UNCOVERING

THE RISE OF RIGHT WING POPULISM

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INDUSTRIAL TECHNOLOGIES AND ECONOMIC ANALYSIS
PROBABILITY AND STATISTICS

UPC

1. Introduction:

Over 70 years after the defeat of the Nazi Germany, right-wing nationalism still seems to be present in Europe. During the last years there has been an increase on the electoral turnout for populist parties all across European countries. As this can be a threat not only to democracy but to citizens, in this project we will try to come up with the reasons why these ideologies are still present in our communities.

So as to study this trends we have picked the following countries:

- **Austria:** It is known to be the European country with highest support to far-right party Freedom Party of Austria(FPÖ).

- **Italy:** Known to have been affected directly by the refugee crisis we want to study its correlation with the rising of the Lega, leaded by Mateo Salvini.

- **Germany:** Currently the country with more refugees of the European Union, always threatened by its past and with escalating turnouts for Alternative für Deutschland (AfD).

To explain the rise of these ideologies across Europe, we will study the following variables:

- Unemployment rates.
- Refugees hosted per year in the studied countries.
- Regional division of votes.
- Regional economic situation.

2. Objectives:

1. Use descriptive statistics to see the evolution of far-right parties across our studied countries (Italy, Austria and Germany). See the trends of the variables chosen during the last years and try to explain them.
2. Use statistical inference methods to check the correlation between each of our variables and the electoral turnouts.
3. Be able to explain the rise of populism across Europe.

For all these purposes we are going to be using RStudio as a programming tool to extract, evaluate and therefore be able to explain our data.

The data we are using is the following:

1. Variables data:
    - Economic situation in 2019 of German regions.
    - Refugees hosted by countries yearly.
    - Refugees hosted in Italy per region.
    - Yearly unemployment in European countries since 1998 until 2019.
2. Electoral data:
    - Italy:
        - Parliamentary elections turnout for far-right party since 1992 until 2018.
        - Parliamentary elections turnout for far-right party since 1992 until 2018 by regions.
    - Germany:
        - Parliamentary elections (Bundestag) turnout for AFD in 2013 and 2017.
        - State elections (Landtage) for the last elections.
        - Affection to AfD by East/West division.
    - Austria:
        - Parliamentary elections turnout for far-right party since 1956 until 2019.

3. **Descriptive Statistics:** Far-right parties support evolution and causes

As we want to observe the electoral turnout for these parties during the last years, we will first show them using the tail command in R.

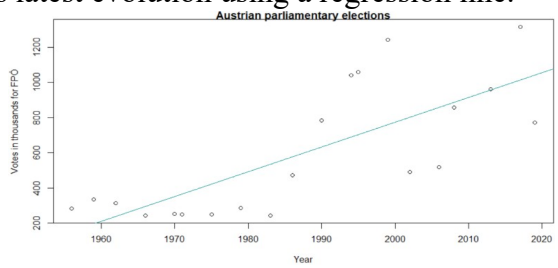
	year	votes	X.	X..of.seats	Government
15	2002	491328	10.00%	18 / 183	ÖVP-FPÖ majority
16	2006	519598	11.00%	21 / 183	in opposition
17	2008	857028	17.50%	34 / 183	in opposition
18	2013	962313	20.50%	40 / 183	in opposition
19	2017	1316442	26.00%	51 / 183	ÖVP-FPÖ majority
20	2019	772666	16.20%	31 / 183	in opposition

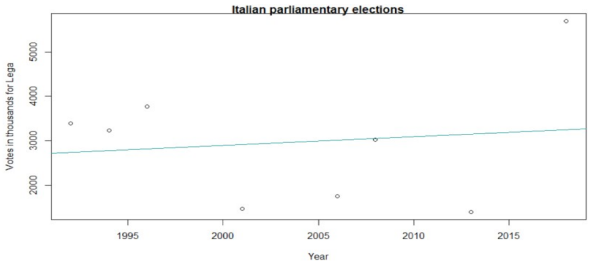
Figure 1: Austrian Parliament

	Election.year	Votes	X.	Seats	Leader
3	1996	3776354	10.8	59 / 630	Umberto Bossi
4	2001	1464301	3.9	30 / 630	Umberto Bossi
5	2006	1749632	4.6	28 / 630	Umberto Bossi
6	2008	3024758	8.3	60 / 630	Umberto Bossi
7	2013	1390156	4.1	20 / 630	Roberto Maroni
8	2018	5698687	17.4	124 / 630	Matteo Salvini

