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A Discrete Model for Bootstrap Iteration

by

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Abstract

The bootstrap can be validated by considering the sequence of P values obtained by bootstrap iteration, rather than asymptotically. If this sequence converges to a random variable with the uniform $\mathrm{U}(0, 1)$ distribution, the bootstrap is valid. Here, the model is made discrete and finite, characterised by a three-dimensional array of probabilities. This renders bootstrap iteration to any desired order feasible. A unit-root test for a process driven by a stationary MA(1) process is known to be unreliable when the MA(1) parameter is near -1. Iteration of the bootstrap P value to convergence achieves reliable inference unless the parameter value is very close to -1.

Keywords: Bootstrap, bootstrap iteration, unit root, MA(1)

JEL codes: C10, C12, C15

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