

# Efficiency of the Improved Estimators with Stochastic Restrictions Under Balanced Loss in Linear Regression Models

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## Abstract

This paper studies and compares the performance properties of weighted average estimators of ordinary least squares and improved estimates by considering balanced loss function proposed by Zellner (1994). Superiority conditions have been derived, assuming error distribution to be non - normal.

## Keywords

Linear regression model, stochastic linear restrictions, ordinary least squares estimator, mixed regression estimator, improved estimator, weighted average estimators, balanced loss function.

## References

- [1] Giles, J. A., Giles, D.E.A. and Ohtani, K. (1996). The exact risks of some pre-test and stein-type regression estimators under balanced loss. *Communications in Statistics, Theory and Methods*, 25(12), 2901-2924
- [2] Kadane, J.B. (1971). Comparison of  $k$  - class estimators when the disturbances are small. *Econometrica*, 39, 723-737
- [3] Kumar, M., Mishra,N., Gupta, R. (2008.) Predictive performance of the improved estimators under stochastic restrictions in linear regression models. *American Journal of Mathematical and Management Sciences*, 28,no. 3 and 4, 419-432.
- [4] Ohtani, K. (1998). The exact risk of weighted average estimators of OLS and stein-rule estimators in regression under balanced loss. *Statistics and Decisions*, 16, 35-45.
- [5] Theil, H. (1963). On the use of incomplete prior information in regression analysis. *Journal of American Statistical Association*, 58, 404-414.
- [6] Theil, H. and Goldberger, A.S. , (1961). On pure and mixed estimation in econometrics. *International Economic Review* 2, 65-78

- [7] Wan, A. T. K., (1994). Risk comparison of the inequality constrained least squares and other related estimators under balanced loss. *Economic Letters* 46, 203-210.
- [8] Rodrigues, J., Zellner, A.,(1994). Weighted balanced loss function and estimation of the mean time to failure. *Comm. Statistics Theory Methods* 23, 12, 3609-3616.