Small Area Estimation Of The Provincial Prevalence Of Underweight, Stunting And Wasting Among 6-10 Year-Old Children In The Philippines

Myrsa M. Belarmino, Wilma L. Molano and Zita V.J. Albacea, Ph.D.

ABSTRACT

This paper aimed to provide an empirical basis for an indirect method of estimation of the provincial prevalence of underweight, stunting and wasting among 6-10 year-old children in the Philippines. Using the direct estimates obtained derived from the 2003 National Nutrition Surveys, coupled with the use of census data and administrative records the paper presents reliable statistics at the provincial level. These provincial estimates could be used by the local government units in the formulation of programs and policies aiming at improving the nutritional status of the children, particularly the school-age children, in their respective provinces.

A total of 3,436 children belonging to the 6-10 age-group from 17 regions of the country were the subjects of this paper. Direct estimates of the prevalence of underweight, stunting and wasting at the provincial level were generated. Measures of accuracy, precision and reliability, such mean square error, estimated bias and coefficient of variation of these direct estimates were also computed. These measures were used to compare the direct estimates and those obtained using the indirect technique or what is usually referred to as small area estimation technique.

The direct method generated only 7.61% reliable estimates of prevalence of underweight, 9.38 % for prevalence of stunted and no reliable estimate was obtained for the prevalence of wasted children. It was observed that such unreliable estimates are mainly due to small sample size of observations obtained at the provincial level. An indirect estimation technique, specifically, empirical best linear unbiased predictor (EBLUP) procedure was employed to circumvent the problem of unreliable provincial estimates.

Results showed that by employing the EBLUP procedure, more reliable provincial estimates for the proportions of underweight, stunted and wasted 6-10 year-old children can be obtained.

Keywords: small area estimation, provincial prevalence of underweight, stunted and wasted 6-10 year old children

2 Science Research Specialist II and Supervising Science Research Specialist, respectively, Food and Nutrition Research Institute, Department of Science and Technology, Bicutan, Taguig, Metro Manila, and Associate Professor of Statistics, Institute of Statistics, College of Arts and Sciences, University of the Philippines Los Baños, College, Laguna, Philippines.