



$$= \sigma (\beta_{10} + \beta_{11}x_1 + \dots + \beta_{1p}x_p) = \sigma \left( \beta_{10} + \sum_{i=1}^p \beta_{1i}x_i \right)$$

$$\begin{pmatrix} H_1 \\ H_2 \\ \vdots \\ H_m \end{pmatrix} = \sigma \left[ \begin{pmatrix} \beta_{10} \\ \beta_{20} \\ \vdots \\ \beta_{p0} \end{pmatrix} + \begin{pmatrix} \beta_{11} & \beta_{12} & \dots & \beta_{1p} \\ \beta_{21} & \beta_{22} & \dots & \beta_{2p} \\ \vdots & \vdots & \ddots & \vdots \\ \beta_{m1} & \beta_{m2} & \dots & \beta_{mp} \end{pmatrix} \begin{pmatrix} x_1 \\ x_2 \\ \vdots \\ x_p \end{pmatrix} \right]$$

$$H = \sigma (\boldsymbol{\beta} + \mathbf{B}\mathbf{x})$$