

Table 1: MCMC Inefficiency factors per block

| <i>Parameter</i> | <i>Block 1</i> | <i>Block 2</i> |
|-----------------------|----------------|----------------|
| σ_{η^a} | 353.795 | 428.823 |
| σ_{η^b} | 427.142 | 406.861 |
| σ_{η^g} | 216.951 | 197.552 |
| σ_{η^i} | 254.051 | 441.071 |
| σ_{η^m} | 276.108 | 271.643 |
| σ_{η^p} | 441.306 | 426.112 |
| σ_{η^w} | 360.687 | 304.707 |
| α | 374.580 | 468.230 |
| φ | 397.047 | 527.016 |
| μ_w | 684.368 | 397.440 |
| μ_p | 513.106 | 295.922 |
| σ_c | 373.432 | 450.275 |
| λ | 456.521 | 504.751 |
| ξ_w | 244.859 | 642.121 |
| σ_l | 512.278 | 618.734 |
| ξ_p | 366.859 | 418.237 |
| ι_w | 398.341 | 626.330 |
| ι_p | 453.353 | 519.773 |
| ψ | 375.974 | 392.767 |
| Φ | 567.321 | 660.928 |
| $\bar{\pi}$ | 333.635 | 410.665 |
| $100(\beta^{-1} - 1)$ | 398.953 | 600.017 |
| \bar{l} | 407.940 | 384.030 |
| $\bar{\gamma}$ | 344.632 | 301.096 |
| r_π | 339.540 | 572.707 |
| ρ | 360.104 | 428.312 |
| r_y | 480.873 | 433.341 |
| $r_{\Delta y}$ | 495.096 | 461.150 |
| ρ_a | 284.498 | 407.774 |
| ρ_b | 401.513 | 316.020 |
| ρ_g | 323.487 | 378.664 |
| ρ_i | 349.911 | 509.116 |
| ρ_r | 320.169 | 269.487 |
| ρ_p | 462.152 | 412.309 |
| ρ_w | 684.387 | 442.120 |
| ρ_{ga} | 378.348 | 411.340 |

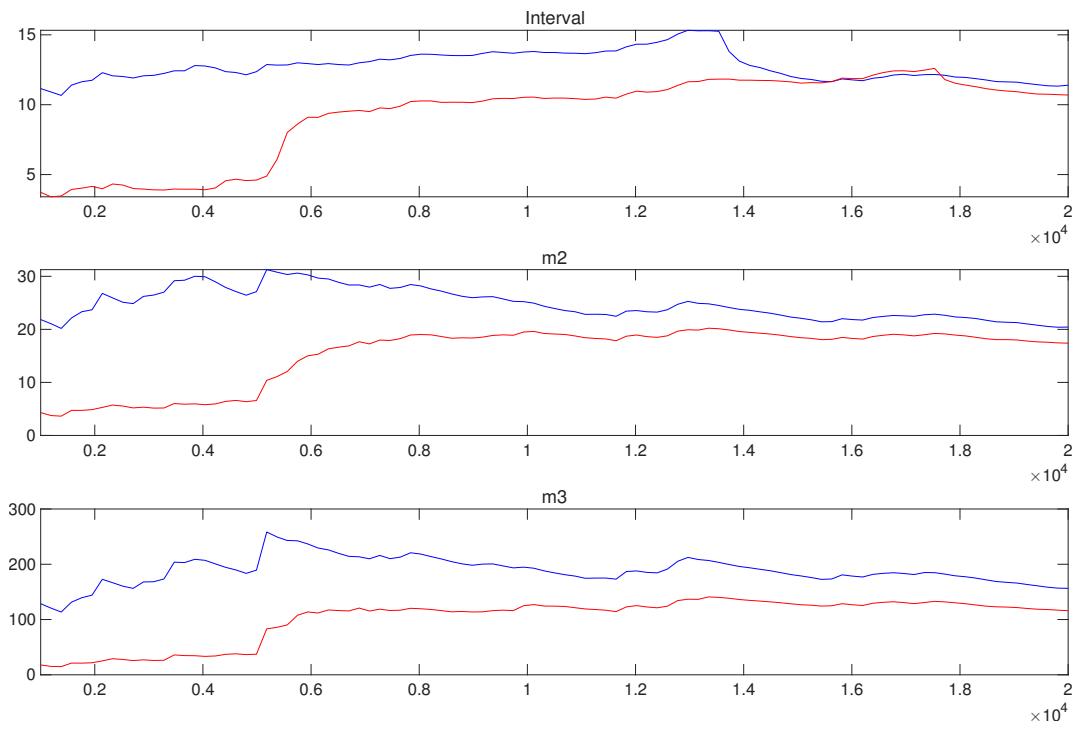


Figure 1: Multivariate convergence diagnostics for the Metropolis-Hastings. The first, second and third rows are respectively the criteria based on the eighty percent interval, the second and third moments. The different parameters are aggregated using the posterior kernel.

Table 2: Results from Metropolis-Hastings (parameters)

| | Prior | | | Posterior | | | |
|-----------------------|-------|-------|--------|-----------|--------|---------|---------|
| | Dist. | Mean | Stdev. | Mean | Stdev. | HPD inf | HPD sup |
| α | norm | 0.300 | 0.1500 | 0.205 | 0.0200 | 0.1721 | 0.2368 |
| φ | norm | 4.000 | 4.5000 | 8.404 | 1.4476 | 6.1047 | 10.8848 |
| μ_w | unif | 0.000 | 1.0000 | 0.719 | 0.2416 | 0.2381 | 0.9831 |
| μ_p | unif | 0.000 | 1.0000 | 0.749 | 0.0936 | 0.5974 | 0.8960 |
| σ_c | norm | 1.500 | 1.1100 | 1.676 | 0.1967 | 1.3338 | 1.9590 |
| λ | unif | 0.000 | 1.0000 | 0.719 | 0.0443 | 0.6450 | 0.7939 |
| ξ_w | unif | 0.000 | 1.0000 | 0.933 | 0.0168 | 0.9085 | 0.9500 |
| σ_l | norm | 2.000 | 2.2500 | 3.947 | 1.1497 | 2.3006 | 5.8884 |
| ξ_p | unif | 0.000 | 1.0000 | 0.738 | 0.0506 | 0.6497 | 0.8167 |
| ι_w | unif | 0.000 | 1.0000 | 0.824 | 0.1569 | 0.5809 | 0.9899 |
| ι_p | unif | 0.000 | 1.0000 | 0.183 | 0.1297 | 0.0105 | 0.3784 |
| ψ | unif | 0.000 | 1.0000 | 0.754 | 0.1235 | 0.5505 | 0.9561 |
| Φ | norm | 1.250 | 0.3600 | 1.850 | 0.1605 | 1.6198 | 2.1152 |
| $\bar{\pi}$ | gamm | 0.620 | 0.3000 | 1.119 | 0.1078 | 0.9471 | 1.2983 |
| $100(\beta^{-1} - 1)$ | gamm | 0.250 | 0.1000 | 0.229 | 0.0753 | 0.1175 | 0.3656 |
| \bar{l} | norm | 0.000 | 6.0000 | 5.497 | 1.0407 | 3.7766 | 7.2263 |
| $\bar{\gamma}$ | norm | 0.400 | 0.3000 | 0.399 | 0.0169 | 0.3700 | 0.4261 |
| r_π | norm | 1.500 | 0.7500 | 2.778 | 0.1854 | 2.5253 | 3.0000 |
| ρ | unif | 0.000 | 1.0000 | 0.882 | 0.0139 | 0.8593 | 0.9046 |
| r_y | norm | 0.120 | 0.1500 | 0.136 | 0.0282 | 0.0887 | 0.1801 |
| $r_{\Delta y}$ | norm | 0.120 | 0.1500 | 0.247 | 0.0338 | 0.1818 | 0.2967 |
| ρ_a | unif | 0.000 | 1.0000 | 0.962 | 0.0100 | 0.9452 | 0.9774 |
| ρ_b | unif | 0.000 | 1.0000 | 0.137 | 0.0770 | 0.0108 | 0.2445 |
| ρ_g | unif | 0.000 | 1.0000 | 0.978 | 0.0078 | 0.9657 | 0.9910 |
| ρ_i | unif | 0.000 | 1.0000 | 0.698 | 0.0645 | 0.5912 | 0.8025 |
| ρ_r | unif | 0.000 | 1.0000 | 0.053 | 0.0376 | 0.0100 | 0.1167 |
| ρ_p | unif | 0.000 | 1.0000 | 0.918 | 0.0406 | 0.8619 | 0.9916 |
| ρ_w | unif | 0.000 | 1.0000 | 0.768 | 0.2033 | 0.3656 | 0.9895 |
| ρ_{ga} | unif | 0.000 | 1.0000 | 0.476 | 0.1114 | 0.2899 | 0.6532 |

Table 3: Results from Metropolis-Hastings (standard deviation of structural shocks)

| | Prior | | | Posterior | | | |
|----------|-------|-------|--------|-----------|--------|---------|---------|
| | Dist. | Mean | Stdev. | Mean | Stdev. | HPD inf | HPD sup |
| η^a | invg | 0.100 | 2.0000 | 0.429 | 0.0278 | 0.3824 | 0.4762 |
| η^b | invg | 0.100 | 2.0000 | 0.257 | 0.0252 | 0.2129 | 0.2979 |
| η^g | invg | 0.100 | 2.0000 | 0.540 | 0.0273 | 0.4958 | 0.5834 |
| η^i | invg | 0.100 | 2.0000 | 0.423 | 0.0435 | 0.3503 | 0.4911 |
| η^m | invg | 0.100 | 2.0000 | 0.228 | 0.0124 | 0.2082 | 0.2487 |
| η^p | invg | 0.100 | 2.0000 | 0.100 | 0.0191 | 0.0686 | 0.1298 |
| η^w | invg | 0.100 | 2.0000 | 0.259 | 0.0225 | 0.2243 | 0.2976 |

Table 4: Results from posterior maximization (parameters)

| | Prior | | | Posterior | |
|-----------------------|-------|-------|--------|-----------|--------|
| | Dist. | Mean | Stdev | Mode | Stdev |
| α | norm | 0.300 | 0.1500 | 0.2118 | 0.0159 |
| φ | norm | 4.000 | 4.5000 | 6.5147 | 1.5928 |
| μ_w | unif | 0.000 | 1.0000 | 0.6154 | 0.2105 |
| μ_p | unif | 0.000 | 1.0000 | 0.8481 | 0.0868 |
| σ_c | norm | 1.500 | 1.1100 | 1.7240 | 0.2592 |
| λ | unif | 0.000 | 1.0000 | 0.7088 | 0.0303 |
| ξ_w | unif | 0.000 | 1.0000 | 0.9500 | 0.0098 |
| σ_l | norm | 2.000 | 2.2500 | 4.3686 | 0.6887 |
| ξ_p | unif | 0.000 | 1.0000 | 0.7318 | 0.0656 |
| ι_w | unif | 0.000 | 1.0000 | 0.9900 | 0.0919 |
| ι_p | unif | 0.000 | 1.0000 | 0.0929 | 0.0959 |
| ψ | unif | 0.000 | 1.0000 | 0.8011 | 0.1370 |
| Φ | norm | 1.250 | 0.3600 | 1.9640 | 0.0636 |
| $\bar{\pi}$ | gamm | 0.620 | 0.3000 | 1.1876 | 0.1731 |
| $100(\beta^{-1} - 1)$ | gamm | 0.250 | 0.1000 | 0.1902 | 0.0519 |
| \bar{l} | norm | 0.000 | 6.0000 | 5.0895 | 1.3633 |
| $\bar{\gamma}$ | norm | 0.400 | 0.3000 | 0.3923 | 0.0215 |
| r_π | norm | 1.500 | 0.7500 | 2.7139 | 0.1024 |
| ρ | unif | 0.000 | 1.0000 | 0.8857 | 0.0124 |
| r_y | norm | 0.120 | 0.1500 | 0.1242 | 0.0259 |
| $r_{\Delta y}$ | norm | 0.120 | 0.1500 | 0.2365 | 0.0322 |
| ρ_a | unif | 0.000 | 1.0000 | 0.9630 | 0.0124 |
| ρ_b | unif | 0.000 | 1.0000 | 0.1244 | 0.0838 |
| ρ_g | unif | 0.000 | 1.0000 | 0.9758 | 0.0088 |
| ρ_i | unif | 0.000 | 1.0000 | 0.7267 | 0.0483 |
| ρ_r | unif | 0.000 | 1.0000 | 0.0100 | 0.0384 |
| ρ_p | unif | 0.000 | 1.0000 | 0.9678 | 0.0333 |
| ρ_w | unif | 0.000 | 1.0000 | 0.6640 | 0.1607 |
| ρ_{ga} | unif | 0.000 | 1.0000 | 0.4373 | 0.1062 |

Table 5: Results from posterior maximization (standard deviation of structural shocks)

| | Prior | | | Posterior | |
|----------|-------|-------|--------|-----------|--------|
| | Dist. | Mean | Stdev | Mode | Stdev |
| η^a | invg | 0.100 | 2.0000 | 0.4131 | 0.0241 |
| η^b | invg | 0.100 | 2.0000 | 0.2498 | 0.0215 |
| η^g | invg | 0.100 | 2.0000 | 0.5393 | 0.0360 |
| η^i | invg | 0.100 | 2.0000 | 0.4232 | 0.0397 |
| η^m | invg | 0.100 | 2.0000 | 0.2238 | 0.0137 |
| η^p | invg | 0.100 | 2.0000 | 0.0896 | 0.0170 |
| η^w | invg | 0.100 | 2.0000 | 0.2649 | 0.0370 |

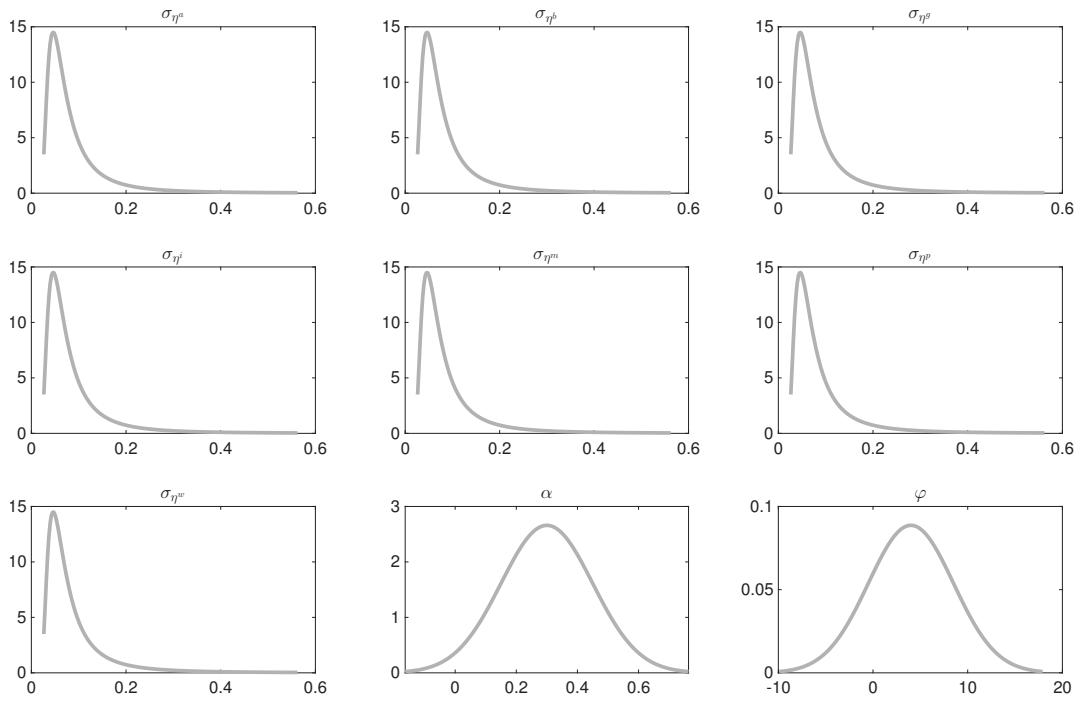


Figure 2: Priors.

