

## Problem Set 2: Assassination as a Natural Experiment

Due 3/12, adapted from QSS 2.8.3

Submit a short writeup of your answers as well as your R code (in a separate file) on Blackboard.

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. The 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. 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? Note: the dataset contains all assassination attempts from 1875 to 2004, so over 130 years.

## 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?

## 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. Provide bar plots for both analyses.

## Question 4

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. Investigate whether the probability that a country was in a war during the three years prior to an assassination attempt differs on average between successful and failed attempts. Provide a plot of the results.

## Question 5

Does successful leader assassination lead countries to war? In other words, is there a difference in the propensity of countries to go to war (civil or international) in the three years after the attempt between successful and failed attempts?

## Question 6

Does successful leader assassination cause democratization? In other words, is there a difference in the *change* in the polity score from before to after the attempt between successful and failed attempts?