Bayesian Selection Approach for Multinomial Probit Models

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In this study, a multinomial probit model is proposed to analyze a categorical response variable. Our primary goal is to identifying the influential variables in the model. To achieve this goal, we introduce a Bayesian selection method that incorporates two nested indicators. The first indicator signifies the activity of a variable in relation to the categorical response, while the second indicator is associated with both a specific variable and a categorical level, helping determine its significance within that level. The selection process relies on posterior indicator samples generated through an MCMC algorithm. We illustrate the effectiveness of our proposed Bayesian selection approach through simulations and a real-world example.