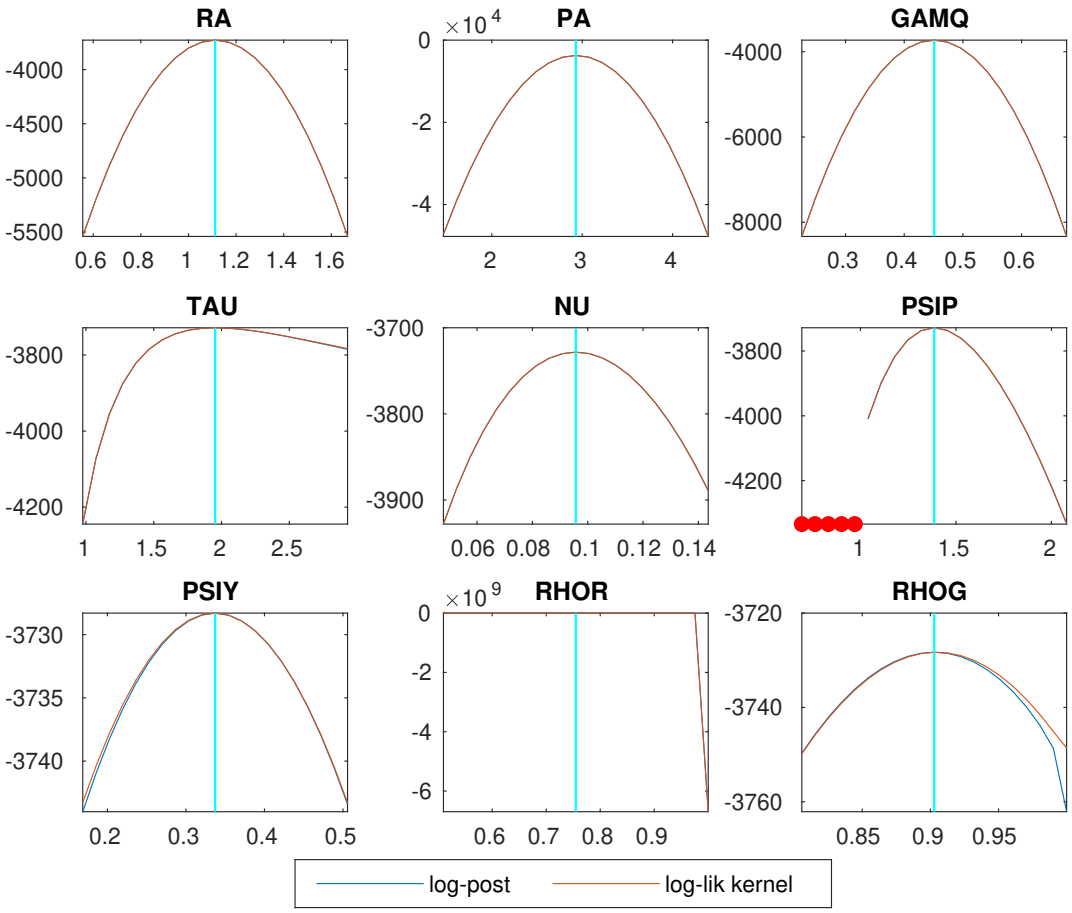


Figure 1: Check plots.

