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On Curved Exponential Imbedding and its Applications

In the regression model, the mean and variance of the response variable may be a function of the parameter such as $E(Y | X) = X\theta$ and $Var(Y | X) = \gamma(\theta)$. Under this case, the usual weighted least squares estimator is often an inconsistent estimator. The quasi likelihood estimator is an inefficient estimator, however, may be a consistent estimator. We propose an estimator based on curved exponential imbedding procedure. The estimator derived by this procedure has several optimal properties such as consistency and exponential rate of convergence. An example will be given to illustrate the procedure and results.