Table 1: Results from posterior maximization (parameters)

	Prior			Posterior	
	Dist.	Mean	Stdev	Mode	Stdev
α	norm	0.300	0.0500	0.2179	0.0187
ψ	beta	0.500	0.1500	0.6603	0.1017
Φ	norm	1.250	0.1250	1.6290	0.0781
ι_w	beta	0.500	0.1500	0.6534	0.1332
ξ_w	beta	0.500	0.1000	0.8117	0.0487
ι_p	beta	0.500	0.1500	0.3456	0.1167
ξ_p	beta	0.500	0.1000	0.8395	0.0274
σ_c	norm	1.500	0.3750	1.3483	0.1228
σ_l	norm	2.000	0.7500	1.3613	0.5669
λ	beta	0.700	0.1000	0.6927	0.0450
φ	norm	4.000	1.5000	5.3076	1.0117
μ_w	beta	0.500	0.2000	0.7977	0.0843
μ_p	beta	0.500	0.2000	0.7058	0.0944
$\bar{\gamma}$	norm	0.400	0.1000	0.4135	0.0150
$100(\beta^{-1}-1)$	gamm	0.250	0.1000	0.1361	0.0534
$\bar{\pi}$	gamm	0.625	0.1000	0.8703	0.1103
$\bar{l}$	norm	0.000	2.0000	4.7426	1.1660
r_π	norm	1.500	0.2500	1.9681	0.1866
$r_{\Delta y}$	norm	0.125	0.0500	0.2278	0.0293
r_y	norm	0.125	0.0500	0.0686	0.0225
ρ	beta	0.750	0.1000	0.7832	0.0312
ρ_a	beta	0.500	0.2000	0.9490	0.0130
ρ_{ga}	norm	0.500	0.2500	0.5526	0.0910
ρ_b	beta	0.500	0.2000	0.1979	0.0862
ρ_g	beta	0.500	0.2000	0.9723	0.0087
ρ_i	beta	0.500	0.2000	0.6967	0.0600
ρ_r	beta	0.500	0.2000	0.1733	0.0776
ρ_p	beta	0.500	0.2000	0.8926	0.0453
ρ_w	beta	0.500	0.2000	0.9738	0.0099

Table 2: Results from posterior maximization (standard deviation of structural shocks)

	Prior			Posterior	
	Dist.	Mean	Stdev	Mode	Stdev
η^a	invg	0.100	2.0000	0.4371	0.0273
η^b	invg	0.100	2.0000	0.2423	0.0241
η^g	invg	0.100	2.0000	0.5124	0.0296
η^i	invg	0.100	2.0000	0.4276	0.0452
η^m	invg	0.100	2.0000	0.2474	0.0159
η^p	invg	0.100	2.0000	0.1277	0.0147
η^w	invg	0.100	2.0000	0.2673	0.0260

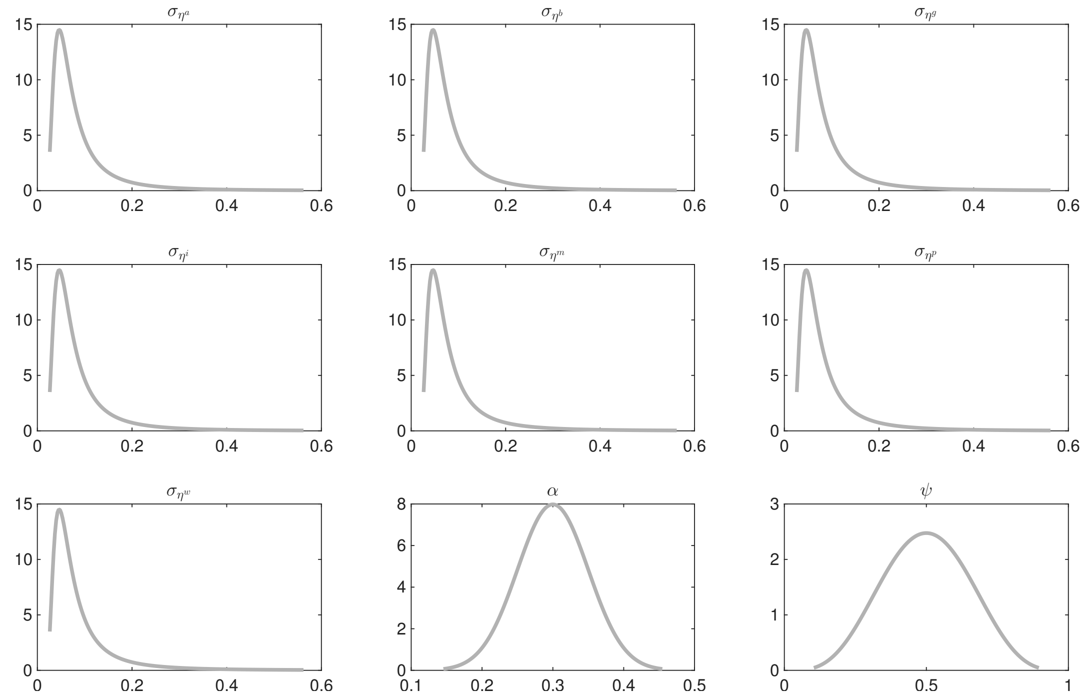

Figure 1: Priors.

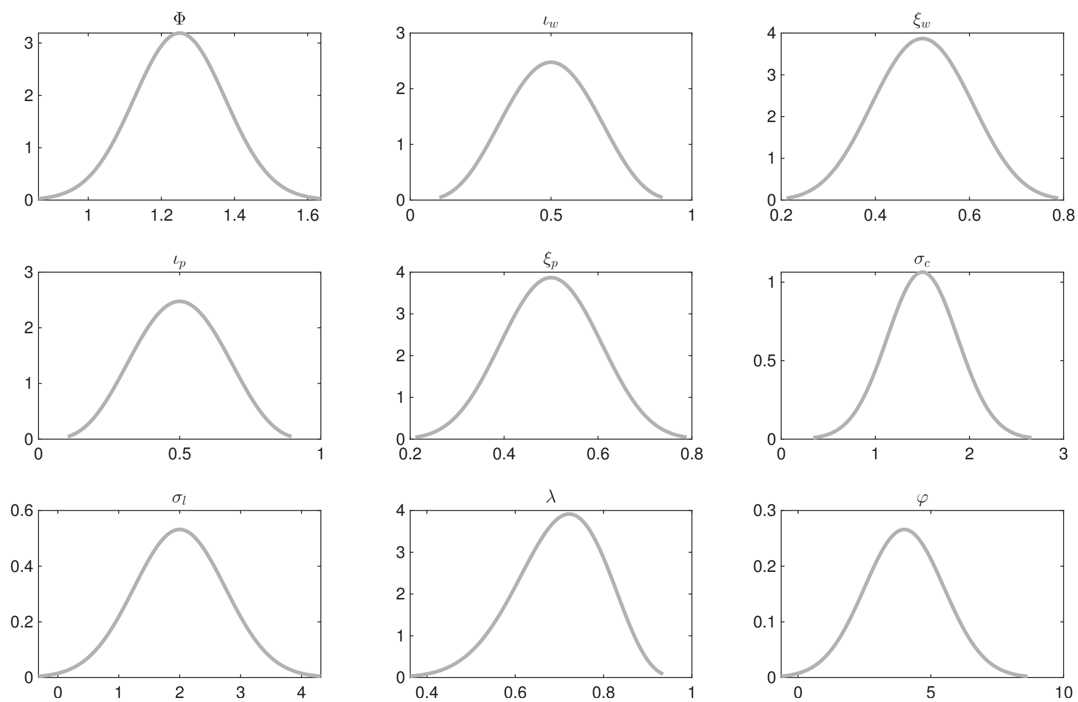

Figure 2: Priors.

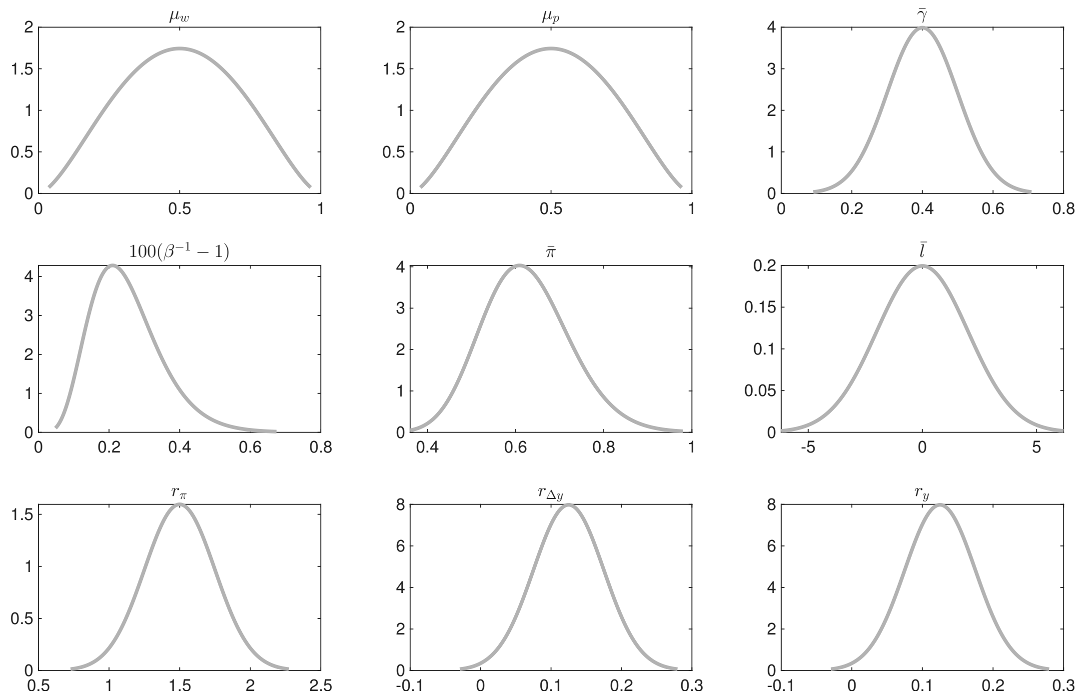

Figure 3: Priors.