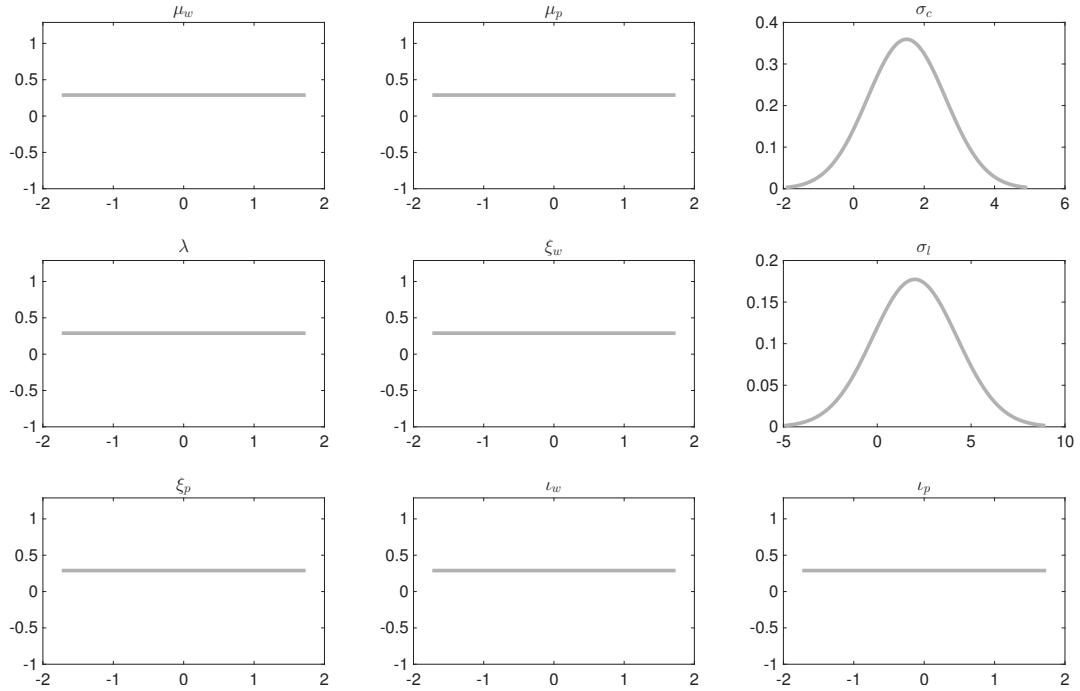


Figure 3: Priors.

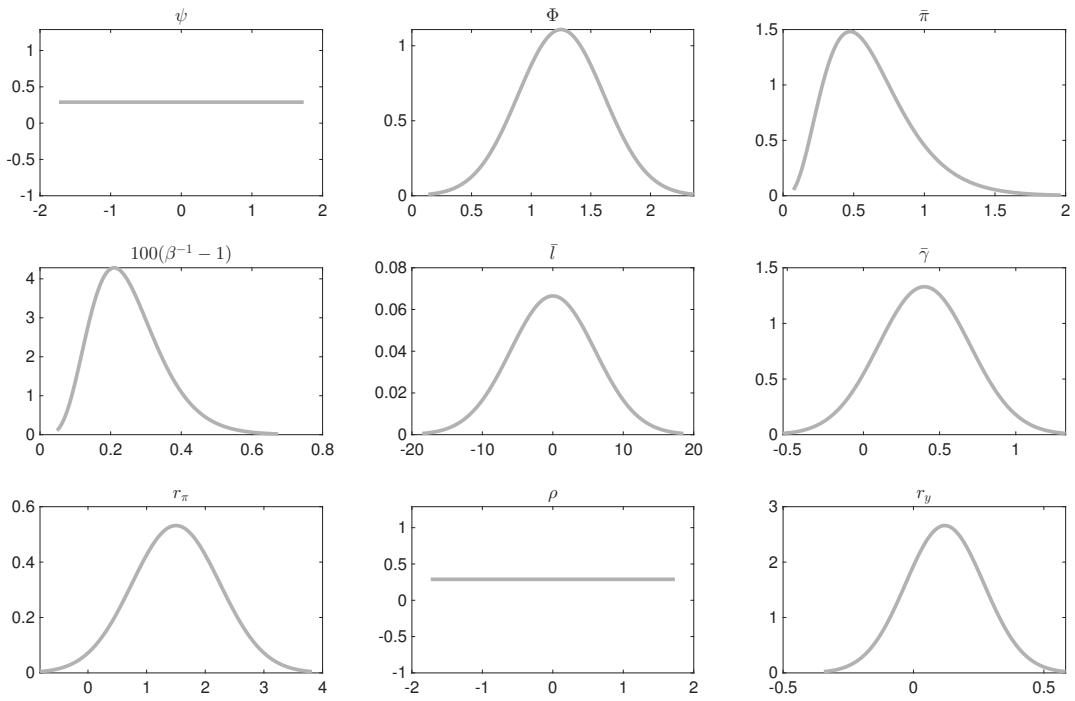


Figure 4: Priors.

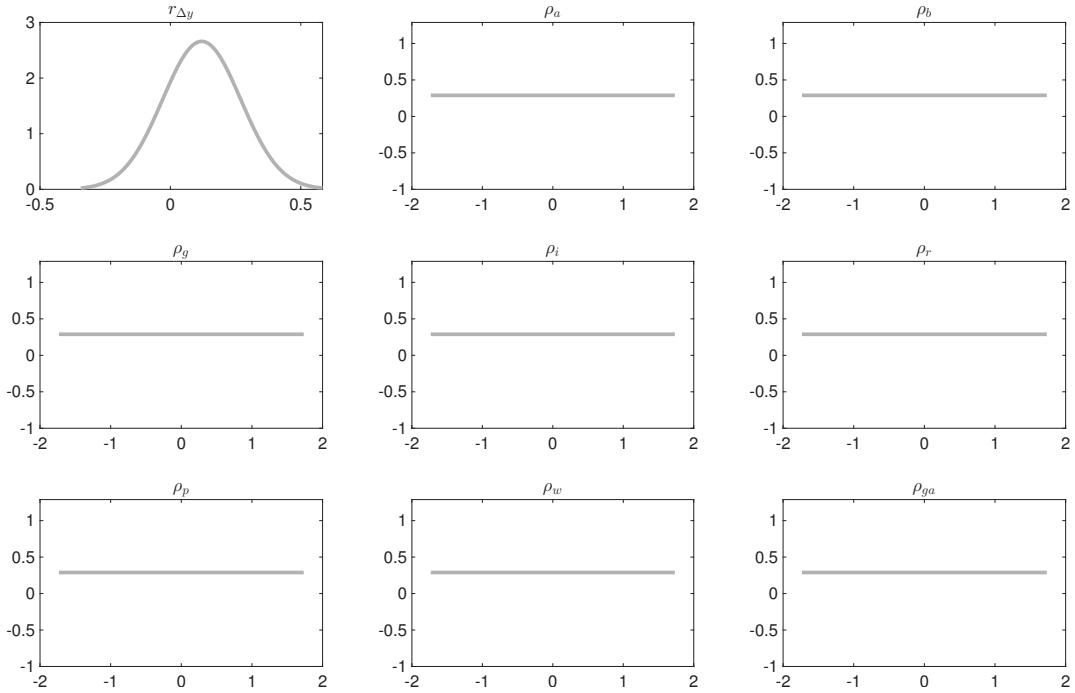


Figure 5: Priors.

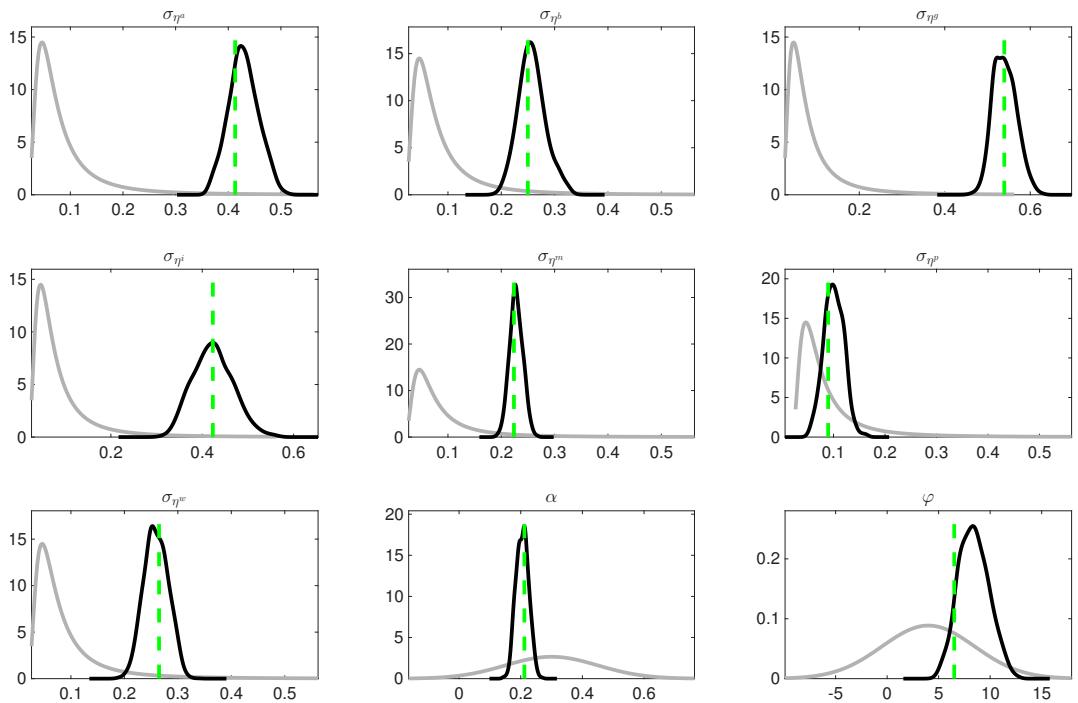


Figure 6: Priors and posteriors.

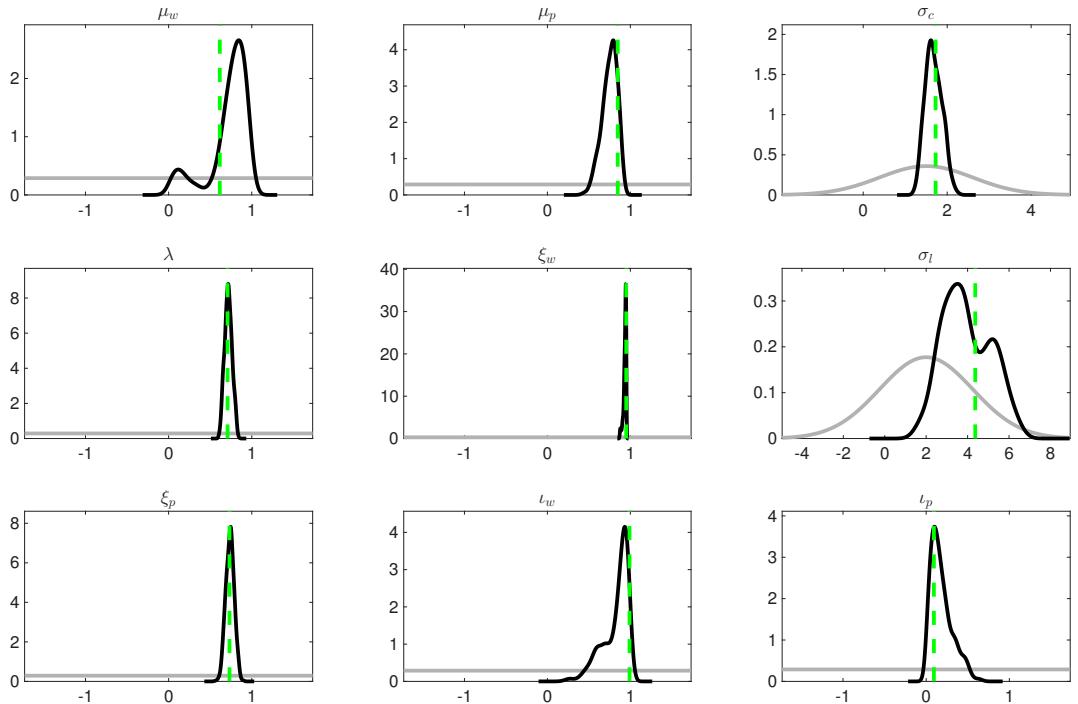


Figure 7: Priors and posteriors.

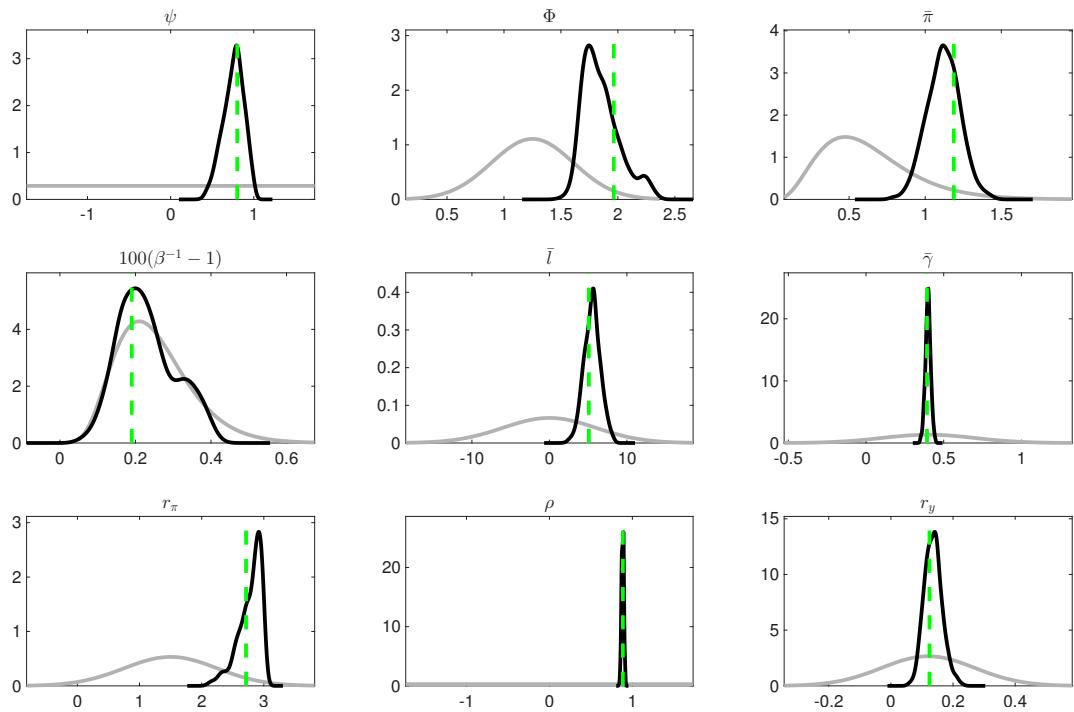


Figure 8: Priors and posteriors.

