

Civica

2023-12-05

In this notebook the data will be divided in clusters.

```
library(readr)
```

```
## Warning: package 'readr' was built under R version 4.0.5
```

```
Civica <- read_csv("Civica.csv")
```

```
## New names:
## Rows: 339 Columns: 13
## -- Column specification
## ----- Delimiter: "," chr
## (4): countryname, edate, partyname, partyabbrev dbl (9): ...1, date, pervote,
## openness, reg_vs_free, horizon, lib_vs_id, ril...
## i Use 'spec()' to retrieve the full column specification for this data. i
## Specify the column types or set 'show_col_types = FALSE' to quiet this message.
## * ' -> '...1'
```

```
library(class)
Civica = Civica[!is.na(Civica$openness),]
n = nrow(Civica)

#Civica$openness = scale(Civica$openness)
#Civica$reg_vs_free = scale(Civica$reg_vs_free)
#Civica$horizon = scale(Civica$horizon)
#Civica$lib_vs_id = scale(Civica$lib_vs_id)
```

The concept of “Openness” serves as a dynamic variable that encapsulates the spectrum between two opposing elements within a political party’s orientation. The first facet gauges the extent to which a party embraces a welcoming stance toward foreigners, assessed by aggregating the shares of quasi-sentences across categories pertinent to this dimension. In contrast, the second facet measures the proclivity for closure within a party, utilizing a similar methodology.

Moving on to “Reg_vs_free,” this variable is crafted through a comparable methodology. A higher value on this scale signifies a party’s inclination toward advocating for a regulated market economy, indicating a preference for economic oversight. Conversely, a lower value implies a party’s proclivity for fostering a free-market environment, characterized by reduced government intervention.

The third variable, “Horizon,” functions as an indicator of a party’s temporal perspective as articulated in its manifesto. It discerns whether a party is inclined towards long-term strategic planning or, conversely, if it tends to be more reactive, responding to short-term shocks and exigencies.

Lastly, “Lib_vs_id” encapsulates the ideological orientation of a party, measuring the extent to which it aligns with liberal ideas as opposed to more national or traditional ideologies. A higher value on this variable

denotes a party's proclivity toward liberalism, while a lower value signifies a stronger adherence to national or traditional principles.

```
kmeans_model = kmeans(Civica[,8:11],centers = 6)
kmeans_model

## K-means clustering with 6 clusters of sizes 65, 78, 52, 59, 51, 31
##
## Cluster means:
##   openness reg_vs_free  horizon  lib_vs_id
## 1  1.724185   12.771723 34.956338   3.998446
## 2 -2.801154   13.233808 19.845244  -1.935910
## 3  4.417077   17.184327 23.634269  17.783365
## 4  3.635949    2.386373 21.125373   3.391136
## 5  2.079216   24.829902 17.781471   6.485667
## 6 -4.391935    8.146452  5.013935 -16.356419
##
## Clustering vector:
##   [1] 1 3 3 4 3 2 4 3 2 4 5 2 2 4 4 3 5 6 6 3 3 1 3 5 2 6 1 1 3 1 2 2 1 3 1 1 1
##  [38] 2 3 3 1 4 2 1 4 3 3 3 4 3 4 2 3 3 4 4 4 6 1 5 5 1 2 2 6 3 5 3 1 2 2 6 2 5
##  [75] 5 4 2 2 5 5 5 4 2 2 3 4 4 2 2 3 4 5 3 2 2 1 1 5 1 1 5 5 1 1 5 3 2 2 6 5 3
## [112] 5 2 6 5 5 1 2 4 6 6 1 1 4 4 6 6 6 5 1 2 6 5 1 1 4 5 5 5 4 1 5 5 1 3 5 1 1
## [149] 3 3 3 4 3 3 3 4 2 6 3 3 4 4 6 3 3 6 4 2 3 2 4 4 1 3 2 4 2 5 3 2 2 5 3 2 3
## [186] 3 2 5 5 5 5 5 5 2 2 4 4 5 1 2 1 4 6 5 2 4 6 2 1 4 1 2 6 1 2 1 5 2 1 4 5 1
## [223] 4 4 2 1 6 5 5 4 2 1 2 1 2 2 2 5 1 2 2 6 1 1 1 2 6 1 5 6 2 1 5 3 6 2 2 2 1
## [260] 3 2 6 3 2 4 1 5 6 6 4 2 4 2 4 2 2 5 4 2 4 2 2 1 1 1 1 1 5 3 1 2 4 2 2 3 2
## [297] 2 6 2 4 4 3 1 5 6 4 1 4 3 5 4 4 4 4 3 1 4 2 2 2 6 2 3 5 1 4 1 4 2 3 1 4 1
## [334] 1 1 4
##
## Within cluster sum of squares by cluster:
## [1] 5365.629 6583.671 5935.253 7909.135 7193.782 8167.278
## (between_SS / total_SS =  61.4 %)
##
## Available components:
##
## [1] "cluster"      "centers"      "totss"        "withinss"     "tot.withinss"
## [6] "betweenss"    "size"         "iter"         "ifault"
```

```
Civica$cluster = kmeans_model$cluster
```