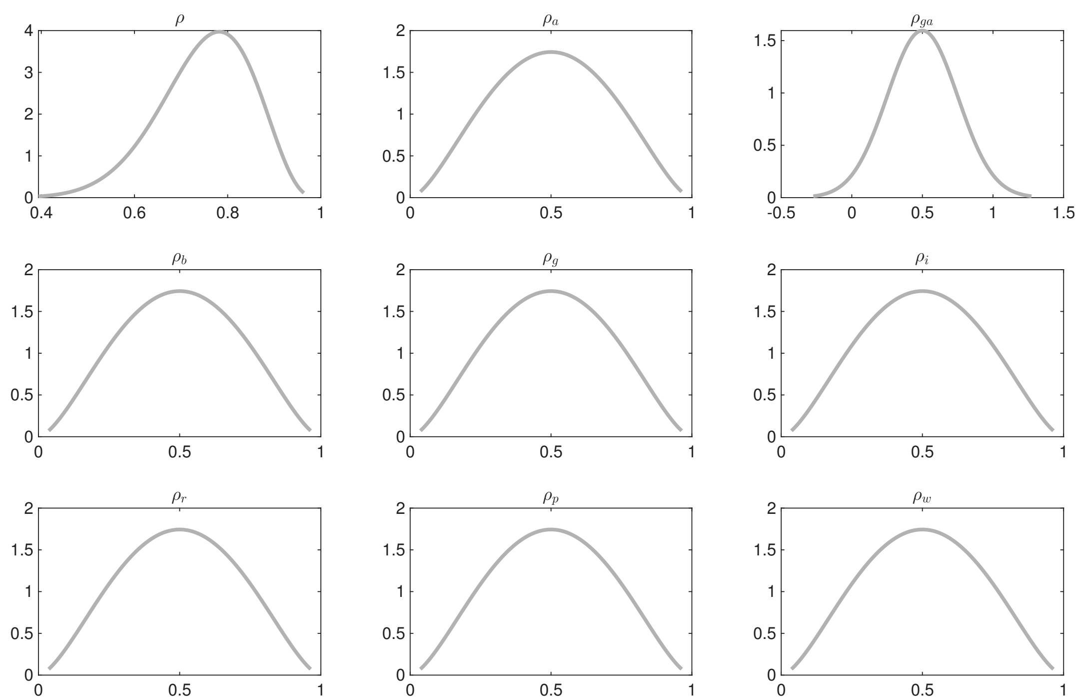

Figure 4: Priors.

Table 3: MATRIX OF COVARIANCE OF EXOGENOUS SHOCKS

$Variables$	η^a	η^b	η^g	η^i	η^m	η^p	η^w
η^a	0.191057	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
η^b	0.000000	0.058710	0.000000	0.000000	0.000000	0.000000	0.000000
η^g	0.000000	0.000000	0.262595	0.000000	0.000000	0.000000	0.000000
η^i	0.000000	0.000000	0.000000	0.182859	0.000000	0.000000	0.000000
η^m	0.000000	0.000000	0.000000	0.000000	0.061216	0.000000	0.000000
η^p	0.000000	0.000000	0.000000	0.000000	0.000000	0.016298	0.000000
η^w	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.071474

Table 4: 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 5: 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 6: 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
`cmaw`	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 6 – Continued

Variable	**LaTeX**	**Description**
`crhoqs`	ρ_i	persistence risk premium shock
`crhoms`	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 7: Parameter Values

Parameter	Value	Description
ε_w	0.000	Curvature Kimball aggregator wages
ρ_{ga}	0.553	Feedback technology on exogenous spending
ε_p	0.000	Curvature Kimball aggregator prices
$\bar{l}$	4.743	steady state hours
$\bar{\pi}$	0.870	steady state inflation rate
$100(\beta^{-1}-1)$	0.136	time preference rate in percent
μ_w	0.798	coefficient on MA term wage markup
μ_p	0.706	coefficient on MA term price markup
α	0.218	capital share
ψ	0.660	capacity utilization cost
φ	5.308	investment adjustment cost
δ	0.025	depreciation rate
σ_c	1.348	risk aversion
λ	0.693	external habit degree
Φ	1.629	fixed cost share
ι_w	0.653	Indexation to past wages
ξ_w	0.812	Calvo parameter wages
ι_p	0.346	Indexation to past prices
ξ_p	0.839	Calvo parameter prices
σ_l	1.361	Frisch elasticity
ϕ_w	1.500	Gross markup wages
r_π	1.968	Taylor rule inflation feedback
$r_{\Delta y}$	0.228	Taylor rule output growth feedback
r_y	0.069	Taylor rule output level feedback
ρ	0.783	interest rate persistence
ρ_a	0.949	persistence productivity shock
d_2	1.000	Unused parameter
ρ_b	0.198	persistence risk premium shock
ρ_g	0.972	persistence spending shock
d_1	0.993	Unused parameter
ρ_i	0.697	persistence risk premium shock
ρ_r	0.173	persistence monetary policy shock
ρ_p	0.893	persistence price markup shock
ρ_w	0.974	persistence wage markup shock
$\bar{\gamma}$	0.414	net growth rate in percent
$\frac{\bar{g}}{\bar{y}}$	0.180	steady state exogenous spending share

Table 8: Prior information (parameters)

	Distribution	Mean	Mode	Std.dev.	Bounds* Lower	Bounds* Upper	90% HPDI Lower	90% HPDI 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	0.0500	-0.0181	0.6181	0.2178	0.3822
ψ	Beta	0.5000	0.5000	0.1500	0.0040	0.9960	0.2526	0.7474
Φ	Gaussian	1.2500	1.2500	0.1250	0.4548	2.0452	1.0444	1.4556
ι_w	Beta	0.5000	0.5000	0.1500	0.0040	0.9960	0.2526	0.7474
ξ_w	Beta	0.5000	0.5000	0.1000	0.0471	0.9529	0.3351	0.6649
ι_p	Beta	0.5000	0.5000	0.1500	0.0040	0.9960	0.2526	0.7474
ξ_p	Beta	0.5000	0.5000	0.1000	0.0471	0.9529	0.3351	0.6649
σ_c	Gaussian	1.5000	1.5000	0.3750	-0.8855	3.8855	0.8832	2.1168
σ_l	Gaussian	2.0000	2.0000	0.7500	-2.7710	6.7710	0.7664	3.2336
λ	Beta	0.7000	0.7222	0.1000	0.1025	0.9960	0.5242	0.8525
φ	Gaussian	4.0000	4.0000	1.5000	-5.5420	13.5420	1.5327	6.4673
μ_w	Beta	0.5000	0.5000	0.2000	0.0001	0.9999	0.1718	0.8282
μ_p	Beta	0.5000	0.5000	0.2000	0.0001	0.9999	0.1718	0.8282
$\bar{\gamma}$	Gaussian	0.4000	0.4000	0.1000	-0.2361	1.0361	0.2355	0.5645
$100(\beta^{-1}-1)$	Gamma	0.2500	0.2100	0.1000	0.0031	1.4759	0.1111	0.4339
$\bar{\pi}$	Gamma	0.6250	0.6090	0.1000	0.1814	1.4844	0.4701	0.7981
$\bar{l}$	Gaussian	0.0000	0.0000	2.0000	-12.7227	12.7227	-3.2897	3.2897
r_π	Gaussian	1.5000	1.5000	0.2500	-0.0903	3.0903	1.0888	1.9112
$r_{\Delta y}$	Gaussian	0.1250	0.1250	0.0500	-0.1931	0.4431	0.0428	0.2072
r_y	Gaussian	0.1250	0.1250	0.0500	-0.1931	0.4431	0.0428	0.2072
ρ	Beta	0.7500	0.7817	0.1000	0.1073	0.9991	0.5701	0.8971
ρ_a	Beta	0.5000	0.5000	0.2000	0.0001	0.9999	0.1718	0.8282
ρ_{ga}	Gaussian	0.5000	0.5000	0.2500	-1.0903	2.0903	0.0888	0.9112
ρ_b	Beta	0.5000	0.5000	0.2000	0.0001	0.9999	0.1718	0.8282
ρ_g	Beta	0.5000	0.5000	0.2000	0.0001	0.9999	0.1718	0.8282
ρ_i	Beta	0.5000	0.5000	0.2000	0.0001	0.9999	0.1718	0.8282
ρ_r	Beta	0.5000	0.5000	0.2000	0.0001	0.9999	0.1718	0.8282
ρ_p	Beta	0.5000	0.5000	0.2000	0.0001	0.9999	0.1718	0.8282
ρ_w	Beta	0.5000	0.5000	0.2000	0.0001	0.9999	0.1718	0.8282

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

Table 9: COEFFICIENTS OF AUTOCORRELATION

Order	1	2	3	4	5
y	0.9860	0.9640	0.9375	0.9087	0.8788
c	0.9928	0.9809	0.9666	0.9508	0.9341
i	0.9806	0.9387	0.8846	0.8251	0.7646
π	0.8579	0.7289	0.6177	0.5247	0.4488
r	0.9021	0.7843	0.6772	0.5854	0.5086
w	0.9765	0.9428	0.9017	0.8560	0.8082
k^s	0.9970	0.9908	0.9821	0.9714	0.9593
l	0.9746	0.9403	0.9024	0.8633	0.8245

Table 10: MATRIX OF CORRELATIONS

$Variables$	y	c	i	π	r	w	k^s	l
y	1.0000	0.8374	0.8118	-0.3734	-0.3876	0.4136	0.7580	0.8285
c	0.8374	1.0000	0.6906	-0.5018	-0.5767	0.2861	0.8078	0.7003
i	0.8118	0.6906	1.0000	-0.2088	-0.1498	0.4614	0.6651	0.6473
π	-0.3734	-0.5018	-0.2088	1.0000	0.6702	0.1632	-0.2496	-0.3352
r	-0.3876	-0.5767	-0.1498	0.6702	1.0000	0.0076	-0.2926	-0.2692
w	0.4136	0.2861	0.4614	0.1632	0.0076	1.0000	0.6064	0.0498
k^s	0.7580	0.8078	0.6651	-0.2496	-0.2926	0.6064	1.0000	0.4773
l	0.8285	0.7003	0.6473	-0.3352	-0.2692	0.0498	0.4773	1.0000

