

# 刺杀领导人成功率的自然实验

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```
setwd("D:/QSS/Chapter2_Causality/Exercise")
leaders <- read.csv("leaders.csv")
View(leaders)
summary(leaders)
```

```
##      year      country      leadername      age
##  Min.    :1878  Length:250      Length:250      Min.    :18.00
##  1st Qu.:1920   Class :character  Class :character  1st Qu.:45.00
##  Median :1949   Mode  :character  Mode  :character  Median :52.50
##  Mean    :1945                      Mean    :53.52
##  3rd Qu.:1972                      3rd Qu.:61.75
##  Max.    :2001                      Max.    :81.00
##  politybefore  polityafter  interwarbefore  interwarafter
##  Min.    :-10.000  Min.    :-10.000  Min.    :0.000  Min.    :0.000
```

1 记录了多少次刺杀企图,有多少国家遇到至少一次领导人刺杀其他,这些国家里刺杀的平均次数(每年)是多少2

```
## 1st Qu.: -7.000 1st Qu.: -7.000 1st Qu.:0.000 1st Qu.:0.000
## Median : -3.000 Median : -3.167 Median :0.000 Median :0.000
## Mean : -1.519 Mean : -1.650 Mean :0.188 Mean :0.148
## 3rd Qu.: 4.000 3rd Qu.: 3.917 3rd Qu.:0.000 3rd Qu.:0.000
## Max. : 10.000 Max. : 10.000 Max. :1.000 Max. :1.000
## civilwarbefore civilwarafter result
## Min. :0.000 Min. :0.000 Length:250
## 1st Qu.:0.000 1st Qu.:0.000 Class :character
## Median :0.000 Median :0.000 Mode :character
## Mean :0.216 Mean :0.184
## 3rd Qu.:0.000 3rd Qu.:0.000
## Max. :1.000 Max. :1.000
```

## 1 记录了多少次刺杀企图,有多少国家遇到至少一次领导人刺杀其他,这些国家里刺杀的平均次数(每年)是多少

```
nrow(leaders) # 记录了多少次刺杀企图
```

```
## [1] 250
```

```
length(unique(leaders$country)) # 有多少国家遇到至少一次领导人刺杀企图
```

```
## [1] 88
```

```
leaders$country <- as.factor(leaders$country)
levels(leaders$country)
```

```
## [1] "Afghanistan" "Albania" "Algeria"
## [4] "Argentina" "Australia" "Austria"
## [7] "Belgium" "Bhutan" "Bolivia"
## [10] "Brazil" "Bulgaria" "Burundi"
## [13] "Cambodia" "Canada" "Chad"
## [16] "Chile" "China" "Colombia"
## [19] "Congo Brazzaville" "Congo Kinshasa" "Costa Rica"
## [22] "Cuba" "Cyprus" "Czechoslovakia"
## [25] "Dominican Rep" "Ecuador" "Egypt"
## [28] "El Salvador" "Ethiopia" "France"
## [31] "Georgia" "Germany" "Ghana"
## [34] "Greece" "Guatemala" "Guinea"
```

1 记录了多少次刺杀企图,有多少国家遇到至少一次领导人刺杀其他,这些国家里刺杀的平均次数(每年)是多少3

```
## [37] "Haiti"           "Honduras"        "India"
## [40] "Indonesia"       "Iran"            "Iraq"
## [43] "Israel"          "Italy"           "Ivory Coast"
## [46] "Japan"           "Jordan"          "Kenya"
## [49] "Korea South"     "Kuwait"          "Lebanon"
## [52] "Liberia"         "Libya"           "Madagascar"
## [55] "Mexico"          "Myanmar (Burma)" "Nepal"
## [58] "Netherlands"     "Nicaragua"       "Niger"
## [61] "Oman"            "Pakistan"        "Panama"
## [64] "Peru"            "Poland"          "Portugal"
## [67] "Russia"          "Rwanda"          "Saudi Arabia"
## [70] "Senegal"         "Somalia"         "South Africa"
## [73] "Spain"           "Sri Lanka"       "Sudan"
## [76] "Sweden"          "Syria"           "Togo"
## [79] "Turkey"          "Uganda"          "United Kingdom"
## [82] "United States"   "Uruguay"         "Uzbekistan"
## [85] "Venezuela"       "Vietnam South"   "Yemen North"
## [88] "Yugoslavia"
```

