

Report on JMVA175 “Extensions to a Theorem of Barndorff-Neilson and Schou”

This paper deals with extending a result due to Barndorff-Neilson and Schou (1973) concerning a re-parametrization of $AR(p)$ coefficients in terms of the partial autocorrelations.

Although from a technical point of view everything is correct, it is felt that the paper, as currently written, is really of negligible advance over and above Barndorff-Neilson and Schou’s original contribution. In other words, there could potentially be more in content than currently presented, however, this is not obvious, nor is it the function of this referee to point out that there is more. Therefore the authors’ are encouraged to go into greater depth as to how this reparametrization is useful for estimation and inference in time series analysis.

On a technical note, Theorem 1, which is the main result of the paper is really a well known result (under weaker conditions) in Algebraic Topology and is commonly known as the “Invariance of Domain” result originally attributed to Brouwer. This is commonly referenced in most Topology books, as an example, this is Corollary 18.9 in Greenberg and Harper (1981). It does not need to be re-proven with the additional conditions.

Greenberg and Harper (1981). *Algebraic Topology: A First Course*.