Table 11: THEORETICAL MOMENTS

$VARIABLE$	$MEAN$	$STD.DEV.$	$VARIANCE$
y	0.0000	5.6825	32.2906
c	0.0000	5.8706	34.4637
i	0.0000	10.9073	118.9690
π	0.0000	0.5596	0.3131
r	0.0000	0.6103	0.3725
w	0.0000	2.7853	7.7579
k^s	0.0000	5.3176	28.2765
l	0.0000	3.0430	9.2597

Table 12: VARIANCE DECOMPOSITION (in percent)

	η^a	η^b	η^g	η^i	η^m	η^p	η^w
y	23.61	1.40	4.16	7.12	1.66	6.33	55.72
c	6.85	2.01	6.00	2.71	1.61	4.10	76.73
i	16.46	0.25	4.05	41.46	1.01	7.59	29.17
π	3.77	1.22	1.11	5.85	6.72	27.08	54.26
r	9.16	8.47	3.57	21.50	15.44	7.57	34.28
w	26.67	0.83	1.43	8.65	2.60	39.07	20.75
k^s	16.58	0.27	3.32	25.41	0.78	9.08	44.56
l	1.66	2.26	10.68	7.57	2.38	6.31	69.13

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

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

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

$$clandap = \Phi$$

$$cbetabar = \frac{1}{1 + \frac{100 (\beta^{-1} - 1)}{100}} \; \left(1 + \frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}$$

$$cr = \frac{1 + \frac{\bar{\pi}}{100}}{\frac{1}{1 + \frac{100 (\beta^{-1} - 1)}{100}} \; \left(1 + \frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}}$$

$$crk = \left(\frac{1}{1 + \frac{100 (\beta^{-1} - 1)}{100}}\right)^{(-1)} \; \left(1 + \frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1 - \delta)$$

$$cw = \left(\frac{\alpha^{\alpha} \; (1 - \alpha)^{1 - \alpha}}{\Phi \; \left(\left(\frac{1}{1 + \frac{100 (\beta^{-1} - 1)}{100}}\right)^{(-1)} \; \left(1 + \frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1 - \delta)\right)^{\alpha}}\right)^{\frac{1}{1 - \alpha}}$$

$$cikbar = 1 - \frac{1 - \delta}{1 + \frac{\bar{\gamma}}{100}}$$

$$cik = \left(1 + \frac{\bar{\gamma}}{100}\right) \; \left(1 - \frac{1 - \delta}{1 + \frac{\bar{\gamma}}{100}}\right)$$

$$clk = \frac{1 - \alpha}{\alpha} \; \frac{\left(\frac{1}{1 + \frac{100 (\beta^{-1} - 1)}{100}}\right)^{(-1)} \; \left(1 + \frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1 - \delta)}{\left(\frac{\alpha^{\alpha} \; (1 - \alpha)^{1 - \alpha}}{\Phi \; \left(\left(\frac{1}{1 + \frac{100 (\beta^{-1} - 1)}{100}}\right)^{(-1)} \; \left(1 + \frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1 - \delta)\right)^{\alpha}}\right)^{\frac{1}{1 - \alpha}}}$$

$$cky=\Phi\left(\frac{1-\alpha}{\alpha}\,\frac{\left(\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}-(1-\delta)}{\left(\frac{\alpha^{\alpha}\,(1-\alpha)^{1-\alpha}}{\Phi\left(\left(\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}-(1-\delta)\right)^{\alpha}}\right)^{\frac{1}{1-\alpha}}}\right)^{\alpha-1}$$

$$ciy=\left(1+\frac{\bar{\gamma}}{100}\right)\left(1-\frac{1-\delta}{1+\frac{\bar{\gamma}}{100}}\right)\Phi\left(\frac{1-\alpha}{\alpha}\,\frac{\left(\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}-(1-\delta)}{\left(\frac{\alpha^{\alpha}\,(1-\alpha)^{1-\alpha}}{\Phi\left(\left(\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}-(1-\delta)\right)^{\alpha}}\right)^{\frac{1}{1-\alpha}}}\right)^{\alpha-1}$$

$$ccy=1-\frac{\bar{g}}{\bar{y}}-\left(1+\frac{\bar{\gamma}}{100}\right)\left(1-\frac{1-\delta}{1+\frac{\bar{\gamma}}{100}}\right)\Phi\left(\frac{1-\alpha}{\alpha}\,\frac{\left(\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}-(1-\delta)}{\left(\frac{\alpha^{\alpha}\,(1-\alpha)^{1-\alpha}}{\Phi\left(\left(\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}-(1-\delta)\right)^{\alpha}}\right)^{\frac{1}{1-\alpha}}}\right)^{\alpha-1}$$

$$\begin{aligned}crkky=&\left(\left(\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}\right.\\&\left.-(1-\delta)\right)\Phi\left(\frac{1-\alpha}{\alpha}\,\frac{\left(\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}-(1-\delta)}{\left(\frac{\alpha^{\alpha}\,(1-\alpha)^{1-\alpha}}{\Phi\left(\left(\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}-(1-\delta)\right)^{\alpha}}\right)^{\frac{1}{1-\alpha}}}\right)^{\alpha-1}\end{aligned}$$

$$
cwhlc = \frac{\Phi \left(\frac{1-\alpha}{\alpha} \frac{\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)} \left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1-\delta)}{\left(\frac{\alpha^{\alpha} (1-\alpha)^{1-\alpha}}{\Phi \left(\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)} \left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1-\delta) \right)^{\alpha}} \right)^{\frac{1}{1-\alpha}}} \right)^{\alpha-1} \quad \frac{(1-\alpha)\,\frac{1}{\phi_w}}{\alpha} \left(\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}} \right)^{(-1)} \left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1-\delta) \right)}{1 - \frac{\bar{g}}{\bar{y}} - \left(1+\frac{\bar{\gamma}}{100}\right) \left(1 - \frac{1-\delta}{1+\frac{\bar{\gamma}}{100}}\right) \Phi \left(\frac{1-\alpha}{\alpha} \frac{\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)} \left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1-\delta)}{\left(\frac{\alpha^{\alpha} (1-\alpha)^{1-\alpha}}{\Phi \left(\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)} \left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1-\delta) \right)^{\alpha}} \right)^{\frac{1}{1-\alpha}}} \right)^{\alpha-1}}
$$

$$
cwly = 1 - \left(\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}} \right)^{(-1)} \left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1-\delta) \right) \Phi \left(\frac{1-\alpha}{\alpha} \frac{\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)} \left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1-\delta)}{\left(\frac{\alpha^{\alpha} (1-\alpha)^{1-\alpha}}{\Phi \left(\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)} \left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1-\delta) \right)^{\alpha}} \right)^{\frac{1}{1-\alpha}}} \right)^{\alpha-1}
$$

$$
conster = 100 \left(\frac{1+\frac{\bar{\pi}}{100}}{\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}} \left(1+\frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}} - 1 \right)
$$

$$
c1 = \frac{\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}}{1+\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}}
$$

$$
c2 = \frac{(\sigma_c - 1)\,\dfrac{\Phi\left(\dfrac{1-\alpha}{\alpha}\,\dfrac{\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}-(1-\delta)}{\left(\frac{\alpha^{\alpha}(1-\alpha)^{1-\alpha}}{\Phi\left(\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}-(1-\delta)\right)^{\alpha}}\right)^{\frac{1}{1-\alpha}}}\right)^{\alpha-1}\dfrac{(1-\alpha)\,\frac{1}{\phi_w}}{\alpha}\left(\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}-(1-\delta)\right)}{1-\frac{\bar{g}}{\bar{y}}-\left(1+\frac{\bar{\gamma}}{100}\right)\left(1-\frac{1-\delta}{1+\frac{\bar{\gamma}}{100}}\right)\Phi\left(\dfrac{1-\alpha}{\alpha}\,\dfrac{\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}-(1-\delta)}{\left(\frac{\alpha^{\alpha}(1-\alpha)^{1-\alpha}}{\Phi\left(\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}-(1-\delta)\right)^{\alpha}}\right)^{\frac{1}{1-\alpha}}}\right)^{\alpha-1}}}{\sigma_c\left(1+\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}\right)}
$$

$$
c3 = \frac{1-\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}}{\sigma_c\left(1+\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}\right)}
$$

$$
i1 = \frac{1}{1+\left(1+\frac{\bar{\gamma}}{100}\right)\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\left(1+\frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}}
$$

$$
i2 = \frac{1}{1+\left(1+\frac{\bar{\gamma}}{100}\right)\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\left(1+\frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}}\,\frac{1}{\varphi\left(1+\frac{\bar{\gamma}}{100}\right)^{2}}
$$

$$
q1 = \frac{1-\delta}{\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}}
$$

$$
q2 = \frac{1}{\frac{1-\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}}{\sigma_c\left(1+\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}\right)}}
$$

$$
k1 = 1-\left(1-\frac{1-\delta}{1+\frac{\bar{\gamma}}{100}}\right)
$$

$$k2 = \varphi \left(1 - \frac{1-\delta}{1+\frac{\bar{\gamma}}{100}}\right) \left(1 + \frac{\bar{\gamma}}{100}\right)^2$$

$$pi1 = \iota_p \frac{1}{1 + \iota_p \left(1 + \frac{\bar{\gamma}}{100}\right) \frac{1}{1+\frac{100(\beta^{-1}-1)}{100}} \left(1 + \frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}}$$

$$pi2 = \left(1 + \frac{\bar{\gamma}}{100}\right) \frac{1}{1 + \frac{100(\beta^{-1}-1)}{100}} \left(1 + \frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)} \frac{1}{1 + \iota_p \left(1 + \frac{\bar{\gamma}}{100}\right) \frac{1}{1+\frac{100(\beta^{-1}-1)}{100}} \left(1 + \frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}}$$

$$pi3 = \frac{\frac{1}{1+\iota_p \left(1+\frac{\bar{\gamma}}{100}\right) \frac{1}{1+\frac{100(\beta^{-1}-1)}{100}} \left(1+\frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}} \frac{(1-\xi_p) \left(1-\xi_p \left(1+\frac{\bar{\gamma}}{100}\right) \frac{1}{1+\frac{100(\beta^{-1}-1)}{100}} \left(1+\frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}\right)}{\xi_p}}{1 + (\Phi - 1)\ \varepsilon_p}$$