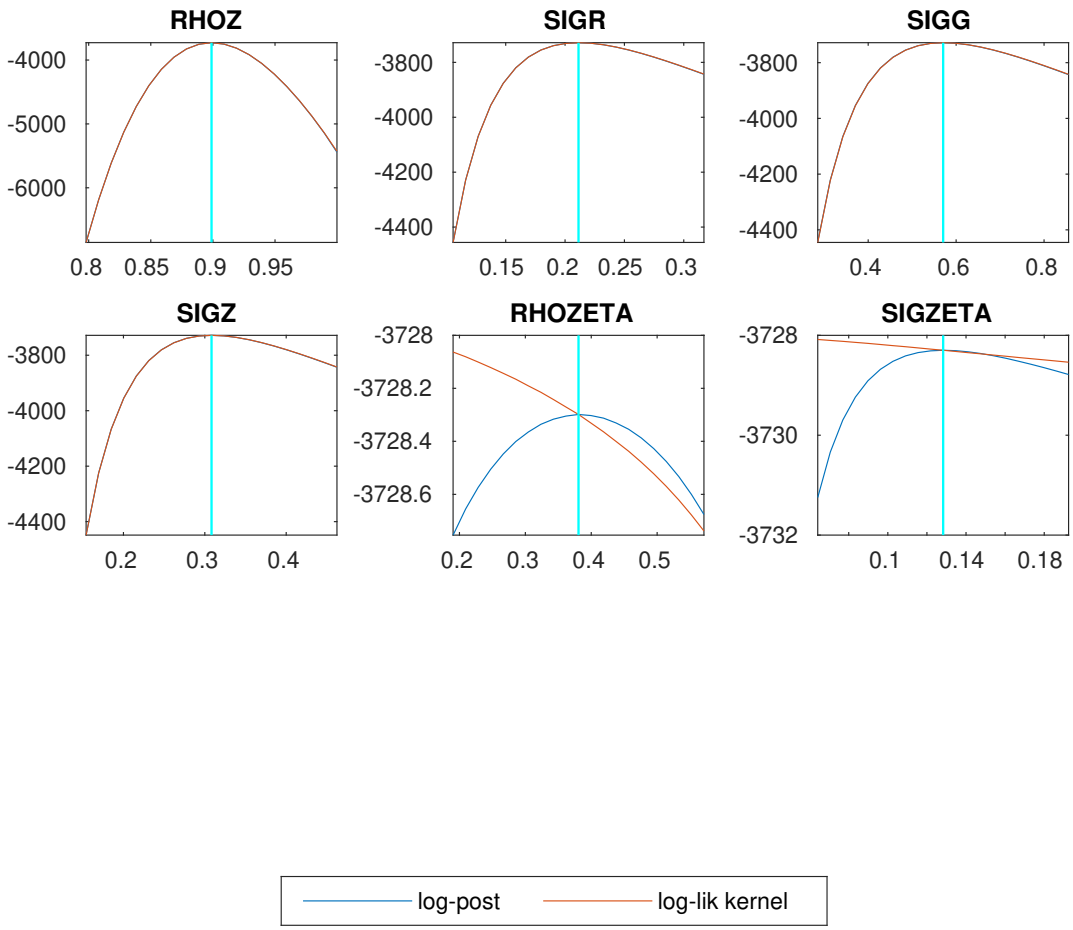


Figure 2: Check plots.

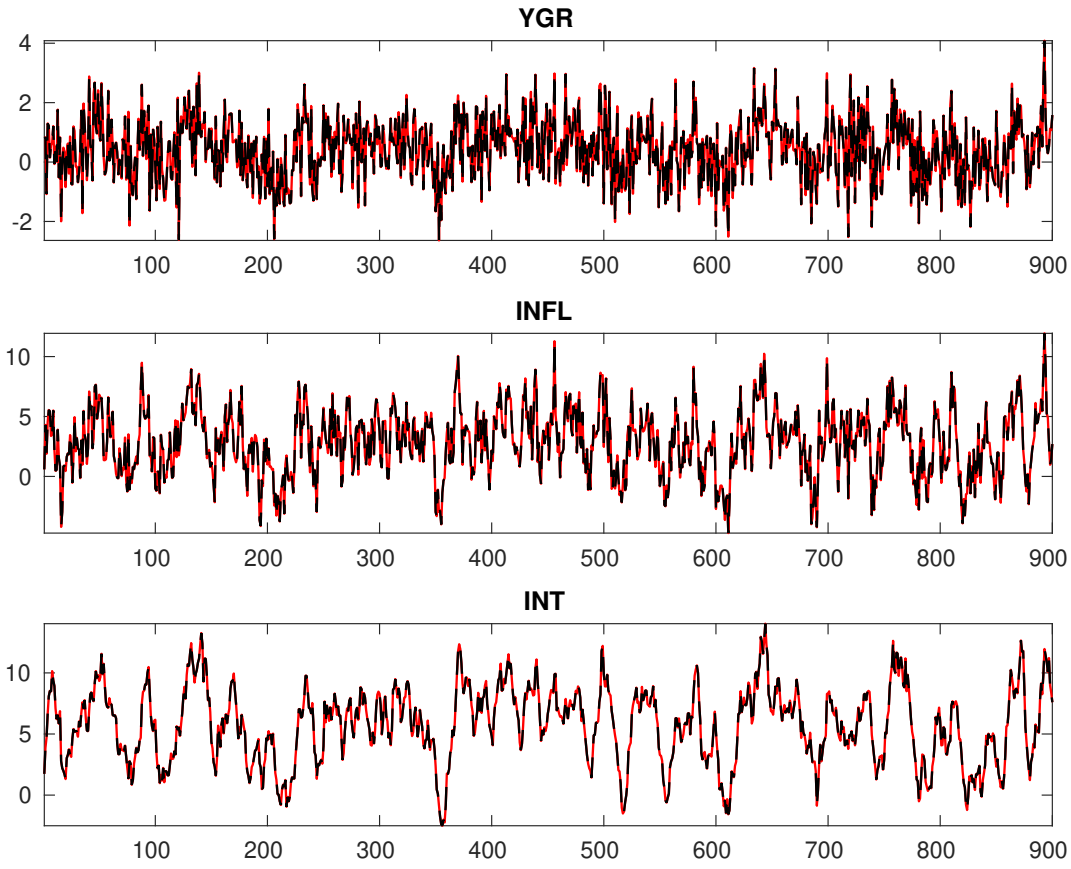


Figure 3: Historical and smoothed variables.