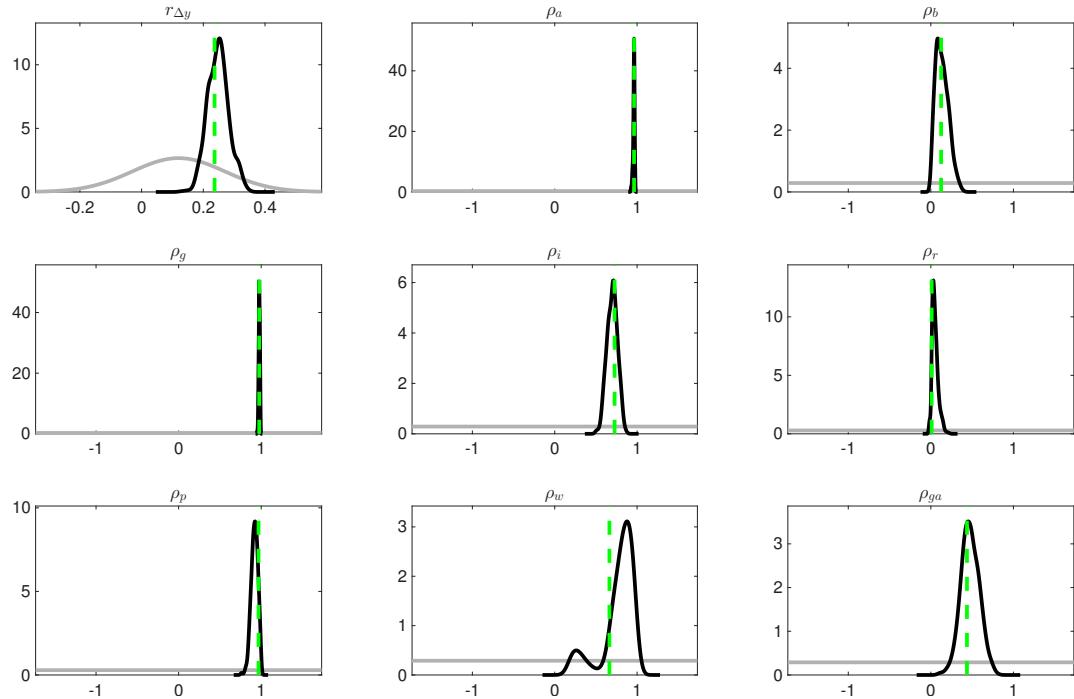


Figure 9: Priors and posteriors.

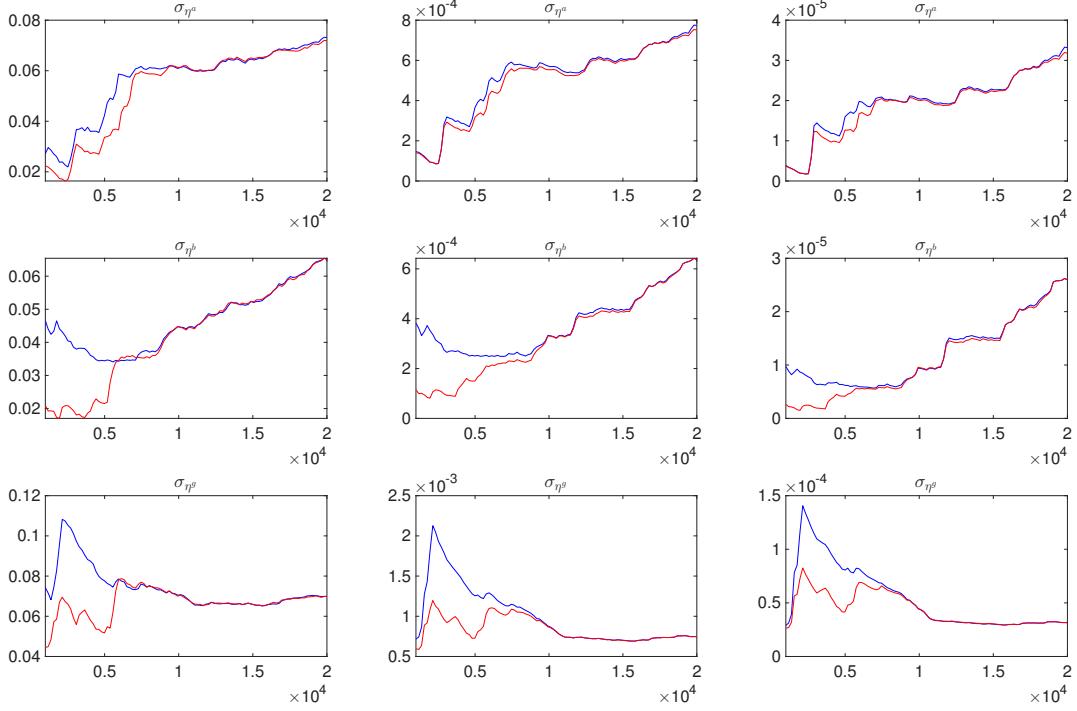


Figure 10: Univariate convergence diagnostics for the Metropolis-Hastings. The first, second and third columns are respectively the criteria based on the eighty percent interval, the second and third moments.

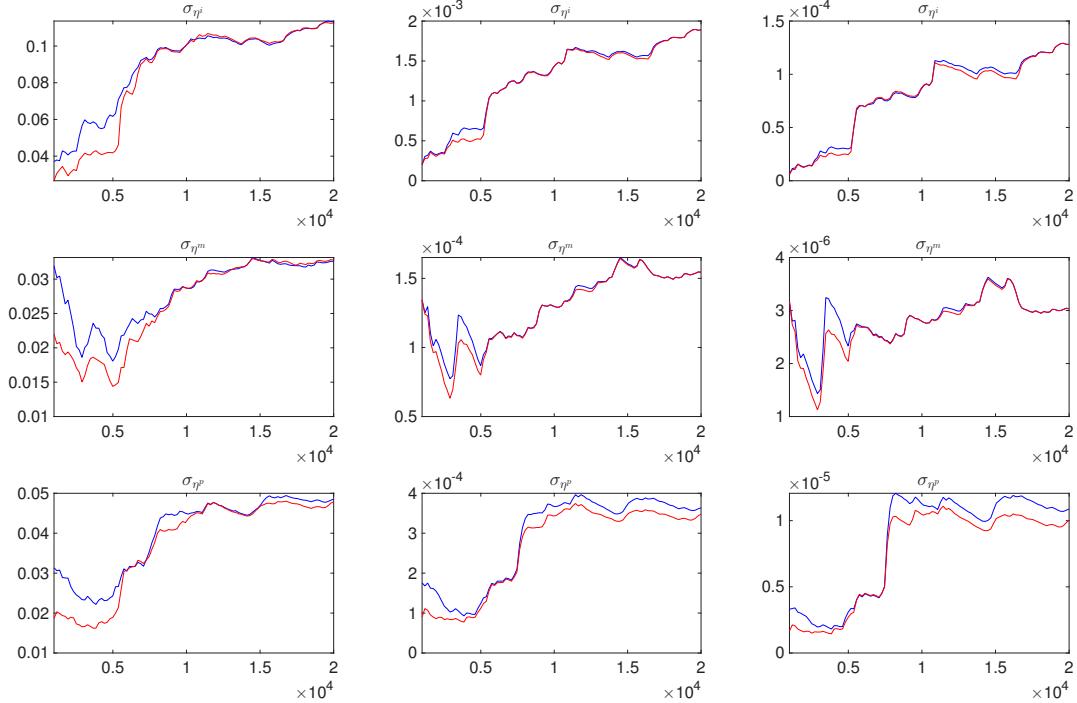


Figure 11: Univariate convergence diagnostics for the Metropolis-Hastings. The first, second and third columns are respectively the criteria based on the eighty percent interval, the second and third moments.

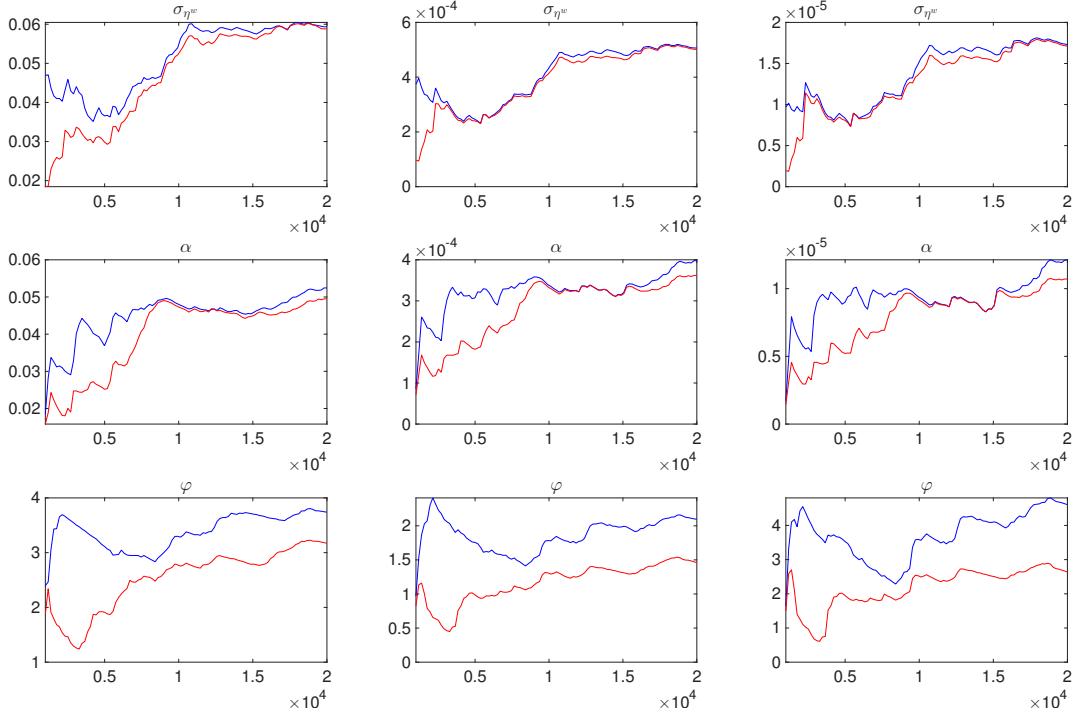


Figure 12: Univariate convergence diagnostics for the Metropolis-Hastings. The first, second and third columns are respectively the criteria based on the eighty percent interval, the second and third moments.

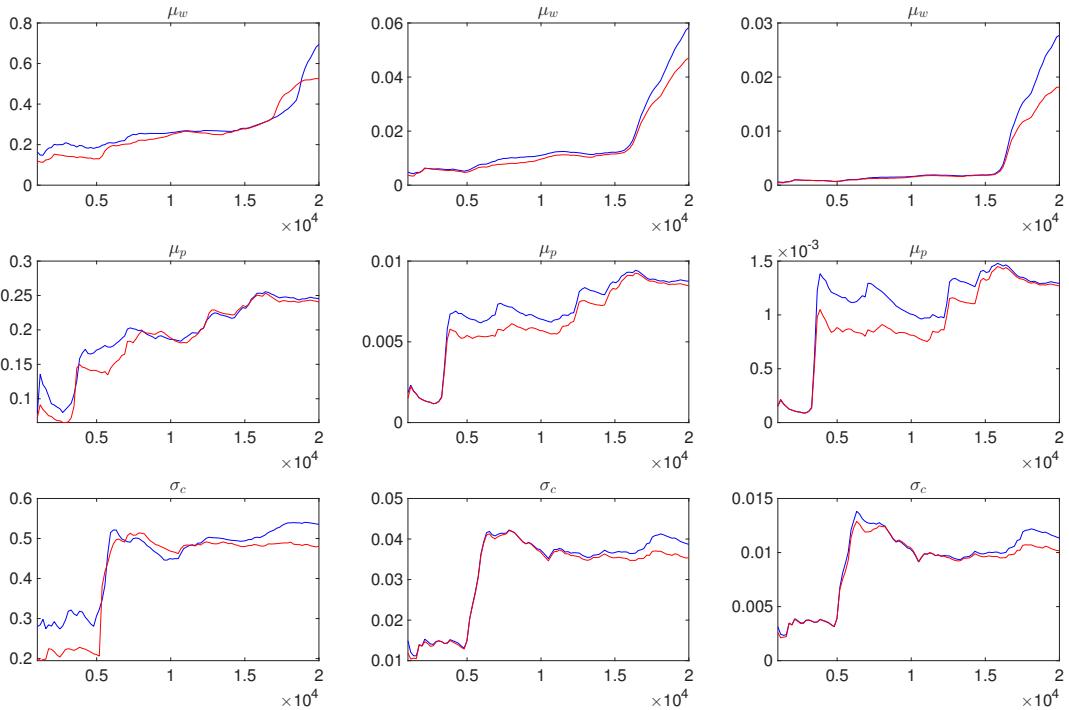


Figure 13: Univariate convergence diagnostics for the Metropolis-Hastings. The first, second and third columns are respectively the criteria based on the eighty percent interval, the second and third moments.

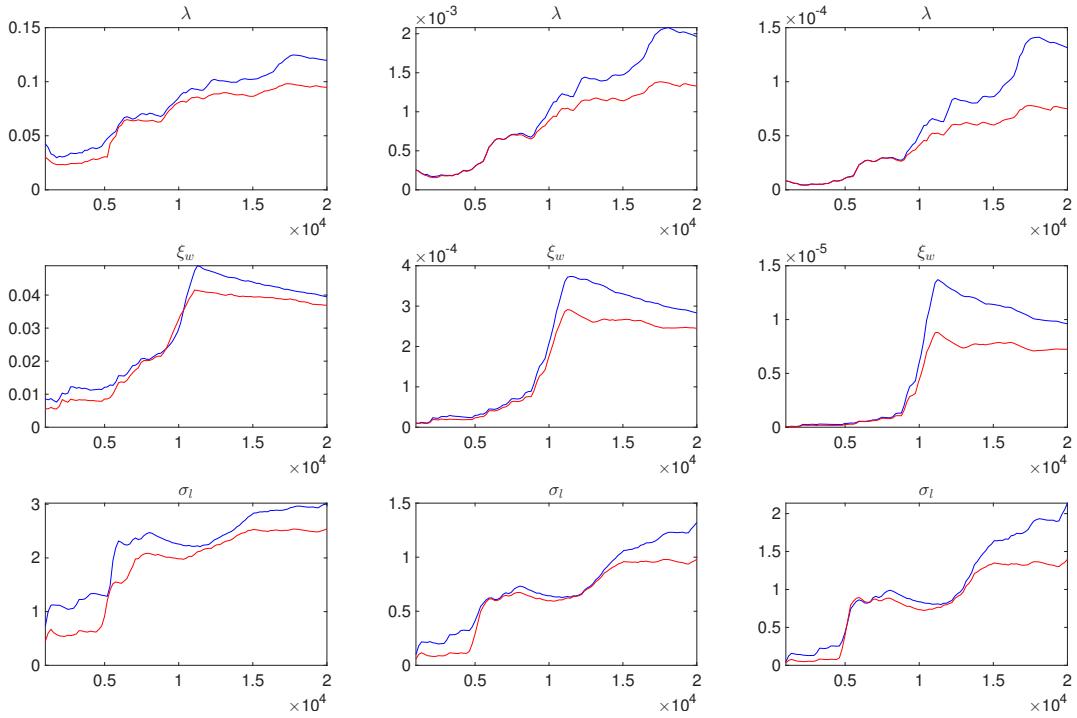


Figure 14: Univariate convergence diagnostics for the Metropolis-Hastings. The first, second and third columns are respectively the criteria based on the eighty percent interval, the second and third moments.

