Small Area Estimation of the Prevalences of Underweight, Stunting, and Wasting Among 0-5 Year-Old Children in the Philippines

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ABSTRACT

This study offers empirical basis on the small area/domain estimation of the prevalences of underweight, stunting, and wasting among 0-5 year-old children. Using the direct estimates derived from the 2003 National Nutrition Surveys (NNS), census data and administrative records, this project provides quality statistics at the provincial level. These provincial estimates could be used by statistics-users, especially from the local government units in the formulation of programs and policies aiming at improving the nutritional status of the children, particularly the pre-school children, in their respective areas.

A total of 4,111 children belonging to the 0-5 age group from 17 regions of the country are the subjects of this study. Direct or design-based estimates of the prevalence of underweight, stunting, and wasting at the provincial level were computed. Measures of reliability of these direct estimates were also obtained. Such measures include mean square error, estimated bias and coefficient of variation. These measures were used for comparing the design-based estimates and those obtained using the indirect techniques.

The design-based method generated only 5.6% reliable estimates of underweight, 11.2% for stunted and 11.3% reliable estimates for wasted children. This is due to small sample size, not enough to generate reliable statistics at the provincial level. To answer this problem, EBLUP procedure was employed in this study. A weighted average of the design-based and model-based estimators with weights equal to the variance of the error due to the modeling process over the total variation due to the modeling and sampling process was made.

Results of this study showed that by employing the EBLUP procedure, more reliable provincial estimates for the proportions of underweight, stunted, and wasted 0-5 year old children can be derived.