Long Question 6 - More on Flowers in China

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Download the data set used in Quan's paper (qian.csv). The data contains the following variables:

- **admin**: an id for each region in China.
- **birthyear**: a variable that corresponds to year.
- **sex**: the sex ratio $\left(\frac{male}{female}\right)$ that were born in that region in that year.
- **teasown**: whether tea is produced in region *j*.

Load the data in R and now answer the following questions:

Question 23

1.0/1.0 point (graded)

Explore the data and input the following variables:

Number of observations:

51766 ✔

51766

Mean of $\boldsymbol{birthyear}$:

1976 ✔

1976

75^{th} percentile of $\boldsymbol{sex}$:

Please round your answer to the second decimal place, i.e. if your answer is 0.1287, round to 0.13, if it is 0.1223, round to 0.12

0.56 ✔

0.56

Maximum value of $\boldsymbol{teasown}$:

1.0 ✔

1.0

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Question 24

1.0/1.0 point (graded)

Create a variable $post = 1$ if $birthyear >= 1979$. Similarly, create the interaction between $teasown$ and this variable.

In how many observations is the dummy post switched on?

In part 2, please round your answer to the third decimal place, i.e. if your answer is 0.1245, round to 0.125 and if it is 0.1243, round to 0.124

Observations:

21309 ✔

21309

What is the mean of the interaction?

0.081 ✔

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Question 25

1.0/1.0 point (graded)

Estimate the following model in R:

$$sex_{jt} = \beta_0 + \beta_1 teasown_j + \beta_2 post_t + \beta_3 teasown_j \times post_t + \varepsilon_{jt}$$

Based on your estimation input the following values:

Please round your answer to the third decimal place, i.e. if your answer is 0.1245, round to 0.125 and if it is 0.1243, round to 0.124

$\hat{\beta}_0$:

0.503 ✔

$\mathbf{0.503}$

$\hat{\beta}_3$:

-0.009 ✔

-0.009

p-value: $H_0 : \beta_3 = 0$:

0.004 ✔

0.004

R^2

0.005 ✔

0.005

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Question 26

1.0/1.0 point (graded)

True or False: If you estimate this model instead:

$$sex_{jt} = \alpha_0 + \alpha_2 post_t + \alpha_3 teasown_j \times post_t + \gamma_j + \varepsilon_{jt}$$

you would have $\hat{\beta}_3 = \hat{\alpha}_3$?

- a. True
- b. False ✔

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Question 27

0.0/1.0 point (graded)

Go through the R documentation and estimate this fixed effects model. Which of the following statements are true? (Select all that apply)

- [x] a. Our point estimates show that $\hat{\alpha}_3 \geq \hat{\beta}_3$.
- [ ] b. Our point estimates show that $\hat{\alpha}_3 \leq \hat{\beta}_3$.
- [x] c. The p-value associated to $H_0 : \beta_3 = 0$ is larger than the p-value associated to $H_0 : \alpha_3 = 0$

- [ ] d. The p-value associated to $H_0 : \beta_3 = 0$ is smaller than the p-value associated to $H_0 : \alpha_3 = 0$

✖

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