

Abstract of thesis entitled:

Killeen's (2005) p_{rep} is an estimator of the replicability of an experiment. It is specifically defined as the probability of obtaining an effect of the same sign as that found in original experiment. Nevertheless, since it was announced, the validity and reliability of p_{rep} has been challenged by a number of researchers. The present study aims at improving the performance of p_{rep} by applying the nonparametric bootstrap method in its computation, and this bootstrap replication estimator is denoted as p_{rep}^B . A simulation study was carried out to compare the performance of Killeen's p_{rep} and the proposed p_{rep}^B under different conditions. As expected, p_{rep}^B gives a more accurate estimation than p_{rep} . However, p_{rep}^B occasionally fails to work properly when there is a zero population effect size, so there is still a room for improvement.

Killeen (2005) 發明的 p_{rep} 是一種實驗重複估計量，它是指能夠獲得與最初實驗效應量一致方向的可能性。但自其發表以來，該系數的信度及效度仍受到不少學者的質疑。是次研究嘗試通過使用自助抽樣法以改善此系數的效能，並將改良的新系數命名為 p_{rep}^B 。不同環境下對兩個系數準確度的模擬測試結果顯示， p_{rep}^B 比 p_{rep} 能達到更準確的估計值。然而當目標總體不存在差別效應時， p_{rep}^B 偶爾會出現較大的偏差，因此未來研究仍需在此方向作出改善。

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