$$w1 = \frac{1}{1 + \left(1 + \frac{\bar{\gamma}}{100}\right) \frac{1}{1+\frac{100(\beta^{-1}-1)}{100}} \left(1 + \frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}}$$

$$w2 = \frac{1 + \iota_w \left(1 + \frac{\bar{\gamma}}{100}\right) \frac{1}{1+\frac{100(\beta^{-1}-1)}{100}} \left(1 + \frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}}{1 + \left(1 + \frac{\bar{\gamma}}{100}\right) \frac{1}{1+\frac{100(\beta^{-1}-1)}{100}} \left(1 + \frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}}$$

$$w3 = \frac{\iota_w}{1 + \left(1 + \frac{\bar{\gamma}}{100}\right) \frac{1}{1+\frac{100(\beta^{-1}-1)}{100}} \left(1 + \frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}}$$

$$w4 = \frac{1}{1 + (\phi_w - 1)\ \varepsilon_w} \frac{(1-\xi_w) \left(1 - \xi_w \left(1 + \frac{\bar{\gamma}}{100}\right) \frac{1}{1+\frac{100(\beta^{-1}-1)}{100}} \left(1 + \frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}\right)}{\xi_w \left(1 + \left(1 + \frac{\bar{\gamma}}{100}\right) \frac{1}{1+\frac{100(\beta^{-1}-1)}{100}} \left(1 + \frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}\right)}$$

$$w5 = \frac{1}{1 - \frac{\lambda}{1+\frac{\bar{\gamma}}{100}}}$$

$$w6 = \frac{\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}}{1 - \frac{\lambda}{1+\frac{\bar{\gamma}}{100}}}$$

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

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

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

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

$$\begin{aligned} i^{flex}{}_t = \varepsilon^i{}_t + i^{flex}{}_{t-1} \, & \frac{1}{1+\left(1+\frac{\bar{\gamma}}{100}\right) \, \frac{1}{1+\frac{100(\beta^{-1}-1)}{100}} \, \left(1+\frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}} \\ & + i^{flex}{}_{t+1} \, \left(1-\frac{1}{1+\left(1+\frac{\bar{\gamma}}{100}\right) \, \frac{1}{1+\frac{100(\beta^{-1}-1)}{100}} \, \left(1+\frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}}\right) \\ & + q^{flex}{}_t \, \frac{1}{1+\left(1+\frac{\bar{\gamma}}{100}\right) \, \frac{1}{1+\frac{100(\beta^{-1}-1)}{100}} \, \left(1+\frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}} \, \frac{1}{\varphi \, \left(1+\frac{\bar{\gamma}}{100}\right)^2} \end{aligned} \tag{5}$$

$$\begin{aligned} q^{flex}{}_t = q^{flex}{}_{t+1} \, & \frac{1-\delta}{\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)} \, \left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}} \\ & + r^{k,flex}{}_{t+1} \, \left(1-\frac{1-\delta}{\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)} \, \left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}}\right) + c_2 * \varepsilon^b_{tt} \, \frac{1}{\frac{1-\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}}{\sigma_c\left(1+\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}\right)}} - r^{flex}{}_t \end{aligned} \tag{6}$$

$$
\begin{aligned}
c^{flex}{}_{t} = {} & c_2 * \varepsilon^{b}_{t\,t} + c^{flex}{}_{t-1}\,\frac{\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}}{1+\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}} + c^{flex}{}_{t+1}\left(1-\frac{\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}}{1+\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}}\right) + \Bigl(l^{flex}{}_{t} \\
& (\sigma_c-1)\,\frac{\Phi\left(\frac{1-\alpha}{\alpha}\,\frac{\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}-(1-\delta)}{\left(\frac{\alpha^{\alpha}\,(1-\alpha)^{1-\alpha}}{\Phi\left(\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}-(1-\delta)\right)^{\alpha}}\right)^{\frac{1}{1-\alpha}}}\right)^{\alpha-1} \quad \frac{(1-\alpha)\,\frac{1}{\phi_w}}{\alpha}\Bigl(\Bigl(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\Bigr)^{(-1)}\Bigl(1+\frac{\bar{\gamma}}{100}\Bigr)^{\sigma_c}-}{1-\frac{\bar{g}}{\bar{y}}-\left(1+\frac{\bar{\gamma}}{100}\right)\left(1-\frac{1-\delta}{1+\frac{\bar{\gamma}}{100}}\right)\Phi\left(\frac{1-\alpha}{\alpha}\,\frac{\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}-(1-\delta)}{\left(\frac{\alpha^{\alpha}\,(1-\alpha)^{1-\alpha}}{\Phi\left(\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}-(1-\delta)\right)^{\alpha}}\right)^{\frac{1}{1-\alpha}}}\right)^{\alpha-1}} \\
& -l^{flex}{}_{t+1}\Bigr)\;\frac{}{\sigma_c\left(1+\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}\right)} \\
& -r^{flex}{}_{t}\,\frac{1-\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}}{\sigma_c\left(1+\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}\right)}
\end{aligned}
\tag{7}
$$

$$
\begin{aligned}
y^{flex}_{t} = {} & \varepsilon^{g}_{t} + c^{flex}_{t} \Bigg(1 - \frac{\bar{g}}{\bar{y}} - \left(1 + \frac{\bar{\gamma}}{100}\right) \Big(1 \\
& - \frac{1-\delta}{1+\frac{\bar{\gamma}}{100}}\Big) \Phi \left(\frac{1-\alpha}{\alpha} \frac{\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)} \left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1-\delta)}{\left(\frac{\alpha^{\alpha} (1-\alpha)^{1-\alpha}}{\Phi \left(\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)} \left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1-\delta)\right)^{\alpha}}\right)^{\frac{1}{1-\alpha}}} \right)^{\alpha-1} \Bigg) + i^{flex}_{t} \Big(1 \\
& + \frac{\bar{\gamma}}{100}\Big) \left(1 - \frac{1-\delta}{1+\frac{\bar{\gamma}}{100}}\right) \Phi \left(\frac{1-\alpha}{\alpha} \frac{\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)} \left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1-\delta)}{\left(\frac{\alpha^{\alpha} (1-\alpha)^{1-\alpha}}{\Phi \left(\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)} \left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1-\delta)\right)^{\alpha}}\right)^{\frac{1}{1-\alpha}}} \right)^{\alpha-1} \\
& + z^{flex}_{t} \Bigg(\bigg(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}} \bigg)^{(-1)} \left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c} \\
& - (1-\delta)\Bigg) \Phi \left(\frac{1-\alpha}{\alpha} \frac{\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)} \left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1-\delta)}{\left(\frac{\alpha^{\alpha} (1-\alpha)^{1-\alpha}}{\Phi \left(\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)} \left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1-\delta)\right)^{\alpha}}\right)^{\frac{1}{1-\alpha}}} \right)^{\alpha-1}
\end{aligned}
\tag{8}
$$

$$
y^{flex}_{t} = \Phi \left(\varepsilon_{at} + \alpha \, k^{s,flex}_{t} + (1-\alpha) \; l^{flex}_{t}\right) \tag{9}
$$

$$
w^{flex}_{t} = l^{flex}_{t} \, \sigma_l + c^{flex}_{t} \frac{1}{1 - \frac{\lambda}{1+\frac{\bar{\gamma}}{100}}} - c^{flex}_{t-1} \frac{\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}}{1 - \frac{\lambda}{1+\frac{\bar{\gamma}}{100}}} \tag{10}
$$

$$
\begin{aligned}
{k^{flex}}_{t} = {k^{flex}}_{t-1}\, \left(1-\left(1-\frac{1-\delta}{1+\frac{\bar{\gamma}}{100}}\right)\right)+{i^{flex}}_{t}\, \left(1-\left(1-\left(1-\frac{1-\delta}{1+\frac{\bar{\gamma}}{100}}\right)\right)\right) \\
+ {\varepsilon^{i}}_{t}\, \varphi\, \left(1-\frac{1-\delta}{1+\frac{\bar{\gamma}}{100}}\right)\, {\left(1+\frac{\bar{\gamma}}{100}\right)}^{2}
\end{aligned} \tag{11}
$$

$$
\mu_{p_t} = \alpha\, {r^{k}}_{t}+\left(1-\alpha\right)\, w_{t}-\varepsilon_{at} \tag{12}
$$

$$
z_{t} = \frac{1}{\frac{\psi}{1-\psi}}\, {r^{k}}_{t} \tag{13}
$$

$$
{r^{k}}_{t} = w_{t}+l_{t}-{k^{s}}_{t} \tag{14}
$$

$$
{k^{s}}_{t} = z_{t}+k_{t-1} \tag{15}
$$

$$
k_{t} = {\varepsilon^{i}}_{t}\, \varphi\, \left(1-\frac{1-\delta}{1+\frac{\bar{\gamma}}{100}}\right)\, {\left(1+\frac{\bar{\gamma}}{100}\right)}^{2}+k_{t-1}\, \left(1-\left(1-\frac{1-\delta}{1+\frac{\bar{\gamma}}{100}}\right)\right)+i_{t}\, \left(1-\left(1-\left(1-\frac{1-\delta}{1+\frac{\bar{\gamma}}{100}}\right)\right)\right) \tag{16}
$$

$$
\begin{aligned}
i_{t} = {\varepsilon^{i}}_{t}+i_{t-1}\, \frac{1}{1+\left(1+\frac{\bar{\gamma}}{100}\right)\, \frac{1}{1+\frac{100\, \left(\beta^{-1}-1\right)}{100}}\, {\left(1+\frac{\bar{\gamma}}{100}\right)}^{\left(-\sigma_c\right)}} \\
+ i_{t+1}\, \left(1-\frac{1}{1+\left(1+\frac{\bar{\gamma}}{100}\right)\, \frac{1}{1+\frac{100\, \left(\beta^{-1}-1\right)}{100}}\, {\left(1+\frac{\bar{\gamma}}{100}\right)}^{\left(-\sigma_c\right)}}\right) \\
+ q_{t}\, \frac{1}{1+\left(1+\frac{\bar{\gamma}}{100}\right)\, \frac{1}{1+\frac{100\, \left(\beta^{-1}-1\right)}{100}}\, {\left(1+\frac{\bar{\gamma}}{100}\right)}^{\left(-\sigma_c\right)}}\, \frac{1}{\varphi\, {\left(1+\frac{\bar{\gamma}}{100}\right)}^{2}}
\end{aligned} \tag{17}
$$

