Supplement to "Higher-Order Polyspectral Estimation with Flat-Top Lag-Windows" by A. Berg and D. Politis

Simulations are used to evaluate the various bandwidth selection procedures for the bispectrum. The five bandwidth selection procedures considered are described below.

(a) Practical bandwidth selection algorithm for the bispectrum of Section 4

(b) Plug-in method at the origin with flat-top pilots [1]

(c) Plug-in method at the point (2,1) with flat-top pilots[1]

(d) Plug-in method at the origin with second-order pilots [2]

(e) Plug-in method at the point (2,1) with second-order pilots[2]

Below are histograms of the bandwidth selection procedures (a) through (e) based on 500 realizations. The top row in every Figure corresponds to $N = 200$ and the bottom row corresponds to $N = 2000$.

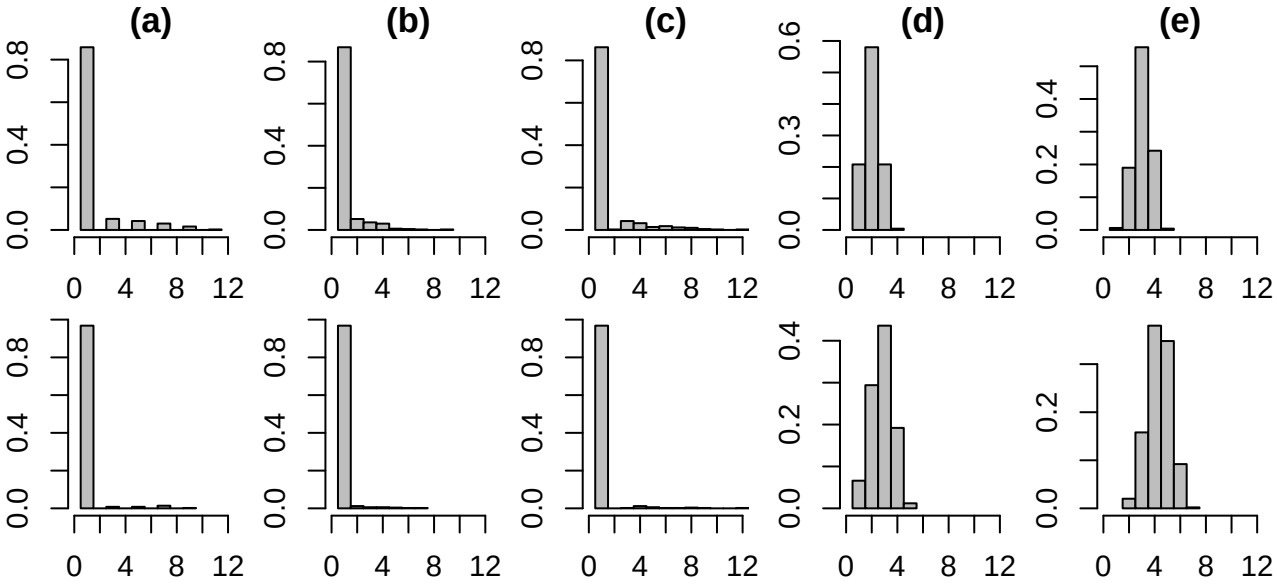

Figure 1: Histograms based on iid data.

[1]The pilot estimates were derived from the flat-top lag-windows λ_{rpf} and the trapezoidal flat-top window [1]. The bandwidths for the pilot estimators are derived from the bandwidth selection algorithm of Section 3.

[2]The Parzen and optimal lag-windows were used as pilots with bandwidths $\lfloor N^{1/5} \rfloor$ and $\lfloor N^{1/6} \rfloor$ respectively.

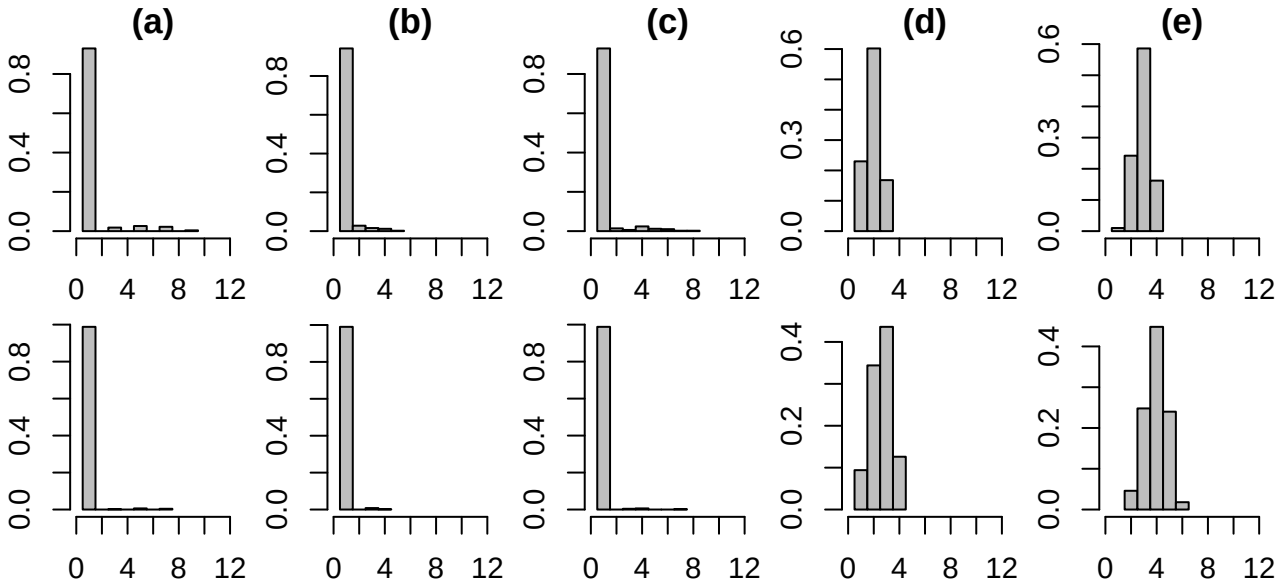

Figure 2: Histograms based on arma data.

