Postestimation Analysis with Stata by SPost13 commands of Survey Data analyzed by MNLM

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1-Introduction

Data coming back from a large survey have been analyzed by a regression model for normal outcomes, also known as the Multinomial Logit Model (MNL). The analysis was performed using the Stata software, which is widely used in social sciences for its ease of use and powerful statistical capabilities. However, the interpretation of the results can be challenging, especially when dealing with complex models or large datasets.

2-Objectives

The main objectives of this analysis are:

- To understand the effects of different variables on the outcome of interest.
- To compare the performance of different models for the same dataset.
- To explore the implications of the results for policy-making or other practical applications.

3-Data Description and Exploratory Data Analysis

The dataset includes information on various attributes of the respondents, such as demographic characteristics, socioeconomic status, and previous experiences with the product/service being studied.

4-Model fitting and Selection

The dependent variable is categorical, and the analysis starts by fitting a multinomial logit model. Various models are compared based on their fit and predictive power, using criteria such as the likelihood ratio test and the Akaike Information Criterion (AIC). The final model is chosen based on its ability to explain the variation in the outcomes.

5-SPost13 command listplot

The SPost13 command listplot is used to visualize the results of the regression model. It can be used to compare the probabilities of different outcomes across different levels of a categorical variable.

6-SPost13 command listcoef

The SPost13 command listcoef is used to summarize the regression coefficients, allowing for a quick comparison of the effects of different variables on the outcome.

7-SPost13 command miplot

The SPost13 command miplot is used to analyze the interaction effects in the model, providing insights into how the relationship between variables changes at different levels of other variables.

8-Interpretation in terms of Odds Ratios

The odds ratios provide a measure of the relative risk associated with different levels of the independent variables. They can be interpreted as the ratio of the odds of an event occurring in one group compared to another.

9-Interpretation based on Adjusted Predictions and Marginal Effects

Adjusted predictions and marginal effects are used to understand the average effect of a change in a predictor on the outcome, taking into account the presence of other variables in the model.

10-SPost13 command mltabulate

The SPost13 command mltabulate is used to create a table summarizing the results of the regression model, including coefficients, standard errors, and p-values.

11-SPost13 command mchange

The SPost13 command mchange is used to calculate marginal effects of continuous variables, allowing for a better understanding of the effect of small changes in the predictor on the outcome.

12-SPost13 command mchange

This command is used to calculate marginal effects of categorical variables, providing insights into the change in the outcome for a change in the category of the predictor.

13-SPost13 command mchange

Marginal effects are used to assess the impact of changes in the predictor on the outcome, allowing for a more detailed comparison of different levels of the predictor.

14-Interpretation in terms of Marginal Effects

The marginal effects provide a measure of the change in the predicted probability of an event for a one-unit change in the predictor, allowing for a more intuitive understanding of the effects of different variables.

References