Figure 1: Check plots.

1
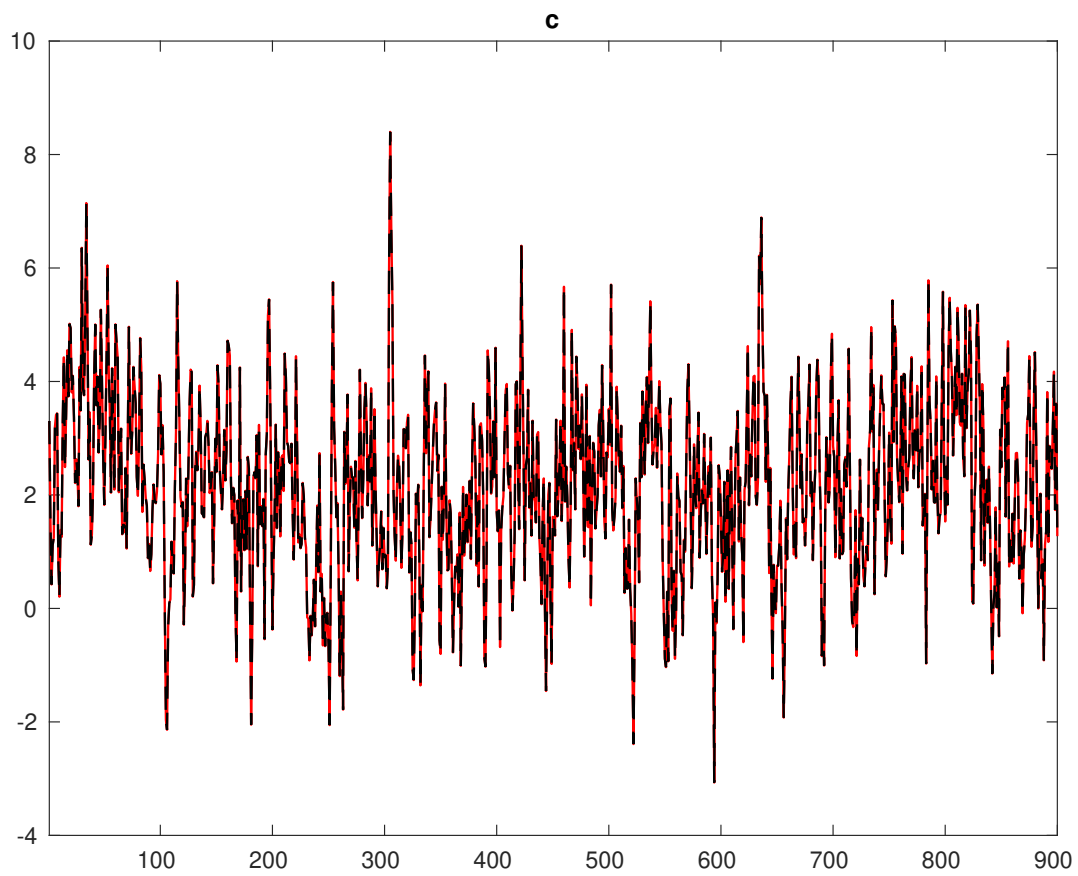
Figure 2: Historical and smoothed variables.