The parties have been divided in 6 groups:

1. CLUSTER 1: Parties in this cluster advocate for a regulated market with a focus on short-term openness and liberalism. They maintain a clear stance on market regulations while expressing a degree of openness.
2. CLUSTER 2: This cluster comprises parties that lean towards traditional values and are less open to foreigners. Their perspectives are rooted in tradition, and their approach is characterized by a short-term horizon.
3. CLUSTER 3: Moderate parties populate this cluster, emphasizing a regulated market. They adopt a forward-looking approach, considering long-term goals while maintaining a balanced and moderate stance.

4. CLUSTER 4: Parties in this cluster adhere to traditional values and a regulated market. They are somewhat closed to foreigners but exhibit a broad and expansive horizon, reflecting a willingness to consider a range of perspectives over the long term.
5. CLUSTER 5: Within this cluster, parties are the most liberal and open to foreigners. They possess a high level of foresight, advocating for a regulated market while maintaining a liberal and inclusive approach.
6. CLUSTER 6: Parties in this cluster take a long-term perspective and are notably open to foreigners. They strike a balanced position between liberalism and traditionalism, with a strong inclination towards a free market. Their orientation is towards a comprehensive and enduring approach to governance.

```
logi = lm(pervote ~ openness + horizon + lib_vs_id, data = Civica)
summary(logi)

##
## Call:
## lm(formula = pervote ~ openness + horizon + lib_vs_id, data = Civica)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -14.801  -7.626  -3.541   6.135  42.623
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept) 13.41421    1.36930   9.796 < 2e-16 ***
## openness     0.21637    0.10420   2.077  0.03861 *
## horizon      0.13378    0.05951   2.248  0.02522 *
## lib_vs_id    -0.19825    0.05983  -3.314  0.00102 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 10.14 on 332 degrees of freedom
## Multiple R-squared:  0.04177,    Adjusted R-squared:  0.03311
## F-statistic: 4.824 on 3 and 332 DF,  p-value: 0.002661
```

