

Homework 6 – Intro to Probability and Statistics

Your name here

Instructions:

Due: 05/15 at 11:59PM.

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

Have fun!

Success of Leader Assassination as a Natural Experiment

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. Each observation of the CSV data set `leaders.csv` contains information about an assassination attempt. Table below presents the names and descriptions of variables in this leader assassination data set.

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.

Name	Description
<code>country</code>	Country
<code>year</code>	Year
<code>leadername</code>	Name of the leader who was targeted
<code>age</code>	Age of the targeted leader
<code>politybefore</code>	Average polity score of the country during the three-year period prior to the attempt
<code>polityafter</code>	Average polity score of the country during the three-year period after the attempt
<code>civilwarbefore</code>	1 if the country was in civil war during the three-year period prior to the attempt, 0 otherwise
<code>civilwarafter</code>	1 if the country was in civil war during the three-year period after the attempt, 0 otherwise
<code>interwarbefore</code>	1 if the country was in international war during the three-year period prior to the attempt, 0 otherwise
<code>interwarafter</code>	1 if the country was in international war during the three-year period after the attempt, 0 otherwise
<code>result</code>	Result of the 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 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 average polity score over three years prior to an assassination attempt differs on average between successful and failed attempts. Also, examine whether there is any difference in the age of targeted leaders between successful and failed attempts. Briefly interpret the results in light of the validity of the aforementioned assumption.

Question 4

Repeat the same analysis as in the previous question, but this time using 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 three years prior to an assassination attempt. Provide a brief interpretation of the result.

Question 5

Does successful leader assassination cause democratization? Does successful leader assassination lead countries to war? When analyzing these data, be sure to state your assumptions and provide a brief interpretation of the results.