Econometrics II TA Session #4

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1 Binary Model

We have data $\{(y_i, x_i)\}_i$ where x_i is a vector of explanatory variables (random variables), and $y_i \in \{0, 1\}$ is a binary (dummy) variable. In the binary choice model, regression function is

$$\mathbb{E}[y_i|x_i] = \mathbb{P}(y_i = 1|x_i) = G(x_i\beta).$$

While $G(\cdot)$ is arbitrary function, there are following three major specifications in practice:

- Linear probability model (LPM): $G(x_i\beta) = x_i\beta$
- Probit model: $G(x_i\beta) = \Phi(x_i\beta)$ where $\Phi(\cdot)$ is the standard Gaussian cumulative function.
- Logit model: $G(x_i\beta) = \frac{1}{1+\exp(-x_i\beta)}$