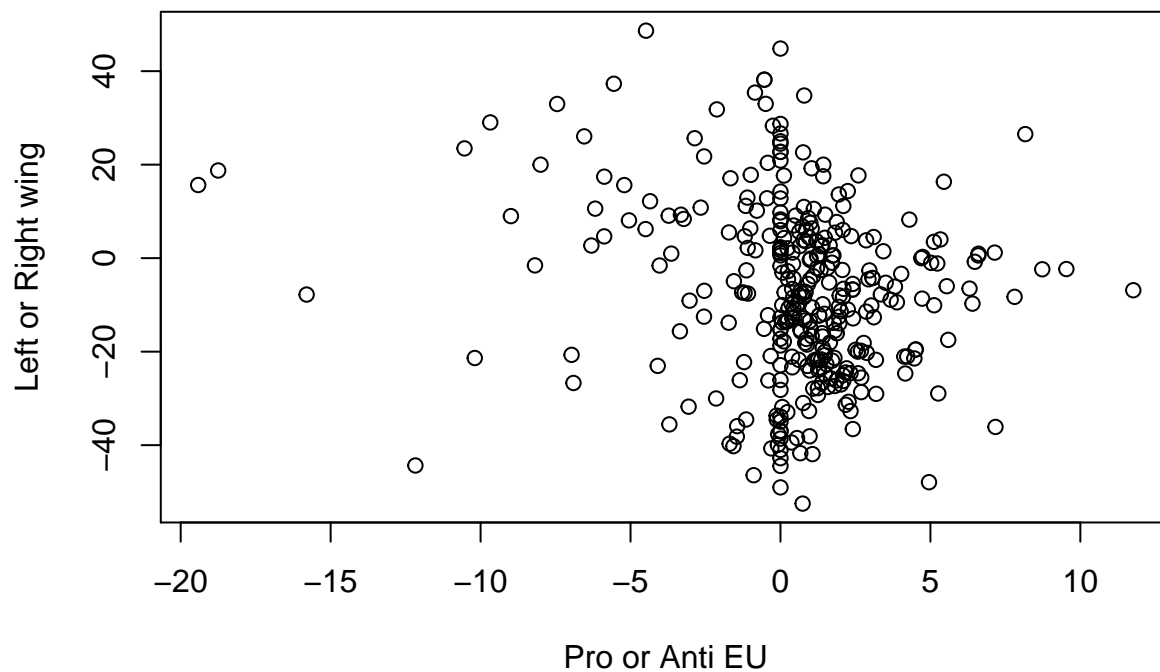
Balancing a broad perspective with a tilt towards tradition and openness to foreigners appears to be a strategic path for a party to enhance its popularity.

TEST

The “Pro EU” variable increases proportionally with a country’s higher inclination towards supporting the European Union.

The “Rile” variable measures the degree of a party’s left-wing or right-wing orientation, with higher values indicating a more right-wing position.

```
plot(Civica$pro_eu, Civica$rile, xlab = 'Pro or Anti EU', ylab = 'Left or Right wing')
```



```
cor(Civica$pro_eu,Civica$rile)
```

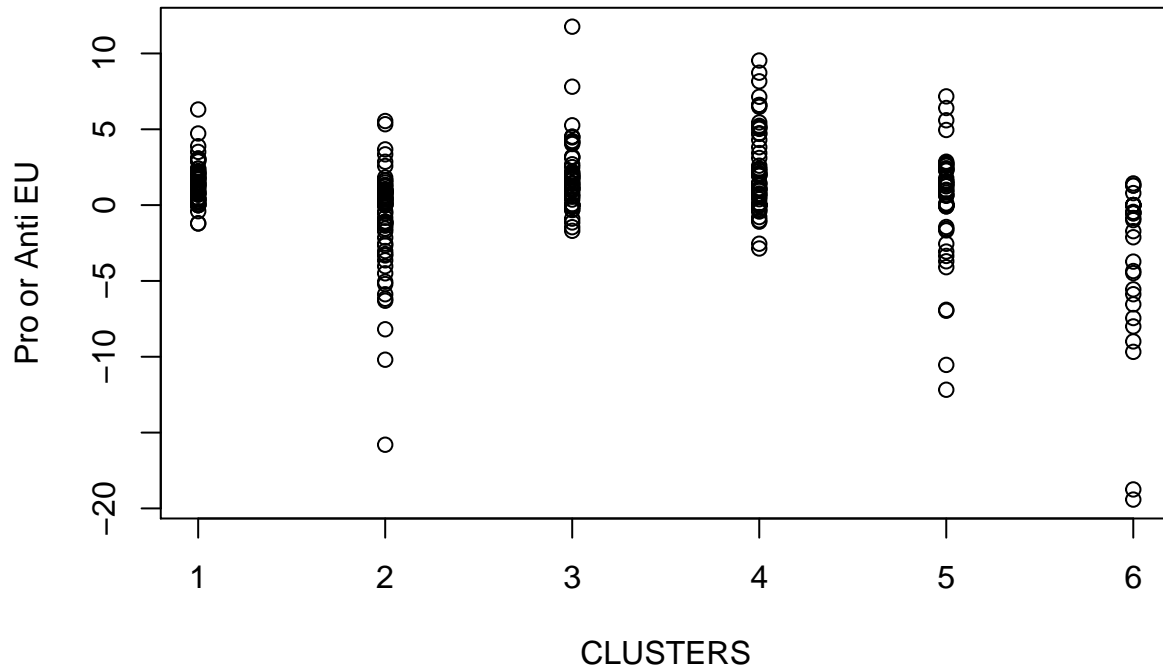
```
## [1] -0.1810798
```

```
'
c(
mean(Civica$rile[Civica$cluster==1]),
mean(Civica$rile[Civica$cluster==2]),
mean(Civica$rile[Civica$cluster==3]),
mean(Civica$rile[Civica$cluster==4]),
mean(Civica$rile[Civica$cluster==5]),
mean(Civica$rile[Civica$cluster==6]))
'
```

```
## [1] "\nc\nmean(Civica$rile[Civica$cluster==1]),\nmean(Civica$rile[Civica$cluster==2]),\nmean(Civica
```

