
HOMEWORK WEEK 4

In a route choice case study, the utility functions are defined as follows:

$$\begin{aligned}U_1 &= ASC_1 + \beta_{length} \cdot length_1 + \varepsilon_1 \\U_2 &= ASC_2 + \beta_{length} \cdot length_2 + \varepsilon_2\end{aligned}\tag{1}$$

where alternatives 1 and 2 represent different routes, ASC_1 , ASC_2 and β_{length} are parameters to be estimated and $length_i, i \in \{1, 2\}$ is the length of each route in kilometers.

The estimation results of a binary logit model, where ASC_1 has been normalized to zero, are shown in the first column of the following table. The second column corresponds to the same specification where ASC_2 has been normalized to zero:

	Logit 1	Logit 2
ASC_1	0	x
ASC_2	-2	0
β_{length}	10	y

Perform the following tasks:

1. Replace x and y in the table by the value of the corresponding parameter.
2. What are the distributions of ε_1 , ε_2 and $\varepsilon_1 - \varepsilon_2$?