

1154-62-1865

**Mingwei Sun\*** (msun1@samford.edu), 800 Lakeshore Drive, Birmingham, AL 35229, and **Patrick Wang**. *A Time-lagged Penalized Regression Model and Applications to Economic Modeling*.

Variable selection has been an important topic in high-dimensional data analysis. Penalized regressions which achieve variable selection and coefficient estimation simultaneously have enjoyed varying degrees of success in many different fields in recent years. In this paper, a time-lagged penalized regression model which considers the time-delayed effect in a data set and inherits the benefits of penalized regressions is proposed. The model identifies the lag times which make the correlations between the dependent and each independent variables highest and transforms the data based on the lags. An application of the new method to economical modeling which usually contains many lagged variables is illustrated. The result shows that the proposed model can discover some hidden variables that are not included in the linear penalized regression models and has a better prediction performance. Therefore, it could explain the data more comprehensively and objectively. (Received September 17, 2019)