

$$[\mu, \boldsymbol{\alpha}, \sigma \mid \mathbf{y}] \propto \prod_{i=1}^N \prod_{j=2}^M \left[y_{i,j} \mid g(\mu, \boldsymbol{\alpha}, \mathbf{x}), \sigma^2 \right] [\mu] [\boldsymbol{\alpha}] [\sigma]$$

$$g(\mu, \boldsymbol{\alpha}, \mathbf{x}) = \mu + \sum_{j=2}^M \alpha_j x_{i,j}$$