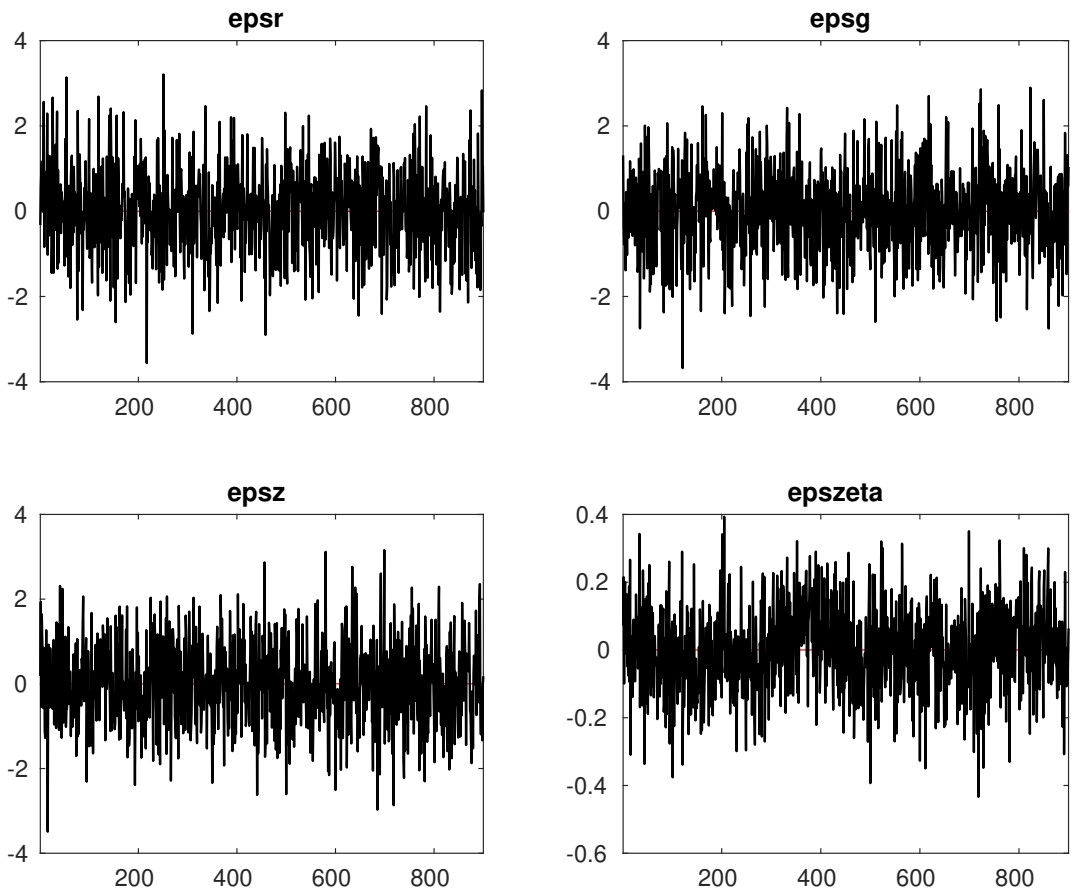


Figure 4: Smoothed shocks.

Table 1: MCMC Inefficiency factors per block

| *Parameter* | *Block* 1 | *Block* 2 | *Block* 3 | *Block* 4 |
|---|---|---|---|---|
| $r_A$ | 281.497 | 290.854 | 262.623 | 293.464 |
| $\pi^{(A)}$ | 287.558 | 297.252 | 273.502 | 300.589 |
| $\gamma^{(Q)}$ | 278.954 | 288.176 | 269.114 | 293.004 |
| $\tau$ | 515.152 | 503.809 | 500.192 | 517.669 |
| $\nu$ | 439.562 | 429.413 | 421.073 | 440.706 |
| $\psi_\pi$ | 274.856 | 266.272 | 257.693 | 257.816 |
| $\psi_y$ | 345.484 | 336.066 | 333.619 | 328.161 |
| $\rho_R$ | 272.014 | 256.554 | 265.866 | 252.799 |
| $\rho_g$ | 67.235 | 75.805 | 88.187 | 76.509 |
| $\rho_z$ | 98.984 | 96.093 | 101.010 | 101.290 |
| $\sigma_R$ | 100.899 | 99.354 | 92.137 | 98.420 |
| $\sigma_g$ | 86.144 | 97.870 | 96.746 | 106.089 |
| $\sigma_z$ | 223.831 | 226.752 | 213.494 | 230.296 |
| $\rho_\zeta$ | 406.384 | 406.662 | 381.554 | 401.681 |
| $\sigma_\zeta$ | 388.044 | 424.846 | 411.977 | 438.343 |

