

Assignment 3

David Gyarakı, Thao Le

Contents

1	Question 1	2
1.1	(i)	2
1.2	(ii)	2
1.3	(iii)	2
1.4	(iv)	2
2	Question 2	2
3.1	(i)	3
3.2	(ii)	3
3.3	(iii)	3
3.4	(iv)	3
3.5	(v)	3
3.6	(vi)	3
3.7	(vii)	3

```
# {r setup q1, echo=TRUE, results='hide'} ## load packages #if(!require(pacman)){install.packages(
# #p_load(devtools,tidyverse,dplyr,ggplot2,latex2exp, # sampleSelection,
quantreg, plm, nlme) # ##load data #dfData = read.csv("assignment2a_2023.csv")
#attach(dfData) #
```

1 Question 1

color	number of individual		average outcome	
	treated	control	treated	control
purple	100	100	9	7
blue	75	25	13	8
green	25	75	10	9

1.1 (i)

The treatment effect in theory is the difference between the outcomes if the individual is treated versus if the individual is not treated. Suppose that for individual i , the treatment effect is defined as:

$$TE_i = \Delta_i = y_{i,d=1} - y_{i,d=0}, \quad (1)$$

where the y marks the outcome and d is the dummy whether individual i was treated ($d = 1$) or not ($d = 0$).

1.2 (ii)

1.3 (iii)

1.4 (iv)

2 Question 2

3

```
# {r load data q3, echo=TRUE, results='hide'} #dfData2 = read.csv("assignment2b_2023.csv")
#attach(dfData2) # #dfData2 <- na.omit(dfData2) #
```

3.1 (i)

3.2 (ii)

3.3 (iii)

3.4 (iv)

3.5 (v)

3.6 (vi)

3.7 (vii)