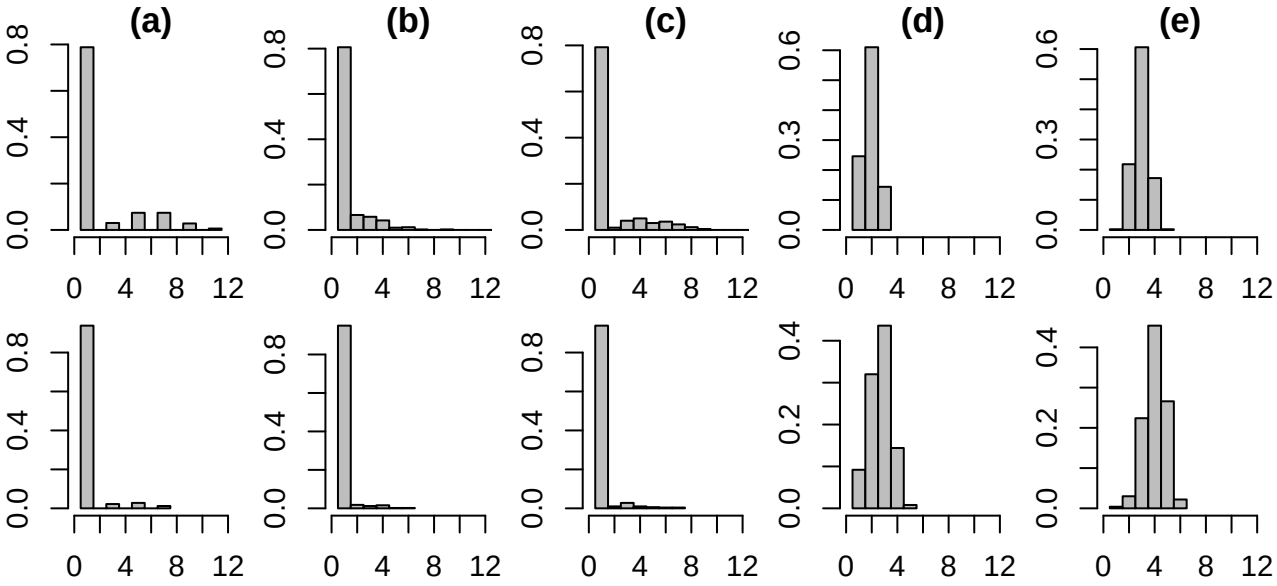

Figure 3: Histograms based on garch data.

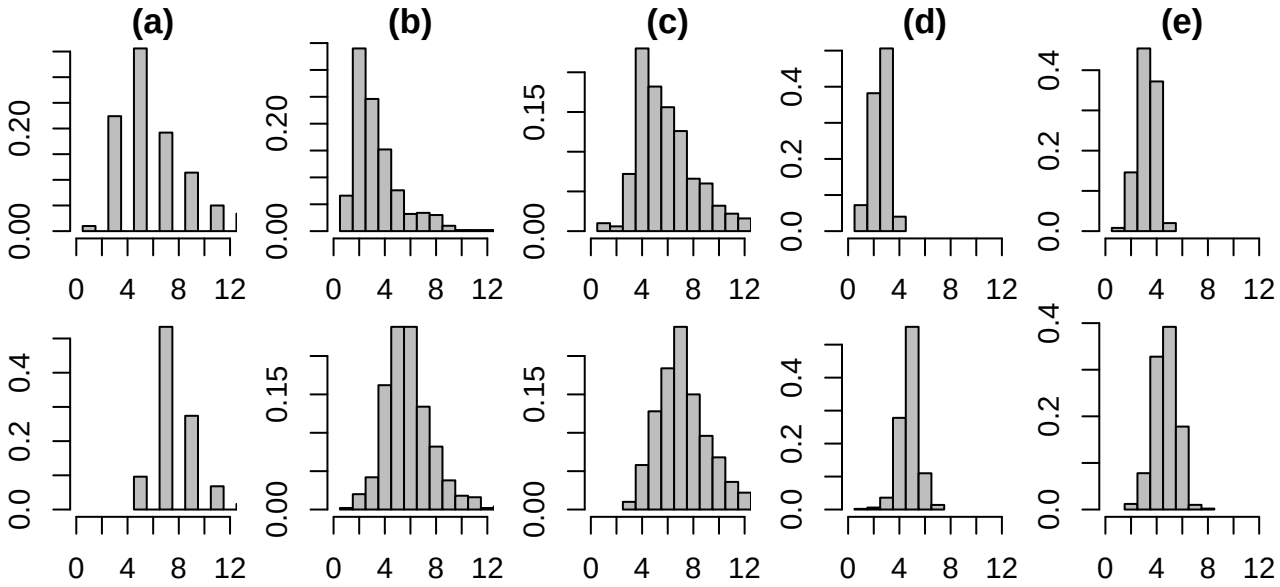

Figure 4: Histograms based on bilinear data.

References

[1] Dimitris N. Politis and Joseph P. Romano. Bias-corrected nonparametric spectral estimation. *J. Time Ser. Anal.*, 16(1):67–103, 1995. ISSN 0143-9782.