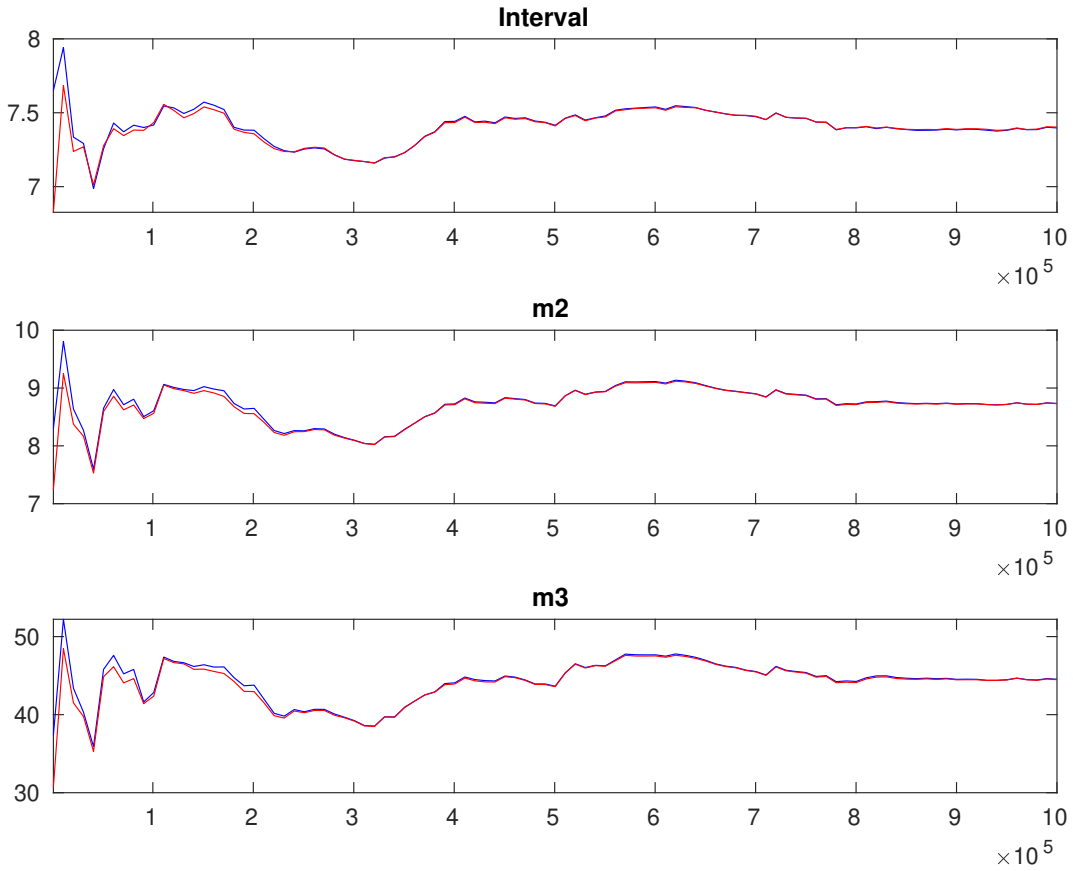


Figure 5: Multivariate convergence diagnostics for the Metropolis-Hastings. The first, second and third rows are respectively the criteria based on the eighty percent interval, the second and third moments. The different parameters are aggregated using the posterior kernel.

Table 2: Results from Metropolis-Hastings (parameters)

| | Prior | | | Posterior | | | |
|---|---|---|---|---|---|---|---|
| | Dist. | Mean | Stdev. | Mean | Stdev. | HPD inf | HPD sup |
| $r_A$ | gamm | 0.800 | 0.5000 | 1.115 | 0.2016 | 0.7841 | 1.4486 |
| $\pi^{(A)}$ | gamm | 4.000 | 2.0000 | 2.925 | 0.2847 | 2.4556 | 3.3946 |
| $\gamma^{(Q)}$ | norm | 0.400 | 0.2000 | 0.450 | 0.0872 | 0.3050 | 0.5923 |
| $\tau$ | gamm | 2.000 | 0.5000 | 2.031 | 0.2018 | 1.7042 | 2.3640 |
| $\nu$ | beta | 0.100 | 0.0500 | 0.100 | 0.0121 | 0.0799 | 0.1193 |
| $\psi_\pi$ | gamm | 1.500 | 0.2500 | 1.359 | 0.1041 | 1.1875 | 1.5272 |
| $\psi_y$ | gamm | 0.500 | 0.2500 | 0.407 | 0.1804 | 0.1171 | 0.6845 |
| $\rho_R$ | beta | 0.500 | 0.2000 | 0.760 | 0.0138 | 0.7375 | 0.7828 |
| $\rho_g$ | beta | 0.800 | 0.1000 | 0.903 | 0.0168 | 0.8762 | 0.9301 |
| $\rho_z$ | beta | 0.660 | 0.1500 | 0.900 | 0.0066 | 0.8892 | 0.9110 |
| $\sigma_R$ | invg | 0.300 | 4.0000 | 0.212 | 0.0062 | 0.2023 | 0.2226 |
| $\sigma_g$ | invg | 0.400 | 4.0000 | 0.569 | 0.0147 | 0.5455 | 0.5934 |
| $\sigma_z$ | invg | 0.400 | 4.0000 | 0.310 | 0.0121 | 0.2897 | 0.3294 |
| $\rho_\zeta$ | beta | 0.500 | 0.2000 | 0.426 | 0.1797 | 0.1265 | 0.7145 |
| $\sigma_\zeta$ | invg | 0.300 | 4.0000 | 0.238 | 0.1420 | 0.0713 | 0.4328 |

Table 3: Results from posterior maximization (parameters)

| | Prior | | | Posterior | |
|---|---|---|---|---|---|
| | Dist. | Mean | Stdev | Mode | Stdev |
| $r_A$ | gamm | 0.800 | 0.5000 | 1.1120 | 0.0858 |
| $\pi^{(A)}$ | gamm | 4.000 | 2.0000 | 2.9296 | 0.1109 |
| $\gamma^{(Q)}$ | norm | 0.400 | 0.2000 | 0.4511 | 0.0352 |
| $\tau$ | gamm | 2.000 | 0.5000 | 1.9532 | 0.0580 |
| $\nu$ | beta | 0.100 | 0.0500 | 0.0957 | 0.0052 |
| $\psi_\pi$ | gamm | 1.500 | 0.2500 | 1.3863 | 0.0587 |
| $\psi_y$ | gamm | 0.500 | 0.2500 | 0.3372 | 0.0705 |
| $\rho_R$ | beta | 0.500 | 0.2000 | 0.7549 | 0.0094 |
| $\rho_g$ | beta | 0.800 | 0.1000 | 0.9028 | 0.0147 |
| $\rho_z$ | beta | 0.660 | 0.1500 | 0.8989 | 0.0059 |
| $\sigma_R$ | invg | 0.300 | 4.0000 | 0.2113 | 0.0056 |
| $\sigma_g$ | invg | 0.400 | 4.0000 | 0.5705 | 0.0138 |
| $\sigma_z$ | invg | 0.400 | 4.0000 | 0.3083 | 0.0085 |
| $\rho_\zeta$ | beta | 0.500 | 0.2000 | 0.3807 | 0.0574 |
| $\sigma_\zeta$ | invg | 0.300 | 4.0000 | 0.1283 | 0.0554 |

