

Choice with multiple alternatives

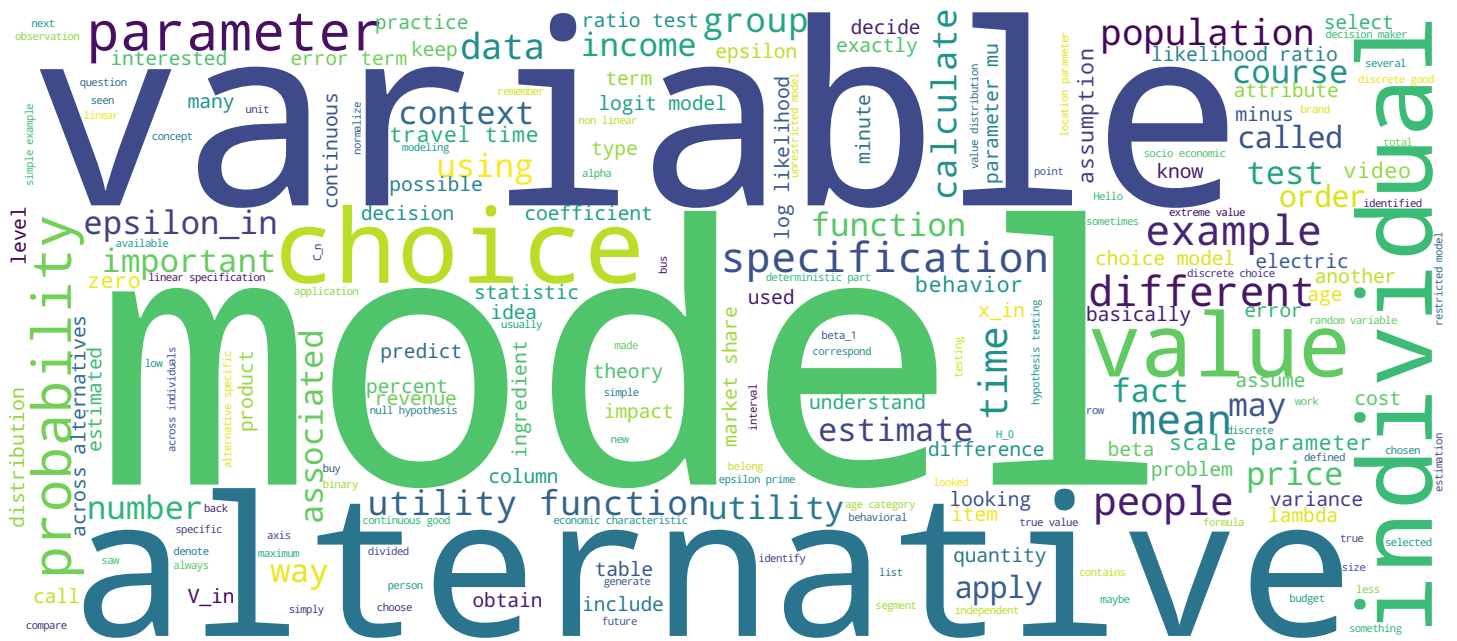
Derivation of the logit model

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Introduction to choice models



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The error term

For all $i \in \mathcal{C}_n$

$$U_{in} = V_{in} + \varepsilon_{in}$$

- ▶ What is \mathcal{C}_n ?
- ▶ What is ε_{in} ?
- ▶ What is V_{in} ?



So we are looking at the logit model, and we are looking at the three ingredients of the logit model. The choice set \mathcal{C}_n , the ε_{in} , the error term, and the V_{in} , the deterministic part of the utility function. In the previous video, we looked at the choice set. In this video, we will look at the ε_{in} .

Notes

Summary



0m 04s

Error terms

Logit: same assumptions as for binary logit

ε_{in} are

- ▶ independent and
- ▶ identically distributed,
- ▶ extreme value $EV(0, \mu)$.

Comments

- ▶ Independence: across i and n .
- ▶ Identical distribution: same scale parameter μ across i and n .
- ▶ For estimation, scale is normalized: $\mu = 1$.

Actually, for the epsilon, we will do the same assumption that we did for binary logit. We will assume that these ε_{in} are random variables that are independent (and, by independent, I mean independent across alternatives i , but also across individuals n) and that they are identically distributed as an extreme value distribution, with location parameter 0 and scale parameter μ . So it's important to understand that this independence assumption goes into both dimensions, across alternatives i and individuals n . The fact that it's an identical distribution, it means that the μ parameter, the scale parameter, is the same for all individuals n and all alternatives i . And, as you will see, this parameter μ , the scale parameter, will not be identified from data. So, in practice, when we estimate the model from data, we will have to normalize its value to one.

Notes

Summary



Error terms

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Comments

- ▶ Independence: across
- ▶ Identical distribution: and n .
- ▶ For estimation, scale

But in the derivation, I will keep it as such. So because it's there and it's important.

Notes

Summary



1m 23s