$$
\begin{aligned}
q_{t} = c_2 * \varepsilon^b_{t\,t}\, \frac{1}{\frac{1-\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}}{\sigma_c\, \left(1+\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}\right)}}+q_{t+1}\, \frac{1-\delta}{{\left(\frac{1}{1+\frac{100\, \left(\beta^{-1}-1\right)}{100}}\right)}^{\left(-1\right)}\, {\left(1+\frac{\bar{\gamma}}{100}\right)}^{\sigma_c}} \\
+ {r^{k}}_{t+1}\, \left(1-\frac{1-\delta}{{\left(\frac{1}{1+\frac{100\, \left(\beta^{-1}-1\right)}{100}}\right)}^{\left(-1\right)}\, {\left(1+\frac{\bar{\gamma}}{100}\right)}^{\sigma_c}}\right)-\left(r_{t}-\pi_{t+1}\right)
\end{aligned} \tag{18}
$$

$$c_t = c_2 * \varepsilon^b_{tt} + c_{t-1}\,\frac{\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}}{1+\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}} + c_{t+1}\left(1-\frac{\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}}{1+\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}}\right) + (l_t \tag{19}$$

$$-l_{t+1})\,\frac{(\sigma_c-1)\,\frac{\Phi\left(\frac{1-\alpha}{\alpha}\,\frac{\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}-(1-\delta)}{\left(\frac{\alpha^{\alpha}(1-\alpha)^{1-\alpha}}{\Phi\left(\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}-(1-\delta)\right)^{\alpha}}\right)^{\frac{1}{1-\alpha}}}\right)^{\alpha-1}\quad\frac{(1-\alpha)\,\frac{1}{\phi w}}{\alpha}\left(\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}-(1-\delta}{1-\frac{\bar{g}}{\bar{y}}-\left(1+\frac{\bar{\gamma}}{100}\right)\left(1-\frac{1-\delta}{1+\frac{\bar{\gamma}}{100}}\right)\Phi\left(\frac{1-\alpha}{\alpha}\,\frac{\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}-(1-\delta)}{\left(\frac{\alpha^{\alpha}(1-\alpha)^{1-\alpha}}{\Phi\left(\left(\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}}\right)^{(-1)}\left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c}-(1-\delta)\right)^{\alpha}}\right)^{\frac{1}{1-\alpha}}}\right)^{\alpha-1}}}{\sigma_c\left(1+\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}\right)}$$

$$-\left(r_t-\pi_{t+1}\right)\,\frac{1-\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}}{\sigma_c\left(1+\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}\right)}$$

$$
\begin{aligned}
y_t = {\varepsilon^g}_t + c_t \Bigg(1 - \frac{\bar{g}}{\bar{y}} \\
& - \left(1 + \frac{\bar{\gamma}}{100}\right) \left(1 - \frac{1-\delta}{1 + \frac{\bar{\gamma}}{100}}\right) \Phi \left(\frac{1-\alpha}{\alpha} \frac{\left(\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\right)^{(-1)} \left(1 + \frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1-\delta)}{\left(\frac{\alpha^{\alpha} \, (1-\alpha)^{1-\alpha}}{\Phi \left(\left(\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\right)^{(-1)} \left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1-\delta)\right)^{\alpha}}\right)^{\frac{1}{1-\alpha}}} \right)^{\alpha-1} \Bigg) \\
& + i_t \left(1 + \frac{\bar{\gamma}}{100}\right) \left(1 - \frac{1-\delta}{1 + \frac{\bar{\gamma}}{100}}\right) \Phi \left(\frac{1-\alpha}{\alpha} \frac{\left(\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\right)^{(-1)} \left(1 + \frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1-\delta)}{\left(\frac{\alpha^{\alpha} \, (1-\alpha)^{1-\alpha}}{\Phi \left(\left(\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\right)^{(-1)} \left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1-\delta)\right)^{\alpha}}\right)^{\frac{1}{1-\alpha}}} \right)^{\alpha-1} \\
& + z_t \Bigg(\left(\frac{1}{1 + \frac{100\left(\beta^{-1}-1\right)}{100}}\right)^{(-1)} \left(1 + \frac{\bar{\gamma}}{100}\right)^{\sigma_c} \\
& \qquad - (1-\delta) \Bigg) \Phi \left(\frac{1-\alpha}{\alpha} \frac{\left(\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\right)^{(-1)} \left(1 + \frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1-\delta)}{\left(\frac{\alpha^{\alpha} \, (1-\alpha)^{1-\alpha}}{\Phi \left(\left(\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\right)^{(-1)} \left(1+\frac{\bar{\gamma}}{100}\right)^{\sigma_c} - (1-\delta)\right)^{\alpha}}\right)^{\frac{1}{1-\alpha}}} \right)^{\alpha-1}
\end{aligned}
\tag{20}
$$

$$
y_t = \Phi \, \left(\varepsilon_{at} + \alpha \, {k^s}_t + (1-\alpha) \, l_t\right) \tag{21}
$$

$$\pi_t = {\varepsilon^{p}}_{t} + \pi_{t-1}\,\iota_p\,\frac{1}{1+\iota_p\,\left(1+\frac{\bar{\gamma}}{100}\right)\,\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\,\left(1+\frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}}$$

$$+ \pi_{t+1}\,\left(1+\frac{\bar{\gamma}}{100}\right)\,\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\,\left(1+\frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}\,\frac{1}{1+\iota_p\,\left(1+\frac{\bar{\gamma}}{100}\right)\,\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\,\left(1+\frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}}$$

$$+ \mu_{p_t}\,\frac{\frac{1}{1+\iota_p\,\left(1+\frac{\bar{\gamma}}{100}\right)\,\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\,\left(1+\frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}}\,\frac{(1-\xi_p)\,\left(1-\xi_p\,\left(1+\frac{\bar{\gamma}}{100}\right)\,\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\,\left(1+\frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}\right)}{\xi_p}}{1+(\Phi-1)\,\varepsilon_p} \tag{22}$$

$$\begin{aligned} w_t &= {\varepsilon^{w}}_{t} + w_{t-1}\,\frac{1}{1+\left(1+\frac{\bar{\gamma}}{100}\right)\,\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\,\left(1+\frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}} \\ &+ (\pi_{t+1}+w_{t+1})\,\left(1-\frac{1}{1+\left(1+\frac{\bar{\gamma}}{100}\right)\,\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\,\left(1+\frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}}\right) \\ &- \pi_t\,\frac{1+\iota_w\,\left(1+\frac{\bar{\gamma}}{100}\right)\,\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\,\left(1+\frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}}{1+\left(1+\frac{\bar{\gamma}}{100}\right)\,\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\,\left(1+\frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}} \\ &+ \pi_{t-1}\,\frac{\iota_w}{1+\left(1+\frac{\bar{\gamma}}{100}\right)\,\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\,\left(1+\frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}} \\ &- \mu_{w_t}\,\frac{1}{1+(\phi_w-1)\,\varepsilon_w}\,\frac{(1-\xi_w)\,\left(1-\xi_w\,\left(1+\frac{\bar{\gamma}}{100}\right)\,\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\,\left(1+\frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}\right)}{\xi_w\,\left(1+\left(1+\frac{\bar{\gamma}}{100}\right)\,\frac{1}{1+\frac{100\left(\beta^{-1}-1\right)}{100}}\,\left(1+\frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}\right)} \end{aligned} \tag{23}$$

$$\mu_{w_t} = w_t - \left(\sigma_l\,l_t + \frac{1}{1-\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}}\,\left(c_t - c_{t-1}\,\frac{\lambda}{1+\frac{\bar{\gamma}}{100}}\right)\right) \tag{24}$$

$$r_t = \pi_t\,r_\pi\,(1-\rho) + (1-\rho)\,r_y\,\left(y_t - {y^{flex}}_{t}\right) + r_{\Delta y}\,\left(y_t - {y^{flex}}_{t} - y_{t-1} + {y^{flex}}_{t-1}\right) + \rho\,r_{t-1} + {\varepsilon^{r}}_{t} \tag{25}$$

$$\varepsilon_{a_t} = \rho_a\,\varepsilon_{a_{t-1}} + {\eta^{a}}_{t} \tag{26}$$

$$c_2 * \varepsilon^{b}_{t_t} = \rho_b\,c_2 * \varepsilon^{b}_{t_{t-1}} + {\eta^{b}}_{t} \tag{27}$$

$${\varepsilon^{g}}_{t} = \rho_g\,{\varepsilon^{g}}_{t-1} + {\eta^{g}}_{t} + {\eta^{a}}_{t}\,\rho_{ga} \tag{28}$$

$${\varepsilon^{i}}_{t} = \rho_i\,{\varepsilon^{i}}_{t-1} + {\eta^{i}}_{t} \tag{29}$$

$$\varepsilon^r{}_t = \rho_r \, \varepsilon^r{}_{t-1} + \eta^m{}_t \tag{30}$$

$$\varepsilon^p{}_t = \rho_p \, \varepsilon^p{}_{t-1} + \eta^{p,aux}{}_t - \mu_p \, \eta^{p,aux}{}_{t-1} \tag{31}$$

$$\eta^{p,aux}{}_t = \eta^p{}_t \tag{32}$$

$$\varepsilon^w{}_t = \rho_w \, \varepsilon^w{}_{t-1} + \eta^{w,aux}{}_t - \mu_w \, \eta^{w,aux}{}_{t-1} \tag{33}$$

$$\eta^{w,aux}{}_t = \eta^w{}_t \tag{34}$$

$$dlGDP_t = \bar{\gamma} + y_t - y_{t-1} \tag{35}$$

$$dlCONS_t = \bar{\gamma} + c_t - c_{t-1} \tag{36}$$

$$dlINV_t = \bar{\gamma} + i_t - i_{t-1} \tag{37}$$

$$dlWAG_t = \bar{\gamma} + w_t - w_{t-1} \tag{38}$$

$$dlP_t = \bar{\pi} + \pi_t \tag{39}$$

$$FEDFUNDS_t = r_t + 100 \left(\frac{1 + \frac{\bar{\pi}}{100}}{\frac{1}{1+\frac{100(\beta^{-1}-1)}{100}} \, \left(1 + \frac{\bar{\gamma}}{100}\right)^{(-\sigma_c)}} - 1 \right) \tag{40}$$

$$lHOURS_t = l_t + \bar{l} \tag{41}$$

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

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

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

$$clandap = \Phi$$

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

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

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

$$cw = \left(\frac{\alpha^{\alpha}\ (1-\alpha)^{1-\alpha}}{clandap\, crk^{\alpha}}\right)^{\frac{1}{1-\alpha}}$$