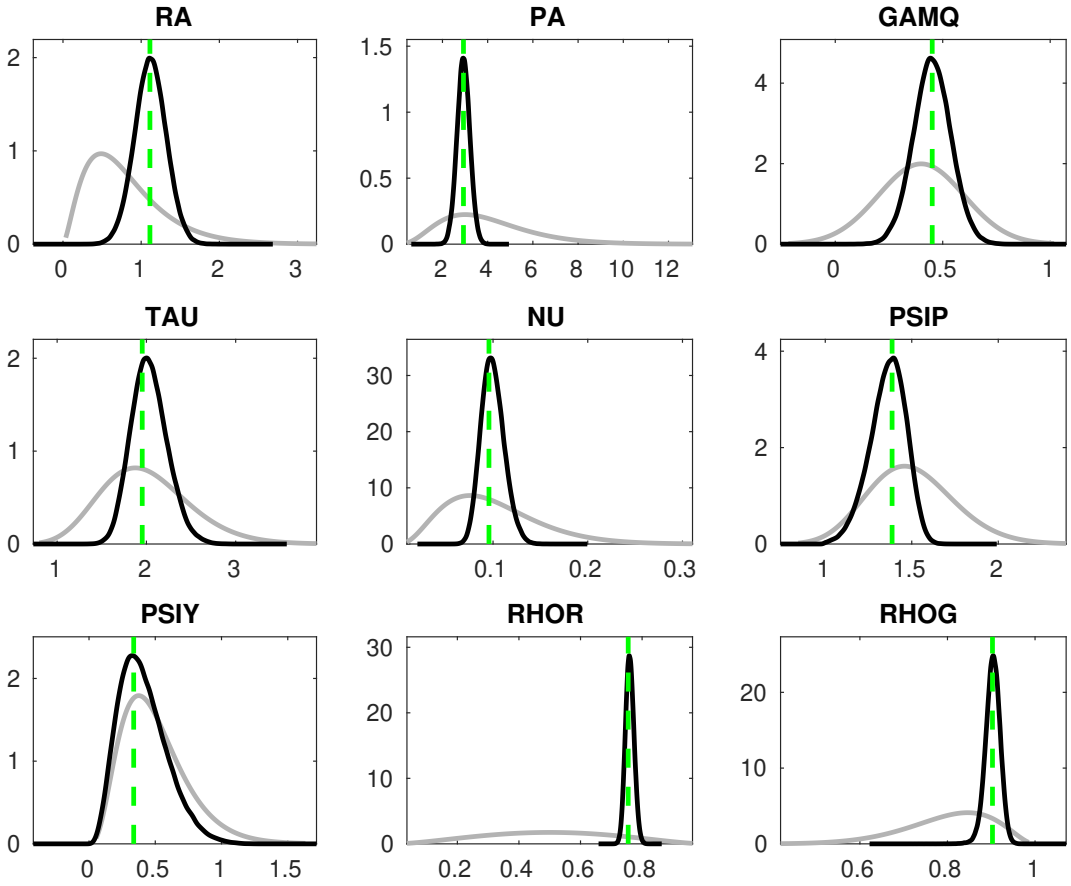


Figure 6: Priors and posteriors.

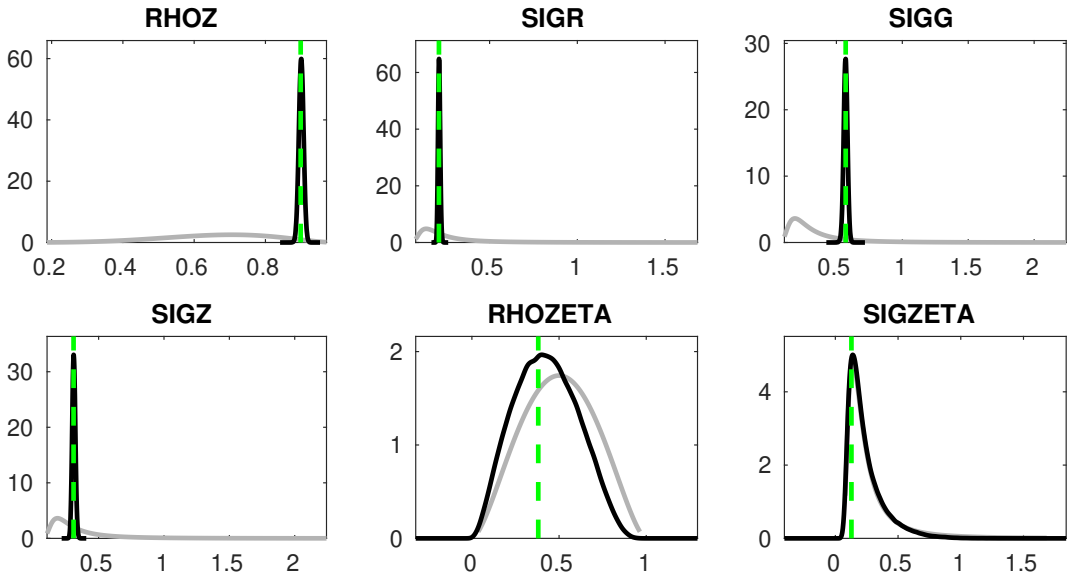


Figure 7: Priors and posteriors.

