

$$[x_{i,1} \quad x_{i,2} \quad \dots \quad x_{i,p}]$$

$$\beta_{0,0} + \sum_{j=1}^p \beta_{j,0} x_{i,j}$$

$$\beta_{0,1} + \sum_{j=1}^p \beta_{j,1} x_{i,j}$$

...

$$\beta_{0,p} + \sum_{j=1}^p \beta_{j,p} x_{i,j}$$

SOFTMAX

$$P_r(y_i=0)$$

$$P_r(y_i=1)$$

...

$$P_r(y_i=q)$$