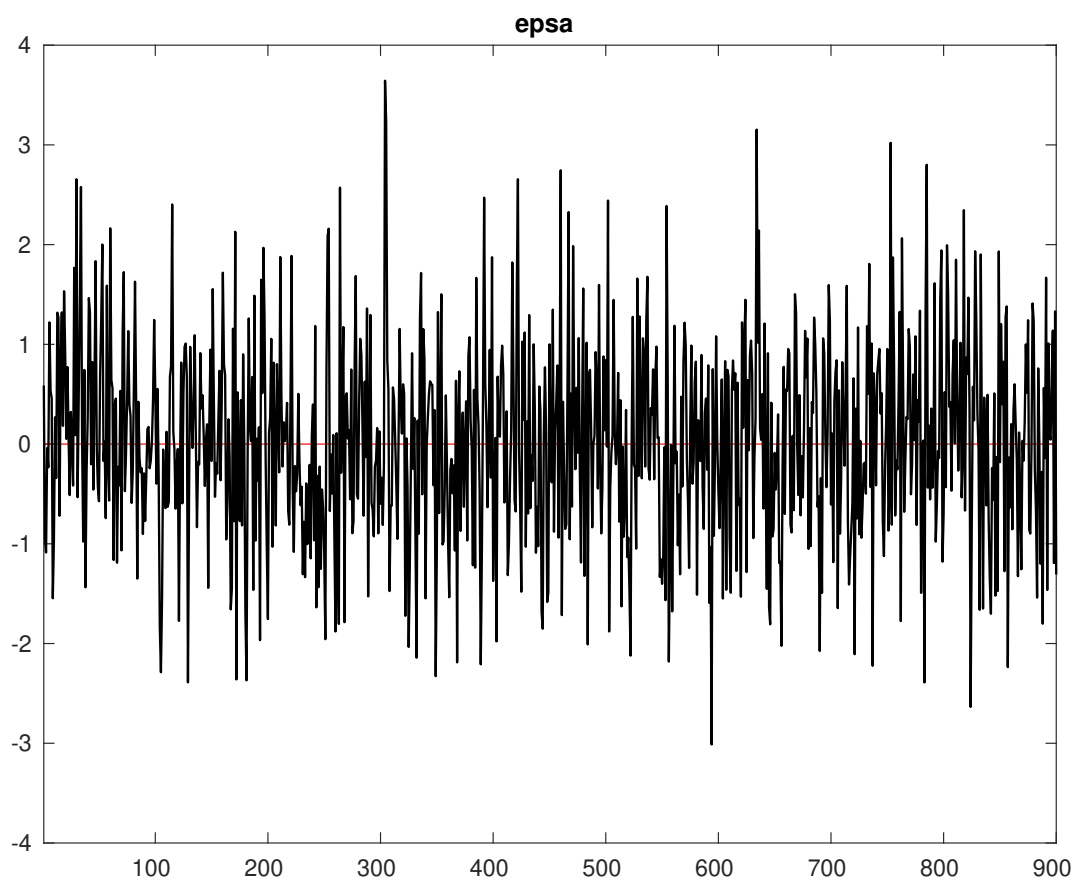
Figure 3: Smoothed shocks.

Table 1: MCMC Inefficiency factors per block

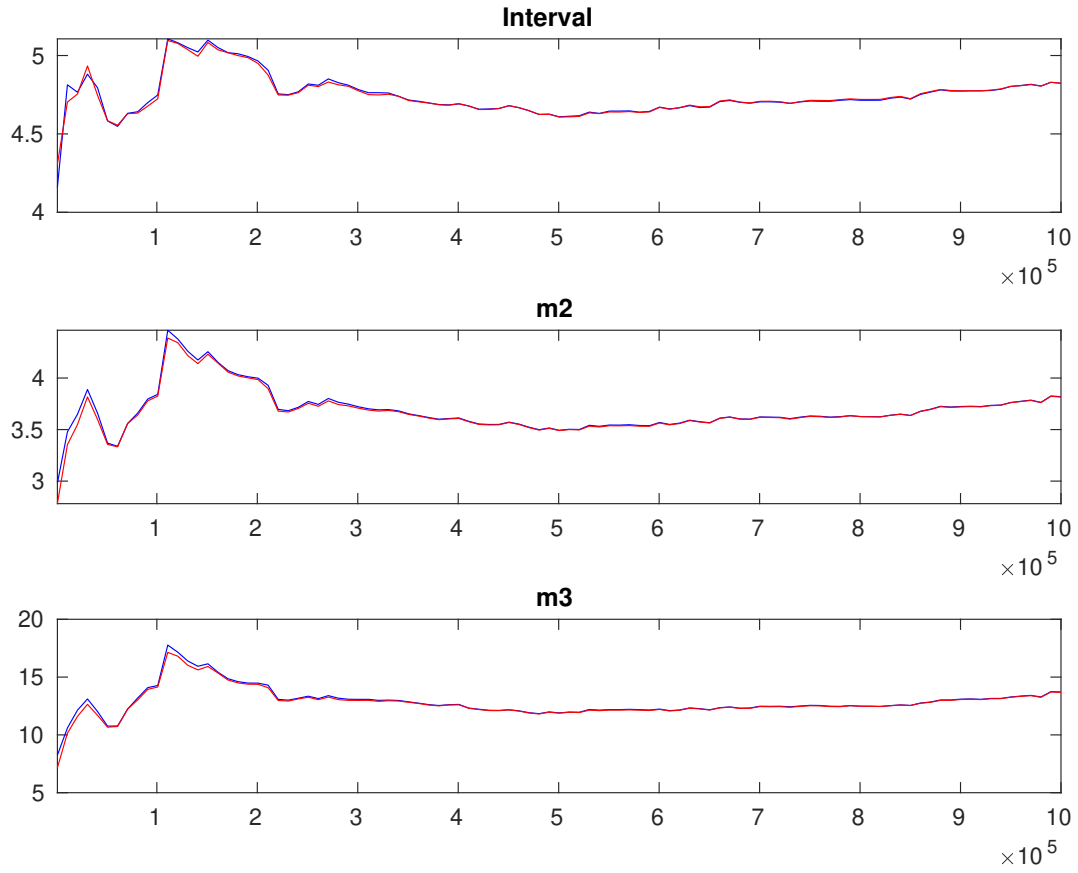| Parameter	Block 1	Block 2	Block 3	Block 4
α	189.400	238.544	195.143	182.227
r_A	51.728	48.308	53.308	49.309
δ	243.682	331.967	234.331	228.240
ρ_A	81.608	74.984	73.397	72.260
σ_A	191.448	151.038	150.194	168.566
θ	92.535	78.596	78.462	76.188