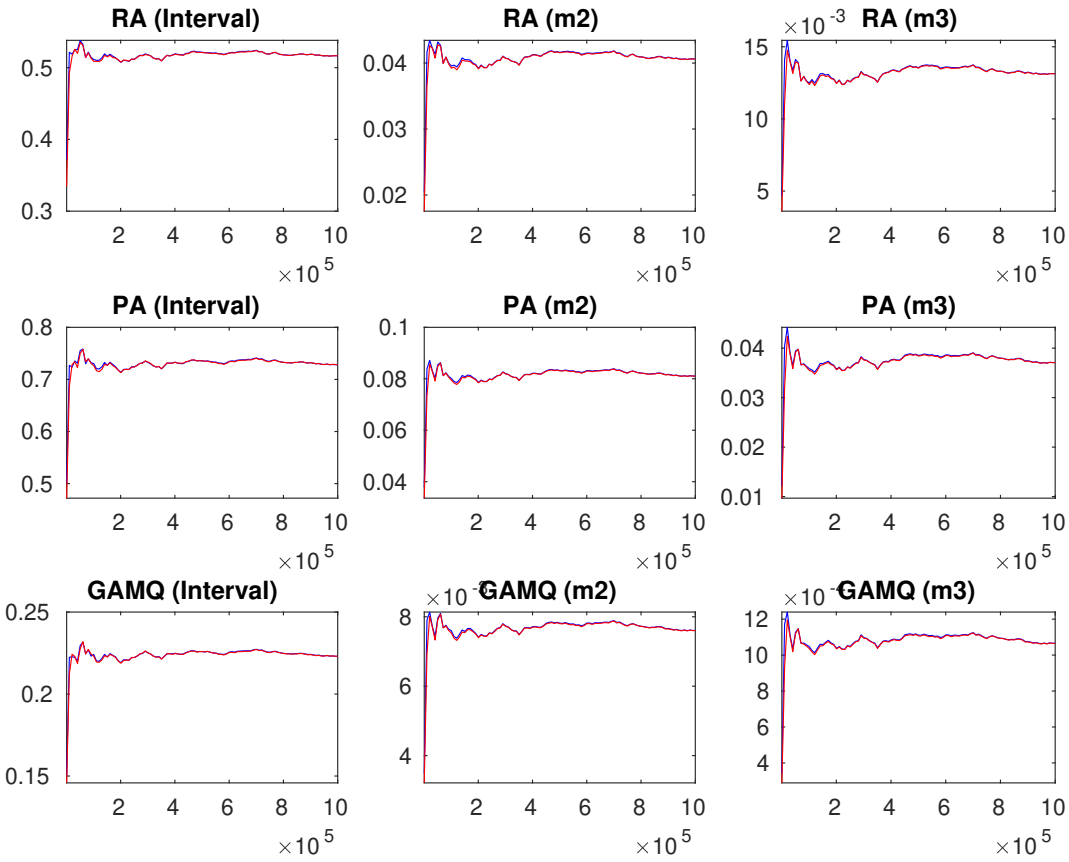


Figure 8: Univariate convergence diagnostics for the Metropolis-Hastings. The first, second and third columns are respectively the criteria based on the eighty percent interval, the second and third moments.

