Week3 - 02424 - Q1

ex 1

$$\log(Y) = \begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 2 \\ 1 & 1 & 3 \\ 1 & 1 & 4 \\ 1 & 0 & 5 \\ 1 & 0 & 6 \\ 1 & 0 & 7 \\ 1 & 0 & 8 \end{bmatrix} \begin{bmatrix} \mu \\ \alpha \\ \beta \end{bmatrix} + \varepsilon \qquad \varepsilon \sim N(0, \sigma^2 I)$$

So some common slope for the regions, a effect specific for the low region and a intercept for the roof.

ex 2

We estimate the parameters by

$$\beta = (X^T \Sigma^{-1} X)^{-1} X^T \Sigma^{-1} \log(Y) \qquad \text{(slide 27)}$$

$$\overset{iid}{=} (X^T X)^{-1} X^T \log(Y)$$

$$\approx \begin{bmatrix} 2,718 \\ -1,105 \\ -0,163 \end{bmatrix}$$

ex 3

We predict Y_9 at 2m (the ground) by

$$\exp\left(\begin{bmatrix} 1 & 1 & 9 \end{bmatrix} \beta\right) \approx 1,15$$

Week 3 - 02424 Q2

ex1 - see R

ex2:

$$\text{Pollution} \sim \alpha \cdot \text{Industry} + \mu$$

$$\text{Pollution} \sim \alpha \cdot \text{Industry} + \beta \cdot \text{Temp} + \mu$$

$$\text{Pollution} \sim \alpha \cdot \text{Industry} + \beta \cdot \text{Temp} + \gamma \cdot \text{Wet. days} + \mu$$

Comment: We do not include People because it is 0.96 correlated with industry

↑

Dette passede ikke... Der blevet lavet en anova.

Se løsning.