

$$\begin{bmatrix}
 1 & x_{11} & \dots & x_{1j} & \dots & x_{1p} \\
 1 & x_{21} & \dots & x_{2j} & \dots & x_{2p} \\
 \vdots & \vdots & \ddots & \vdots & \ddots & \vdots \\
 1 & x_{i1} & \dots & x_{ij} & \dots & x_{ip} \\
 \vdots & \vdots & \ddots & \vdots & \ddots & \vdots \\
 1 & x_{n1} & \dots & x_{nj} & \dots & x_{np}
 \end{bmatrix}$$

$\mathbf{x}_{i\cdot}$
 observation i

$\mathbf{x}_{\cdot j}$
 explanatory
 variable j

The diagram shows a data matrix with rows representing observations and columns representing explanatory variables. The matrix is enclosed in large square brackets. The first column contains ones. The i -th row is highlighted with a blue border and labeled $\mathbf{x}_{i\cdot}$ observation i . The j -th column is highlighted with a red border and labeled $\mathbf{x}_{\cdot j}$ explanatory variable j . The intersection of these two highlights is the element x_{ij} .