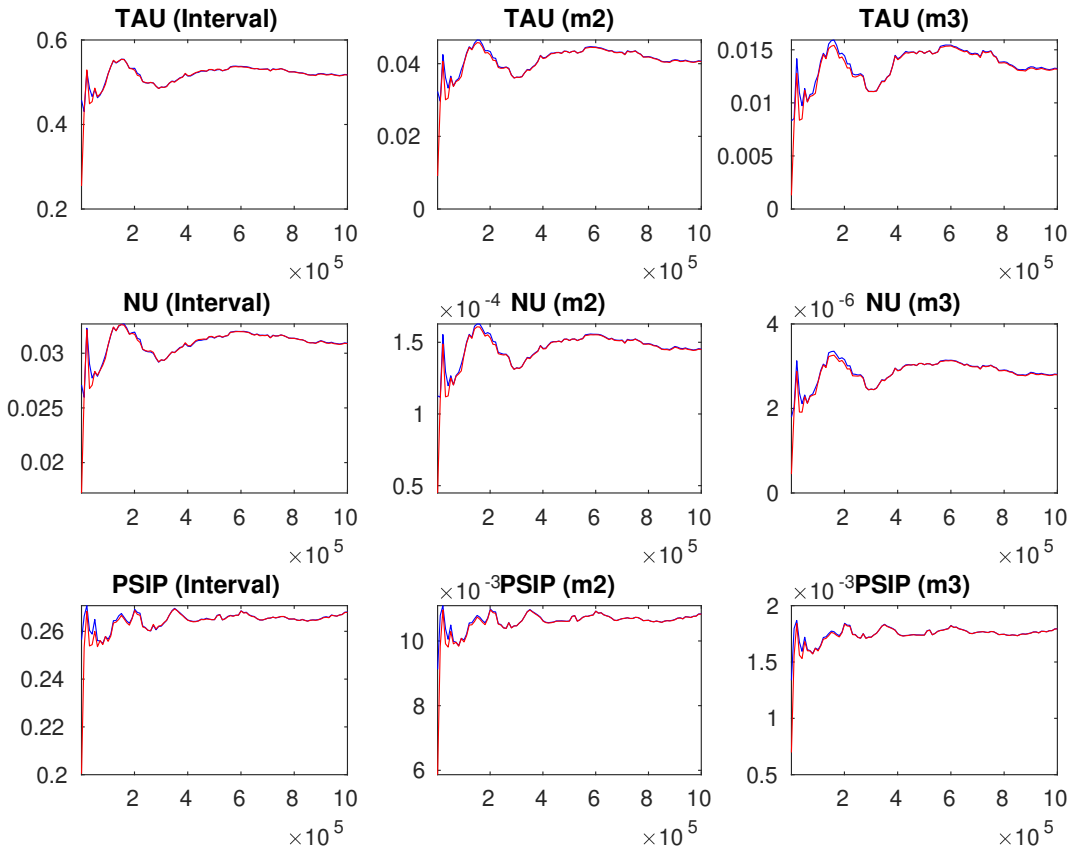


Figure 9: Univariate convergence diagnostics for the Metropolis-Hastings. The first, second and third columns are respectively the criteria based on the eighty percent interval, the second and third moments.

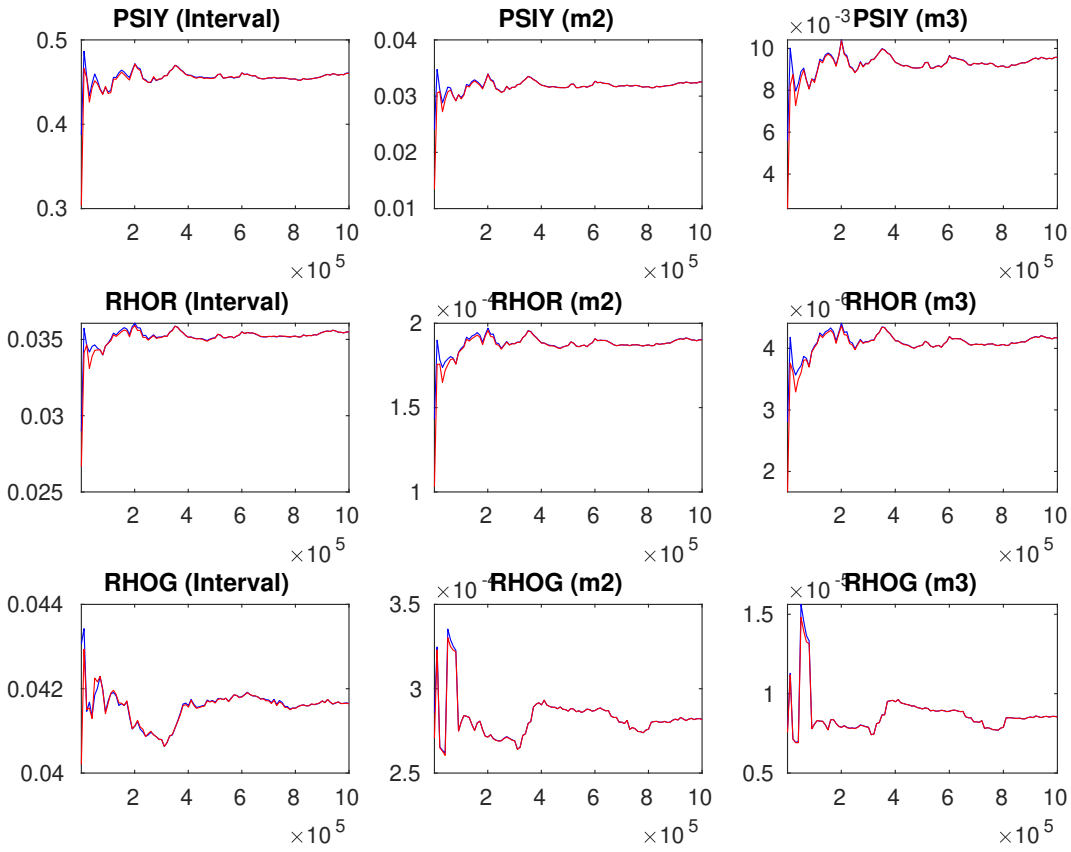


Figure 10: Univariate convergence diagnostics for the Metropolis-Hastings. The first, second and third columns are respectively the criteria based on the eighty percent interval, the second and third moments.

