Small area estimation of poverty and malnutrition in Bangladesh: some practical and statistical issues[1]

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ABSTRACT

Working in conjunction with the Bangladesh Bureau of Statistics and the United Nations World Food Programme, we have produce small-area estimates of poverty and malnutrition in Bangladesh at upazila level by combining survey data with auxiliary data derived from a 5% sample of the recent census. A single model is found to be adequate for predicting log average per capita household expenditure, and the poverty measures derived from it at upazila level have on the whole acceptably small standard errors. Small-area estimates are also calculated for food poverty and malnutrition, but these are more tentative as we were unable to find good predictive models for them. The inclusion of GIS variables, especially if these were health related and available at a suitably disaggregated level, might prove useful for these models.

These small-area estimates are derived by combining expenditure and food consumption data from the 2000 Household Income and Expenditure Survey with predictor variables common to both the survey and the 2001 Population Census. To do this we adapted the World Bank's procedure, which has been used successfully in a number of other countries.

In this paper we discuss our adaptation of the standard procedure and touch on a number of general methodological issues, including 'matching' variables between survey and census, the use of robust regression procedures, design-based versus model-based adjustments, appropriate selection of regression predictors, 'multiple' versus 'single' models, use of GIS data, and use of a sample from the Census rather than the full Census itself. We also discuss some practical limitations on how fine a partition can be achieved with this method. Maps of the small-area estimates will be presented.

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