Model Fitting Tests in the Analysis of Panel Data

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The interest for fitting models to panel data has grown in the last few decades. Modelling methods have to consider the variation in the response variable across the population as well as across time in this context. We review model fitting statistics under the classical (simple random sampling) approach, while we propose new developments on fitting measures when working under the complex sampling approach. We modify the Wald goodness of fit test in the context of models for covariance structures, which is shown to be equivalent to modifying the scaled test statistics. We also propose a modification for the Wald significance test for nested hypothesis. Goodness of fit indices are also modified in order be utilised in the complex survey data context.

Key words: longitudinal survey data, covariance structure, multistage sampling, model fitting statistics