

ESTIMATION OF INCOME INEQUALITY INDICATORS

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Abstract

Income inequality is observed in any country. There are many socio-demographic indicators characterizing population income. They are needed not only for the whole country, but also for its domains.

If a direct design-based estimate of the population parameter does not reach the accuracy required then the domain/area is called small. Otherwise it is regarded as large.

The small area estimates are not used in the work of Statistics Lithuania yet. This presentation is devoted to estimate two poverty indicators in the population and small areas:

- proportion of individuals "at risk of poverty" or at-risk-of-poverty rate;
- intensity of the poverty measured by poverty gap.

Following Guadarrama et al., 2014, these indicators are calculated using open data source of Statistics Lithuania. Sample sizes in the domains are not very small because not very detailed open data sets are used.

The poverty indicators are estimated using direct estimator, Fay-Herriot estimator, synthetic post-stratified estimator and sample size dependent composit estimator. Their mean squared errors are estimated and the results obtained show that the performance of the Fay-Herriot estimator is the best. It shows the highest accuracy for areas with the smallest domain sizes. Two estimators for the mean squared error (Rao et al., 2015) of the sample size dependent composit estimator are applied and their results are logically interdependent.

The results of this study are designed to Statistics Lithuania with the wishes to implement small area estimation methods in their statistical production.

Keywords: small area estimation, Fay-Herriot estimator, synthetic estimator, composit estimator, mean squared error.

References

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