

IEOR E4601: Dynamic Pricing and Revenue Management
Lecture 6: Multinomial Logit Model

1 Study Guide

By the end of this lecture, you should be able to

1. Define substitutable products.
2. Describe a general utility-based choice model for substitutable products.
3. Write down choice probabilities under the MNL and Logit model.
4. Formulate the price optimization problem under MNL with and without costs.
5. State the assumptions made in the above formulation about product attributes and utilities.
6. Give formulas for the optimal prices under MNL with and without costs.

2 Utility-based model of choice for substitutable products

Discussion: How are substitutable products different from non-substitutable products? Can you think of an example? What does this difference imply about the property of the choice model?

3 Multinomial Logit Model (MNL)

Discussion: Why can we assume, under MNL or Logit, that the no-purchase option has mean utility 0?

4 Estimation of MNL

5 Price optimization under MNL

Discussion: Why is the optimal price slightly higher than the optimal revenue in the formulas above?