κ	507.786	386.959	450.170	474.512

Figure 4: 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
α	norm	0.300	0.0500	0.332	0.0438	0.2612	0.4046
r_A	gamm	2.000	0.2500	1.999	0.2514	1.5828	2.4053
δ	unif	0.500	0.2887	0.033	0.0157	0.0085	0.0574
ρ_A	beta	0.500	0.1000	0.558	0.0286	0.5111	0.6050
σ_A	invg	0.600	2.0000	0.576	0.0661	0.4691	0.6812
θ	gamm	1.500	0.7500	1.526	0.7527	0.3897	2.6553
κ	gamm	2.000	1.5000	1.788	1.3383	0.0404	3.5723

Table 3: Results from posterior maximization (parameters)

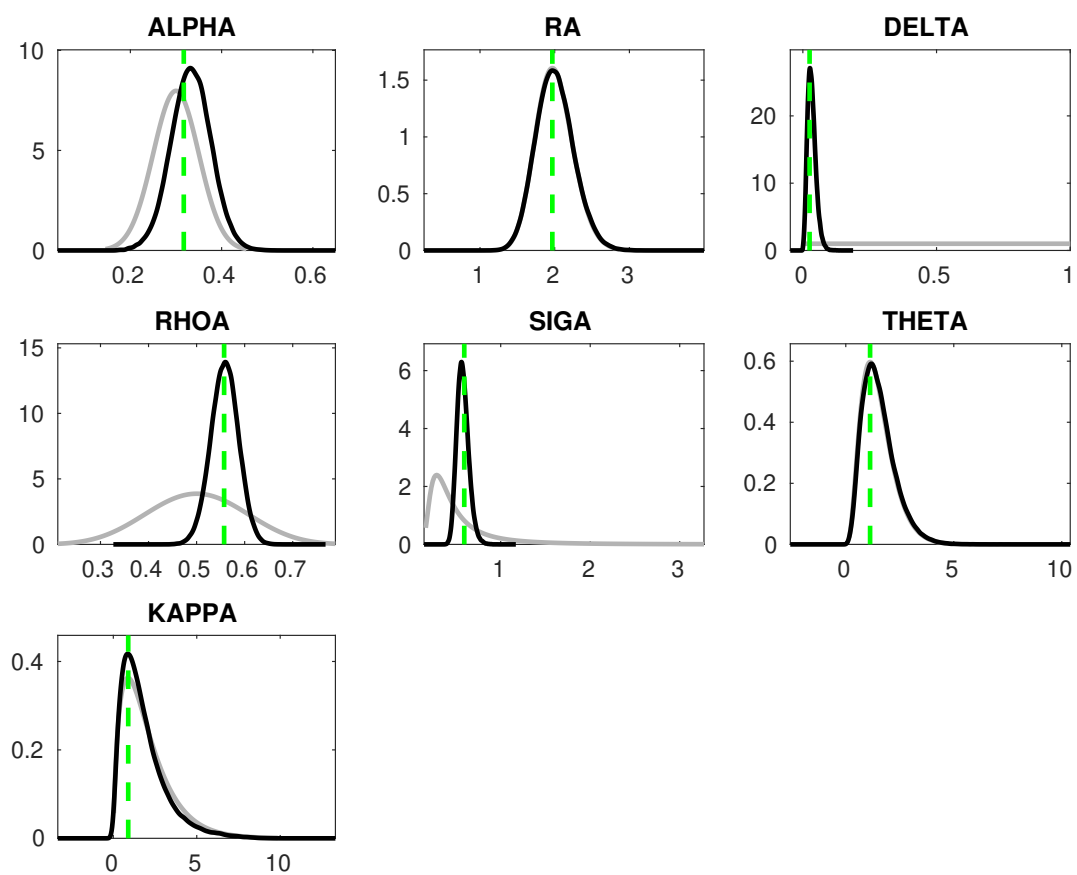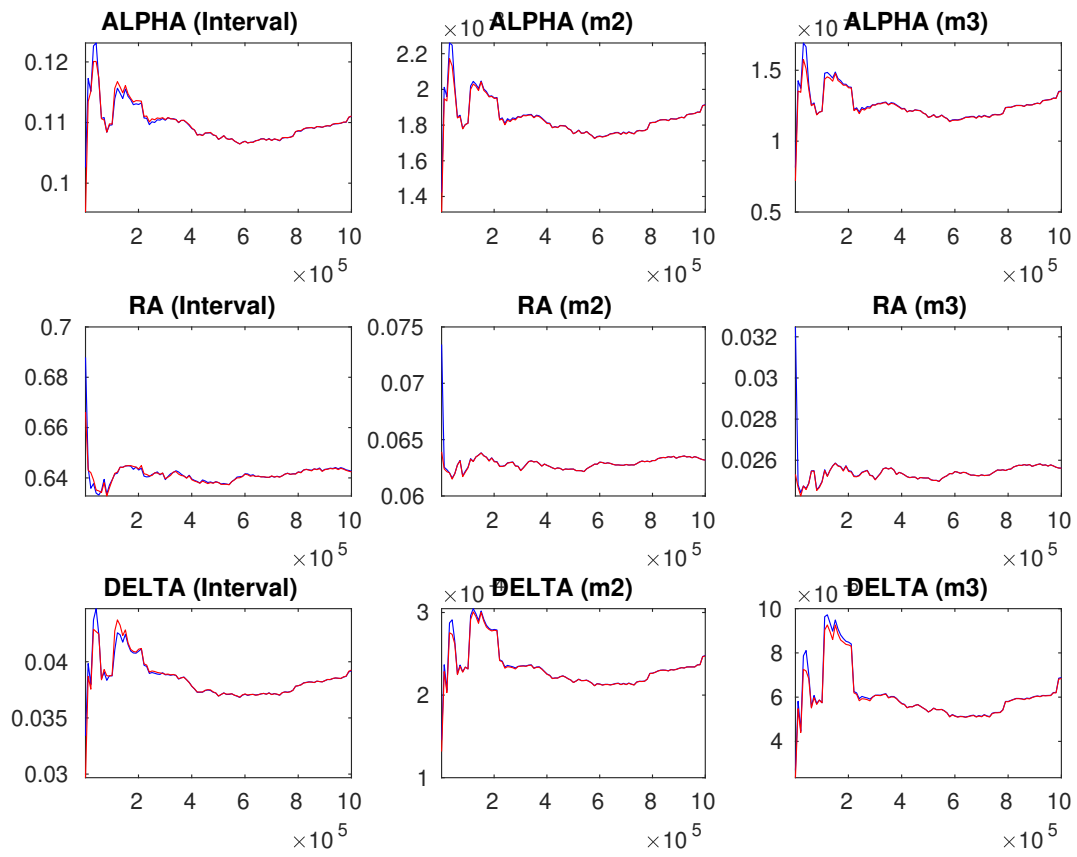|	Prior			Posterior	
	Dist.	Mean	Stdev	Mode	Stdev
α	norm	0.300	0.0500	0.3170	0.0439
r_A	gamm	2.000	0.2500	1.9683	0.2480
δ	unif	0.500	0.2887	0.0252	0.0137
ρ_A	beta	0.500	0.1000	0.5573	0.0286
σ_A	invg	0.600	2.0000	0.5928	0.0781
