

Title: "Saddlepoint approximations in the frequency domain"

Abstract: "Saddlepoint techniques provide accurate, higher order, small sample approximations to the distribution of estimators and test statistics. Except for a few simple models, these approximations are not available in the framework of stationary time series. We contribute to fill this gap by developing new saddlepoint approximations for frequency domain statistics. Under short or long range serial dependence, for Gaussian and non Gaussian processes, we show how to derive and implement our saddlepoint techniques (density approximation and test in the presence of nuisance) for two relevant classes of statistics: ratio statistics and Whittle's estimator. Several Monte Carlo exercises for widely-applied time series models illustrate the theory and compare the new approximations with those obtained by first order asymptotic theory and the bootstrap. A real data example about the European Central Bank assets concludes the paper."

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