FGLS estimator: a robust approach with panel data

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Abstract

Econometric and financial studies are frequently related to panel data. These type of data arise whenever it is relevant to follow up the behaviour of some variables among a set of companies or financial institutions, for example. Panel data models apply to repeated observations of the same set of units over different time moments. They allow to identify the existence of non-observable effects that would be unnoticed with other models, like an individual or firm effect characteristic. If a set of financial indicators is recorded for the same set of chosen firms for different moments in time, it might be interesting to know if the results are affected by some firm feature, constant in time. Under suitable conditions, the Feasible Generalized Least Squares (FGLS) procedure is applied to obtain the parameter estimators of panel data models. These estimators may be seriously affected by the existence of outliers, which frequently appear in econometric data. Robust estimation presents a solution as it is less affected by the occurrence of such atypical observations but it is not yet commonly seen in economical and financial empirical studies. In this paper, the authors aim to contribute to the development of robust estimation methodologies with panel data. They present a robust version of the traditional FGLS estimator, the Robust FGLS (RFGLS), and compare the performance of the two estimators using a well-known set of economical data. The study is complemented with a Monte Carlo simulation assessing the estimator properties under the presence of some undesired scenarios, so common in economical and financial areas.

Keywords

FGLS, Panel data, Robust estimation, Simulation.

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