θ	gamm	1.500	0.7500	1.1249	0.6493
κ	gamm	2.000	1.5000	0.8940	0.8879

Figure 5: Priors and posteriors.

Figure 6: 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.
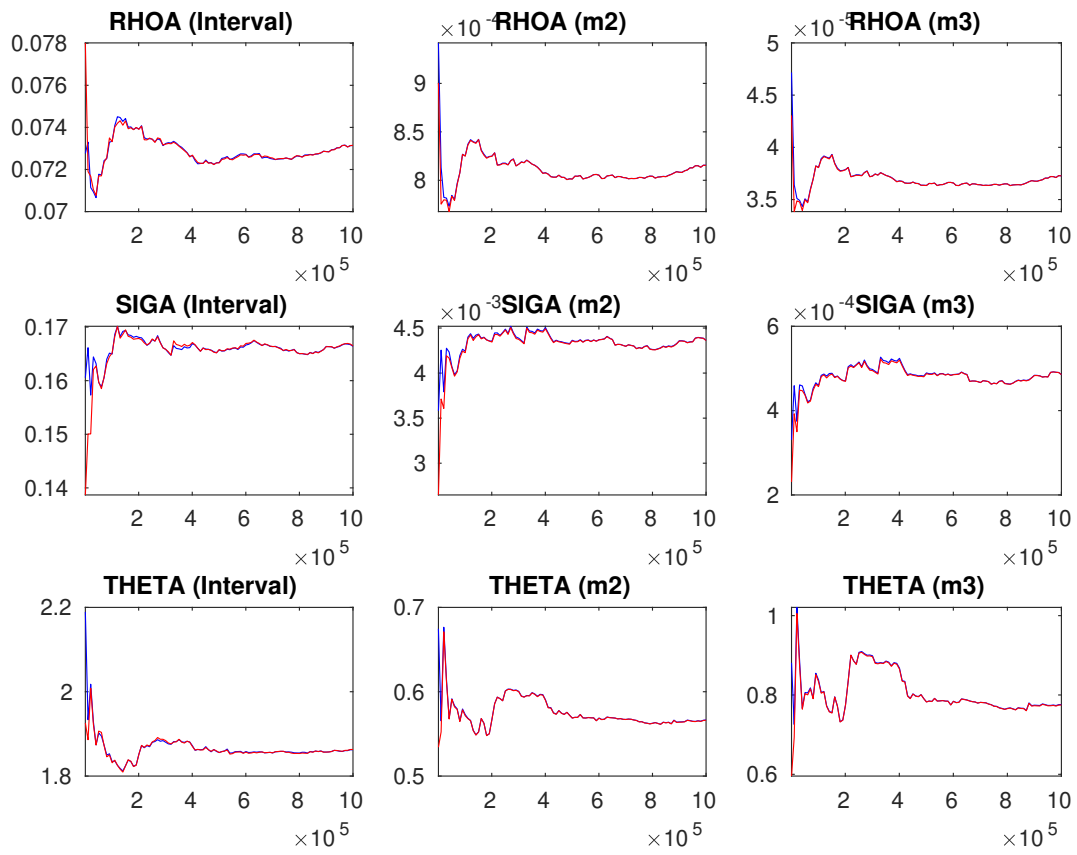
Figure 7: Univariate convergence diagnostics for the Metropolis-Hastings. The first, second and third columns are respectively the criteria based on the eighty percent interval, the second and third moments.
