

## **Adequacy of multinomial logit model with nominal responses over binary logit model.**

### ABSTRACT

The aim of this study was to fit a multinomial logit model and check whether any gain achieved by this complicated model over binary logit model. It is quite common in practice, the categorical response have more than two levels. Multinomial logit model is a straightforward extension of binary logit model. When response variable is nominal with more than two levels and the explanatory variables are mixed of interval and nominal scale, multinomial logit analysis is appropriate than binary logit model. The maximum likelihood method of estimation is employed to obtain the estimates and consequently Wald test and likelihood ratio test have been used. The findings suggest that parameter estimates under two logits were similar since neither Wald statistic was significant. Thus, it can be concluded that complicated multinomial logit model was no better than the simpler binary logit model. In case of response variable having more than two levels in categorical data analysis, it is strongly recommended that the adequacy of the multinomial logit model over binary logit model should be justified in its fitting process.

**Keyword:** Multinomial logit; Nominal response; Likelihood ratio test; Walt test; Odds ratio; Deviance.