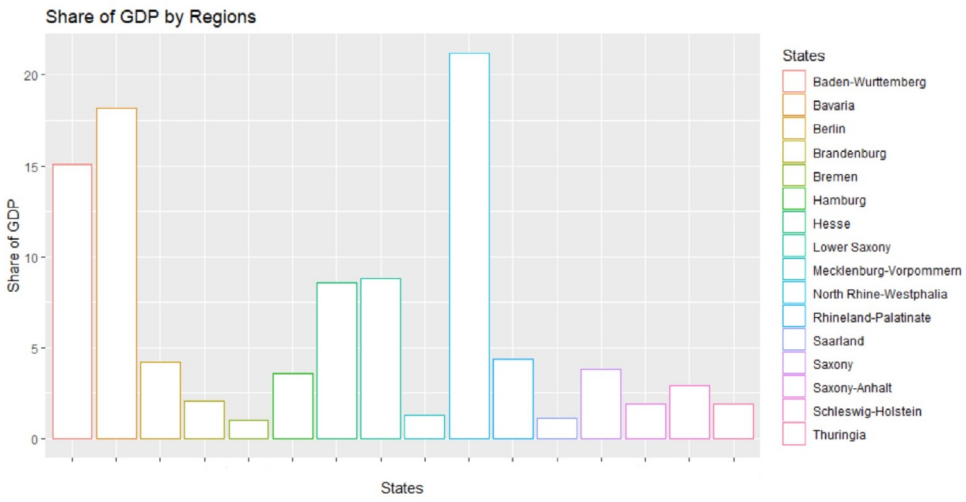
Figure 2: Italian Parliament

Note that we are not using the data for Germany yet because the AfD has only got representation in the last two years, therefore we will use it for other purposes later on.
We will now plot the datasets from Italy and Austria using all the data we possess and we will see its latest evolution using a regression line.

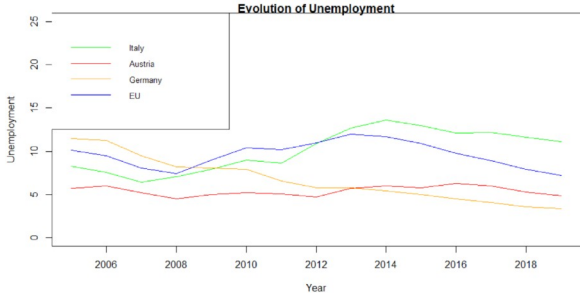


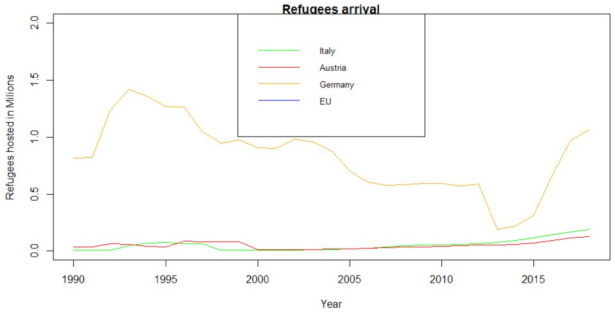


Although the regression line in the case of Italy is not very steep, we can observe that the last data collected is very high compared to the oldest.
In order to understand better Germany's data we must first check the difference of economy and votes across regions. We will be using the following barplot with the "ggplot" command:



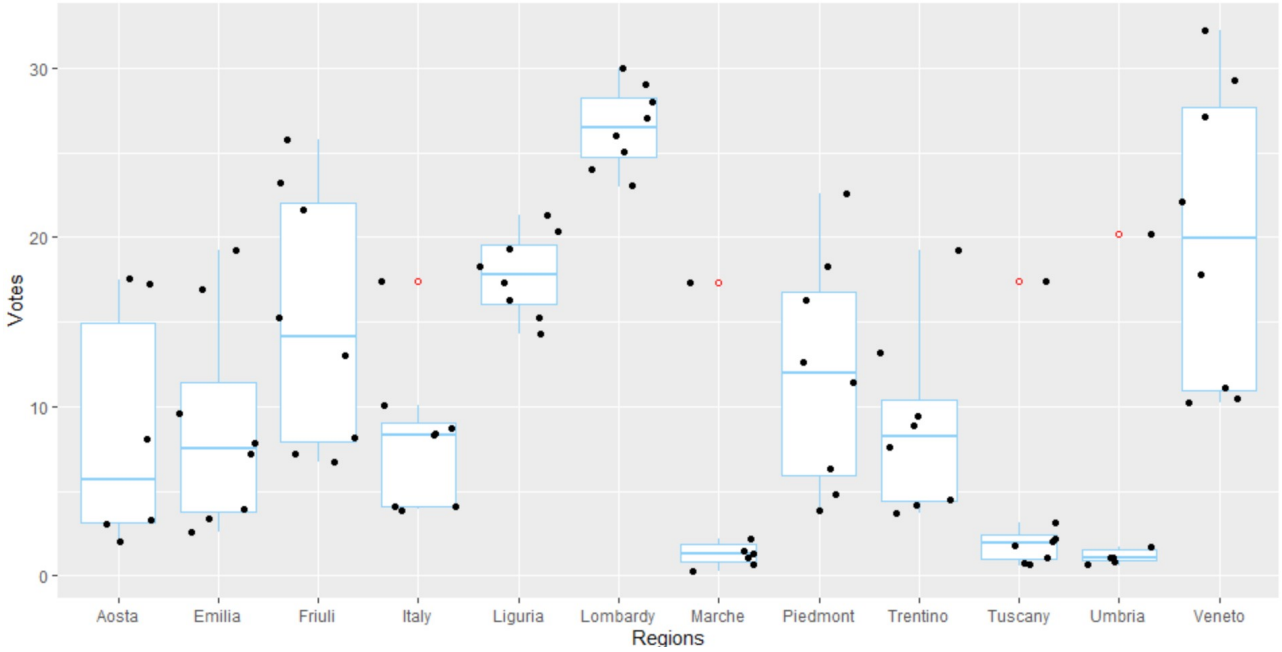
Now that we might have a notion that the economy could affect people's vote towards extreme-right, which will be computed in the second section, we must get a notion of the other variables and their possible effects. Therefore we check the evolution of unemployment and refugees across the three countries. We will be using scatterplots, with the commands: "plot" and "lines".





Having observed the two scatterplots we can conclude that unemployment has varied differently for every studied country although, on the whole, a similar overall trend has taken place.
On the other hand, when it comes to the arrival of refugees to the host countries, we can observe that Germany has hosted many more refugees than the other two countries. We will be using this data and relate it with the votes in the statistical inference part of the project.

To finish this section we are going to produce some boxplots representing the votes towards far-right parties by regions, in the case of Italy. The data represents the votes across regions from italian elections from 1992 until 2018.



From the boxplot we can see which are the regions with more sympathy towards the far-right Italian party, Lega. The outliers are marked in red. We will use this in the second part to check the relationship between regional votes and current refugees hosted.

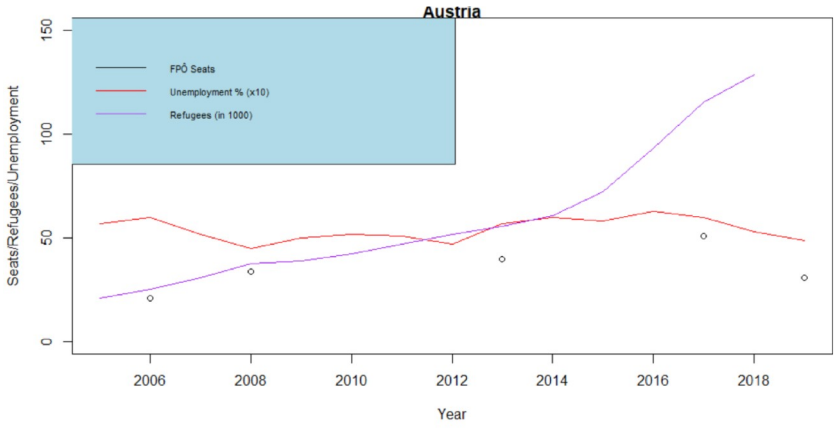
Now that we have proved that there is an increasing trend towards votes to far-right parties across the three studied countries and we have observed the variables, we can proceed to the computations.

