ProblemSet1

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Exercise 1

Part A

The economic context of a CLRM time series prediction could be inflation rates over a period of time.

Part B

Conditional Expectation

$$
\begin{aligned}
E(y|x) &= E(x\beta + \epsilon|x) \\
&= E(x\beta|x) + E(\epsilon|x) \\
&= E(x\beta|x) \\
&= x\beta
\end{aligned}
$$

Conditional Variance

$$
\begin{aligned}
V(y|x) &= V(x\beta + \epsilon|x) \\
&= V(x\beta|x) + V(\epsilon|x) \\
&= 0 + \sigma^2 \\
&= \sigma^2
\end{aligned}
$$

Part C

Exercise 2

fileurl = “https://github.com/fivethirtyeight/data/blob/master/steak-survey/steak-risk-survey.csv”

download.file(fileurl,destfile = “~/Emilys digital marvels/UZH/Semester 1/Empirical Methods/Archive(1)/PS 1/.csv”)

list.files(“~/Emilys digital marvels/UZH/Semester 1/Empirical Methods/Archive(1)/PS 1/.csv”)

‘read.table’ function

fivethirtyeightdata = read.table(“~/Emilys digital marvels/UZH/Semester 1/Empirical Methods/Archive(1)/PS 1/.csv”, sep=“,”, header=TRUE)

read.table(“https://github.com/fivethirtyeight/data/blob/master/steak-survey/steak-risk-survey.csv”)

read.csv()

head(fivethirtyeightdata) # it shows in the console what the dataset looks like from the top tail(fivethirtyeightdata)

download.file(fileURL, destfile = “~/Emilys digital marvels/UZH/Semester 1/Empirical Methods/Archive(1)/PS 1/.csv”, mode = “wb”, extra=‘-L’) list.files(“~/Emilys digital marvels/UZH/Semester 1/Empirical Methods/Archive(1)/PS 1/.csv”)

fivethirtyeight <- mutate(fivethirtyeight, cooking_tempdetrend=cooking_temp-mean(cooking_temp, na.rm=TRUE))

newvar1 <- fivethirtyeight$pm25 - median(fivethirtyeight$pm25, na.rm=TRUE) newvar2 <- fivethirtyeight$pm25 - mean(chicago$pm25, na.rm=TRUE)