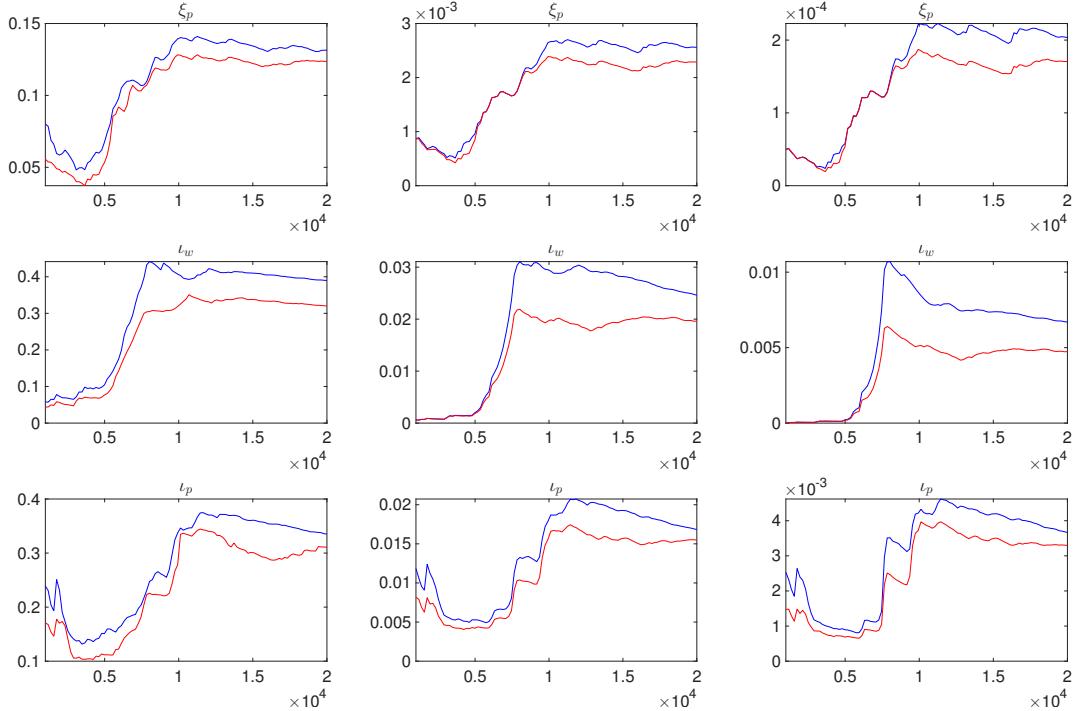


Figure 15: Univariate convergence diagnostics for the Metropolis-Hastings. The first, second and third columns are respectively the criteria based on the eighty percent interval, the second and third moments.

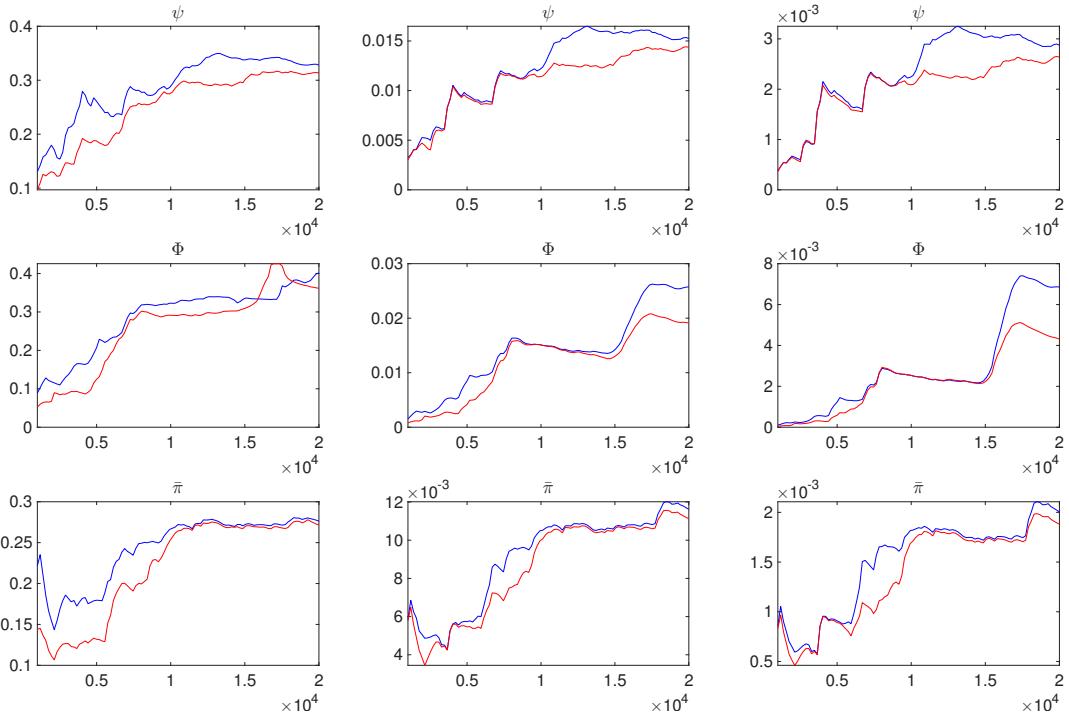


Figure 16: Univariate convergence diagnostics for the Metropolis-Hastings. The first, second and third columns are respectively the criteria based on the eighty percent interval, the second and third moments.

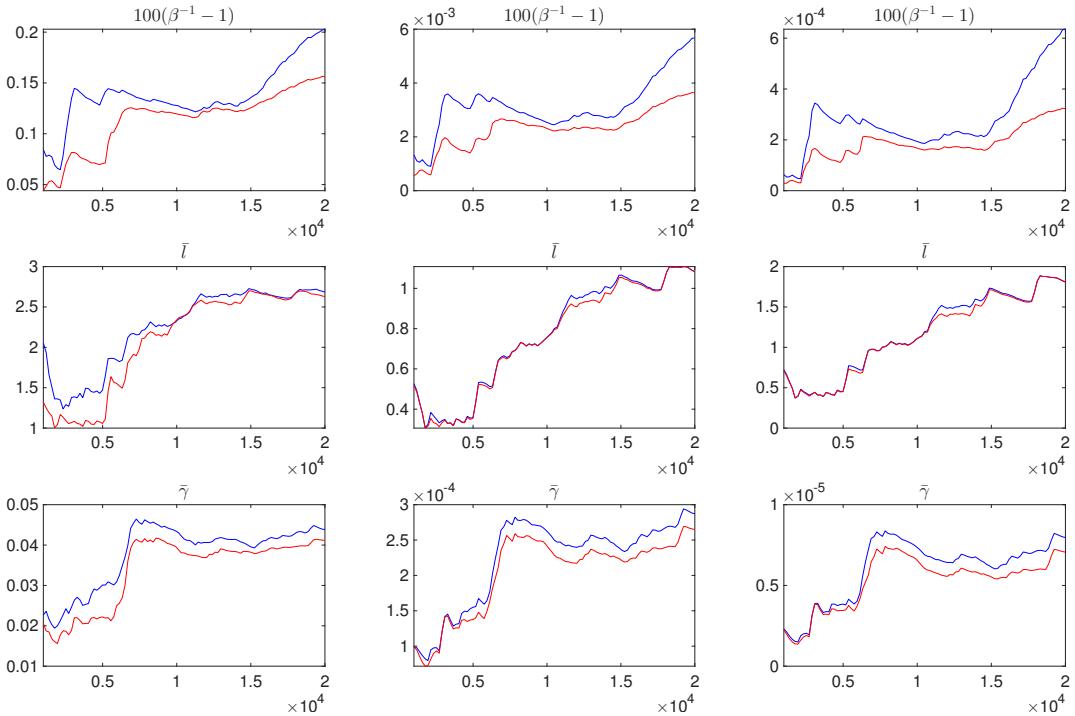


Figure 17: Univariate convergence diagnostics for the Metropolis-Hastings. The first, second and third columns are respectively the criteria based on the eighty percent interval, the second and third moments.

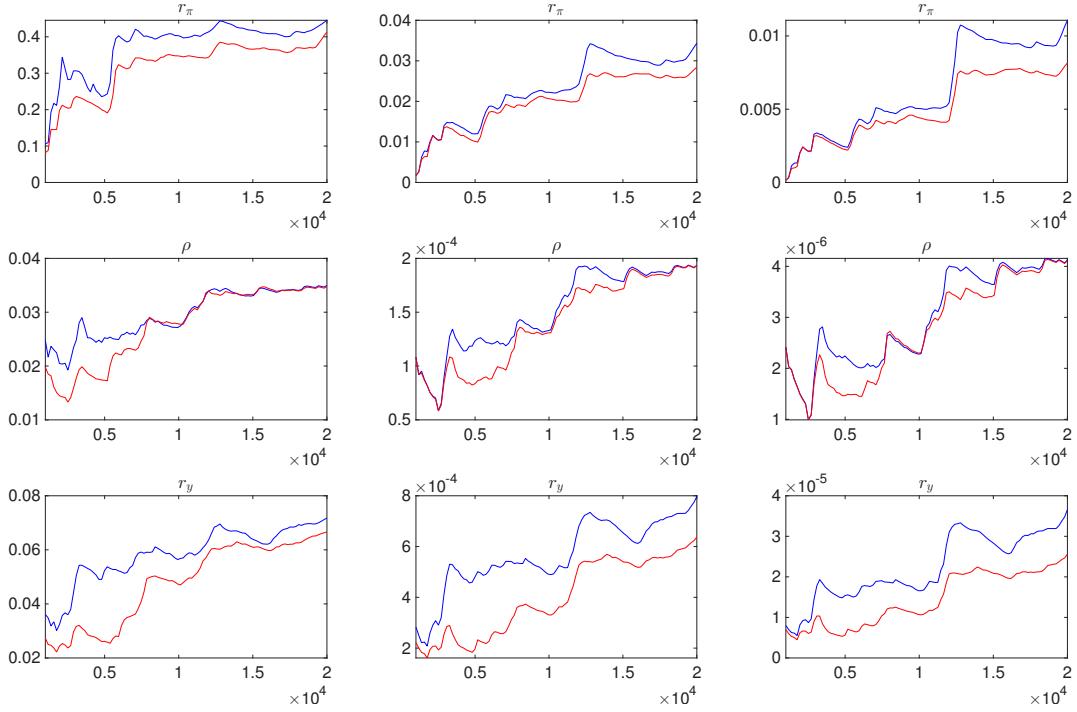


Figure 18: Univariate convergence diagnostics for the Metropolis-Hastings. The first, second and third columns are respectively the criteria based on the eighty percent interval, the second and third moments.

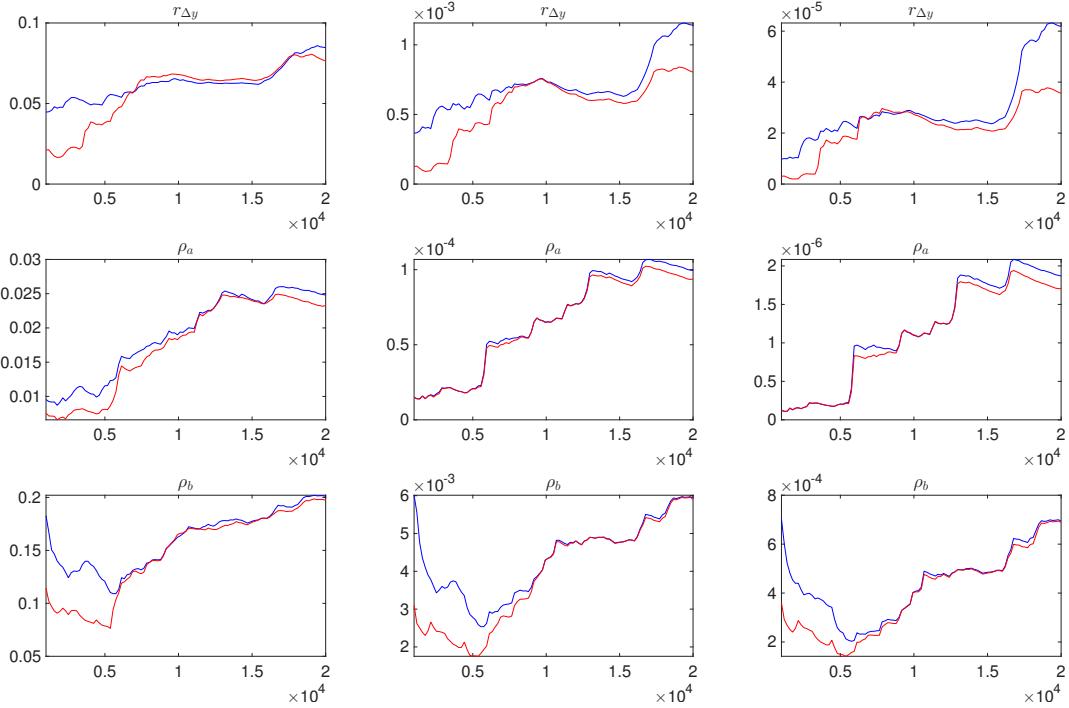


Figure 19: Univariate convergence diagnostics for the Metropolis-Hastings. The first, second and third columns are respectively the criteria based on the eighty percent interval, the second and third moments.

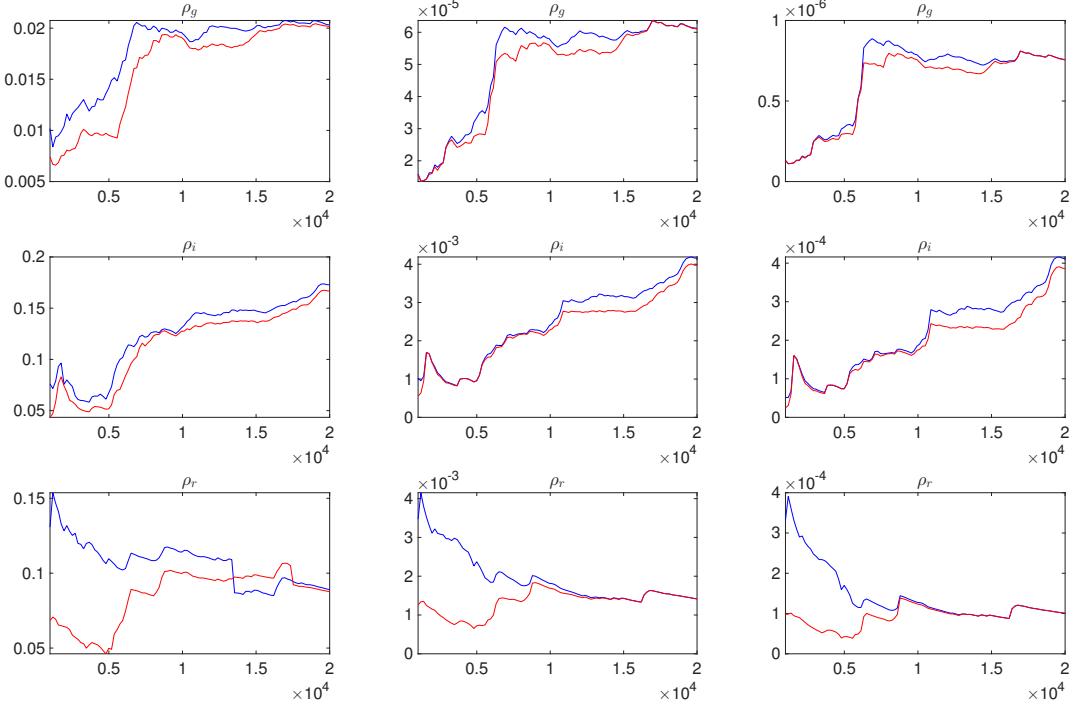


Figure 20: Univariate convergence diagnostics for the Metropolis-Hastings. The first, second and third columns are respectively the criteria based on the eighty percent interval, the second and third moments.

