Success of Leader Assassination as a Natural Experiment (Graphs)

One longstanding debate in the study of international relations concerns the question of whether individual political leaders can make a difference. Some emphasize that leaders with different ideologies and personalities can significantly affect the course of a nation. Others argue that political leaders are severely constrained by historical and institutional forces. Did individuals like Hitler, Mao, Roosevelt, and Churchill make a big difference? The difficulty of empirically testing these arguments stems from the fact that the change of leadership is not random and there are many confounding factors to be adjusted for.

In this exercise, we consider a *natural experiment* in which the success or failure of assassination attempts is assumed to be essentially random.

This exercise is based on: Jones, Benjamin F, and Benjamin A Olken. 2009. "Hit or Miss? The Effect of Assassinations on Institutions and War." *American Economic Journal: Macroeconomics* 1(2): 55–87.

Each observation of the CSV data set `leaders.csv` contains information about an assassination attempt. The variables are:

Name	Description
`country`	The name of the country
`year`	Year of assassination
`leadername`	Name of leader who was targeted
`age`	Age of the targeted leader
`politybefore`	Average polity score during the 3 year period prior to the attempt
`polityafter`	Average polity score during the 3 year period after the attempt
`civilwarbefore`	1 if country is in civil war during the 3 year period prior to the attempt, or 0
`civilwarafter`	1 if country is in civil war during the 3 year period after the attempt, or 0
`interwarbefore`	1 if country is in international war during the 3 year period prior to the attempt, or 0
`interwarafter`	1 if country is in international war during the 3 year period after the attempt, or 0
`result`	Result of the assassination attempt, one of 10 categories described below

The `polity` variable represents the so-called *polity score* from the Polity Project. The Polity Project systematically documents and quantifies the regime types of all countries in the world from 1800. The polity score is a 21-point scale ranging from -10 (hereditary monarchy) to 10 (consolidated democracy). The `result` variable is a 10 category factor variable describing the result of each assassination attempt.

Question 1

How many assassination attempts are recorded in the data? How many countries experience at least one leader assassination attempt? (The `unique` function, which returns a set of unique values from the input vector, may be useful here). What is the average number of such attempts (per year) among these countries?

Question 2

Create a new binary variable named `success` that is equal to 1 if a leader dies from the attack and to 0 if the leader survives. Store this new variable as part of the original data frame. What is the overall success rate of leader assassination? Does the result speak to the validity of the assumption that the success of assassination attempts is randomly determined?

Question 3

Investigate whether the distribution of polity scores over 3 years prior to an assassination attempt differs between successful and failed attempts. To do this, plot the histograms for both distributions. Assign informative labels to the axes and title your graphs. Add a vertical line to each graph to represent the mean values of the two distributions. In addition, create a Quantile-Quantile plot and conduct the same comparison. Briefly interpret the results in light of the validity of the aforementioned assumption.

Question 4

Investigate whether the success of an assassination attempt varies by the country's experience of civil and international war. Create a new binary variable in the data frame called `warbefore`. Code the variable such that it is equal to 1 if a country is in either civil or international war during the 3 years prior to an assassination attempt. Compare the average assassination rates for the two groups, and provide a brief interpretation of the result.

Question 5

Does successful leader assassination cause democratization? Does successful leader assassination lead countries to war? Answer these questions by analyzing the data. Be sure to state your assumptions and provide a brief interpretation of the results.

Question 6

Consider the effect of leader assassination on democratization more closely. Using a Quantile-Quantile plot, compare the changes in the distribution of polity scores among countries with successful attempts against changes in countries where assassinations failed. Be sure to use informative labels. Provide a brief interpretation of the plot by connecting your analysis to the results obtained in the previous question.