國 立 中 央 大 學

統 計 研 究 所

學 術 演 講

主 講 人：張元宗教授 ● 高橋武則教授（**Mejiro University, Japan**）

講　　題：**Comparison between Principal Component Regression Based on Groups Organized by Extra Criterion and Ridge Regression**

時　　間：**104 年 09 月 22 日（星期二）上午 11：00 ～ 12：00**

地　　點：中央大學鴻經館 **M605** 室

茶　　會：上午 10：30 ～11：00　　地　點：鴻經館 **510** 室

ABSTRACT

Recent years there are many explanatory variables and respond data to be used in questionnaire. Linear regression analysis and/or principal component regression (PCR) are important tools and often to use to analysis such questionnaire. But in such questionnaire not only has many explanatory variables, respond data but also exists a multi-collinear phenomenon among explanatory variables. When the explanatory variables are multi-collinear, the usual methods are insufficient and may cause wrong results. Besides PCR, Hoerl and Kennard (1970) have suggested the least squares estimators be replaced by Ridge estimator. Even though that the PCR can clear multi-collinear problem and gain a reasonable solutions, it is difficult to make a suitable model. Here we propose the Organized Component Regression (OPCR) method based on respond data. The idea of OPCR is based on respond data to cluster the explanatory variables into several groups, first. Secondly, in each group we use PC analysis to find principal components and use PCR to analysis. We compare OPCR with Ridge estimator to valid the application of OPCR.

Keywords: Pprincipal component regression, Ridge regression, Mean squared error (MSE), Groups organized by extra criterion

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