4. Statistical Inference

The second part of the project consists of checking the relationship between the variables presented before and therefore try to reach a conclusion of correlation.

First of all we will check the correlation between unemployment and voting a far-right party in Austria and Italy.

Austria:
By looking at the graph we might think that there can be a correlation between the seats obtained by the FPÖ and the unemployment rates or the refugees hosted.
We now compute the correlation tests using "cor.test()" and we obtain the following:



```
> cor.test(auscor$Seats, auscor$Unemployment)

        Pearson's product-moment correlation

data:  auscor$Seats and auscor$Unemployment
t = 0.32274, df = 3, p-value = 0.7681
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 -0.8338479  0.9172122
sample estimates:
      cor
0.1831786
```

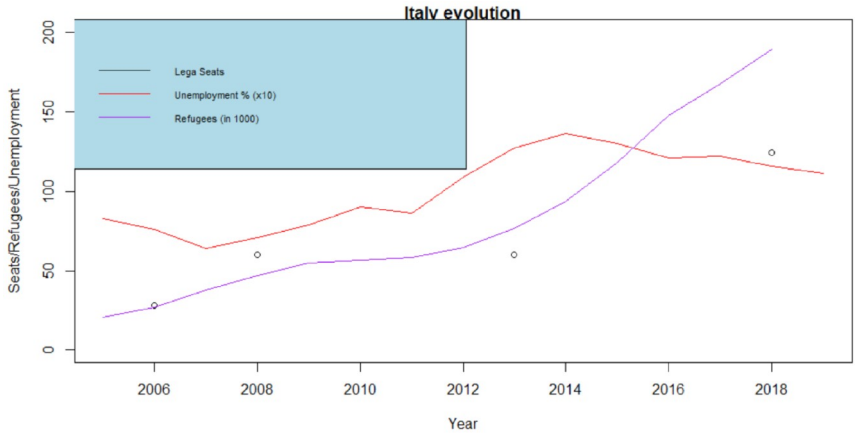
```
> cor.test(auscor$Seats, auscor$Refugees)

        Pearson's product-moment correlation

data:  auscor$Seats and auscor$Refugees
t = 3.3621, df = 2, p-value = 0.07823
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 -0.3445667  0.9983859
sample estimates:
      cor
0.9217737
```

From the obtained data we can extract that we can't be sure whether unemployment affects the voter's opinion towards the right wing party as the 95% confidence interval is very big notwithstanding the fact that the estimated correlation is 0.81, which is very low. In the case of refugees, on the other hand, we can be a bit more sure that as more refugees are hosted, people's inclination towards the FPÖ grows as the correlation coefficient is 0.92, nonetheless, the confidence interval is very big as well and contains negative numbers, which explains we can't reach any safe conclusion.

Italy:

As in the case of Austria, by looking at the evolution graph, we could sense that there is a correlation between refugees arriving the country or unemployment and the votes for Lega.

We will now compute the same relationship but in the case of Italy, obtaining the following:

