

國立高雄大學統計學研究所
112 學年度書報討論題目暨摘要登記表

A Weighted Approach to Assign Valid p-values for High-
dimensional Regression Models

Ming-Chun Hsiao (蕭銘浚)

Abstract

This study aims to enhance the efficiency of assigning valid p-values for high-dimensional regression models. In literature, various aggregation methods, employing multiple-splitting and stability selection techniques, have been utilized to combine dependent p-values and assign validity to regression variables. In our research, we explore the application of a standard Cauchy aggregation method to merge multiple p-values. Rather than employing equal weights for the aggregation, we introduce a novel approach of combining these p-values with diverse weights across different splits. The weights are determined based on the performance of the selected regression models over irrelevant subsets in each split. Simulation results demonstrate the efficacy of our method in controlling both the Familywise Error Rate (FWER) and False Discovery Rate (FDR). Notably, our approach exhibits higher statistical power compared to traditional methods that employ equal weights.

Keywords : high-dimensional data, p-value assignment

指導教授簽名：

