Homework 5 – Intro to Probability and Statistics

Your name here

Instructions:

Due: 05/11 at 11:59PM.

What am I expecting? An R Markdown with the answers.

Have fun!

Voting in the UN General Assembly

Like legislators in the Congress, the member states of the United Nations (UN) are politically divided on many issues such as trade, nuclear disarmament, and human rights. During the Cold War, countries in the UNGeneral Assembly tended to split into two factions: one led by the capitalist United States and the other by the communist Soviet Union. In this exercise, we will analyze how states' ideological positions, as captured by their votes on UN resolutions, have changed since the fall of communism.

The table below presents the names and descriptions of the variables in the data set contained in the CSV file `unvoting.csv`.

Name	Description
`CountryName`	Name of the country
`CountryAbb`	Abbreviated name of the country
`idealpoint`	Its estimated ideal point
`Year`	Year for which the ideal point is estimated
`PctAgreeUS`	Proportion of votes that match with votes cast by the United States on the same issue
`PctAgreeRUSSIA`	Proportion of votes that match with votes cast by Russia/the Soviet Union on the same issue

In the analysis that follows, we measure state preferences in two ways. First, we can use the proportion of votes by each country that coincide with votes on the same issue cast by the two major Cold War powers: the United States and the Soviet Union. For example, if a country voted for 10 resolutions in 1992, and if its vote matched the United States's vote on exactly 6 of these resolutions, the variable `PctAgreeUS` in 1992 would equal 60 for this country. Second, we can also measure state preferences in terms of numerical ideal points as explained in class. These ideal points capture what international relations scholars have called countries' liberalism on issues such as political freedom, democratization, and financial liberalization. The two measures are highly correlated, with larger (more liberal) ideal points corresponding to a higher proportion of votes that agree with the United States.

Question 1

We begin by examining how the distribution of state ideal points has changed since the end of communism. Plot the distribution of ideal points separately for 1980 and 2000—about 10 years before and 10 years after the fall of the Berlin Wall, respectively. Add the median to each plot as a vertical line. How do the two distributions differ? Pay attention to the degree of polarization and give a brief substantive interpretation of the results. Use the `quantile()` function to quantify the patterns you identified.

Question 2

Next, examine how the number of countries voting with the United States has changed over time. Plot the average percentage agreement with the United States across all countries over time. Also, add the average percentage agreement with Russia as another line for comparison. Using the `tapply()` function may help with this analysis. Does the United States appear to be getting more or less isolated over time, as compared to Russia? Identify some countries that are consistently pro-US. What are the most pro-Russian countries? Give a brief substantive interpretation of the results.

Question 3

One problem with using the proportion of votes that agree with the United States or Russia as a measure of state preferences is that the ideological positions, and consequently the voting patterns, of the two countries might themselves have changed over time. This makes it difficult to know which countries' ideological positions have changed. Investigate this issue by plotting the evolution of the two countries' ideal points over time. Add the yearly median ideal point of all countries. How might the results of this analysis modify (or not) your interpretation of the previous analysis?

Question 4

Let's examine how countries that were formerly part of the Soviet Union differ in terms of their ideology and UN voting compared to countries that were not part of the Soviet Union. The former Soviet Union countries are Estonia, Latvia, Lithuania, Belarus, Moldova, Ukraine, Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, and Russia. The `%in%` operator, which is used as `x %in% y`, may be useful. This operator returns a logical vector whose elements are `TRUE` if the corresponding element of vector x is equal to a value contained in vector y and otherwise `FALSE`. Focus on the most recently available UN data from 2012 and plot each post-Soviet Union state's ideal point against the proportion of its votes that agree with the United States. Compare the post-Soviet Union states, within the same plot, against the other countries. Briefly comment on what you observe.

Question 5

We have just seen that while some post-Soviet countries have retained nonliberal ideologies, other post-Soviet countries were much more liberal in 2012. Let's examine how the median ideal points of Soviet/post-Soviet countries and all other countries have varied over all the years in the data. Plot these median ideal points by year. Be sure to indicate 1989, the year of the fall of the Berlin Wall, on the graph. Briefly comment on what you observe.

Question 6

Following the end of communism, countries that were formerly part of the Soviet Union have become much more ideologically diverse. Is this also true of the world as a whole? In other words, do countries still divide into two ideological factions? Let's assess this question by applying the k-means clustering algorithm to ideal points and the proportion of votes agreeing with the United States. Initiate the algorithm with just two centroids and visualize the results separately for 1989 and 2012. Briefly comment on the results.