

# Regression Models week 2

## The linear model

$$Y_i = \beta_1 X_{1i} + \beta_2 X_{2i} + \cdots + \beta_p X_{pi} + \epsilon_i = \sum_{k=1}^n X_{ik} \beta_j + \epsilon_i$$

## Result

$$\hat{\beta}_1 = \frac{\sum_{i=1}^n e_{i,Y|X_2} e_{i,X_1|X_2}}{\sum_{i=1}^n e_{i,X_1|X_2}^2}$$