



PHILIPPINE STATISTICAL ASSOCIATION, INC.

2/F Philippine Social Science Center
Commonwealth Avenue, Diliman, Quezon City
Telephone (632) 920-6513 Telefax (632) 456-1928
Email: psa.sec@gmail.com; psai.sec@gmail.com
PSA website : www.philstat.org.ph

THE PHILIPPINE STATISTICIAN
2007, Volume 56, Nos. 3-4

**Approximating the Distribution of Functions in Poisson
Binomial by the Chen-Stein Method**

Mia Pang Rey

Abstract

The paper gives a proof a Poisson approximation theorem for an unbounded function in the Poisson binomial random variable W using the Chen-Stein method. The bound for the Radon-Nikodym derivative involving W and the Poisson random variable Z is used to determine a bound for the modified variation distance between the two variables. The mean of Z is defined to be exactly the mean of W , and may be large.

Keywords: *Chen-Stein method, Poisson distribution, total variation distance*