

広島統計談話会

Hiroshima Statistics Study Group

第 270 回談話会を下記のように開催致しますので
御参集下さいますようご案内申し上げます。

You are cordially invited to the 270th meeting as scheduled below.

日 時 : 2012 年 7 月 6 日 (金) 15:00 –

Date : July 6th, 2012 (Fri) 15:00 –

場 所 : 放射線影響研究所 講堂

Place : RERF Auditorium

演 者 : Ke-Hai Yuan 博士 (ノートルダム大学 心理学部 教授)

Speaker : Ke-Hai Yuan, Ph.D.

Professor, Department of Psychology, University of Notre Dame

演 題 : 「多くの変数がある場合の構造方程式モデルにおける尤度比統計量の経験的
な修正」

Title : “Empirical Correction to the Likelihood Ratio Statistic for Structural Equation
Modeling with Many Variables”

要 約 :

Summary:

Survey data typically contain many variables. Structural equation modeling (SEM) is one of the most widely used methods in analyzing such data. The most widely used statistic for testing the adequacy of a SEM model is TML , a slight modification to the likelihood ratio statistic. Under normality assumption, TML approximately follows a chi-square distribution when the number of observations (N) is large and the number of items or variables (p) is small. However, in practice, p can be very large while N is always limited due to not having enough participants in surveys. Even with a relatively large N , empirical results show that TML rejects the correct model too often when p is not too small. Various analytical corrections to TML were proposed whereas an exact Bartlett correction is hard to obtain. This paper proposes empirical corrections so that the mean of the resulting statistic approximately equals the degrees of freedom of the nominal chi-square distribution. Results show that two empirically corrected statistics follow the nominal chi-square distribution much more closely than previously proposed statistics. The formulations of the two statistics are further used to predict type I errors of TML as reported in the literature, and they perform well.