	NaN
3	ESTAT:DEMO_GIND(1.0)	13/07/23 23:00:00	A	AVG	AL	2004	3026933.0	NaN
4	ESTAT:DEMO_GIND(1.0)	13/07/23 23:00:00	A	AVG	AL	2005	3011482.0	NaN
...	...	...	...	...	...	...	...	...
843	ESTAT:DEMO_GIND(1.0)	13/07/23 23:00:00	A	NATGROWRT	UK	2015	2.7	NaN
844	ESTAT:DEMO_GIND(1.0)	13/07/23 23:00:00	A	NATGROWRT	UK	2016	2.7	NaN
845	ESTAT:DEMO_GIND(1.0)	13/07/23 23:00:00	A	NATGROWRT	UK	2017	2.3	NaN
846	ESTAT:DEMO_GIND(1.0)	13/07/23 23:00:00	A	NATGROWRT	UK	2018	1.8	NaN
847	ESTAT:DEMO_GIND(1.0)	13/07/23 23:00:00	A	NATGROWRT	UK	2019	1.6	p

Graphics

Conclusions

Conclusions

All the countries have **more population** now than 20 years ago?

No

Countries where the population has grown the most have a higher **birth rate?**

No

Countries where the population has grown the least or not grown at all have **death rates** higher than the rest?

Yes

Conclusions

1

Is there a direct relation on **immigration/emmigration** and increase of the population)

Yes

More **GDP** more population increase?

Yes

What **sex** has increased the most?

Men

Code

```
df.rename(columns={'geo': 'COUNTRY', 'indic_de': 'INDEX',
                   'TIME_PERIOD': 'YEAR', 'OBS_VALUE': 'VALUE'},
                   inplace=True)
df=df.drop(["DATAFLOW","LAST UPDATE","OBS_FLAG","freq"],axis=1)
```

```
2  comb["AVG"].corr(comb["GDP"])
3  #Wow
✓ 0.0s
```

```
0.9414193201908115
```

```
comb = pd.merge(df_ordered, pib,
                on=['COUNTRY', 'YEAR'], how='left')
```

```
result = comb.groupby('COUNTRY')[['FAVG', 'MAVG']].agg(['first', 'last']).reset_index()
result['FEMALES'] = result['FAVG']['last'] - result['FAVG']['first']
result['MALES'] = result['MAVG']['last'] - result['MAVG']['first']
```

Questions?

Thank you!