

Problem Set 9 (Answer Key)

Problem 1

We want to compute the Average Treatment Effect for a bunch of different subgroups.

```
library(tidyverse)
library(here)

d <- read_csv( here('data/cohn-2019/behavioral data (csv file).csv') )
```

Average Treatment Effect for the Money condition:

```
lm(response ~ cond,
    data = d |> filter(cond %in% c(0,1)))
```

Call:

```
lm(formula = response ~ cond, data = filter(d, cond %in% c(0,
1)))
```

Coefficients:

(Intercept)	cond
39.90	11.14

Now we want to estimate that ATE for different subgroups.

```
# men
lm(response ~ cond,
    data = d |> filter(cond %in% c(0,1),
                        male == 1))
```

Call:

```
lm(formula = response ~ cond, data = filter(d, cond %in% c(0, 1), male == 1))
```

Coefficients:

(Intercept)	cond
36.04	9.61

```
# women
lm(response ~ cond,
  data = d |> filter(cond %in% c(0,1),
    male == 0))
```

Call:

```
lm(formula = response ~ cond, data = filter(d, cond %in% c(0, 1), male == 0))
```

Coefficients:

(Intercept)	cond
43.25	12.44

```
# public institutions
lm(response ~ cond,
  data = d |> filter(cond %in% c(0,1),
    public == 1))
```

Call:

```
lm(formula = response ~ cond, data = filter(d, cond %in% c(0, 1), public == 1))
```

Coefficients:

(Intercept)	cond
41.531	9.566

```
# understood what the experimenter was asking
lm(response ~ cond,
  data = d |> filter(cond %in% c(0,1),
```

```
understood_situation >= 3))
```

Call:

```
lm(formula = response ~ cond, data = filter(d, cond %in% c(0,
  1), understood_situation >= 3))
```

Coefficients:

(Intercept)	cond
39.30	10.71

```
lm(response ~ cond,
  data = d |> filter(cond %in% c(0,1),
    understood_situation == 6))
```

Call:

```
lm(formula = response ~ cond, data = filter(d, cond %in% c(0,
  1), understood_situation == 6))
```

Coefficients:

(Intercept)	cond
41.92	11.32

Problem 2

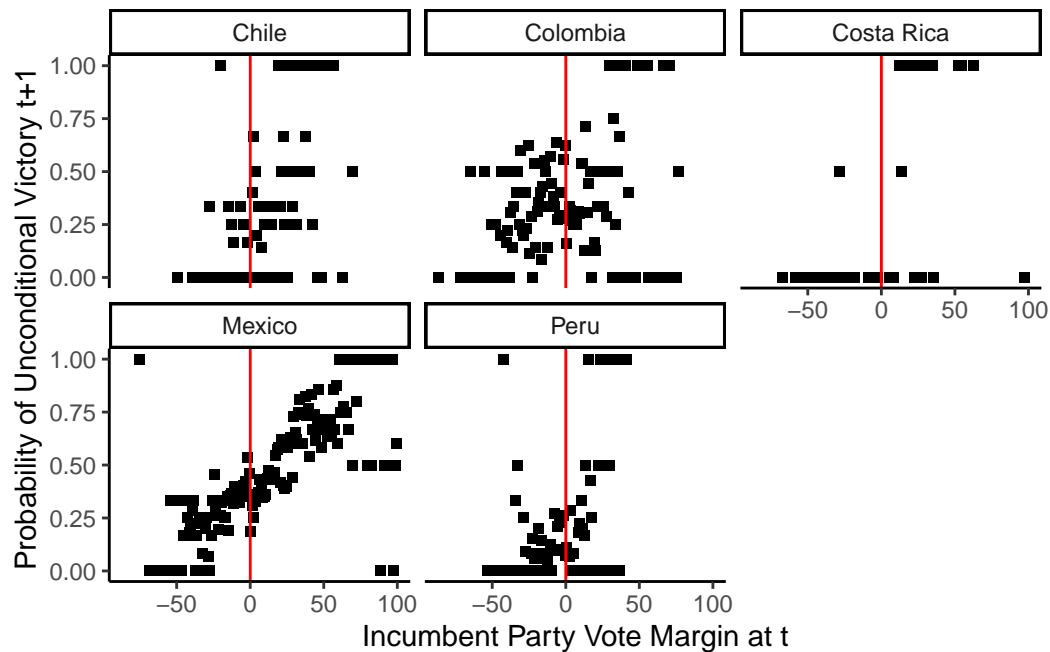
We want to estimate the incumbency advantage/disadvantage in all the non-Brazil countries in the Klasnja & Titunik dataset.

```
# load the data
d <- read_csv( here('data/klasnja-titunik-2017/KlasnjaTitunik-LAcountries-data.csv'))

p <- ggplot(data = d |> filter(country != 'Brazil'),
  mapping = aes(x = mv_incumbent,
    y = post_winning_incumbent_unc)) +
  stat_summary_bin(fun = 'mean', breaks = -100:100,
    geom = 'point', shape = 'square') +
  geom_vline(xintercept = 0, color = 'red') +
  theme_classic() +
```

```
labs(x = 'Incumbent Party Vote Margin at t',
     y = 'Probability of Unconditional Victory t+1') +
facet_wrap(~country)
```

p



```
library(rdrobust)

# estimate those incumbency advantage effects

peru_data <- d |>
  filter(country == 'Peru')

peru_rd <- rdrobust(x = peru_data$mv_incumbent,
                   y = peru_data$post_winning_incumbent_unc,
                   c = 0)

summary(peru_rd)
```

Sharp RD estimates using local polynomial regression.

Number of Obs.	775	
BW type	mserd	
Kernel	Triangular	
VCE method	NN	
Number of Obs.	567	208
Eff. Number of Obs.	144	107
Order est. (p)	1	1
Order bias (q)	2	2
BW est. (h)	6.953	6.953
BW bias (b)	11.789	11.789
rho (h/b)	0.590	0.590
Unique Obs.	567	199

Method	Coef.	Std. Err.	z	P> z	[95% C.I.]
Conventional	-0.028	0.081	-0.338	0.735	[-0.187 , 0.132]
Robust	-	-	-0.046	0.963	[-0.187 , 0.179]

You can do that for all of the countries to get the incumbency advantage estimates.