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INSTITUT SAINS MATEMATIK
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TAJUK:

Inference Concerning The Difference Of The Means Of Two Distributions

OLEH:
Pan Wei Yeing
(calon MSc(Statistik) secara berkursus)

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Abstract

Suppose we have independent random samples $X_1, X_2, ..., X_m$ from $N(\mu_x, \sigma_x^2)$ and $Y_1, Y_2, ..., Y_n$ from $N(\mu_y, \sigma_y^2)$ and we wish to test the null hypothesis $H_0 : \mu_x - \mu_y = 0$. A widely used solution is the Welch's test. Presently a new test for testing $H_0 : \mu_x - \mu_y = 0$ is proposed. The new test is found to be comparable to Welch's test in terms of Type I and Type II errors. A discrete version of the above problem is given by one in which there are two independent random variables Y_1 ~Binomial(n_1, p_1) and Y_2 ~Binomial(n_2, p_2). We compare two existing methods (see Agresti and Min (2001) and Y.M. Koh (2000)) and one new method for finding the 100(1- α)% confidence interval for the difference $p_1 - p_2$ between the two population proportions. It is found that all the three methods (the two existing methods and the new method) yield confidence intervals with comparable performance.

SEMUA DIJEMPUT HADIR