

On testing the equality of high dimensional mean vectors with unequal covariance matrices

Jiang Hu¹ · Zhidong Bai¹ · Chen Wang² ·
Wei Wang¹

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Abstract In this article, we focus on the problem of testing the equality of several high dimensional mean vectors with unequal covariance matrices. This is one of the most important problems in multivariate statistical analysis and there have been various tests proposed in the literature. Motivated by Bai and Saranadasa (Stat Sin 6:311–329, 1996) and Chen and Qin (Ann Stat 38:808–835, 2010), we introduce a test statistic and derive the asymptotic distributions under the null and the alternative hypothesis. In addition, it is compared with a test statistic recently proposed by Srivastava and Kubokawa (J Multivar Anal 115:204–216, 2013). It is shown that our test statistic performs better especially in the large dimensional case.

Keywords High-dimensional data · Hypothesis testing · MANOVA

✉ Jiang Hu
huj156@nenu.edu.cn

Zhidong Bai
baizd@nenu.edu.cn

Chen Wang
wangchen2351@gmail.com

Wei Wang
wangw044@nenu.edu.cn

¹ KLASMOE and School of Mathematics and Statistics, Northeast Normal University, Changchun 130024, Jilin, People's Republic of China

² Department of Statistics and Applied Probability, National University of Singapore, Singapore 117546, Singapore