

A COMPARATIVE STUDY OF SOME VARIABLE SELECTION TECHNIQUES IN LOGISTIC REGRESSION

Ijomah Maxwell . A. & Nwali Obinna

Department of Mathematics/Statistics
University of Port Harcourt, NIGERIA

ABSTRACT

Several research works have studied on the performance of variable selection techniques in logistic regression but were limited to models without interaction. In this research, we considered a comparative study of some variable selection techniques in logistic regression for models with and without interaction. Newton Raphson iteration method was applied to obtain coefficients of the variables in the full model (model without interaction). The performance of each technique was judged by their Akaike Information Criterion (AIC) value and the value of the Area under Receiver's Operating Characteristic (AROC) curve. Our findings show that for models without interaction, the forward stepwise, backward stepwise and best subset methods gave same result. Also, for model with interaction, Best subset method outperformed the other two methods. The AROC also revealed that the model fitted using these three methods have an excellent discrimination ability.