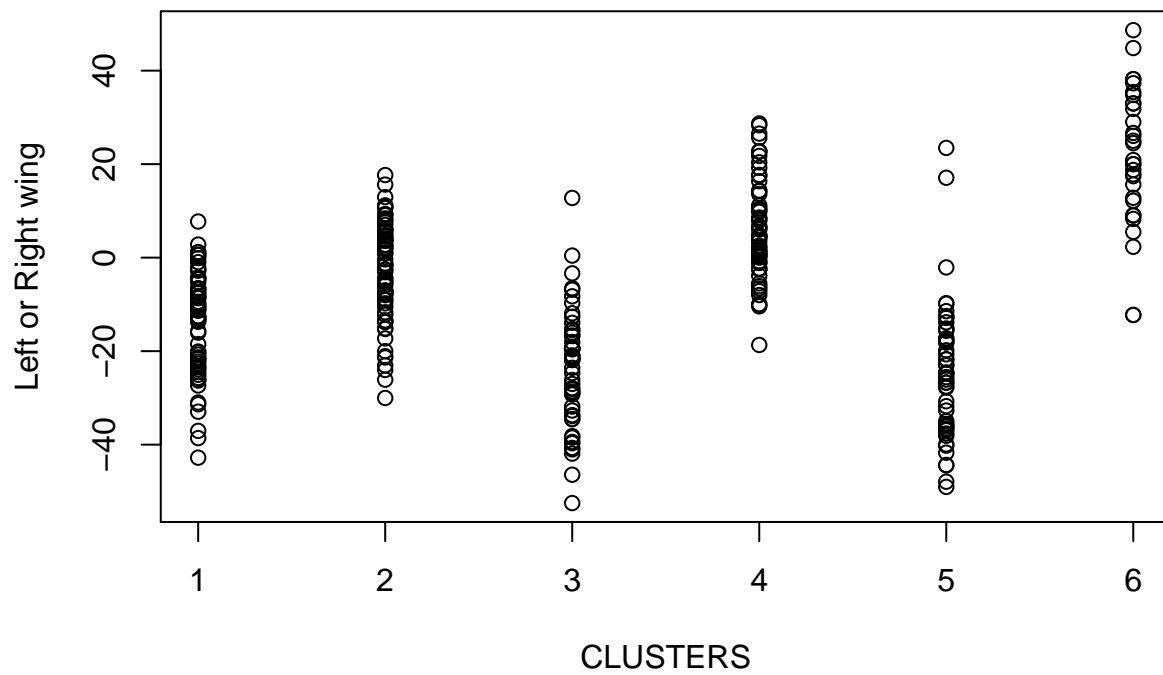
The traditional left-right spectrum no longer guarantees a clear indication of a party's stance on the EU.

```
plot(Civica$cluster,Civica$pro_eu,xlab = 'CLUSTERS', ylab = 'Pro or Anti EU')
```



Parties in clusters 1 and 4 lean more pro-EU, whereas those in clusters 6 and 4 tend to be anti-EU.

```
plot(Civica$cluster,Civica$riile, xlab = 'CLUSTERS', ylab = 'Left or Right wing')
```



Clusters 1, 3, and 6 align with left-wing ideologies, while Cluster 2 is right-wing. The remaining clusters generally lean towards moderation, with some exceptions.