SAINT-ETIENNE SCHOOL OF ECONOMICS

Econometrics: Discrete Choice Models

Level: *Master 1*
Program: *Master Analyse et Politique Economique*
Semester : 1
Class hours: 18h
Instructor: Victor STEPHANE
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Course Outline:

Chapter 1: Binary Choice
- Specificities of qualitative dependent variables and estimation issues
- Binary choice models: probit and logit
- Random utility model / latent variable approach
- Maximum Likelihood Estimation
- Interpretation of coefficients and marginal effects
- Hypothesis testing and goodness of fit

Chapter 2: Multinomial Choice
- Ordered choice models
- Multinomial logit model
- Independence of Irrelevant Alternatives (IIA) assumption
- Nested logit models

Chapter 3: Tobit Estimation of Corner Solution Models
- Limitations of OLS in censored data settings
- Tobit Type I model: specification and estimation
- Interpretation of Tobit coefficients
- Mills ratio and partial effects
- Heckman selection model (Tobit Type II)

Learning Outcomes :

By the end of the course, students will be able to:
- Understand the theoretical basis of discrete choice models.
- Identify appropriate econometric models for binary, multinomial, ordered, and censored data.
- Estimate discrete choice models using maximum likelihood methods.
- Interpret estimated parameters and compute marginal effects.
- Evaluate model fit and perform relevant hypothesis testing.
- Apply discrete choice models to real-world data.

Assessment: Final exam and one homework assignment.

Prerequisites: Econometrics of linear models.

References: Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data.* MIT press.