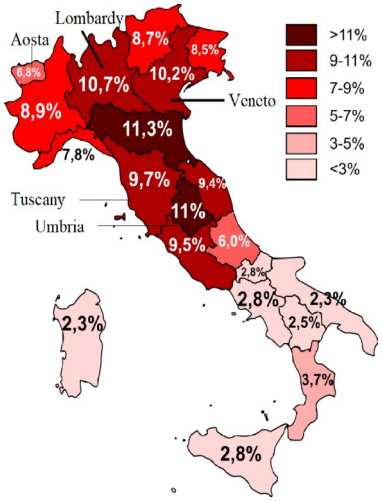


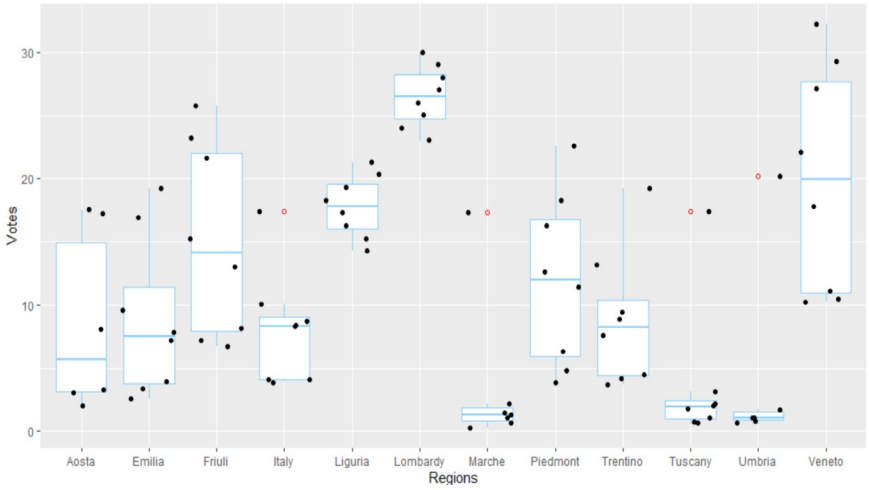

```
> cor.test(itacor$Seats, itacor$Unemp)

        Pearson's product-moment correlation

data:  itacor$Seats and itacor$Unemp
t = 0.93266, df = 2, p-value = 0.4495
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 -0.8718638  0.9885624
sample estimates:
      cor
0.5505471
```

```
> cor.test(itacor$Seats, itacor$Refugees)

        Pearson's product-moment correlation

data:  itacor$Seats and itacor$Refugees
t = 6.1953, df = 2, p-value = 0.02508
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 0.2195512 0.9994962
sample estimates:
      cor
0.9749221
```

From the obtained data, we can observe we can't be sure to claim that unemployment has affected the votes towards Lega, as the correlation coefficient is very wide, almost including all numbers in the interval. On the other hand we can be sure that refugees waves had an impact on Italian's votes, as there is a very strong correlation of 0.974 and only includes positive numbers in the 95% CI.

So as to get a deeper knowledge on the effect that refugees have on Italian voter's inclination to voting Lega, we have looked for the percentage of refugees living in every region to compare it with the votes on that same region. We will extract a quick notion on whereas this effect is plausible. For this we will use the previously extracted boxplot. Note that we will only focus our study on the northern regions as these are the ones that support Lega the most.





By comparting both graphs we can check that there is a correlation. Let us compare the case of Veneto and Lombardy, for instance, we can observe that both share more than 10% of refugees hosted in their regions and their inclination towards Lega is the highest from the barplot. For the case of Tuscany and Umbria, note that they both share a large percentage of refugees but they look lower in the boxplot, this is because we have to look at the outliers, which represent the last elections results.
On the other hand if we look at regions such as Aosta, which hosts only a 6.8% of refugees, the votes towards Lega seems to be low, in comparison to others, and having no outliers.
This simple check can make our hypothesis more certain as we have taken a deeper look at regional insights.

Now that we have checked the first two variables, we will compute a hypothesis on whether the economic status affects the far-right party electoral turnout using the regional data for Germany.
Having read about the topic, we may be aware that today's populism attracts both sectors, rich and poor. Therefore our hypothesis test will consist of the following.

$$H_0 : \beta 1 = 0$$

The null hypothesis, meaning there is no correlation, as the slope is 0.

$$H_1 : \beta 1 \neq 0$$

The alternative hypothesis meaning there is any type of correlation as the slope is different from 0.

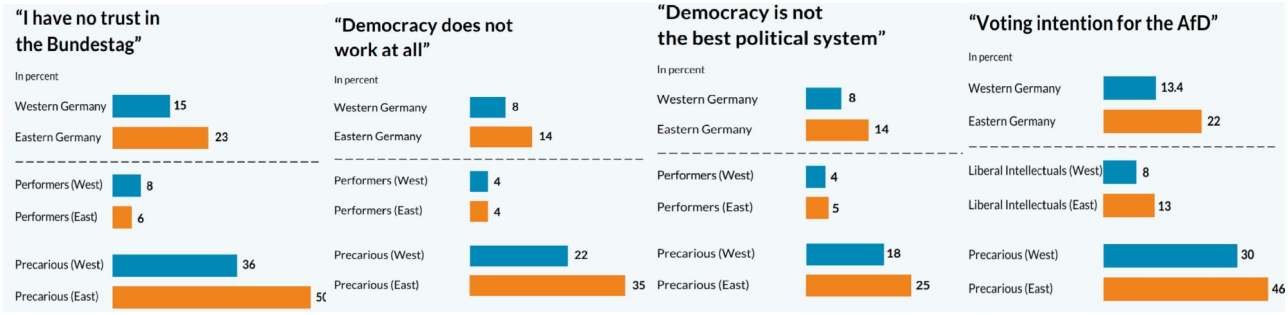
```
> cor.test(gercor$Share, gercor$Votes)

        Pearson's product-moment correlation

data:  gercor$Share and gercor$Votes
t = -1.1208, df = 14, p-value = 0.2813
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 -0.6851850  0.2433856
sample estimates:
       cor
-0.2869381
```

Having computed the hypothesis test, we have obtained a p-value of 0,28 and a negative correlation of -0,286. We must now observe the confidence interval, as 0 belongs in the interval, we can be sure not to neglect out null hypothesis.