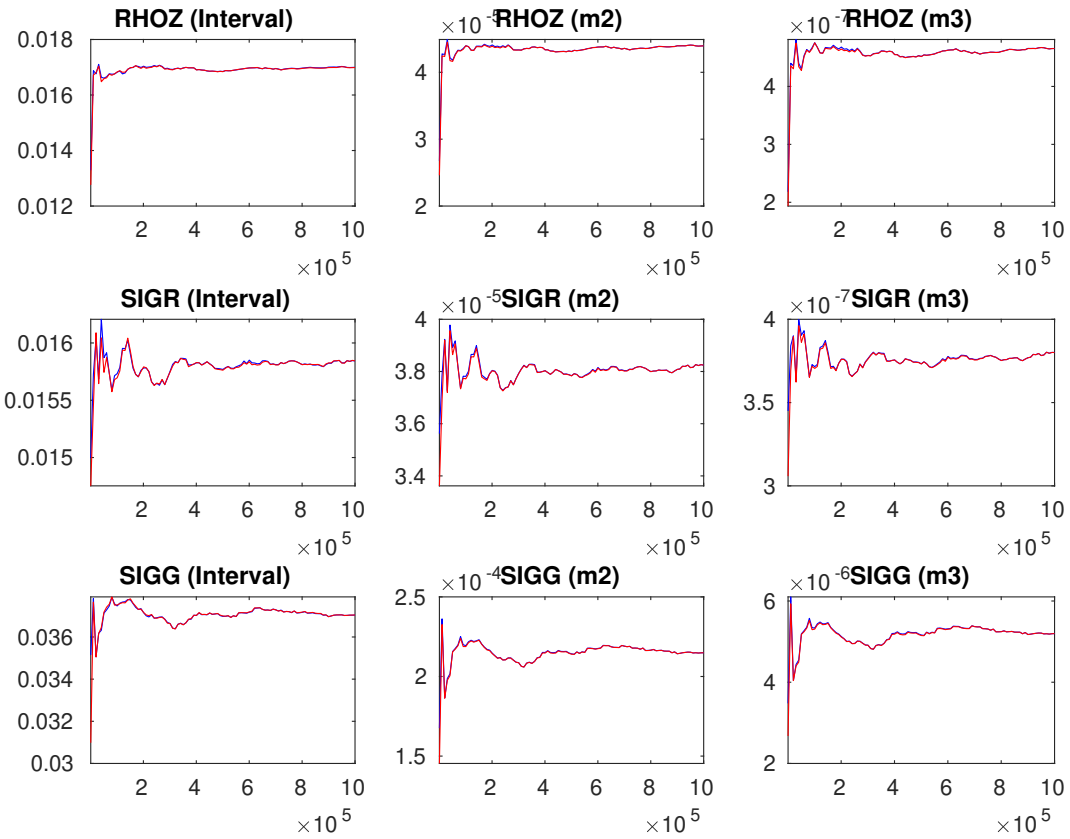


Figure 11: Univariate convergence diagnostics for the Metropolis-Hastings. The first, second and third columns are respectively the criteria based on the eighty percent interval, the second and third moments.

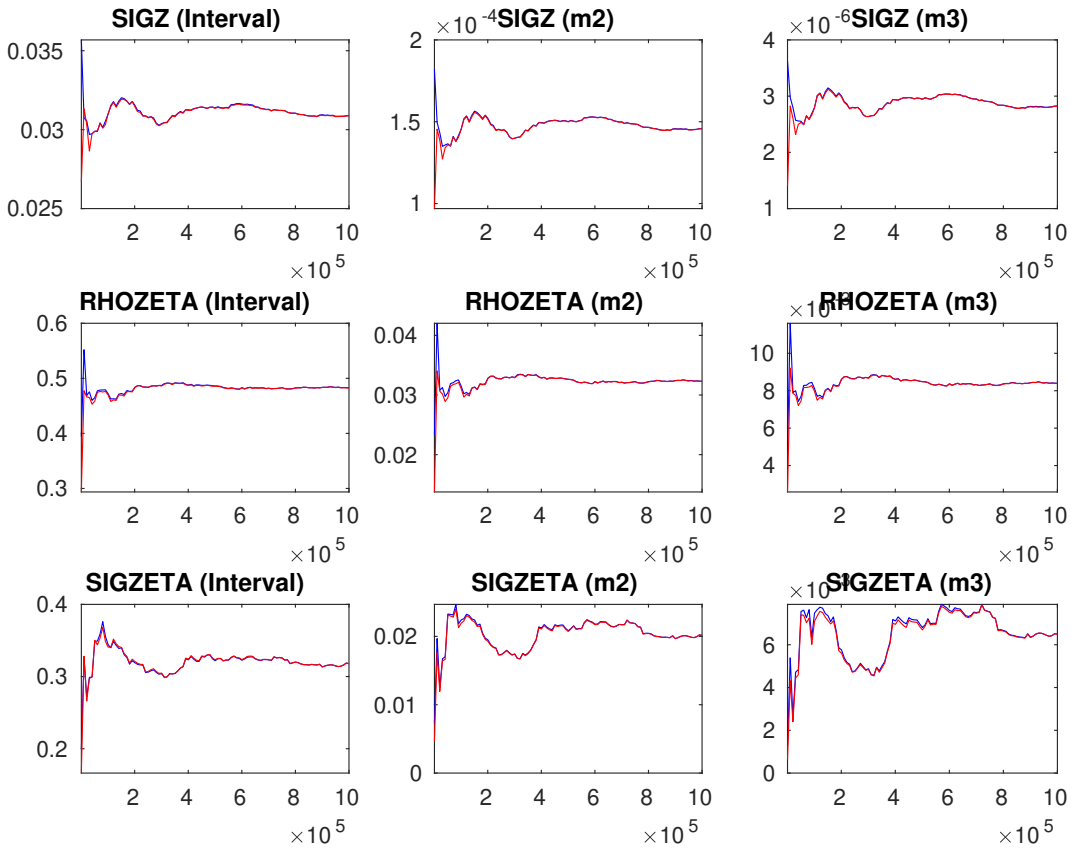


Figure 12: Univariate convergence diagnostics for the Metropolis-Hastings. The first, second and third columns are respectively the criteria based on the eighty percent interval, the second and third moments.