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Abstract: The problem of fitting continuous-time autoregressions (linear and non-linear) to closely and regularly spaced data is considered. For the linear case Jones (1981) and Bergstrom (1985) used state-space representations to compute exact maximum likelihood estimators, and Phillips (1959) did so by fitting an appropriate discrete-time ARMA process to the data. In this paper we use exact conditional maximum likelihood estimators for the continuously-observed process to derive approximate maximum likelihood estimators based on the closely-spaced discrete observations. We do this for both linear and non-linear autoregressions, and indicate how the method can be modified also to deal with non-uniformly but closely-spaced data. Examples are given to indicate the accuracy of the procedure.

Stichworte: Cameron-Martin-Girsanov formula, continuous-time autoregression, maximum likelihood, Radon-Nikodym derivative, sampled process, threshold autoregression, Wiener measure

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