

## Adjusting for two fallible classifiers jointly observed in a nonprobability sample Jonas F. Schenkel<sup>1</sup>; Li-Chun Zhang<sup>2, 3, 1</sup>

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## Abstract:

Integration with other sources is often needed to overcome the various known deficiencies of administrative data. Our motivating problem here is delay of administrative reporting that causes misclassification of register-based Employed status, at a time immediately after the statistical reference month. The LFS provides an additional Employed status, albeit aimed at a different definition of employment. Moreover, the LFS suffers from survey nonresponse, such that the LFS respondents from which both the measure variables are jointly observed is a nonprobability sample in reality.

We develop models for adjusting two fallible classifiers jointly observed in a nonprobability sample. Our approach facilitates integrated use of available data, such that timely statistics can be produced with minimum cost. It is readily applicable to other big-data sources, such as a large nonprobability sample of Employed status classified based on mobile phone movement data.

## Keywords:

Misclassification; Calibration probability; Matrix method