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

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

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

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

$$ciy = cik\, cky$$

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

$$crkky = crk\, cky$$

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

$$cwly = 1 - crk\, cky$$

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

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

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

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

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

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

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

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

$$k1 = 1 - cikbar$$

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

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

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

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

$$w1 = \frac{1}{1 + cgamma\, cbetabar}$$

$$w2 = \frac{1 + cgamma\, cbetabar\, \iota_w}{1 + cgamma\, cbetabar}$$

$$w3 = \frac{\iota_w}{1 + cgamma\, cbetabar}$$

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

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

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

$$\varepsilon_{a\,t} = \alpha\, {r^{k,flex}}_t + (1-\alpha)\ {w^{flex}}_t \tag{42}$$

$${z^{flex}}_t = {r^{k,flex}}_t \frac{1}{\frac{\psi}{1-\psi}} \tag{43}$$

$${r^{k,flex}}_t = {w^{flex}}_t + {l^{flex}}_t - {k^{s,flex}}_t \tag{44}$$

$${k^{s,flex}}_t = {z^{flex}}_t + {k^{flex}}_{t-1} \tag{45}$$

$${i^{flex}}_t = i1\, {i^{flex}}_{t-1} + (1-i1)\ {i^{flex}}_{t+1} + i2\, {q^{flex}}_t + {\varepsilon^i}_t \tag{46}$$

$${q^{flex}}_t = q1\, {q^{flex}}_{t+1} + (1-q1)\ {r^{k,flex}}_{t+1} + q2\, c_2 * \varepsilon^b_{t\,t} - {r^{flex}}_t \tag{47}$$

$${c^{flex}}_t = c_2 * \varepsilon^b_{t\,t} + c1\, {c^{flex}}_{t-1} + (1-c1)\ {c^{flex}}_{t+1} + c2\ \left({l^{flex}}_t - {l^{flex}}_{t+1}\right) - {r^{flex}}_t\, c3 \tag{48}$$

$${y^{flex}}_t = ccy\, {c^{flex}}_t + {i^{flex}}_t\, ciy + {\varepsilon^g}_t + {z^{flex}}_t\, crkky \tag{49}$$

$${y^{flex}}_t = \Phi\ \left(\varepsilon_{a\,t} + \alpha\, {k^{s,flex}}_t + (1-\alpha)\ {l^{flex}}_t\right) \tag{50}$$

$${w^{flex}}_t = {l^{flex}}_t\, \sigma_l + {c^{flex}}_t\, w5 - {c^{flex}}_{t-1}\, w6 \tag{51}$$

$$k^{flex}{}_{t} = k^{flex}{}_{t-1}\, k1 + i^{flex}{}_{t}\ (1 - k1) + \varepsilon^{i}{}_{t}\, k2 \tag{52}$$

$$\mu_{p_t} = \alpha\, r^{k}{}_{t} + (1 - \alpha)\ w_t - \varepsilon_{at} \tag{53}$$

$$z_t = \frac{1}{\frac{\psi}{1-\psi}}\, r^{k}{}_{t} \tag{54}$$

$$r^{k}{}_{t} = w_t + l_t - k^{s}{}_{t} \tag{55}$$

$$k^{s}{}_{t} = z_t + k_{t-1} \tag{56}$$

$$k_t = \varepsilon^{i}{}_{t}\, k2 + k1\, k_{t-1} + (1 - k1)\ i_t \tag{57}$$

$$i_t = \varepsilon^{i}{}_{t} + i1\, i_{t-1} + (1 - i1)\ i_{t+1} + i2\, q_t \tag{58}$$

$$q_t = q2\, c_2 * \varepsilon^{b}_{t\,t} + q1\, q_{t+1} + (1 - q1)\ r^{k}{}_{t+1} - (r_t - \pi_{t+1}) \tag{59}$$

$$c_t = c_2 * \varepsilon^{b}_{t\,t} + c1\, c_{t-1} + (1 - c1)\ c_{t+1} + c2\ (l_t - l_{t+1}) - c3\ (r_t - \pi_{t+1}) \tag{60}$$

$$y_t = \varepsilon^{g}{}_{t} + ccy\, c_t + ciy\, i_t + crkky\, z_t \tag{61}$$

$$y_t = \Phi\ (\varepsilon_{at} + \alpha\, k^{s}{}_{t} + (1 - \alpha)\ l_t) \tag{62}$$

$$\pi_t = pi1\, \pi_{t-1} + \pi_{t+1}\, pi2 + \mu_{p_t}\, pi3 + \varepsilon^{p}{}_{t} \tag{63}$$

$$w_t = w1\, w_{t-1} + (1 - w1)\ (\pi_{t+1} + w_{t+1}) - \pi_t\, w2 + \pi_{t-1}\, w3 - w4\, \mu_{w_t} + \varepsilon^{w}{}_{t} \tag{64}$$

$$\mu_{w_t} = w_t - \left(\sigma_l\, l_t + \frac{1}{1 - \frac{\lambda}{cgamma}}\ \left(c_t - \frac{\lambda}{cgamma}\, c_{t-1}\right)\right) \tag{65}$$

$$r_t = \pi_t\, r_\pi\ (1 - \rho) + (1 - \rho)\ r_y\ \left(y_t - y^{flex}{}_{t}\right) + r_{\Delta y}\ \left(y_t - y^{flex}{}_{t} - y_{t-1} + y^{flex}{}_{t-1}\right) + \rho\, r_{t-1} + \varepsilon^{r}{}_{t} \tag{66}$$

$$\varepsilon_{at} = \rho_a\, \varepsilon_{at-1} + \eta^{a}{}_{t} \tag{67}$$

$$c_2 * \varepsilon^{b}_{t\,t} = \rho_b\, c_2 * \varepsilon^{b}_{t\,t-1} + \eta^{b}{}_{t} \tag{68}$$

$$\varepsilon^{g}{}_{t} = \rho_g\, \varepsilon^{g}{}_{t-1} + \eta^{g}{}_{t} + \eta^{a}{}_{t}\, \rho_{ga} \tag{69}$$

$$\varepsilon^{i}{}_{t} = \rho_i\, \varepsilon^{i}{}_{t-1} + \eta^{i}{}_{t} \tag{70}$$

$$\varepsilon^{r}{}_{t} = \rho_r\, \varepsilon^{r}{}_{t-1} + \eta^{m}{}_{t} \tag{71}$$

$$\varepsilon^{p}{}_{t} = \rho_p\, \varepsilon^{p}{}_{t-1} + \eta^{p,aux}{}_{t} - \mu_p\, \eta^{p,aux}{}_{t-1} \tag{72}$$

$$\eta^{p,aux}{}_{t} = \eta^{p}{}_{t} \tag{73}$$

$$\varepsilon^{w}{}_{t} = \rho_w\, \varepsilon^{w}{}_{t-1} + \eta^{w,aux}{}_{t} - \mu_w\, \eta^{w,aux}{}_{t-1} \tag{74}$$

$$\eta^{w,aux}{}_{t} = \eta^{w}{}_{t} \tag{75}$$

$$dlGDP_t = \bar{\gamma} + y_t - y_{t-1} \tag{76}$$

$$dlCONS_t = \bar{\gamma} + c_t - c_{t-1} \tag{77}$$

$$dlINV_t = \bar{\gamma} + i_t - i_{t-1} \tag{78}$$

$$dlWAG_t = \bar{\gamma} + w_t - w_{t-1} \tag{79}$$

$$dlP_t = \bar{\pi} + \pi_t \tag{80}$$

$$FEDFUNDS_t = r_t + conster \tag{81}$$

$$lHOURS_t = l_t + \bar{l} \tag{82}$$

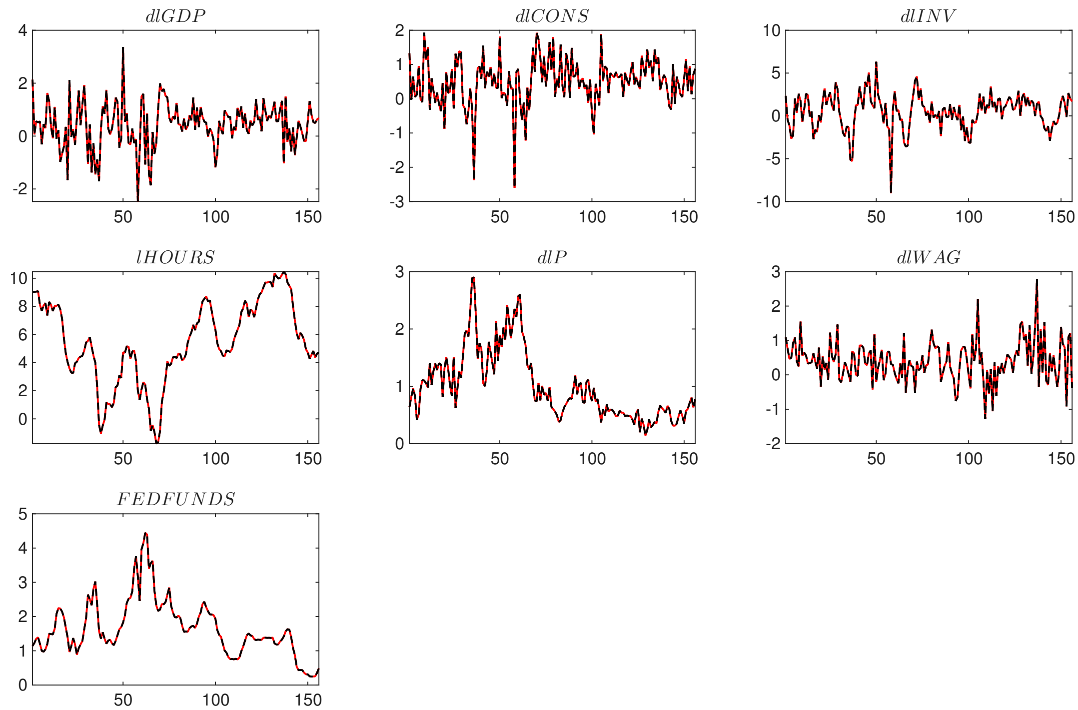

Figure 5: Historical and smoothed variables.

