EVALUATION OF ERROR COMPONENTS IN SMALL DOMAIN ESTIMATORS

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ABSTRACT

The U.S. Current Employment Survey is an establishment survey that is used to produce monthly estimates of total employment within specified domains defined by geography and industrial classification. Approximately nine months after publication of a monthly estimate, one may obtain an alternative establishment-level employment count from a nominal census based on unemployment insurance records. For many domains, data from the insurance records may be considered the true employment counts. Comparison of the true counts with the corresponding small domain estimates leads to a decomposition of the total estimation error into components associated with sampling error, nonresponse error and measurement error, respectively. This paper presents decomposition results for one industry, with principal emphasis on three issues.
(1) The relative magnitudes of the sampling error, nonresponse error and measurement error components.
(2) Models for the moments of these errors.
(3) Use of the models in (2) to produce improved estimators of the small domain totals.

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