

IEOR E4601: Dynamic Pricing and Revenue Management

Lecture 3: Individual-level Demand Models

1 Study Guide

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

1. Compare and contrast population-level versus individual-level demand model.
2. Relate demand with willingness to pay.
3. Explain the concept of utility.
4. Explain the random component of utility.
5. Define the no-purchase option.
6. State some common models of utility, including logit.
7. Fit a individual-level demand model using Maximum Likelihood.
8. Use an individual-level demand model to find the optimal price.
9. Discuss some advantages and disadvantages of the above approach.

2 Utility model

Discussion: Why do we have an idiosyncratic component?

3 Utility-driven purchase

Video: The psychology of pricing (1:35).

Discussion: What does the video above imply about the price-demand function. How can we take advantage of this information?

4 Multinomial Logit Model of choice

Discussion: Why do we want a closed-form choice model? Is the Gumbel distribution realistic?

5 From model of choice to demand model

Discussion: What are some advantages and disadvantages of beginning with individual behavior?

6 Model fitting with Maximum Likelihood

Video: How This N.Y. Company Is Changing the E-Commerce Game.
Discussion: Why is pricing a particularly attractive strategy for retailers?