Analysis of Poverty in Village Level of Indonesia witl Small Area Estimation: Case in Bangkalan District

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1. Introduction

The needs on lower level of administration are difficult to fulfill due to the unavailability and cost of data in the smaller areas, such as data on subdistricts or villages level. Estimation using a small number of samples will result in a high standard error and not good precision. Accurate information at a small regional level is a basic need for setting regional targets in determining policy. Small area estimation (SAE) is a method for estimate smaller area by utilizing information from outside the area,

1. Data

The data source are National Socioeconomic Survey (SUSENAS), and the Population Census (SP) conducted by BPS. The variables used in this study are available in the SUSENAS and SP data, except for the variable of the average household expenditure that is only contained in the SUSENAS

There are 5 variables which can explain poverty and produce the best model. using ELL and EB method, the results are compared.

within that area itself, and from outside the survey (Longford, 2005).





Result

ELL the percentage of poverty obtained for the district level is 18.4 percent.

Empirical Bayes the percentage of poverty obtained for the district level is 19.5 percent.

This value indicates that the empirical bayes method is able to predict the percentage of poor people in Bangkalan Regency well. This is because the estimated value of the percentage of poor people produced in the empirical bayes method has a small deviation with the percentage of the poor population from the actual Susenas 2017 data.

> Figure 2. MSE Results from the Estimated Percentage of Poor Households in the Village Level in Bangkalan Regency, 2017

1. General characteristics of the poor population in **Bangkalan Regency are working with agricultural** businesses, having low education, and have 6-8 member of household.

2. Parameter estimation using small area estimation for village level is able to produce poverty estimators with small MSE and RRMSE. Beside that, estimates at the district level are able to produce a small deviation when compared to the poverty value from the official statistics

3. The ELL method is closer to the results obtained through the 2017 Susenas actual data compared to the ELL method. The **EB** method on average has a smaller MSE bootstrap and **RRMSE** value than the ELL method.



Village Level in

Bangkalan District, 2017

Figure 3. Mapping of Village-Level Poverty in Bangkalan District Using the EB method, 2017

