



CPS Paper

Synthesis of Small Area Poverty Models: A MICE Approach

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Brief Description

This paper applied a methodology to synthesize the regression coefficient estimates of the regional small area poverty models across time periods by using independently collected data sets.

The synthesis was linked to missing data analysis and adopted the Multiple imputation by chained equations (MICE) approach to consider flexibility on the nature of data sets which involve categorical variables.

The MICE approach was applied using the 2009 and 2012 poverty models of Region I developed by the Philippine Statistics Authority Small Area Estimation Team.

Abstract

This paper applied a methodology to synthesize the regression coefficient estimates of the regional small area poverty models across time periods by using independently collected data sets. The synthesis was linked to missing data analysis and adopted the Multiple imputation by chained equations (MICE) approach to consider flexibility on the nature of data sets which involve categorical variables. The MICE approach was applied using the 2009 and 2012 poverty models of Region I developed by the PSA SAE Team. Results showed that the proportion of members in the household who have at least college education (ALL_ATCOLL) has the highest positive impact followed by whether or not a household has a non-relative member who is a domestic helper (DOMESTIC_HELPER), and whether or not a barangay where the household resides is accessible to national highway (BGY_HIGHWAY) while whether or not the marital status of household head is married (HMS_MARRIED), whether or not the roof of the housing unit where the household resides is made of light materials (cogon, nipa, anahaw) without wood (ROOF_LIGHT_OLD), average family size in the barangay where the household resides (FAMSIZE), and whether or not a barangay where the household resides has at least 50 proportion of the 10 years old and overpopulation are farmers, farm laborers, fishermen, loggers and forest product gatherers (BGY_AGR1) were found to have high negative impacts on per capita household income. Moreover, the time dummy variable was found significant indicating that there was a difference between the 2009 and 2012 models in terms of their intercepts. Results of the study showed only that some predictors were consistently significant and have relatively high impacts on poverty status. It was also shown that poverty status varies across time periods.