The p-value has also been computed by its formula, reaching the same value, it can be found in the R code appendix.

Moreover, we can extract that there might be a higher inclination towards voting AfD by poorer population as we found a negative correlation. Nevertheless, positive numbers also belong to the interval, so we can not be sure about that statement. This confirms our null hypothesis, meaning that there is an effect on both economic sectors and Alternative für Deutschland manages to attract both, the richer and the poorer.

To better understand Germany's particular case, we should divide the electoral results across East and West instead of the economic position. These are the results:



From this data we can observe a big difference on the East and West vision of the AfD and their voters. We could reffer to AfD as a Lega East in the case of Germany. So as to explain this differences we must reffer to historical facts, as the division of Germany still has an impact on its citizens mindsets and economic situation. Whereas the eastern population tend to have a more modern and progressive vision, related to the allies form of government, Eastern patterns show exactly the opposite, a more skeptical vision of democracy and modernization. This can lead us to the conclusion that there may be many variables affecting each particular case of study.

5. Final conclusions and limitations

The statistical tools used above have been of great use to determine which are the factors that lead to far-right parties rises and to understand their relationship.

Descriptive statistics have been very useful in order to classify, understand, and therefore explain data. By means of scatterplots we have been able to see the evolution of the trends towards far-right parties and also the evolution of unemployment and the refugees hosted in every country. With boxplots we have been able to classify the regional data on sympathy towards the Lega in Italy across regions, and later on compare it with the number of refugees in those regions. Barplots have also been very helpful in order to better understand the share of GDP across German regions.

We can extract some conclusions on our results.
On the one hand we can not reach a sure conclusion in the case of Austria due to the large confidence intervals of the correlation data obtained.
On the other hand, in the case of Italy, we have been able to prove that the arrival of refugees to the country has had an effect on people towards voting Lega. We have also been able to compare these results across the northern regions of the country and their particular insights.
The case of study of Germany has been satisfactory as we have proved that there is an affection towards the AfD from both the rich and the poor. From this study we have also learnt that many variables may take place across the country, for instance, the cultural difference between the East and the West.
This can lead us to the fair conclusion that the increase of far-right populism in Europe is not only due to one circumstance itself, but perhaps to the combination of many factors, two of them being unemployment and the arrival of refugees.

Nonetheless, the analysis is not perfectly accurate and has some limitations. It could be largely improved by adding more observations to the data (maybe using data from other countries or other factors). We can conclude that hypothesis tests are not definitive to ensure whether there is a correlation or not but it is still good enough to compute an approximation. For further analysis extension we could have studied the evolution of Vox during the Catalan independence process.

6. References

Inspiration:

- https://www.bbc.com/news/world-europe-36130006

Italy:

Lega results:

- https://en.wikipedia.org/wiki/Lega_Nord

Immigrants per region:

- https://en.wikipedia.org/wiki/Immigration_to_Italy#/media/File:Italy,_foreign_residents_as_a_percentage_of_the_total_population,_2011.svg

Austria:

FPÖ results:

- https://en.wikipedia.org/wiki/Freedom_Party_of_Austria

Germany:

AFD results:

- https://en.wikipedia.org/wiki/Alternative_for_Germany

Income by regions:

- https://en.wikipedia.org/wiki/List_of_German_states_by_GRP

Inspiration:

- https://www.bruegel.org/2017/10/what-has-driven-the-votes-for-germanys-right-wing-alternative-fur-deutschland/

East & West division:

- https://www.bertelsmann-stiftung.de/fileadmin/files/BSt/Publikationen/GrauePublikationen/ZD_Einwurf_3_2019_EN.pdf

7. Appendix:

You can find our datasets and R code here:
R code and datasets