

Introduction to Choice Models

Outlook

- Choice Models
 - Utility theory
 - Logit versus multinomial logit
 - Model fit
 - Interpretation of coefficients
- Business Applications

Choice Models

1. Observe choice:

- Buy/not buy – direct marketers
- Brand bought – packaged goods

2. Capture related characteristics data:

- Demographics
- Attitudes/perceptions
- Market conditions (price, promotion, etc.)

3. Link

- 1 to 2 via “choice model” – the model *predicts* customers’ probabilities of purchase and also *reveals* importance of characteristics.

Choice Models

Binary Choice

- Buy or Not Buy
- Yes or No
- Own or Don't own

Multinomial Choice

- Wisk, All, Tide, and Yes
- Bus, Train, or Plane
- Yes, No, Don't Know

Choices are mutually exclusive. The customer chooses only one of the options at a given choice occasion.

Underlying Assumptions

- Consumers are rational utility maximizers
 - Well-ordered preferences for any set of choice alternatives
- Alternative with maximum utility is chosen
- Utility assigned to alternatives is unobserved
- Observables are available about
 - the chosen alternatives (Tide, Wisk, etc.)
 - customer characteristics (age, income, etc.)
 - products (price, feature, display, etc.)
- Translating utilities to choice probabilities

