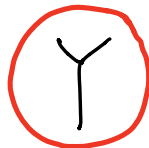


⊗ Expanding the regression framework

- rent
- mortality
- reaction time
- death rate
- degree of defoliation



- continuous
- discrete: binary, count
- categorical: ordered, unordered

← the response, dependent variable

random variable

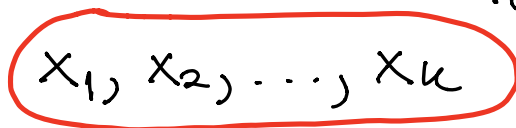
← our main modelling objective

Aims:

- 1) Make a prediction of Y in a specific setting.
- 2) Understand relationship between response

end

- area, location
- dose
- day
- smoke status



- continuous
- discrete
- categorical: nominal, ordered
- factor

↑ covariates, explanatory variables, independent variables, regressors, predictors, ...

fixed - not random. If random, we consider conditional modelling

We will consider relationships between

the conditional mean of Y : $E(Y|x) = \mu$

1

and linear combinations of the covariates

in a linear predictor:

$$\eta = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k = \underset{\substack{\uparrow \\ k \times p \quad p \times 1 \\ p = k+1}}{x^T} \beta$$

Pairs (x_i, y_i) are in most cases independent $i=1, \dots, n$ (so (x_1, y_1) independent of (x_2, y_2)) but also dependencies may be modelled.