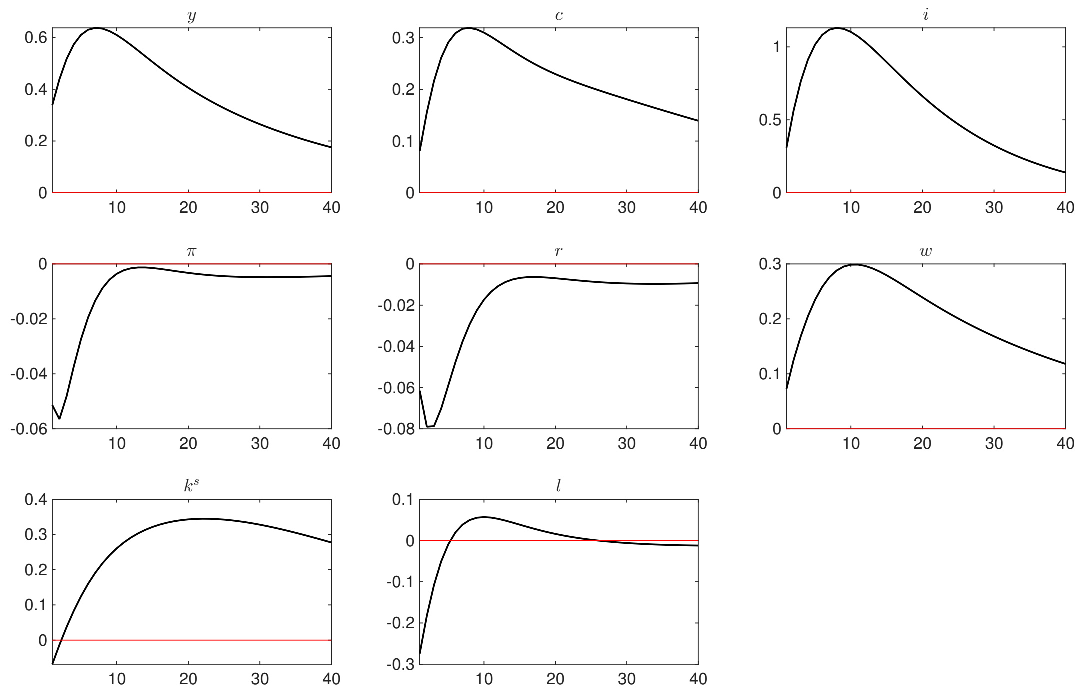

Figure 6: Impulse response functions (orthogonalized shock to η^a).

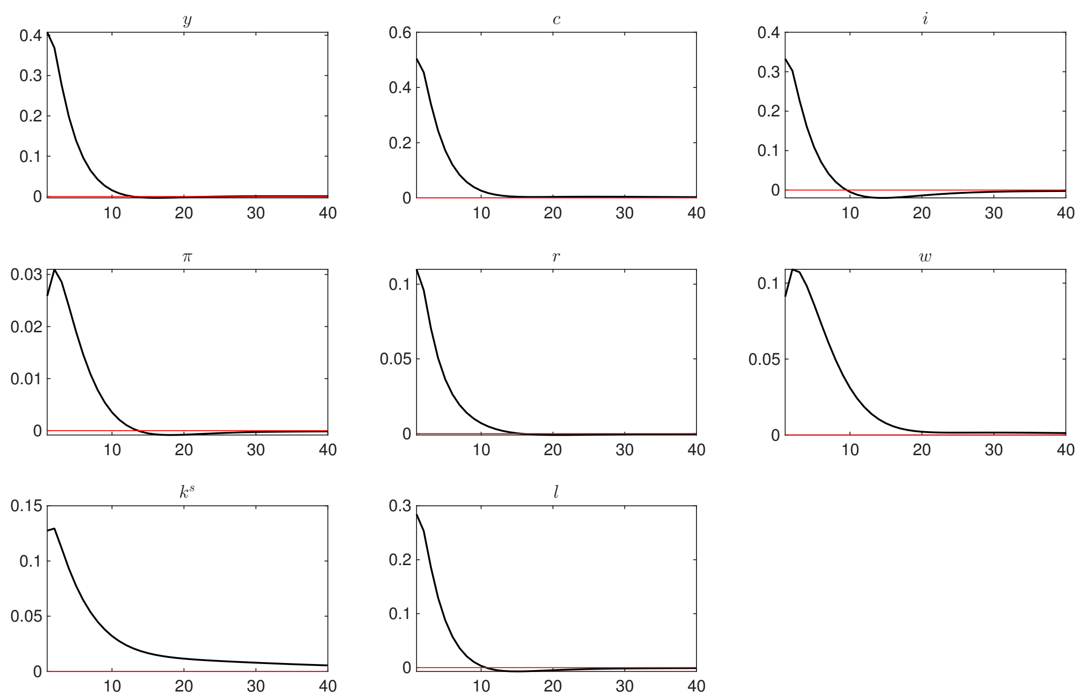

Figure 7: Impulse response functions (orthogonalized shock to η^b).

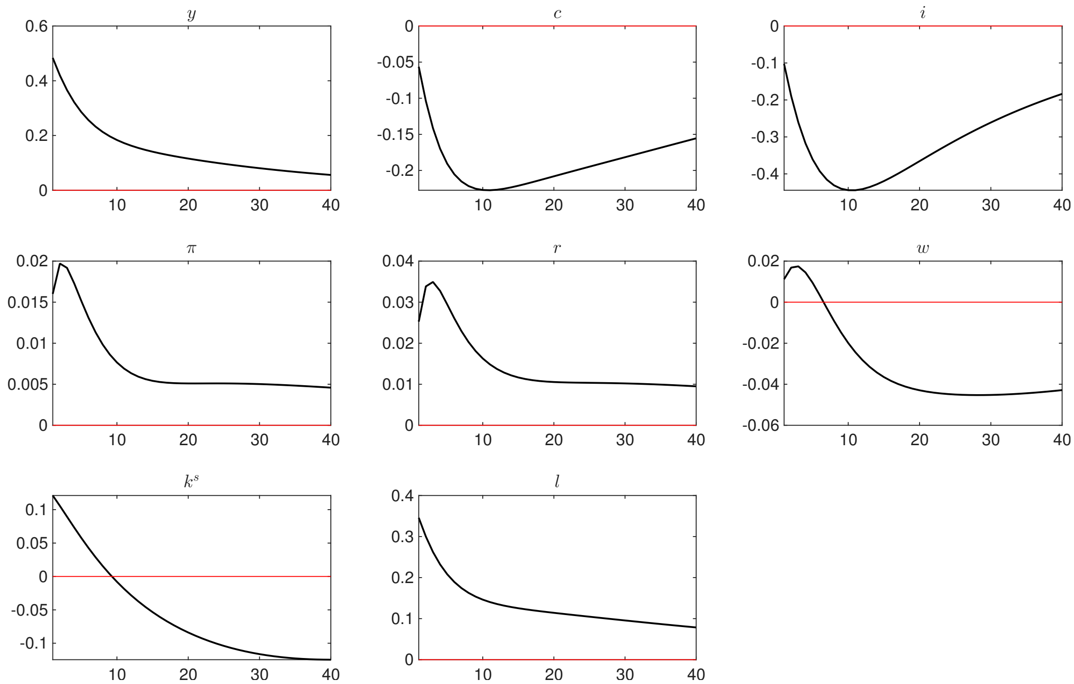

Figure 8: Impulse response functions (orthogonalized shock to η^g).

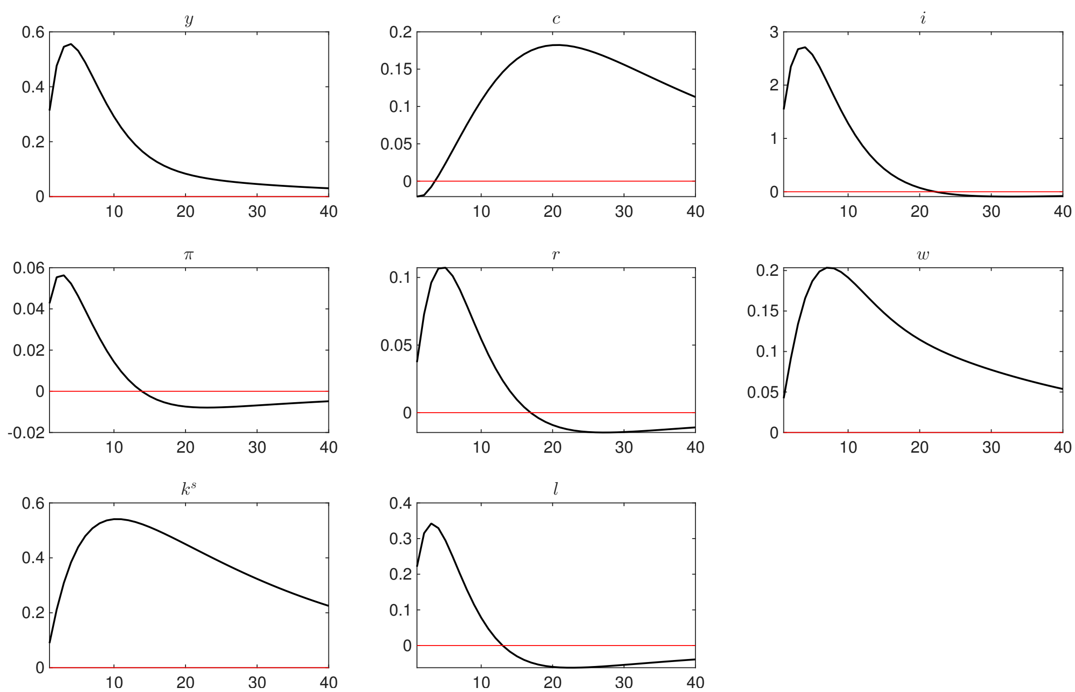

Figure 9: Impulse response functions (orthogonalized shock to η^i).