```
table(leaders$country)
```

```
##
##      Afghanistan      Albania      Algeria      Argentina
##              3              2              2              5
##      Australia      Austria      Belgium      Bhutan
##              2              4              1              1
##      Bolivia      Brazil      Bulgaria      Burundi
##              4              1              3              1
##      Cambodia      Canada      Chad      Chile
##              3              1              1              4
##      China      Colombia Congo Brazzaville      Congo Kinshasa
##              4              1              1              1
##      Costa Rica      Cuba      Cyprus      Czechoslovakia
##              1              2              1              1
##      Dominican Rep      Ecuador      Egypt      El Salvador
##              3              2              6              1
##      Ethiopia      France      Georgia      Germany
##              1              10              2              2
##      Ghana      Greece      Guatemala      Guinea
##              2              4              7              1
```

1 记录了多少次刺杀企图,有多少国家遇到至少一次领导人刺杀其他,这些国家里刺杀的平均次数(每年)是多少4

##	Haiti	Honduras	India	Indonesia
##	2	1	4	2
##	Iran	Iraq	Israel	Italy
##	6	2	2	6
##	Ivory Coast	Japan	Jordan	Kenya
##	1	11	5	1
##	Korea South	Kuwait	Lebanon	Liberia
##	5	1	1	1
##	Libya	Madagascar	Mexico	Myanmar (Burma)
##	3	1	11	1
##	Nepal	Netherlands	Nicaragua	Niger
##	2	1	3	1
##	Oman	Pakistan	Panama	Peru
##	1	4	1	5
##	Poland	Portugal	Russia	Rwanda
##	2	5	10	1
##	Saudi Arabia	Senegal	Somalia	South Africa
##	2	1	1	2
##	Spain	Sri Lanka	Sudan	Sweden
##	5	4	1	1
##	Syria	Togo	Turkey	Uganda
##	2	2	5	4
##	United Kingdom	United States	Uruguay	Uzbekistan
##	1	8	5	1
##	Venezuela	Vietnam South	Yemen North	Yugoslavia
##	4	1	5	1

# 刺杀总数/记录时间段

```
table(leaders$country)/(max(leaders$year) / min(leaders$year))
```

##				
##	Afghanistan	Albania	Algeria	Argentina
##	2.8155922	1.8770615	1.8770615	4.6926537
##	Australia	Austria	Belgium	Bhutan
##	1.8770615	3.7541229	0.9385307	0.9385307
##	Bolivia	Brazil	Bulgaria	Burundi
##	3.7541229	0.9385307	2.8155922	0.9385307
##	Cambodia	Canada	Chad	Chile
##	2.8155922	0.9385307	0.9385307	3.7541229

1 记录了多少次刺杀企图,有多少国家遇到至少一次领导人刺杀其他,这些国家里刺杀的平均次数(每年)是多少5

##	China	Colombia	Congo Brazzaville	Congo Kinshasa
##	3.7541229	0.9385307	0.9385307	0.9385307
##	Costa Rica	Cuba	Cyprus	Czechoslovakia
##	0.9385307	1.8770615	0.9385307	0.9385307
##	Dominican Rep	Ecuador	Egypt	El Salvador
##	2.8155922	1.8770615	5.6311844	0.9385307
##	Ethiopia	France	Georgia	Germany
##	0.9385307	9.3853073	1.8770615	1.8770615
##	Ghana	Greece	Guatemala	Guinea
##	1.8770615	3.7541229	6.5697151	0.9385307
##	Haiti	Honduras	India	Indonesia
##	1.8770615	0.9385307	3.7541229	1.8770615
##	Iran	Iraq	Israel	Italy
##	5.6311844	1.8770615	1.8770615	5.6311844
##	Ivory Coast	Japan	Jordan	Kenya
##	0.9385307	10.3238381	4.6926537	0.9385307
##	Korea South	Kuwait	Lebanon	Liberia
##	4.6926537	0.9385307	0.9385307	0.9385307
##	Libya	Madagascar	Mexico	Myanmar (Burma)
##	2.8155922	0.9385307	10.3238381	0.9385307
##	Nepal	Netherlands	Nicaragua	Niger
##	1.8770615	0.9385307	2.8155922	0.9385307
##	Oman	Pakistan	Panama	Peru
##	0.9385307	3.7541229	0.9385307	4.6926537
##	Poland	Portugal	Russia	Rwanda
##	1.8770615	4.6926537	9.3853073	0.9385307
##	Saudi Arabia	Senegal	Somalia	South Africa
##	1.8770615	0.9385307	0.9385307	1.8770615
##	Spain	Sri Lanka	Sudan	Sweden
##	4.6926537	3.7541229	0.9385307	0.9385307
##	Syria	Togo	Turkey	Uganda
##	1.8770615	1.8770615	4.6926537	3.7541229
##	United Kingdom	United States	Uruguay	Uzbekistan
##	0.9385307	7.5082459	4.6926537	0.9385307
##	Venezuela	Vietnam South	Yemen North	Yugoslavia
##	3.7541229	0.9385307	4.6926537	0.9385307

2 2. 创建一个标记着领导人遭到暗杀后是否存活的新变量,计算领导人暗杀的总体成功率,结果是否说明暗杀企图的成功率是随机决定的?

## 2 2. 创建一个标记着领导人遭到暗杀后是否存活的新变量, 计算领导人暗杀的总体成功率, 结果是否说明暗杀企图的成功率是随机决定的?

### 3 创建 success 二元变量

