

# **The A Priori Procedure (APP) for Estimating Regression Coefficients in Linear models**

Tingting Tong, David Trafimow, Tonghui Wang

## **Abstract**

Regression weights are crucial in the sciences, as researchers use them to determine which independent variables best explain the dependent variable. However, researchers obtain regression weights from data samples and wish to generalize to populations; without reason to believe that sample regression weights are good estimates of corresponding population regression weights, their usefulness would be curtailed. In turn, larger sample sizes provide better estimates than do smaller ones. There is much recent literature on the a priori procedure (APP) that was designed for the general purpose of determining the sample sizes needed to obtain sample statistics that are good estimates of corresponding population parameters. We provide an extension of the APP to regression weights, which works for standardized or unstandardized regression coefficients. A simulation study and real data example support the mathematical derivations. Also, we include free and user-friendly computer programs to aid researchers in making the calculations.