

[Available Issues](#) | [Japanese](#)>> [Publisher Site](#)Author: Keyword:

Search

[ADVANCED](#)[TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

ONLINE ISSN : 1348-6365

PRINT ISSN : 1882-2754

JOURNAL OF THE JAPAN STATISTICAL SOCIETY

Vol. 32 (2002) , No. 2 pp.165-181

[\[Image PDF \(672K\)\]](#) [\[References\]](#)

A NOTE ON ESTIMATION UNDER THE QUADRATIC LOSS IN MULTIVARIATE CALIBRATION

Hisayuki Tsukuma¹⁾*1) Graduate School of Science and Technology, Chiba University*

Abstract: The problem of estimation in multivariate linear calibration with multivariate response and explanatory variables is considered. In this calibration problem two estimators are well-known; one is the classical estimator and the other is the inverse estimator. In this paper we show that the inverse estimator is a proper Bayes estimator under the quadratic loss with respect to a prior distribution which is considered by Kiefer and Schwartz (1965, *Ann. Math. Statist.*, 36, 747-770) for proving admissibility of the likelihood ratio test about equality of covariance matrices under the normality assumption. We also show that the Bayes risk of the inverse estimator is finite and hence the inverse estimator is admissible under the quadratic loss. Further we consider an improvement on the classical estimator under the quadratic loss. First, the expressions for the first and the second moments of the classical estimator are given with expectation of a function of a noncentral Wishart matrix. From these expressions, we propose an alternative estimator which can be regarded as an extension of an improved estimator derived by Srivastava (1995, *Commun. Statist.-Theory Meth.*, 24, 2753-2767) and we show, through numerical study, that the alternative estimator performs well as compared with the classical estimator.

Key words: Admissibility, inverse regression, multivariate linear model, noncentral Wishart distribution, quadratic loss.

[\[Image PDF \(672K\)\]](#) [\[References\]](#)Download Meta of Article [\[Help\]](#)[RIS](#)[BibTeX](#)

To cite this article:

Hisayuki Tsukuma; "A NOTE ON ESTIMATION UNDER THE QUADRATIC LOSS IN MULTIVARIATE CALIBRATION", *JOURNAL OF THE JAPAN STATISTICAL SOCIETY*, Vol. **32**, pp.165-181 (2002) .

JOI JST.JSTAGE/jjss/32.165

Copyright (c) 2003 Japan Statistical Society



[Japan Science and Technology Information Aggregator, Electronic](#)

