ECON6300/7320/8300 Advanced Microeconometrics Binary response models

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Practical 3

Introduction

- This class will review:
  - MLE estimation of binary response models
  - Wald tests
  - Likelihood ratio tests
  - Predicted probabilities
  - Effect of changes in regressors on predicted probabilities
  - Classification
  - Marginal effects

- We begin with a demonstration from Microeconometrics using STATA Chapter 14 looking at the propensity of to purchase private insurance

- We move on to a practical looking at the propensity of individuals to engage in extramarital affairs

Demonstration

- ▶ This follows Chapter 14 of the course textbook

- ▶ We analyse data on health, retirement and private insurance
  - ▶ The data is from the Health and Retirement study, restricted to those on Medicare
  - ▶ We explore the propensity of individuals to take out private health insurance

Practical (1)

- ▶ We will use the Redbook survey of Fair (1978) on extramartial affairs
- ▶ The sample contains 6,366 married women and includes data on time spend in extramarital affairs (yrb), a rating of the marriage (v1, 1 to 4), age (v2), number of years married (v3), number of children (v4, up to 5), strength of religious beliefs (v5, 1 to 4), education (v6, values of 9,12,14,16,17,20), occupation (v7, values 1-6) and husband's occupation (v8).

Practical (2)

1. Download the .csv data from Blackboard
2. Import the data into STATA
3. Construct a dummy variable for whether the individual has engaged in an extramarital affair (yrb>0)
4. Fit logit and probit models using your affair indicator and covariates v1-v8. Interpret your results
5. Conduct a Wald test on the variables which are not statistically significant
6. Calculate and summarize the fitted probabilities from your preferred model at a sensible value of the covariates
7. Compute and interpret the classification table.
8. Evaluate the marginal effects at the mean and the average marginal effects
9. Evaluate the impact on the probabilities from a change in the number of years married