

# **The APP for estimation of the ratio of scale parameters in two independent gamma distributions.**

By

Phuoc Huy Ha and Tonghui Wang

## **Abstract.**

Researchers have become increasingly concerned with estimating the minimum sample sizes required to obtain accurate estimates of population parameters. The extensive and continually growing literature on the *a priori* procedure (APP) reflects this concern. APP equations and online calculators enable researchers to determine the minimum sample sizes needed to achieve reliable estimates of corresponding population parameters. However, a limitation of existing APP developments is that each advance has focused on a single population parameter at a time. The present study is the first to address the ratio of two scale parameters from two independent gamma distributions. In addition to providing the underlying mathematical derivations, we include a link to an online calculator that allows researchers to determine the minimum sample sizes necessary to obtain accurate estimates of both location and scale parameters.