```
leaders$success <- ifelse(leaders$result == "dies between a day and a week" |
                           leaders$result == "dies between a week and a month" |
                           leaders$result == "dies within a day after the attack" |
                           leaders$result == "dies, timing unknown",
                           1,0)
successrate <- mean(leaders$success)
successrate
```

```
## [1] 0.216
```

```
# 该结果是否说明暗杀企图的成功率是随机决定的?
```

## 4 3. 探究暗杀成功和失败是否与暗杀前三年的平均政权得分有关; 检查暗杀成功与失败的尝试之间目标领导者的年龄是否有差异

```
# 暗杀前三年的平均政权得分是否与暗杀成功和失败有关
tapply(leaders$politybefore, leaders$success, mean)
```

```
##           0           1
## -1.7431973 -0.7037037
```

```
# 暗杀成功与失败的尝试之间目标领导者的年龄是否有差异
tapply(leaders$age, leaders$success, mean)
```

```
##           0           1
## 52.71429 56.46296
```

## 5 4. 暗杀成功和失败是否与刺杀企图前三年的战争经验有关

在名为 warbefore 的数据框中创建一个新的二元变量, 若一个国家在刺杀企图前三年参加国内或国际战争, 则编码为 1

```
# 创建 warbefore 二元变量, 1 表示前三年有国内或国际战争经验, 0 表示没有
leaders$warbefore <- NA
leaders$warbefore[leaders$interwarbefore == 1 | leaders$civilwarbefore == 1] <- 1
leaders$warbefore[leaders$interwarbefore == 0 & leaders$civilwarbefore == 0] <- 0
# table(leaders$warbefore)
# 暗杀成功和失败是否与刺杀企图前三年的战争经验有关
tapply(leaders$warbefore, leaders$success, mean)

##           0           1
## 0.3724490 0.3518519
```

## 6 5. 暗杀领导人成功是否会带来民主化？暗杀领导人成功是否会导致该国发生战争？

```
leadersas <- subset(leaders, subset = (leaders$success == 1)) # 将数据集分集, 得到暗杀成功的数据
leadersuas <- subset(leaders, subset = (leaders$success == 0)) # 将数据集分集, 得到暗杀失败的数据
# 民主化使用政权平均得分来体现
# 暗杀前三年的政权平均得分 (暗杀成功的情况)
spolitybefore <- mean(leadersas$politybefore)
# 暗杀后三年的政权平均得分 (暗杀成功的情况)
spolityafter <- mean(leadersas$polityafter)
# 暗杀成功组的政权平均得分差异
difas <- spolityafter - spolitybefore
difas

## [1] -0.05864198

# 暗杀前三年的政权平均得分 (暗杀失败的情况)
upolitybefore <- mean(leadersuas$politybefore)
# 暗杀后三年的政权平均得分 (暗杀失败的情况)
upolityafter <- mean(leadersuas$polityafter)
# 暗杀成功组的政权平均得分差异
difuas <- upolityafter - upolitybefore
difuas

## [1] -0.1513605

# 得到 did 估计量
did <- difas - difuas
```

```
did
```

```
## [1] 0.09271857
```

```
## 暗杀领导人成功是否会导致该国发生战争（包括国际和国内战争）？
```

```
leadersas <- subset(leaders, subset = (leaders$success == 1)) # 将数据集分集，得到暗杀成功的数据
```

```
leadersuas <- subset(leaders, subset = (leaders$success == 0)) # 将数据集分集，得到暗杀失败的数据
```

```
# 刺杀成功的发生战争率
```

```
# 创建 warafter 二元变量，1 表示后三年有国内或国际战争经验，0 表示没有
```

```
leaders$warafter <- NA
```

```
leaders$warafter[leaders$interwarafter == 1 | leaders$civilwarafter == 1] <- 1
```

```
leaders$warafter[leaders$interwarafter == 0 & leaders$civilwarafter == 0] <- 0
```

```
# table(leaders$warafter)
```

```
tapply(leaders$warafter, leaders$success, mean)
```

```
##           0           1
```

```
## 0.2959184 0.2037037
```

```
# 刺杀成功和失败的发生战争率之差
```

```
dif <- mean(leaders$warafter[leaders$success == 1]) - mean(leaders$warafter[leaders$success == 0])
```

```
dif
```

```
## [1] -0.09221466
```