



## Applied Longitudinal Data Analysis

### Fun Exercise 5

#### 5.1.

Delete persons who have participated only once in the panel.

ID	YEAR	SATIS	EMP
1	1984	5	0
2	1984	6	0
2	1985	8	1
3	1984	1	0
3	1985	2	0
4	1984	2	0
4	1985	3	0
5	1987	1	1

```
ID      <-as.numeric(c(1,2,2,3,3,4,4,5))
YEAR    <-as.numeric(c(1984,1984,1985,1984,1985,1984,1985,1987))
SATIS   <-as.numeric(c(5,6,8,1,2,2,3,1))
EMP      <-as.numeric(c(0,0,1,0,0,0,0,1))
DATA01 = data.frame(ID,YEAR,SATIS,EMP)
```

## 5.2.

The Table below gives the result of a survey. SATIS measures life satisfaction. EMP is a binary variable for employment status (0: Employed; 1: Not employed).

- How large is the mean life satisfaction of the not employed? \_\_\_\_\_
- How large is the mean life satisfaction of the employed? \_\_\_\_\_
- How large is the difference? \_\_\_\_\_

ID	YEAR	SATIS	EMP
1	1984	5	0
1	1985	6	1
2	1984	6	0
2	1985	8	1
3	1984	1	0
3	1985	2	0
4	1984	2	0
4	1985	3	0

Check: Insert the data into R and run an OLS-regression!

```
ID      <-as.numeric(c(1,1,2,2,3,3,4,4))
YEAR    <-as.numeric(c(1984,1985,1984,1985,1984,1985,1984,1985))
SATIS   <-as.numeric(c(5,6,6,8,1,2,2,3))
EMP      <-as.numeric(c(0,1,0,1,0,0,0,0))
DATA01 = data.frame(ID,YEAR,SATIS,EMP)
lm(DATA01$SATIS ~ as.factor(DATA01$EMP))
```

## 5.3

Use the data from 5.2, but study the individual change.

- How much did life satisfaction change on average for those who got unemployed? \_\_\_\_\_
- How much did life satisfaction change on average for those who stayed employed? \_\_\_\_\_
- How large is the difference? \_\_\_\_\_

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Check: Insert the data into R and run a DiD-regression!

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```
library(dplyr)

DATA01<- DATA01 %>%
  arrange(ID, YEAR) %>%
  group_by(ID) %>%
  mutate(EMP_L = lead(EMP),
         SATIS_L = lead(SATIS))
DATA01$SATIS_NEW <- (DATA01$SATIS_L -DATA01$SATIS)
DATA01$EMP_NEW <- (DATA01$EMP_L-DATA01$EMP)
lm(DATA01$SATIS_NEW ~ DATA01$EMP_NEW)
```

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