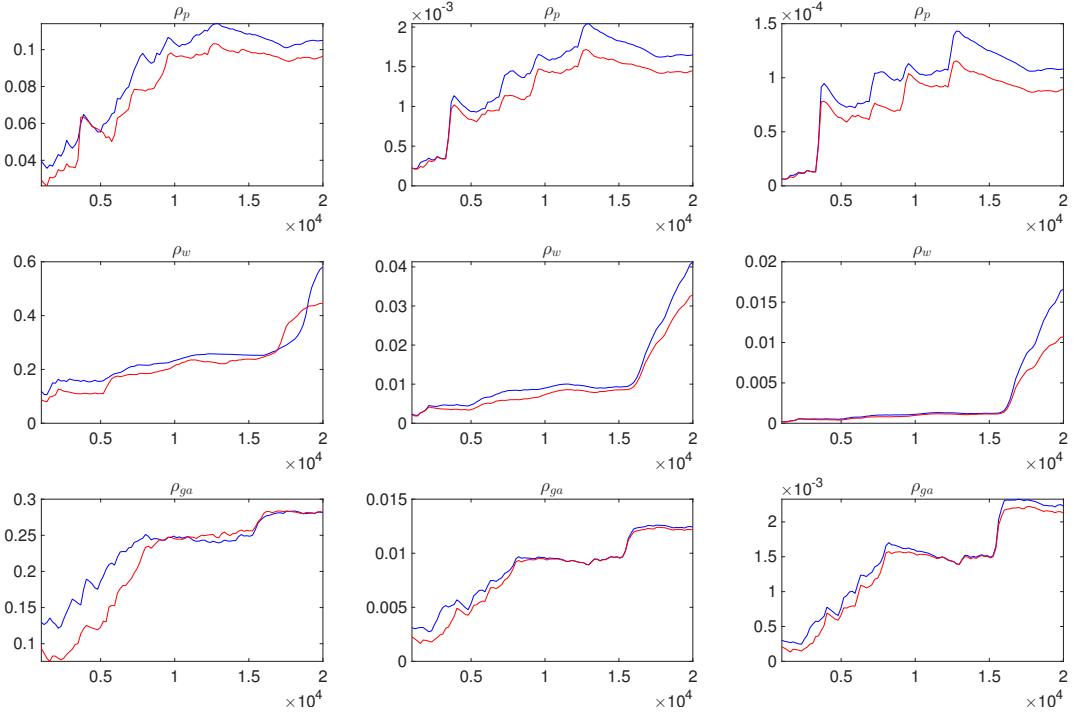


Figure 21: Univariate convergence diagnostics for the Metropolis-Hastings. The first, second and third columns are respectively the criteria based on the eighty percent interval, the second and third moments.

Table 6: MATRIX OF COVARIANCE OF EXOGENOUS SHOCKS

| | <i>Variables</i> | η^a | η^b | η^g | η^i | η^m | η^p | η^w |
|----------|------------------|----------|----------|----------|----------|----------|----------|----------|
| η^a | 0.183865 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| η^b | 0.000000 | 0.066137 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| η^g | 0.000000 | 0.000000 | 0.291520 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| η^i | 0.000000 | 0.000000 | 0.000000 | 0.179141 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| η^m | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.051904 | 0.000000 | 0.000000 | 0.000000 |
| η^p | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.010082 | 0.000000 | |
| η^w | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.067200 |

Table 7: Geweke (1992) Convergence Tests, based on means of draws 4000 to 7200 vs 12000 to 20000 for chain 1. p-values are for χ^2 -test for equality of means.

| Parameter | Posterior | | p-values | | | |
|-----------------------|-----------|--------|----------|----------|----------|-----------|
| | Mean | Std | No Taper | 4% Taper | 8% Taper | 15% Taper |
| σ_{η^a} | 0.4304 | 0.0218 | 0.4072 | 0.9423 | 0.9553 | 0.9620 |
| σ_{η^b} | 0.2584 | 0.0229 | 0.0000 | 0.0457 | 0.1112 | 0.1704 |
| σ_{η^g} | 0.5347 | 0.0274 | 0.0000 | 0.5493 | 0.6271 | 0.6839 |
| σ_{η^i} | 0.4256 | 0.0334 | 0.6595 | 0.9690 | 0.9753 | 0.9778 |
| σ_{η^m} | 0.2273 | 0.0105 | 0.0000 | 0.6343 | 0.6848 | 0.6851 |
| σ_{η^p} | 0.0939 | 0.0181 | 0.0000 | 0.5257 | 0.6185 | 0.6722 |
| σ_{η^w} | 0.2591 | 0.0204 | 0.0013 | 0.7788 | 0.8212 | 0.8402 |
| α | 0.2016 | 0.0158 | 0.0000 | 0.0000 | 0.0004 | 0.0010 |
| φ | 7.4671 | 1.0368 | 0.0000 | 0.0632 | 0.1386 | 0.2089 |
| μ_w | 0.6250 | 0.2614 | 0.0000 | 0.0000 | 0.0005 | 0.0079 |
| μ_p | 0.7737 | 0.0922 | 0.0000 | 0.0002 | 0.0046 | 0.0222 |
| σ_c | 1.7785 | 0.1913 | 0.0000 | 0.0559 | 0.1452 | 0.2319 |
| λ | 0.6923 | 0.0316 | 0.0000 | 0.0033 | 0.0225 | 0.0480 |
| ξ_w | 0.9403 | 0.0076 | 0.0000 | 0.3122 | 0.3897 | 0.4239 |
| σ_l | 3.4702 | 0.7655 | 0.0000 | 0.0036 | 0.0265 | 0.0724 |
| ξ_p | 0.7534 | 0.0389 | 0.0391 | 0.8552 | 0.8870 | 0.9084 |
| ι_w | 0.9016 | 0.0749 | 0.0000 | 0.1363 | 0.1700 | 0.1451 |
| ι_p | 0.1351 | 0.0954 | 0.0000 | 0.0278 | 0.0637 | 0.1143 |
| ψ | 0.7848 | 0.1043 | 0.0000 | 0.1889 | 0.2934 | 0.3655 |
| Φ | 1.8159 | 0.1303 | 0.0000 | 0.0042 | 0.0351 | 0.1017 |
| $\bar{\pi}$ | 1.0995 | 0.0889 | 0.0000 | 0.0177 | 0.0617 | 0.1215 |
| $100(\beta^{-1} - 1)$ | 0.1784 | 0.0438 | 0.0000 | 0.0000 | 0.0000 | 0.0006 |
| \bar{l} | 5.5049 | 0.9556 | 0.0000 | 0.7048 | 0.7697 | 0.8034 |
| $\bar{\gamma}$ | 0.4036 | 0.0138 | 0.0000 | 0.0172 | 0.0650 | 0.1200 |
| r_π | 2.8281 | 0.1095 | 0.0000 | 0.0704 | 0.1518 | 0.1990 |
| ρ | 0.8850 | 0.0132 | 0.0000 | 0.0553 | 0.1127 | 0.1601 |
| r_y | 0.1485 | 0.0240 | 0.0000 | 0.3195 | 0.4390 | 0.5079 |
| $r_{\Delta y}$ | 0.2553 | 0.0335 | 0.0000 | 0.0000 | 0.0002 | 0.0031 |
| ρ_a | 0.9642 | 0.0074 | 0.0000 | 0.0406 | 0.1081 | 0.1663 |
| ρ_b | 0.1277 | 0.0779 | 0.0933 | 0.8939 | 0.9142 | 0.9235 |
| ρ_g | 0.9779 | 0.0063 | 0.0000 | 0.0007 | 0.0064 | 0.0128 |
| ρ_i | 0.7111 | 0.0465 | 0.0000 | 0.0201 | 0.0594 | 0.0820 |
| ρ_r | 0.0406 | 0.0449 | 0.0000 | 0.0119 | 0.0476 | 0.1008 |
| ρ_p | 0.9352 | 0.0343 | 0.0000 | 0.0006 | 0.0056 | 0.0175 |
| ρ_w | 0.6809 | 0.2171 | 0.0000 | 0.0000 | 0.0012 | 0.0137 |
| ρ_{ga} | 0.4915 | 0.0872 | 0.0000 | 0.0100 | 0.0354 | 0.0436 |

Table 8: Geweke (1992) Convergence Tests, based on means of draws 4000 to 7200 vs 12000 to 20000 for chain 2. p-values are for χ^2 -test for equality of means.

| Parameter | Posterior | | p-values | | | |
|-----------------------|-----------|--------|----------|----------|----------|-----------|
| | Mean | Std | No Taper | 4% Taper | 8% Taper | 15% Taper |
| σ_{η^a} | 0.4242 | 0.0296 | 0.0000 | 0.0000 | 0.0007 | 0.0044 |
| σ_{η^b} | 0.2536 | 0.0247 | 0.0000 | 0.0022 | 0.0134 | 0.0277 |
| σ_{η^g} | 0.5444 | 0.0304 | 0.0000 | 0.0004 | 0.0015 | 0.0008 |
| σ_{η^i} | 0.4208 | 0.0462 | 0.0000 | 0.0013 | 0.0118 | 0.0272 |
| σ_{η^m} | 0.2285 | 0.0134 | 0.0001 | 0.7374 | 0.7782 | 0.7953 |
| σ_{η^p} | 0.1022 | 0.0177 | 0.6007 | 0.9604 | 0.9670 | 0.9699 |
| σ_{η^w} | 0.2578 | 0.0227 | 0.0000 | 0.0065 | 0.0226 | 0.0359 |
| α | 0.2076 | 0.0220 | 0.0000 | 0.0000 | 0.0002 | 0.0016 |
| φ | 9.0880 | 1.3518 | 0.0000 | 0.3313 | 0.4696 | 0.5700 |
| μ_w | 0.8007 | 0.1102 | 0.0000 | 0.2238 | 0.3538 | 0.4526 |
| μ_p | 0.7392 | 0.0883 | 0.0000 | 0.1241 | 0.2044 | 0.2379 |
| σ_c | 1.6755 | 0.2171 | 0.0000 | 0.0000 | 0.0003 | 0.0037 |
| λ | 0.7333 | 0.0408 | 0.0000 | 0.0000 | 0.0002 | 0.0029 |
| ξ_w | 0.9296 | 0.0197 | 0.3391 | 0.9426 | 0.9553 | 0.9610 |
| σ_l | 4.5633 | 1.0403 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| ξ_p | 0.7230 | 0.0489 | 0.0000 | 0.0001 | 0.0025 | 0.0104 |
| ι_w | 0.7868 | 0.1763 | 0.0000 | 0.0000 | 0.0000 | 0.0012 |
| ι_p | 0.2090 | 0.1371 | 0.0000 | 0.2074 | 0.3169 | 0.3825 |
| ψ | 0.7328 | 0.1258 | 0.0000 | 0.0627 | 0.1318 | 0.1737 |
| Φ | 1.9280 | 0.1536 | 0.0000 | 0.0000 | 0.0000 | 0.0001 |
| $\bar{\pi}$ | 1.1366 | 0.1109 | 0.0000 | 0.6685 | 0.7375 | 0.7860 |
| $100(\beta^{-1} - 1)$ | 0.2662 | 0.0694 | 0.0000 | 0.0000 | 0.0000 | 0.0003 |
| \bar{l} | 5.5238 | 0.9839 | 0.0000 | 0.0000 | 0.0007 | 0.0026 |
| $\bar{\gamma}$ | 0.3953 | 0.0169 | 0.0000 | 0.0586 | 0.1248 | 0.1929 |
| r_π | 2.6910 | 0.2023 | 0.0000 | 0.6243 | 0.7141 | 0.7654 |
| ρ | 0.8820 | 0.0137 | 0.0000 | 0.0949 | 0.1730 | 0.2062 |
| r_y | 0.1223 | 0.0233 | 0.0000 | 0.0774 | 0.1590 | 0.2388 |
| $r_{\Delta y}$ | 0.2314 | 0.0275 | 0.0000 | 0.0000 | 0.0002 | 0.0033 |
| ρ_a | 0.9604 | 0.0104 | 0.0000 | 0.0000 | 0.0001 | 0.0003 |
| ρ_b | 0.1370 | 0.0710 | 0.7627 | 0.9792 | 0.9830 | 0.9848 |
| ρ_g | 0.9774 | 0.0082 | 0.0000 | 0.0000 | 0.0002 | 0.0021 |
| ρ_i | 0.6910 | 0.0693 | 0.0000 | 0.0024 | 0.0197 | 0.0549 |
| ρ_r | 0.0547 | 0.0369 | 0.0000 | 0.7039 | 0.7480 | 0.7500 |
| ρ_p | 0.9099 | 0.0415 | 0.0000 | 0.2483 | 0.3599 | 0.4165 |
| ρ_w | 0.8386 | 0.0940 | 0.0000 | 0.2350 | 0.3698 | 0.4705 |
| ρ_{ga} | 0.4541 | 0.1165 | 0.0000 | 0.0009 | 0.0072 | 0.0175 |

Table 9: Endogenous

| | Variable | LATEX | Description |
|---------|-------------------------|-------|---|
| labobs | $lHOURS$ | | log hours worked |
| robs | $FEDFUNDS$ | | Federal funds rate |
| pinfobs | dlP | | Inflation |
| dy | $dlGDP$ | | Output growth rate |
| dc | $dlCONS$ | | Consumption growth rate |
| dinve | $dlINV$ | | Investment growth rate |
| dw | $dlWAG$ | | Wage growth rate |
| ewma | $\eta^{w,aux}$ | | Auxiliary wage markup moving average variable |
| epinfma | $\eta^{p,aux}$ | | Auxiliary price markup moving average variable |
| zcapf | z^{flex} | | Capital utilization rate flex price economy |
| rkf | $r^{k,flex}$ | | rental rate of capital flex price economy |
| kf | $k^{s,flex}$ | | Capital services flex price economy |
| pkf | q^{flex} | | real value of existing capital stock flex price economy |
| cf | c^{flex} | | Consumption flex price economy |
| invef | i^{flex} | | Investment flex price economy |
| yf | y^{flex} | | Output flex price economy |
| labf | l^{flex} | | hours worked flex price economy |
| wf | w^{flex} | | real wage flex price economy |
| rrf | r^{flex} | | real interest rate flex price economy |
| mc | μ_p | | gross price markup |
| zcap | z | | Capital utilization rate |
| rk | r^k | | rental rate of capital |
| k | k^s | | Capital services |
| pk | q | | real value of existing capital stock |
| c | c | | Consumption |
| inve | i | | Investment |
| y | y | | Output |
| lab | l | | hours worked |
| pinf | π | | Inflation |
| w | w | | real wage |
| r | r | | nominal interest rate |
| a | ε_a | | productivity process |
| b | $c_2 * \varepsilon_t^b$ | | Scaled risk premium shock |
| g | ε^g | | Exogenous spending |
| qs | ε^i | | Investment-specific technology |
| ms | ε^r | | Monetary policy shock process |
| spinf | ε^p | | Price markup shock process |
| sw | ε^w | | Wage markup shock process |
| kpf | k^{flex} | | Capital stock flex price economy |
| kp | k | | Capital stock |
| muw | μ_w | | wage markup |

