

# Binary choice – 3.1 Model specification: the error term

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*Practice quiz.*

## Question

Consider the utility functions of individual  $n$  for two alternatives  $i$  and  $j$  as follows:

$$U_{in} = V_{in} + \varepsilon_{in}, \quad (1)$$

$$U_{jn} = V_{jn} + \varepsilon_{jn} \quad (2)$$

with the same notations as in the video. The binary probit model is obtained based on the assumption that the error terms are i.i.d. normally distributed across  $n$ . Derive the binary probit model  $P_n(i)$ .

## Hints

- Remember that the utility difference matters.
- Remember the definition of a cumulative distribution function (CDF).