# ON THE CONSTRUCTION AND PROPERTIES OF BOOTSTRAP-t PREDICTION INTERVALS FOR STATIONARY TIME SERIES

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*Abstract:* We consider the construction of unconditional bootstrap-t prediction intervals for stationary time series. Our approach relies on the sieve bootstrap resampling scheme introduced by Bühlmann [8].

Basic theoretical properties concerned with consistency of the bootstrap approximation as well as consistency of constructed intervals are proved.

We generalize results obtained earlier by Stine [26], Masarotto [21] and Grigoletto [16] for autoregressive time series of finite order to the rich class of linear and invertible stationary models.

Finite sample accuracy of proposed bootstrap-t prediction intervals is verified by computer simulations. Empirical results of a comparative study show that our method is a superior alternative to both traditional Box-Jenkins approach and hybrid sieve-bootstrap prediction intervals proposed recently by Różański and Zagdański [24].

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**Key words and phrases:** Prediction intervals, sieve bootstrap-t method of sieves.

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