Table 10: Exogenous

| Variable | LATEX | Description |
|----------|--------------|--------------------------------------|
| ea | η^a | productivity shock |
| eb | η^b | Investment-specific technology shock |
| eg | η^g | Spending shock |
| eqs | η^i | Investment-specific technology shock |
| em | η^m | Monetary policy shock |
| epinf | η^p | Price markup shock |
| ew | η^w | Wage markup shock |

Table 11: Parameters

| Variable | LATEX | Description |
|------------|-----------------------|---|
| curvw | ε_w | Curvature Kimball aggregator wages |
| cgy | ρ_{ga} | Feedback technology on exogenous spending |
| curvp | ε_p | Curvature Kimball aggregator prices |
| constelab | \bar{l} | steady state hours |
| constepinf | $\bar{\pi}$ | steady state inflation rate |
| constebeta | $100(\beta^{-1} - 1)$ | time preference rate in percent |
| cmaaw | μ_w | coefficient on MA term wage markup |
| cmap | μ_p | coefficient on MA term price markup |
| calfa | α | capital share |
| czcap | ψ | capacity utilization cost |
| csadjcost | φ | investment adjustment cost |
| ctou | δ | depreciation rate |
| csigma | σ_c | risk aversion |
| chabb | λ | external habit degree |
| cfc | Φ | fixed cost share |
| cindw | ι_w | Indexation to past wages |
| cprobw | ξ_w | Calvo parameter wages |
| cindp | ι_p | Indexation to past prices |
| cprobp | ξ_p | Calvo parameter prices |
| csigl | σ_l | Frisch elasticity |
| clandaw | ϕ_w | Gross markup wages |
| crpi | r_π | Taylor rule inflation feedback |
| crdy | $r_{\Delta y}$ | Taylor rule output growth feedback |
| cry | r_y | Taylor rule output level feedback |
| crr | ρ | interest rate persistence |
| crhoa | ρ_a | persistence productivity shock |
| crhoas | d_2 | Unused parameter |
| crhob | ρ_b | persistence risk premium shock |
| crhog | ρ_g | persistence spending shock |
| crhols | d_1 | Unused parameter |

Table 11 – Continued

| Variable | \texttt{ATEX} | Description |
|--------------------|---------------------------|---------------------------------------|
| crhoqs | ρ_i | persistence risk premium shock |
| crhom _s | ρ_r | persistence monetary policy shock |
| crhopinf | ρ_p | persistence price markup shock |
| crhow | ρ_w | persistence wage markup shock |
| ctrend | $\bar{\gamma}$ | net growth rate in percent |
| cg | $\frac{\bar{g}}{\bar{y}}$ | steady state exogenous spending share |

Table 12: Parameter Values

| Parameter | Value | Description |
|-----------------------|--------|---|
| ε_w | 10.000 | Curvature Kimball aggregator wages |
| ρ_{ga} | 0.476 | Feedback technology on exogenous spending |
| ε_p | 10.000 | Curvature Kimball aggregator prices |
| \bar{l} | 5.497 | steady state hours |
| $\bar{\pi}$ | 1.119 | steady state inflation rate |
| $100(\beta^{-1} - 1)$ | 0.229 | time preference rate in percent |
| μ_w | 0.719 | coefficient on MA term wage markup |
| μ_p | 0.749 | coefficient on MA term price markup |
| α | 0.205 | capital share |
| ψ | 0.754 | capacity utilization cost |
| φ | 8.404 | investment adjustment cost |
| δ | 0.025 | depreciation rate |
| σ_c | 1.676 | risk aversion |
| λ | 0.719 | external habit degree |
| Φ | 1.850 | fixed cost share |
| ι_w | 0.824 | Indexation to past wages |
| ξ_w | 0.933 | Calvo parameter wages |
| ι_p | 0.183 | Indexation to past prices |
| ξ_p | 0.738 | Calvo parameter prices |
| σ_l | 3.947 | Frisch elasticity |
| ϕ_w | 1.500 | Gross markup wages |
| r_π | 2.778 | Taylor rule inflation feedback |
| $r_{\Delta y}$ | 0.247 | Taylor rule output growth feedback |
| r_y | 0.136 | Taylor rule output level feedback |
| ρ | 0.882 | interest rate persistence |
| ρ_a | 0.962 | persistence productivity shock |
| d_2 | 1.000 | Unused parameter |
| ρ_b | 0.137 | persistence risk premium shock |
| ρ_g | 0.978 | persistence spending shock |
| d_1 | 0.993 | Unused parameter |
| ρ_i | 0.698 | persistence risk premium shock |
| ρ_r | 0.053 | persistence monetary policy shock |
| ρ_p | 0.918 | persistence price markup shock |
| ρ_w | 0.768 | persistence wage markup shock |
| $\bar{\gamma}$ | 0.399 | net growth rate in percent |
| $\frac{g}{y}$ | 0.180 | steady state exogenous spending share |

Table 13: Prior information (parameters)

| | Distribution | Mean | Mode | Std.dev. | Bounds* | | 90% HPDI | |
|-----------------------|--------------|--------|--------|----------|----------|-----------|----------|---------|
| | | | | | Lower | Upper | Lower | Upper |
| σ_{η^a} | Inv. Gamma | 0.1000 | 0.0461 | 2.0000 | 0.0118 | 5595.7204 | 0.0326 | 0.2490 |
| σ_{η^b} | Inv. Gamma | 0.1000 | 0.0461 | 2.0000 | 0.0118 | 5595.7204 | 0.0326 | 0.2490 |
| σ_{η^g} | Inv. Gamma | 0.1000 | 0.0461 | 2.0000 | 0.0118 | 5595.7204 | 0.0326 | 0.2490 |
| σ_{η^i} | Inv. Gamma | 0.1000 | 0.0461 | 2.0000 | 0.0118 | 5595.7204 | 0.0326 | 0.2490 |
| σ_{η^m} | Inv. Gamma | 0.1000 | 0.0461 | 2.0000 | 0.0118 | 5595.7204 | 0.0326 | 0.2490 |
| σ_{η^p} | Inv. Gamma | 0.1000 | 0.0461 | 2.0000 | 0.0118 | 5595.7204 | 0.0326 | 0.2490 |
| σ_{η^w} | Inv. Gamma | 0.1000 | 0.0461 | 2.0000 | 0.0118 | 5595.7204 | 0.0326 | 0.2490 |
| α | Gaussian | 0.3000 | 0.3000 | 0.1500 | -0.6542 | 1.2542 | 0.0533 | 0.5467 |
| φ | Gaussian | 4.0000 | 4.0000 | 4.5000 | -24.6260 | 32.6260 | -3.4018 | 11.4018 |
| μ_w | Uniform | 0.0000 | NaN | 1.0000 | -1.7321 | 1.7321 | -1.5588 | 1.5588 |
| μ_p | Uniform | 0.0000 | NaN | 1.0000 | -1.7321 | 1.7321 | -1.5588 | 1.5588 |
| σ_c | Gaussian | 1.5000 | 1.5000 | 1.1100 | -5.5611 | 8.5611 | -0.3258 | 3.3258 |
| λ | Uniform | 0.0000 | NaN | 1.0000 | -1.7321 | 1.7321 | -1.5588 | 1.5588 |
| ξ_w | Uniform | 0.0000 | NaN | 1.0000 | -1.7321 | 1.7321 | -1.5588 | 1.5588 |
| σ_l | Gaussian | 2.0000 | 2.0000 | 2.2500 | -12.3130 | 16.3130 | -1.7009 | 5.7009 |
| ξ_p | Uniform | 0.0000 | NaN | 1.0000 | -1.7321 | 1.7321 | -1.5588 | 1.5588 |
| ι_w | Uniform | 0.0000 | NaN | 1.0000 | -1.7321 | 1.7321 | -1.5588 | 1.5588 |
| ι_p | Uniform | 0.0000 | NaN | 1.0000 | -1.7321 | 1.7321 | -1.5588 | 1.5588 |
| ψ | Uniform | 0.0000 | NaN | 1.0000 | -1.7321 | 1.7321 | -1.5588 | 1.5588 |
| Φ | Gaussian | 1.2500 | 1.2500 | 0.3600 | -1.0401 | 3.5401 | 0.6579 | 1.8421 |
| $\bar{\pi}$ | Gamma | 0.6200 | 0.4748 | 0.3000 | 0.0015 | 4.6974 | 0.2214 | 1.1813 |
| $100(\beta^{-1} - 1)$ | Gamma | 0.2500 | 0.2100 | 0.1000 | 0.0031 | 1.4759 | 0.1111 | 0.4339 |
| \bar{l} | Gaussian | 0.0000 | 0.0000 | 6.0000 | -38.1680 | 38.1680 | -9.8691 | 9.8691 |
| $\bar{\gamma}$ | Gaussian | 0.4000 | 0.4000 | 0.3000 | -1.5084 | 2.3084 | -0.0935 | 0.8935 |
| r_π | Gaussian | 1.5000 | 1.5000 | 0.7500 | -3.2710 | 6.2710 | 0.2664 | 2.7336 |
| ρ | Uniform | 0.0000 | NaN | 1.0000 | -1.7321 | 1.7321 | -1.5588 | 1.5588 |
| r_y | Gaussian | 0.1200 | 0.1200 | 0.1500 | -0.8342 | 1.0742 | -0.1267 | 0.3667 |
| $r_{\Delta y}$ | Gaussian | 0.1200 | 0.1200 | 0.1500 | -0.8342 | 1.0742 | -0.1267 | 0.3667 |
| ρ_a | Uniform | 0.0000 | NaN | 1.0000 | -1.7321 | 1.7321 | -1.5588 | 1.5588 |
| ρ_b | Uniform | 0.0000 | NaN | 1.0000 | -1.7321 | 1.7321 | -1.5588 | 1.5588 |
| ρ_g | Uniform | 0.0000 | NaN | 1.0000 | -1.7321 | 1.7321 | -1.5588 | 1.5588 |
| ρ_i | Uniform | 0.0000 | NaN | 1.0000 | -1.7321 | 1.7321 | -1.5588 | 1.5588 |
| ρ_r | Uniform | 0.0000 | NaN | 1.0000 | -1.7321 | 1.7321 | -1.5588 | 1.5588 |
| ρ_p | Uniform | 0.0000 | NaN | 1.0000 | -1.7321 | 1.7321 | -1.5588 | 1.5588 |
| ρ_w | Uniform | 0.0000 | NaN | 1.0000 | -1.7321 | 1.7321 | -1.5588 | 1.5588 |
| ρ_{ga} | Uniform | 0.0000 | NaN | 1.0000 | -1.7321 | 1.7321 | -1.5588 | 1.5588 |

Note: Displayed bounds are after applying a prior truncation of options.prior_trunc=1.00e-10

Table 14: COEFFICIENTS OF AUTOCORRELATION

| | <i>Order</i> | 1 | 2 | 3 | 4 | 5 |
|-------|--------------|--------|--------|--------|--------|---|
| y | 0.9884 | 0.9701 | 0.9474 | 0.9216 | 0.8934 | |
| c | 0.9932 | 0.9817 | 0.9670 | 0.9497 | 0.9304 | |
| i | 0.9849 | 0.9514 | 0.9074 | 0.8579 | 0.8062 | |
| π | 0.8482 | 0.7425 | 0.6529 | 0.5732 | 0.5019 | |
| r | 0.9044 | 0.7981 | 0.6990 | 0.6101 | 0.5318 | |
| w | 0.9846 | 0.9658 | 0.9437 | 0.9191 | 0.8926 | |
| k^s | 0.9983 | 0.9942 | 0.9880 | 0.9798 | 0.9700 | |
| l | 0.9673 | 0.9260 | 0.8803 | 0.8321 | 0.7827 | |

Table 15: MATRIX OF CORRELATIONS

| | <i>Variables</i> | <i>y</i> | <i>c</i> | <i>i</i> | π | <i>r</i> | <i>w</i> | k^s | <i>l</i> |
|----------|------------------|----------|----------|----------|---------|----------|----------|---------|----------|
| <i>y</i> | 1.0000 | 0.8376 | 0.8419 | -0.3750 | -0.3068 | 0.4695 | 0.7107 | 0.6903 | |
| <i>c</i> | 0.8376 | 1.0000 | 0.7681 | -0.3825 | -0.4531 | 0.4379 | 0.7950 | 0.4982 | |
| <i>i</i> | 0.8419 | 0.7681 | 1.0000 | -0.3393 | -0.1425 | 0.4351 | 0.6244 | 0.6075 | |
| π | -0.3750 | -0.3825 | -0.3393 | 1.0000 | 0.5634 | 0.0180 | -0.1531 | -0.3232 | |
| <i>r</i> | -0.3068 | -0.4531 | -0.1425 | 0.5634 | 1.0000 | -0.0895 | -0.1982 | -0.0480 | |
| <i>w</i> | 0.4695 | 0.4379 | 0.4351 | 0.0180 | -0.0895 | 1.0000 | 0.6678 | 0.0515 | |
| k^s | 0.7107 | 0.7950 | 0.6244 | -0.1531 | -0.1982 | 0.6678 | 1.0000 | 0.2385 | |
| <i>l</i> | 0.6903 | 0.4982 | 0.6075 | -0.3232 | -0.0480 | 0.0515 | 0.2385 | 1.0000 | |

Table 16: THEORETICAL MOMENTS

| VARIABLE | MEAN | STD.DEV. | VARIANCE |
|----------|--------|----------|----------|
| y | 0.0000 | 6.0105 | 36.1266 |
| c | 0.0000 | 6.2375 | 38.9064 |
| i | 0.0000 | 12.7969 | 163.7606 |
| π | 0.0000 | 0.5000 | 0.2500 |
| r | 0.0000 | 0.6013 | 0.3616 |
| w | 0.0000 | 3.3229 | 11.0417 |
| k^s | 0.0000 | 6.7065 | 44.9771 |
| l | 0.0000 | 2.4884 | 6.1920 |