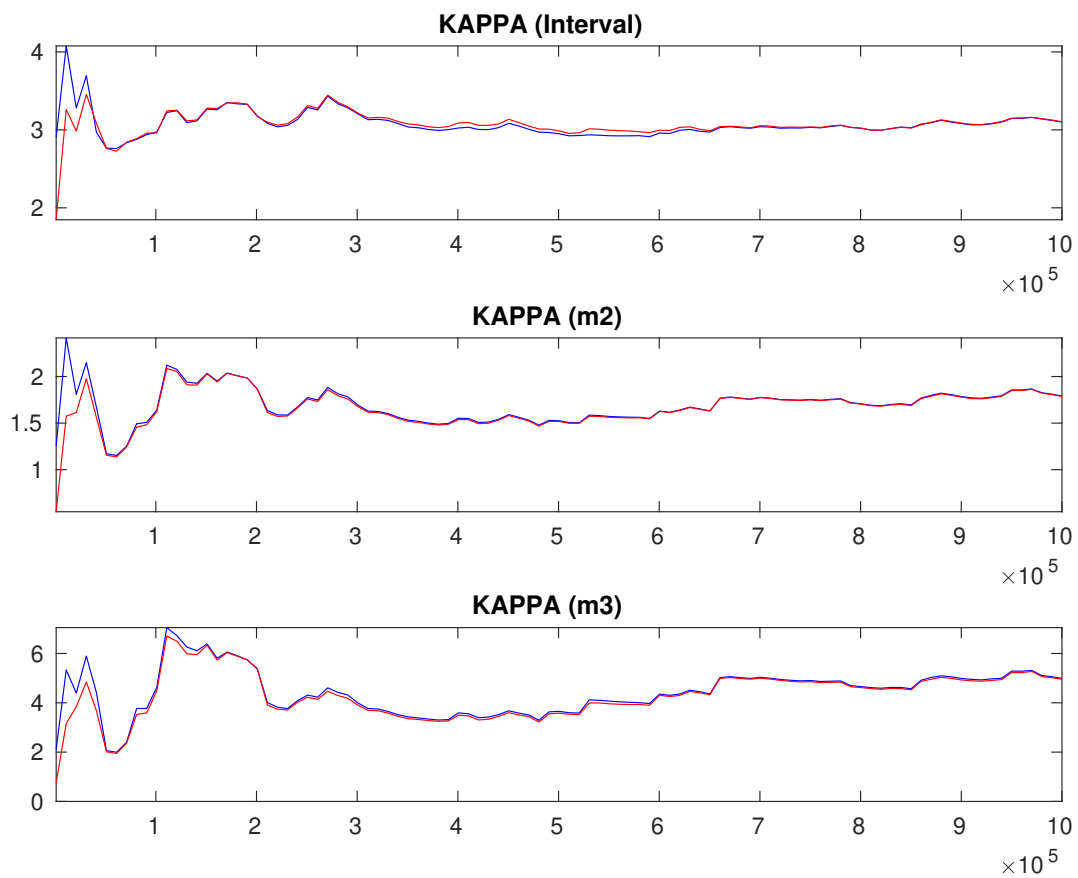
Figure 8: Univariate convergence diagnostics for the Metropolis-Hastings. The first, second and third rows are respectively the criteria based on the eighty percent interval, the second and third moments.