

Accurate subsampling intervals of Principal Components Factors

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In the context of Dynamic Factor Models (DFMs), one of the most popular procedures for factor extraction is Principal Components (PC). Measuring the uncertainty associated to PC factor estimates should be part of interpreting them. However, the asymptotic distribution of PC factors could not be an appropriate approximation to the finite sample distribution for the sample sizes and cross-sectional dimensions usually encountered in practice. The main problem is that parameter uncertainty is not taken into account. We show that several bootstrap procedures proposed in the context of DFM with goals related to inference are not appropriate to measure the uncertainty of PC factor estimates. In this paper, we propose an asymptotically valid subsampling procedure designed with this purpose. The finite sample properties of the proposed procedure are analyzed and compared with those of the asymptotic and alternative extant bootstrap procedures. The results are empirically illustrated obtaining confidence intervals of the underlying factor in a system of Spanish macroeconomic variables.