Assessing and Updating Intrinsic Estimators in Age-Period-Cohort Analysis

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As an important age-period-cohort method, the Intrinsic Estimator (IE) and related estimators have evoked intense debate in demography, sociology, epidemiology and statistics. This study aims to provide a more holistic and critical assessment of the overall methodological significance of the IE and related estimators in age-period-cohort analysis. In particular, it derives the statistical properties of the IE, provides more precise mathematical proofs relevant to the current debate, and demonstrates the essential, yet overlooked, link between the IE and classical statistical tools that have been employed by scholars for decades. By integrating the fundamental principles of age-period-cohort analysis established since the 1970s, this study also demonstrates the effects of coding schemes based on data simulation.