Table 17: VARIANCE DECOMPOSITION (in percent)

| | η^a | η^b | η^g | η^i | η^m | η^p | η^w |
|-------|----------|----------|----------|----------|----------|----------|----------|
| y | 39.66 | 1.40 | 2.72 | 16.38 | 4.48 | 21.20 | 14.16 |
| c | 22.78 | 2.32 | 17.07 | 12.87 | 5.13 | 19.29 | 20.53 |
| i | 22.34 | 0.12 | 6.13 | 45.66 | 2.39 | 18.17 | 5.19 |
| π | 6.40 | 0.04 | 0.81 | 0.46 | 0.83 | 63.68 | 27.79 |
| r | 18.39 | 8.04 | 6.29 | 18.08 | 18.96 | 16.86 | 13.39 |
| w | 18.30 | 0.03 | 1.52 | 5.41 | 0.85 | 39.65 | 34.23 |
| k^s | 25.84 | 0.08 | 7.78 | 40.18 | 1.75 | 18.93 | 5.44 |
| l | 5.46 | 3.19 | 9.66 | 14.37 | 8.38 | 30.99 | 27.94 |

$$cpie=1+\frac{\bar{\pi}}{100}$$

$$c gamma = 1 + \frac{\bar{\gamma}}{100}$$

$$cbeta=\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}$$

$$cl and ap = \Phi$$

$$cbetabar = cbeta\,cgamma^{(-\sigma_c)}$$

$$cr=\frac{cpie}{cbeta\,cgamma^{(-\sigma_c)}}$$

$$crk=cbeta^{(-1)}\,cgamma^{\sigma_c}-(1-\delta)$$

$$cw=\left(\frac{\alpha^\alpha\;(1-\alpha)^{1-\alpha}}{cl and ap\;crk^\alpha}\right)^{\frac{1}{1-\alpha}}$$

$$cikbar=1-\frac{1-\delta}{cgamma}$$

$$cik=c gamma\,\left(1-\frac{1-\delta}{cgamma}\right)$$

$$clk=\frac{1-\alpha}{\alpha}\,\frac{crk}{cw}$$

$$cky=\Phi\,clk^{\alpha-1}$$

$$ciy=cik\,cky$$

$$ccy=1-\frac{\bar{g}}{\bar{y}}-cik\,cky$$

$$crkky=crk\,cky$$

$$cwhlc=\frac{cky\,crk\,\frac{(1-\alpha)\,\frac{1}{\phi_w}}{\alpha}}{ccy}$$

$$29\\$$

$$c w l y = 1 - c r k \, c k y$$

$$conster=100~(cr-1)$$

$$c1=\frac{\frac{\lambda}{cgamma}}{1+\frac{\lambda}{cgamma}}$$

$$c2=\frac{(\sigma_c-1)\;cwhlc}{\sigma_c\left(1+\frac{\lambda}{cgamma}\right)}$$

$$c3=\frac{1-\frac{\lambda}{cgamma}}{\sigma_c\left(1+\frac{\lambda}{cgamma}\right)}$$

$$i1=\frac{1}{1+cgamma\,cbetabar}$$

$$i2=\frac{1}{1+cgamma\,cbetabar}\,\frac{1}{cgamma^2\,\varphi}$$

$$q1=\frac{1-\delta}{1-\delta+crk}$$

$$q2=\frac{1}{\frac{1-\frac{\lambda}{cgamma}}{\sigma_c\left(1+\frac{\lambda}{cgamma}\right)}}$$

$$k1=1-cikbar$$

$$k2=\varphi\,cgamma^2\,cikbar$$

$$pi1=\iota_p\,\frac{1}{1+cgamma\,cbetabar\,\iota_p}$$

$$pi2=c gamma\,cbetabar\,\frac{1}{1+cgamma\,cbetabar\,\iota_p}$$

$$pi3=\frac{\frac{1}{1+cgamma\,cbetabar\,\iota_p}\,\frac{(1-\xi_p)\,(1-cgamma\,cbetabar\,\xi_p)}{\xi_p}}{1+\left(\Phi-1\right)\,\varepsilon_p}$$

$$30$$

$$w1 = \frac{1}{1 + cgamma cbar}$$

$$w2 = \frac{1 + cgamma cbar \iota_w}{1 + cgamma cbar}$$

$$w3 = \frac{\iota_w}{1 + cgamma cbar}$$

$$w4 = \frac{(1 - \xi_w) (1 - cgamma cbar \xi_w)}{(1 + cgamma cbar) \xi_w} \frac{1}{1 + (\phi_w - 1) \varepsilon_w}$$

$$w5 = \frac{1}{1 - \frac{\lambda}{cgamma}}$$

$$w6 = \frac{\frac{\lambda}{cgamma}}{1 - \frac{\lambda}{cgamma}}$$

$$\varepsilon_{at} = \alpha r^{k,flex}_t + (1 - \alpha) w^{flex}_t \quad (1)$$

$$z^{flex}_t = r^{k,flex}_t \frac{1}{\frac{\psi}{1-\psi}} \quad (2)$$

$$r^{k,flex}_t = w^{flex}_t + l^{flex}_t - k^{s,flex}_t \quad (3)$$

$$k^{s,flex}_t = z^{flex}_t + k^{flex}_{t-1} \quad (4)$$

$$i^{flex}_t = i1 i^{flex}_{t-1} + (1 - i1) i^{flex}_{t+1} + i2 q^{flex}_t + \varepsilon^i_t \quad (5)$$

$$q^{flex}_t = q1 q^{flex}_{t+1} + (1 - q1) r^{k,flex}_{t+1} + q2 c_2 * \varepsilon^b_{tt} - r^{flex}_t \quad (6)$$

$$c^{flex}_t = c_2 * \varepsilon^b_{tt} + c1 c^{flex}_{t-1} + (1 - c1) c^{flex}_{t+1} + c2 (l^{flex}_t - l^{flex}_{t+1}) - r^{flex}_t c3 \quad (7)$$

$$y^{flex}_t = ccy c^{flex}_t + i^{flex}_t ciy + \varepsilon^g_t + z^{flex}_t crkky \quad (8)$$

$$y^{flex}_t = \Phi (\varepsilon_{at} + \alpha k^{s,flex}_t + (1 - \alpha) l^{flex}_t) \quad (9)$$

$$w^{flex}_t = l^{flex}_t \sigma_l + c^{flex}_t w5 - c^{flex}_{t-1} w6 \quad (10)$$

$$k^{flex}_t = k^{flex}_{t-1} k1 + i^{flex}_t (1 - k1) + \varepsilon^i_t k2 \quad (11)$$

$$\mu_{pt} = \alpha r^k_t + (1 - \alpha) w_t - \varepsilon_{at} \quad (12)$$

$$z_t = \frac{1}{\frac{\psi}{1-\psi}} r^k_t \quad (13)$$

$$r^k_t = w_t + l_t - k^s_t \quad (14)$$

$$k^s_t = z_t + k_{t-1} \quad (15)$$

$$k_t = \varepsilon^i_t k2 + k1 k_{t-1} + (1 - k1) i_t \quad (16)$$

$$i_t = \varepsilon^i_t + i1 i_{t-1} + (1 - i1) i_{t+1} + i2 q_t \quad (17)$$

$$q_t = q2 c_2 * \varepsilon^b_{tt} + q1 q_{t+1} + (1 - q1) r^k_{t+1} - (r_t - \pi_{t+1}) \quad (18)$$

$$c_t = c_2 * \varepsilon^b_{tt} + c1 c_{t-1} + (1 - c1) c_{t+1} + c2 (l_t - l_{t+1}) - c3 (r_t - \pi_{t+1}) \quad (19)$$

$$y_t = \varepsilon^g_t + ccy c_t + ciy i_t + crkky z_t \quad (20)$$

$$y_t = \Phi (\varepsilon_{at} + \alpha k^s_t + (1 - \alpha) l_t) \quad (21)$$

$$\pi_t = pi1 \pi_{t-1} + \pi_{t+1} pi2 + \mu_{pt} pi3 + \varepsilon^p_t \quad (22)$$

$$w_t = w1 w_{t-1} + (1 - w1) (\pi_{t+1} + w_{t+1}) - \pi_t w2 + \pi_{t-1} w3 - w4 \mu_{wt} + \varepsilon^w_t \quad (23)$$

$$\mu_{wt} = w_t - \left(\sigma_l l_t + \frac{1}{1 - \frac{\lambda}{cgamma}} \left(c_t - \frac{\lambda}{cgamma} c_{t-1} \right) \right) \quad (24)$$

$$r_t = \pi_t r_\pi (1 - \rho) + (1 - \rho) r_y (y_t - y^{flex}_t) + r_{\Delta y} (y_t - y^{flex}_t - y_{t-1} + y^{flex}_{t-1}) + \rho r_{t-1} + \varepsilon^r_t \quad (25)$$

$$\varepsilon_{at} = \rho_a \varepsilon_{at-1} + \eta^a_t \quad (26)$$

$$c_2 * \varepsilon^b_{tt} = \rho_b c_2 * \varepsilon^b_{tt-1} + \eta^b_t \quad (27)$$

$$\varepsilon^g_t = \rho_g \varepsilon^g_{t-1} + \eta^g_t + \eta^a_t \rho_{ga} \quad (28)$$

$$\varepsilon^i_t = \rho_i \varepsilon^i_{t-1} + \eta^i_t \quad (29)$$

$$\varepsilon^r_t = \rho_r \varepsilon^r_{t-1} + \eta^m_t \quad (30)$$

$$\varepsilon^p_t = \rho_p \varepsilon^p_{t-1} + \eta^{p,aux}_t - \mu_p \eta^{p,aux}_{t-1} \quad (31)$$

$$\eta^{p,aux}_t = \eta^p_t \quad (32)$$

$$\varepsilon^w_t = \rho_w \varepsilon^w_{t-1} + \eta^{w,aux}_t - \mu_w \eta^{w,aux}_{t-1} \quad (33)$$

$$\eta^{w,aux}_t = \eta^w_t \quad (34)$$

$$dlGDP_t = \bar{\gamma} + y_t - y_{t-1} \quad (35)$$

$$dlCONS_t = \bar{\gamma} + c_t - c_{t-1} \quad (36)$$

$$dlINV_t = \bar{\gamma} + i_t - i_{t-1} \quad (37)$$

$$dlWAG_t = \bar{\gamma} + w_t - w_{t-1} \quad (38)$$

$$dlP_t = \bar{\pi} + \pi_t \quad (39)$$

$$FEDFUNDS_t = r_t + conster \quad (40)$$

$$lHOURS_t = l_t + \bar{l} \quad (41)$$

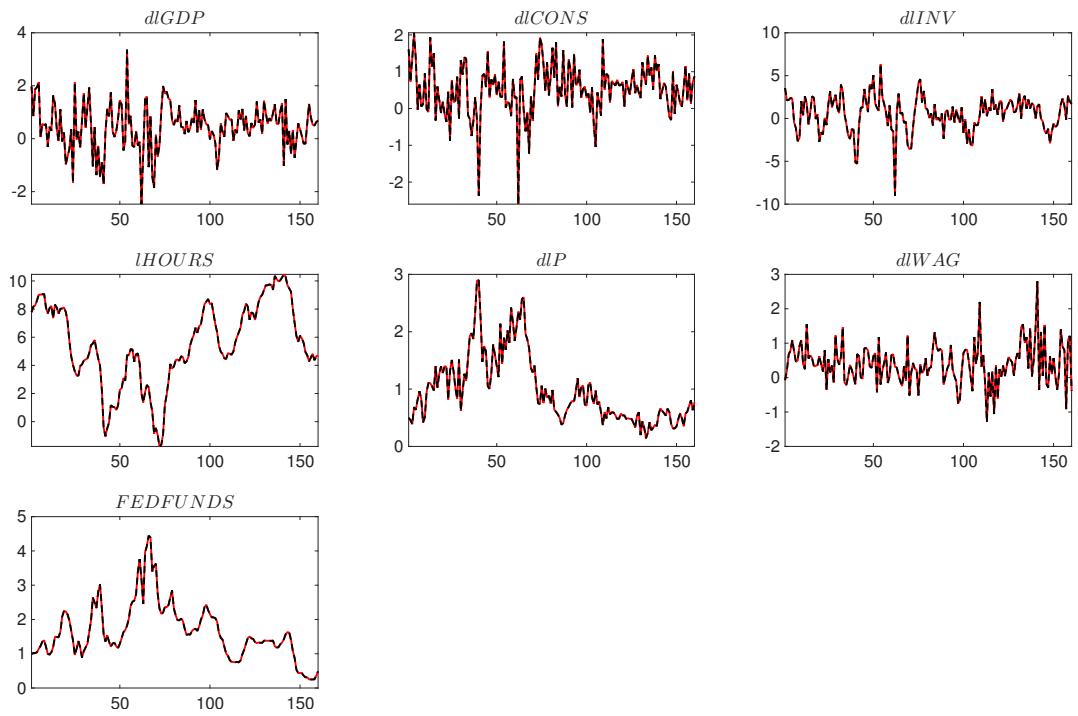


Figure 22: Historical and smoothed variables.

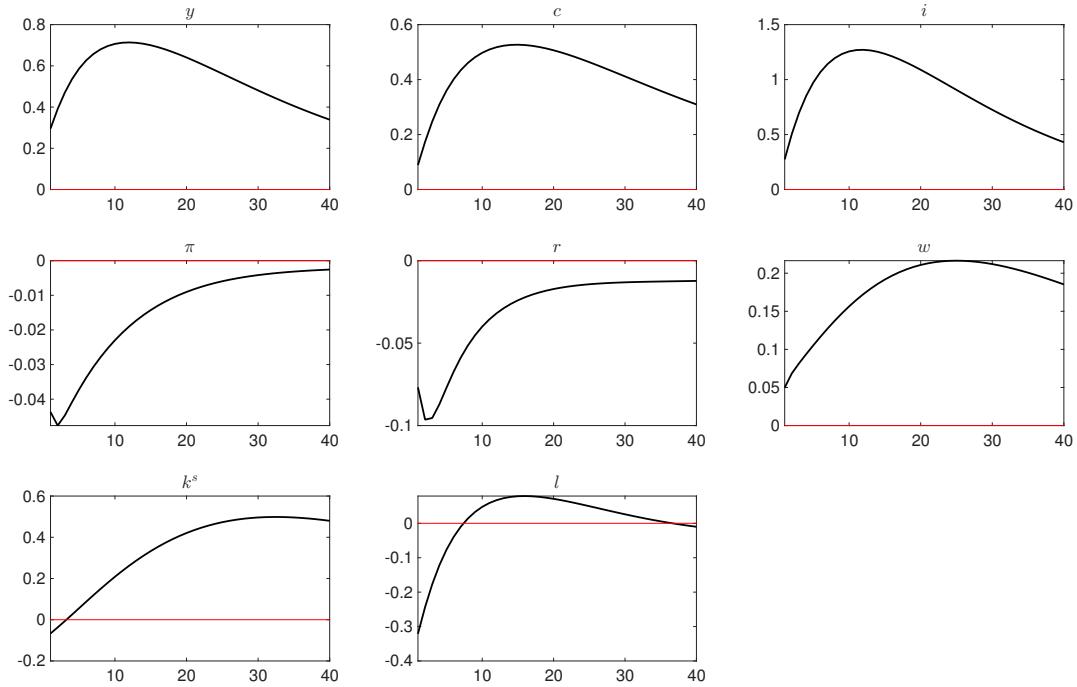


Figure 23: Impulse response functions (orthogonalized shock to η^a).

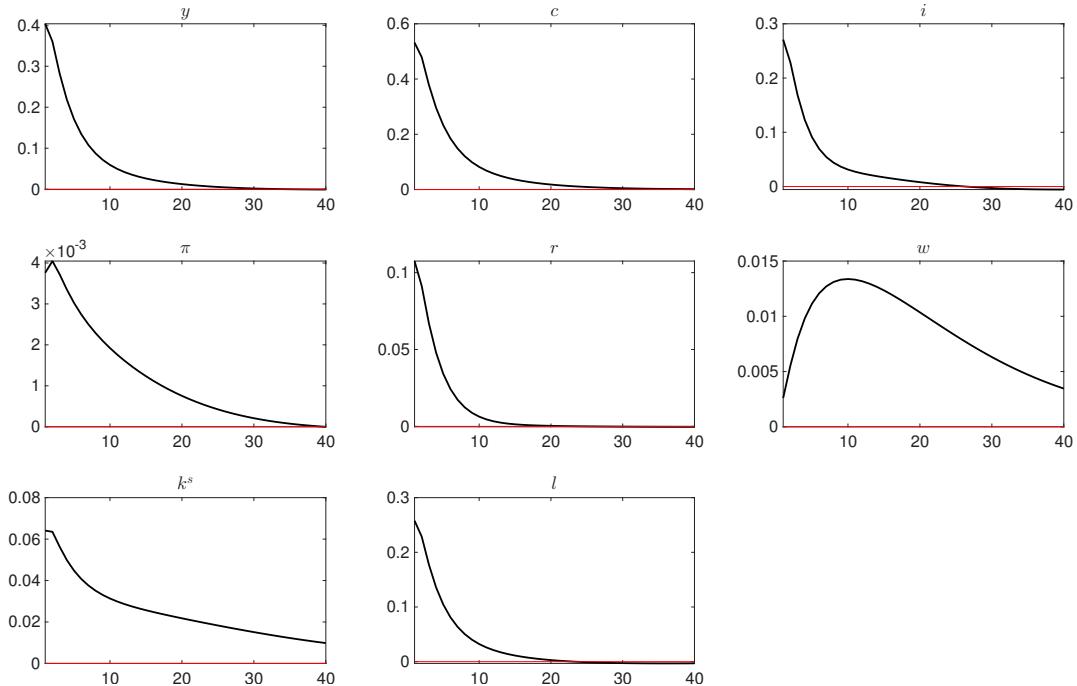


Figure 24: Impulse response functions (orthogonalized shock to η^b).