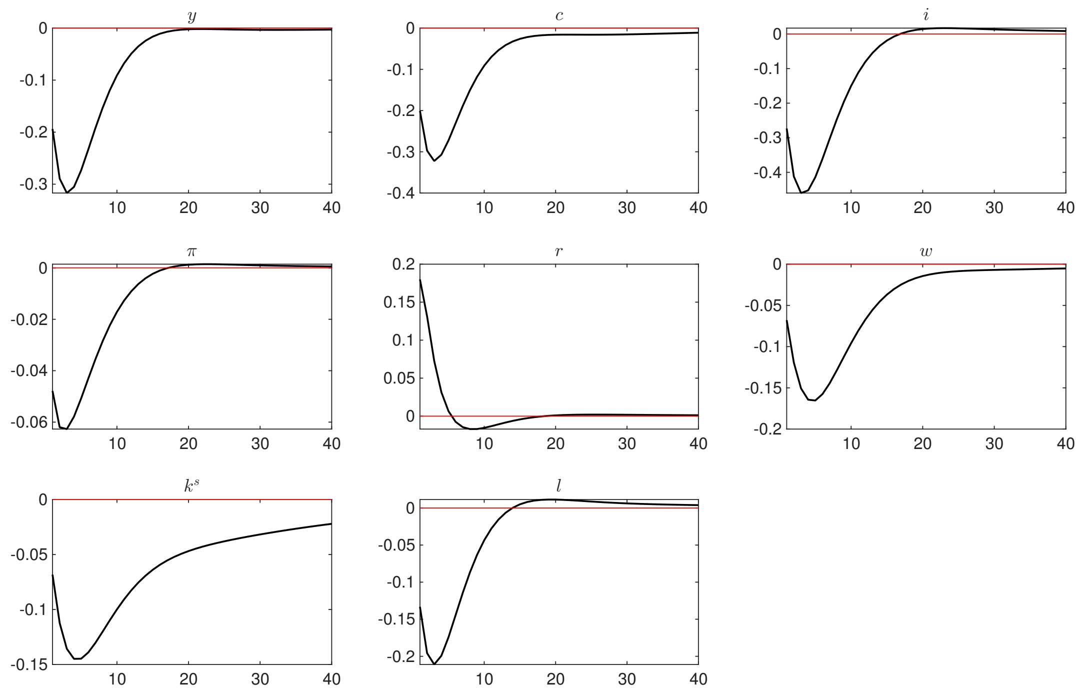

Figure 10: Impulse response functions (orthogonalized shock to η^m).

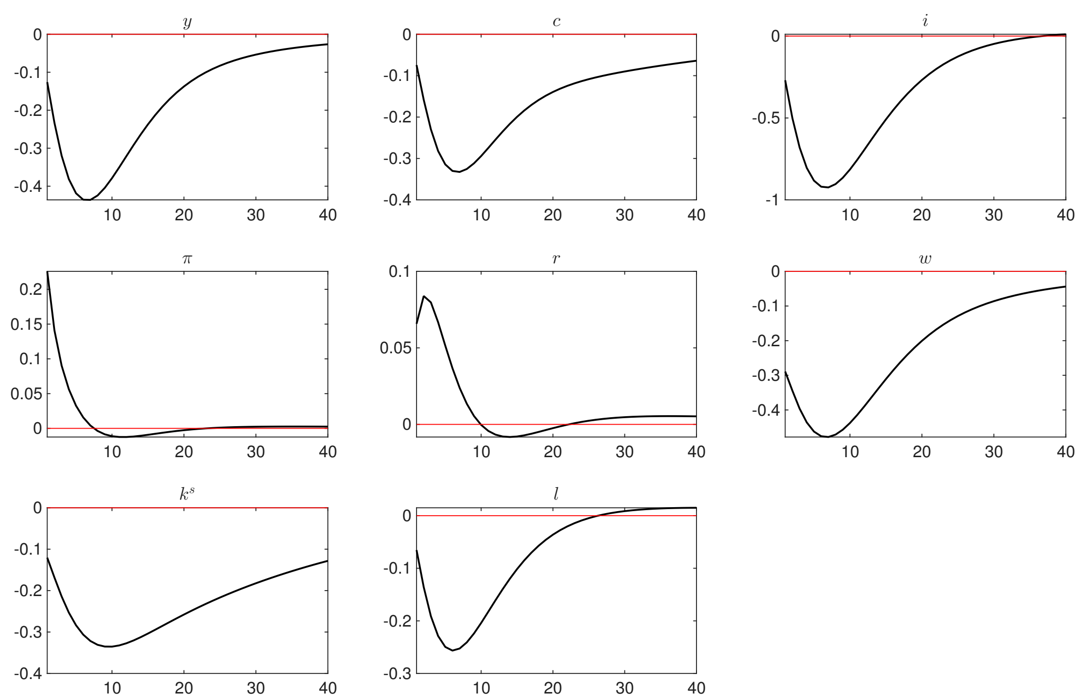

Figure 11: Impulse response functions (orthogonalized shock to η^p).

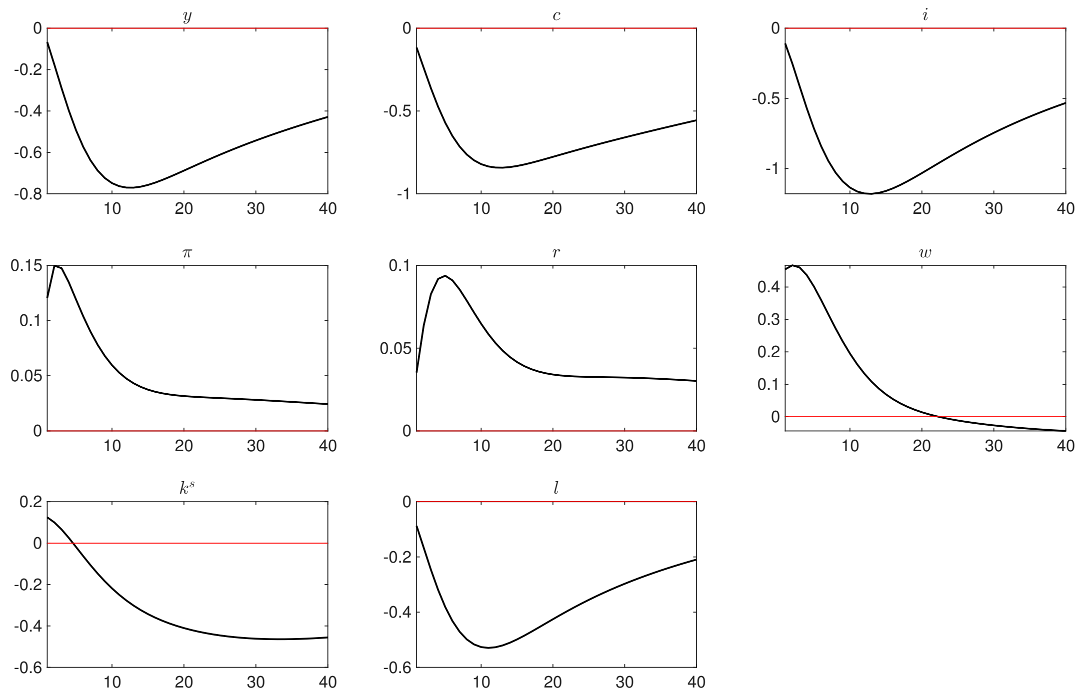

Figure 12: Impulse response functions (orthogonalized shock to η^w).

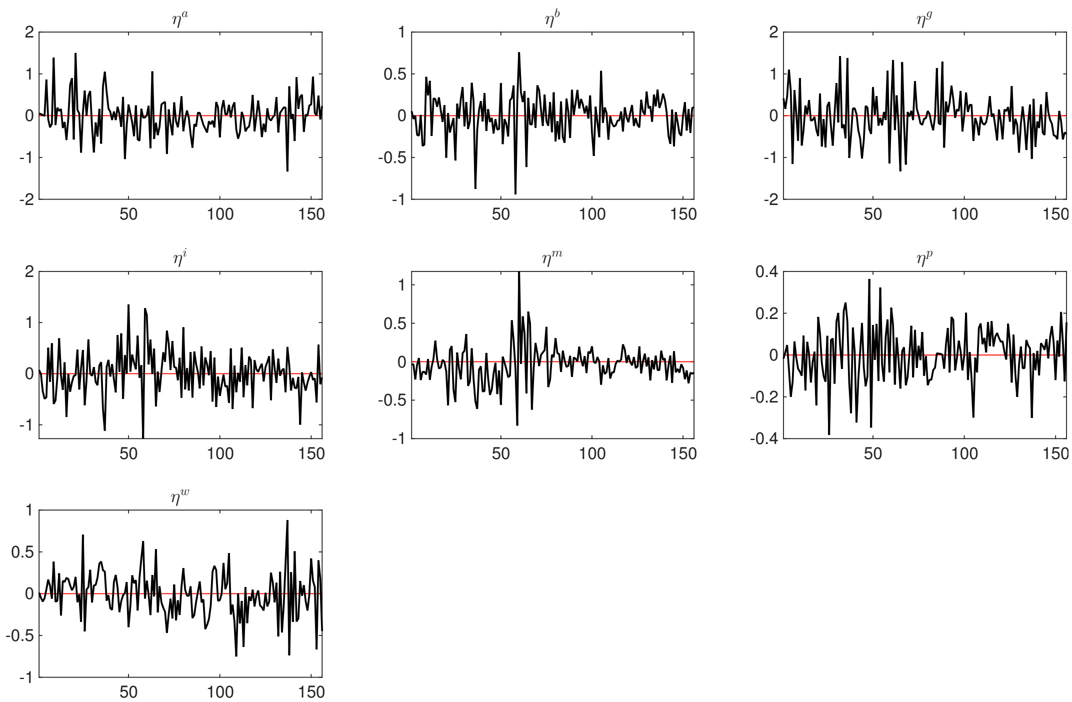

Figure 13: Smoothed shocks.