Exercícios Práticos

```
require(wooldridge)
```

```
## Loading required package: wooldridge
```

```
require(tidyverse)
```

```
## Loading required package: tidyverse
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.2 --
## v ggplot2 3.3.6      v purrr   0.3.5
## v tibble  3.1.8      v dplyr   1.0.10
## v tidyr   1.2.1      v stringr 1.4.1
## v readr   2.1.3      v forcats 0.5.2
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

C1

(i)

O β_1 nesse caso significa o quanto variações percentuais nos gastos de campanha no candidato A impactam no voto do próprio candidato.

(ii)

$$H_0 : \beta_1 - \beta_2 = 0$$
$$H_1 : \beta_1 - \beta_2 \neq 0$$

(iii)

```
reg1 <- lm(voteA ~ log(expendA) + log(expendB) + prtystrA, data = vote1)
```

```
summary(reg1)
```

```
##
## Call:
## lm(formula = voteA ~ log(expendA) + log(expendB) + prtystrA,
##     data = vote1)
##
## Residuals:
##      Min      1Q   Median      3Q      Max
## -20.3968  -5.4174  -0.8679   4.9551  26.0660
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  45.07893    3.92631   11.48   <2e-16 ***
## log(expendA)  6.08332    0.38215   15.92   <2e-16 ***
```

```
## log(expendB) -6.61542    0.37882  -17.46   <2e-16 ***
## prtystrA      0.15196    0.06202    2.45   0.0153 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 7.712 on 169 degrees of freedom
## Multiple R-squared:  0.7926, Adjusted R-squared:  0.7889
## F-statistic: 215.2 on 3 and 169 DF,  p-value: < 2.2e-16
```

(iv)

$$voteA = \beta_0 + \beta_1 log(expendA) + \beta_2 log(expendB) + \beta_3 prtystrA + \beta_2 log(expendA) - \beta_2 log(expendA)\backslash$$

$$voteA = \beta_0 + (\beta_1 - \beta_2)log(expendA) + \beta_2 log(expendB * expendA) + \beta_3 prtystrA\backslash$$

$$H_0 : \theta_1 = 0$$
$$H_1 : \theta_1 \neq 0$$

```r
aminusb <- log(vote1$expendA / vote1$expendB)

ab <- log (vote1$expendB * vote1$expendA)

reg2 <- lm(voteA ~ aminusb + ab + prtystrA, data = vote1)

summary(reg2)
```

```
##
## Call:
## lm(formula = voteA ~ aminusb + ab + prtystrA, data = vote1)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -20.3968  -5.4174  -0.8679   4.9551  26.0660
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) 45.07893    3.92631  11.481   <2e-16 ***
## aminusb      6.34937    0.27153  23.384   <2e-16 ***
## ab          -0.26605    0.26654  -0.998   0.3196
## prtystrA     0.15196    0.06202   2.450   0.0153 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 7.712 on 169 degrees of freedom
## Multiple R-squared:  0.7926, Adjusted R-squared:  0.7889
## F-statistic: 215.2 on 3 and 169 DF,  p-value: < 2.2e-16
```

C8

(i)

Os dados desse exercício possuem o nome de "k401ksubs".\

```r
table(k401ksubs$fsize) # IRÁ MOSTRAR QUANTAS RESIDÊNCIAS COM UMA PESSOA
```

```
##
```

```
##    1    2    3    4    5    6    7    8    9   10   11   12   13
## 2017 2199 1829 1990  816  268   95   38    7    7    3    4    2
```

```
fsize1 <- filter(k401ksubs, fsize == 1)

View(fsize1)
```

(ii)

```
reg3 <- lm(nettfa ~ inc + age, data = fsize1)
```

```
summary(reg3)
```

```
##
## Call:
## lm(formula = nettfa ~ inc + age, data = fsize1)
##
## Residuals:
##     Min     1Q  Median     3Q     Max
## -179.95  -14.16   -3.42    6.03 1113.94
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept) -43.03981    4.08039 -10.548   <2e-16 ***
## inc           0.79932    0.05973  13.382   <2e-16 ***
## age           0.84266    0.09202   9.158   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 44.68 on 2014 degrees of freedom
## Multiple R-squared:  0.1193, Adjusted R-squared:  0.1185
## F-statistic: 136.5 on 2 and 2014 DF,  p-value: < 2.2e-16
```