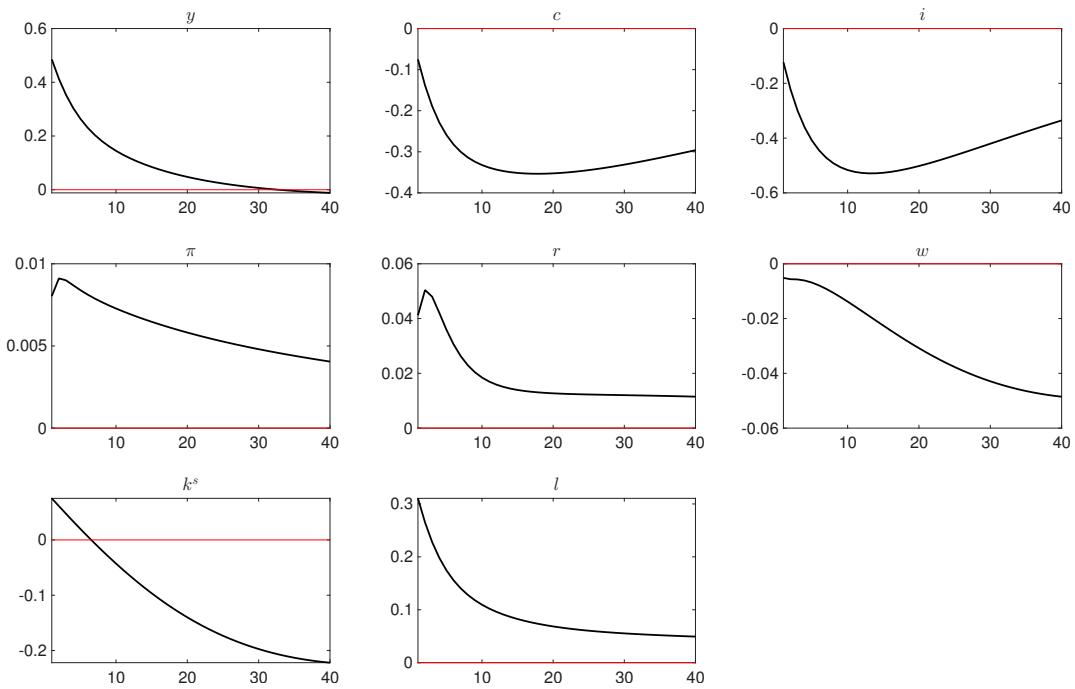


Figure 25: Impulse response functions (orthogonalized shock to η^g).

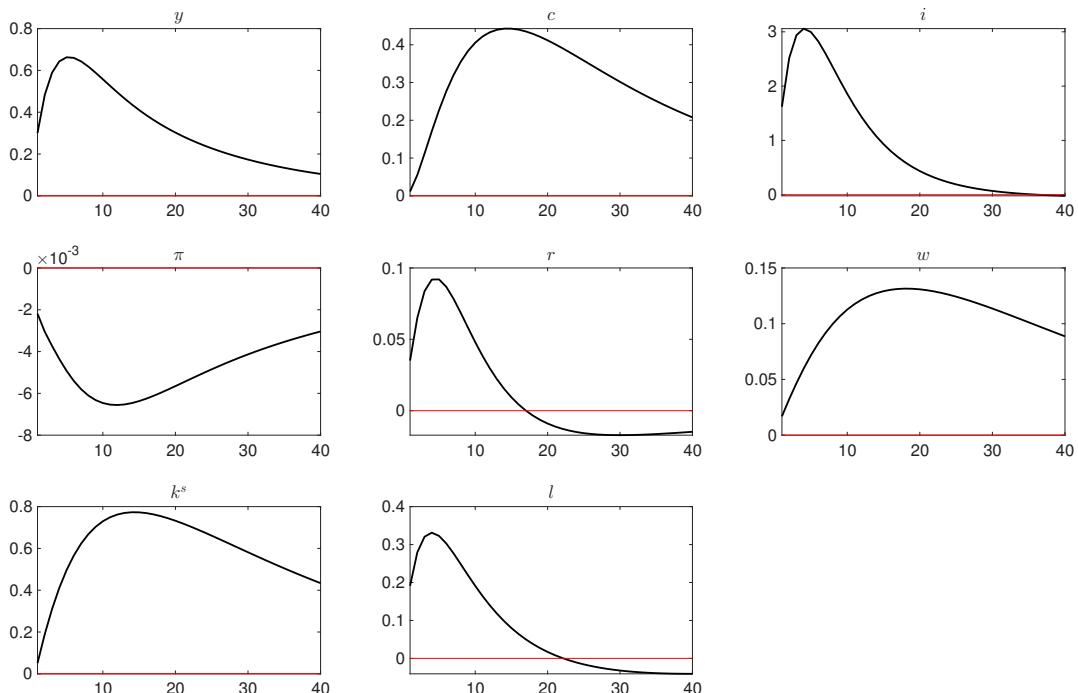


Figure 26: Impulse response functions (orthogonalized shock to η^i).

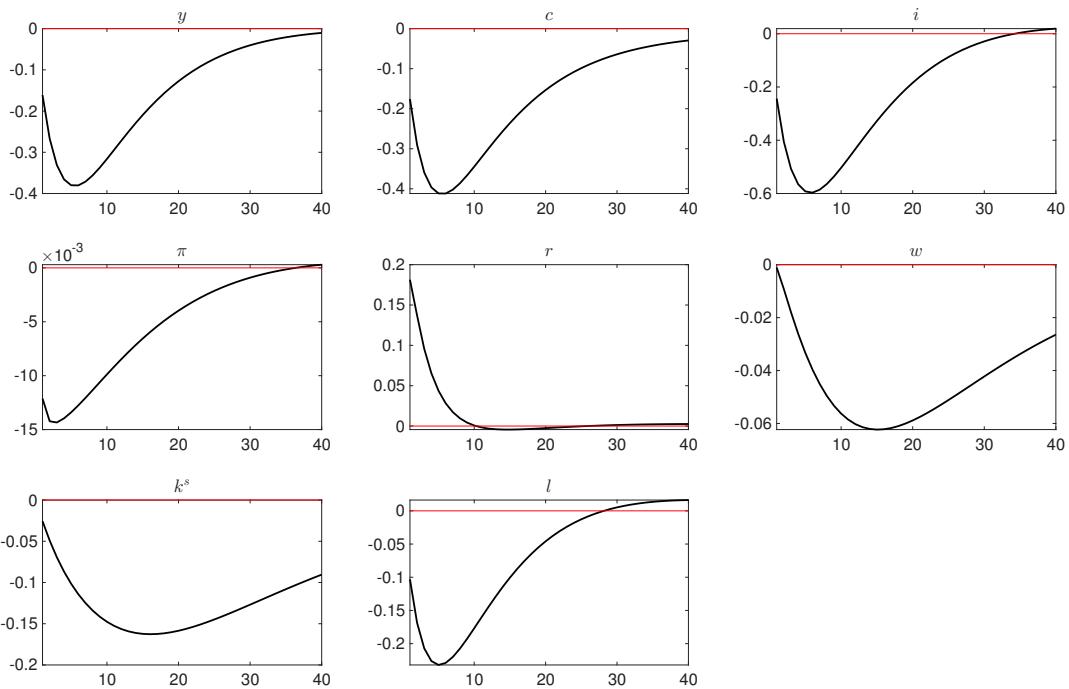


Figure 27: Impulse response functions (orthogonalized shock to η^m).

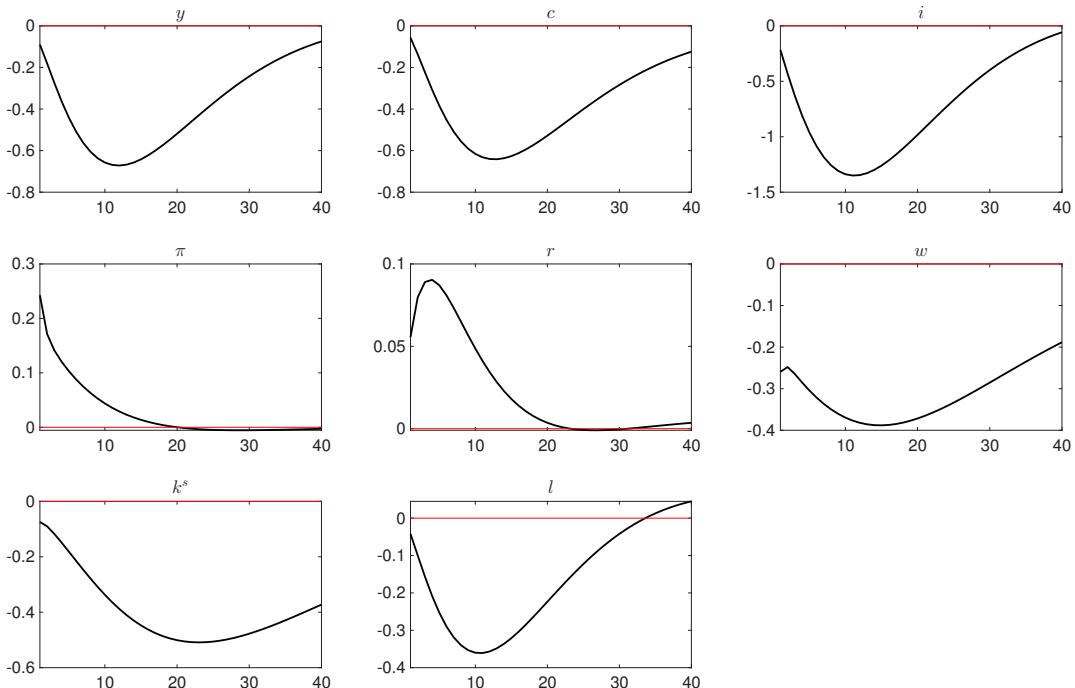


Figure 28: Impulse response functions (orthogonalized shock to η^p).

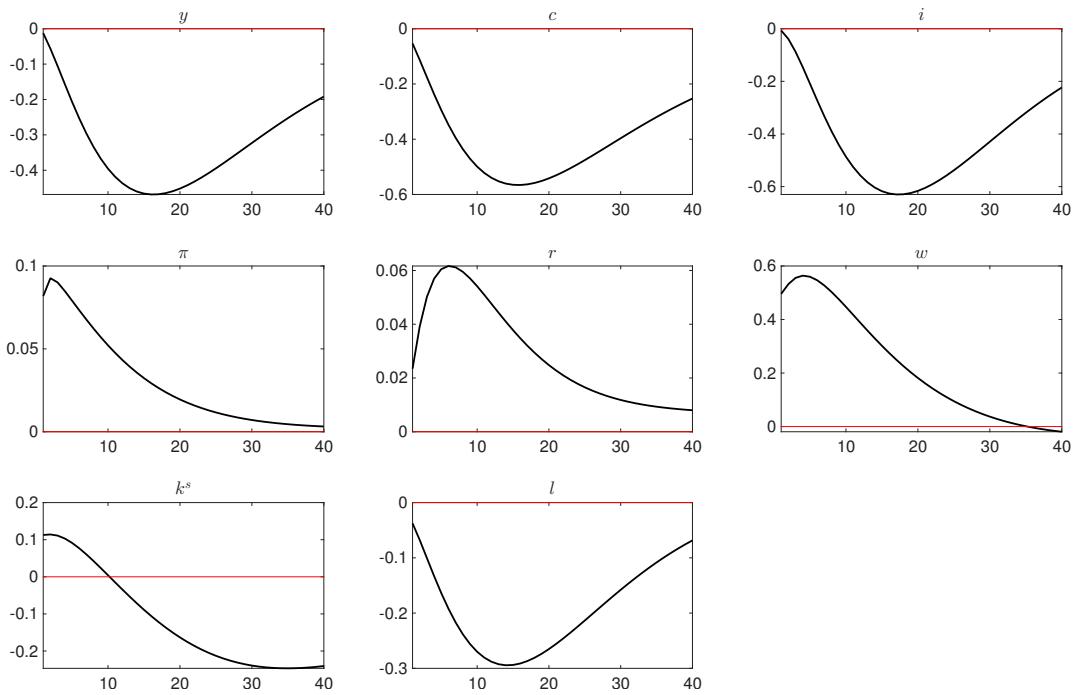


Figure 29: Impulse response functions (orthogonalized shock to η^w).

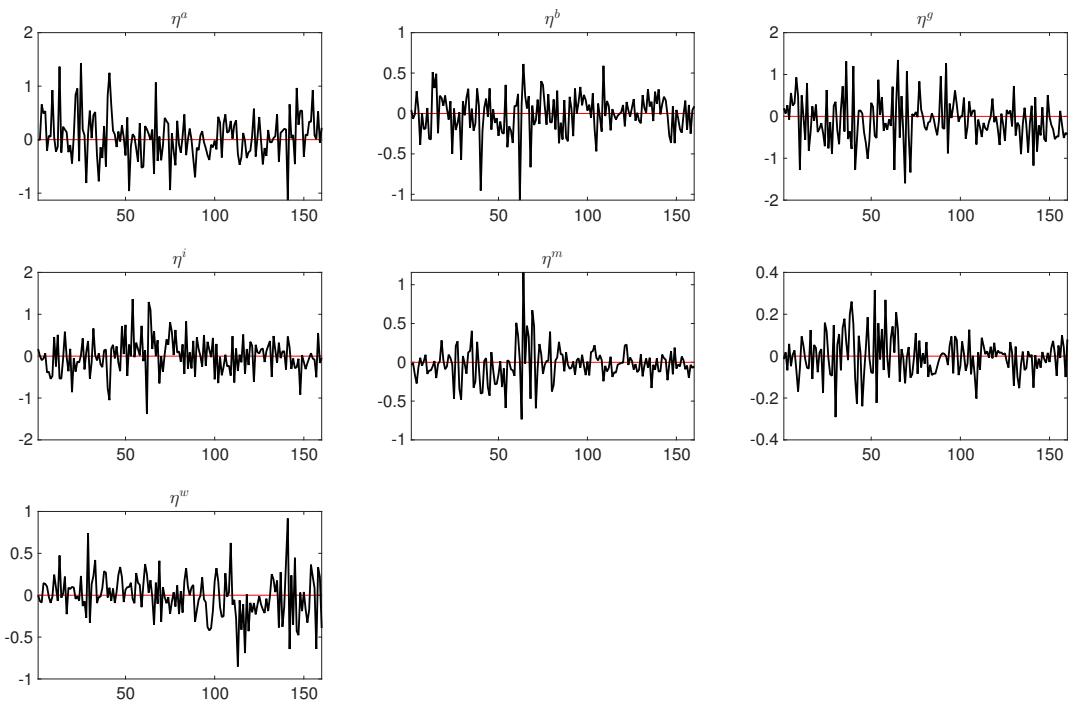


Figure 30: Smoothed shocks.