A new computational approach for estimation of the Gini index based on grouped data

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Abstract
Many government agencies still rely on the grouped data as the main source of infor- mation for calculation of the Gini index. Previous research showed that the Gini index based on the grouped data suffers the first and second-order correction bias compared to the Gini index computed based on the individual data. Since the accuracy of the estimated correction bias is subject to many underlying assumptions, we propose a new method and name it D-Gini, which reduces the bias in Gini coefficient based on grouped data. We investigate the performance of the D-Gini method on an open-ended tail interval of the income distribution. The results of our simulation study showed that our method is very effective in minimizing the first and second order-bias in the Gini index and outperforms other methods previously used for the bias-correction of the Gini index based on grouped data. Three data sets are used to illustrate the application of this method.

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