

# Transformed Generalized Linear Models

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**Abstract** The estimation of data transformation is very useful to yield response variables satisfying closely a normal linear model. Generalized linear models enable the fitting of models to a wide range of data types. These models are based on exponential dispersion models. We propose a new class of transformed generalized linear models to extend the Box and Cox models and the generalized linear models. We use the generalized linear model framework to fit these models and discuss maximum likelihood estimation and inference. We give a simple formula to estimate the parameter that indexes the transformation of the response variable for a subclass of models. We also give a simple formula to estimate the  $r - th$  moment of the original dependent variable. We explore the possibility of using these models to time series data to extend the generalized autoregressive moving average models discussed by [1]. The usefulness of these models is illustrated in a simulation study and in applications to three real data sets.

## References

- [1] Benjamin et al. Generalized autoregressive moving average models. J.Amer.Statist. Assoc., (1998) 214–223.