Table 1: MATRIX OF COVARIANCE OF EXOGENOUS SHOCKS

$Variables$	ϵ^A	ϵ^G	ϵ^{MS}	ϵ^M
ϵ^A	1.000000	0.000000	0.000000	0.000000
ϵ^G	0.000000	1.000000	0.000000	0.000000
ϵ^{MS}	0.000000	0.000000	1.000000	0.000000
ϵ^M	0.000000	0.000000	0.000000	1.000000

Table 2: Endogenous

Variable	LaTeX	Description
U	U	Utility
UC	UC	Marginal utility of consumption
UH	UH	Marginal utility of labour
LAMBDA	λ	Stochastic discount factor
R	R	Risk free interest rate
RK	R^K	Return on capital
C	C	Consumption
W	W	Real wage
H	H	Hours
Y	Y	Output
PWP	P^W	Intermediate price
K	K	Capital stock
I	I	Investment
tax	Tax	Taxes
A	A	Production technology
G	G	Government spending
KY	$\frac{\bar{K}}{\bar{Y}\bar{W}}$	Capital output ratio in steady state
IY	$\frac{\bar{I}}{\bar{Y}}$	Investment output ratio in steady state
CY	$\frac{\bar{C}}{\bar{Y}}$	Consumption output ratio in steady state
S	S	Investment adjustment costs
Sdash	S^l	Adjustment costs on X
Q	Q	Tobin Q
X	X	Gross growth rate of investment
Rn	Rn	Nominal interest rate
ER	$E(R)$	Ex-post real interest rate
PIE	π	Inflation
MC	MC	Real marginal costs
JJ	JJ	Price setting - Recursive auxiliary variable 1a
JJtilde	$\tilde{JJ}$	Price setting - Recursive auxiliary variable 2a
J	J	Price setting - Recursive auxiliary variable 1b
Jtilde	$\tilde{J}$	Price setting - Recursive auxiliary variable 2b
PIEtilde	$\tilde{\pi}$	Optimal reset price
Delta	δ	Price dispersion
MS	MS	Mark-up shock
UF	UF	Utility - flexible prices
UCF	UCF	Marginal utility of consumption - flexible prices
UHF	ULF	Marginal utility of labour - flexible prices
RF	RF	Risk free interest rate - flexible prices
GF	GF	Government spending - flexible prices
PWPF	PF^W	Wholesale price - flxible prices
HF	HF	Hours - flxible prices
YF	YF	Output - flxible prices
KF	KF	Capital stock - flxible prices
IF	IF	Investment - flxible prices

Table 2 – Continued

Variable	LaTeX	Description
WF	WF	Real wage - flxible prices
CF	CF	Consumption - flxible prices
KYF	$\frac{\bar{KF}}{\bar{YF}}$	Capital output ratio in steady state - flxible prices
IYF	$\frac{\bar{IF}}{\bar{YF}}$	Investment output ratio in steady state - flxible prices
CYF	$\frac{\bar{CF}}{\bar{YF}}$	Consumption output ratio in steady state - flxible prices
taxF	$TaxF$	Taxes - flxible prices
LAMBDAF	λ	Stochastic discount factor - flxible prices
RKF	RFk	Gross return on capital
SF	SF	Investment adjustment costs
SdashF	SF^l	Adjustment costs on X
QF	QF	Tobin Q
XF	XF	Gross growth rate of investment
OUTGAP	$OUTGAP$	Output gap
RR	RR	Real interest rate - deviation from the steady state
RnRn	RRn	Nominal interest rate - deviation from the steady state
ERER	$E(RR)$	Ex-post real interest rate - deviation from the steady state
YY	yy	Output - deviation from the steady state
CC	cc	Consumption - deviation from the steady state
HH	hh	Hours - deviation from the steady state
WW	ww	Real wage - deviation from the steady state
II	ii	Investment - deviation from the steady state
KK	kk	Capital - deviation from the steady state
QQ	qq	Tobin Q - deviation from the steady state
PIEPIE	$\pi\pi$	Inflation - deviation from the steady state
OUTGAPOUTGAP	$Ogapogap$	Output gap - deviation from the steady state
varrho	ϱ	Weight on Leisure in utility

Table 3: Exogenous

Variable	LaTeX	Description
epsA	ϵ^A	Labour augmenting shock
epsG	ϵ^G	Government spending shock
epsMS	ϵ^{MS}	Mark-up shock
epsM	ϵ^M	Monetary policy shock

Table 4: Parameters

Variable	LaTeX	Description
gy	gy	Government spending output ratio in steady state
zzeta	ζ	Elasticity of substitution across products

Table 4 – Continued

Variable	LaTeX	Description
alp	α	Labour share
betta	β	Discount factor
delta	δ	Capital depreciation
sigma_c	σ_C	Inverse of the elasticity of substitution
rhoA	ρ_A	Persistence of labour augmentig shock
rhoG	ρ_G	Persistence of government spending shock
Ass	$\bar{A}$	Labour technology in steady state
phiX	ϕ_X	Smoothing parameter of investment adjustment costs
xi	ξ	Calvo parameter
rho_r	ρ_R	Interest rate smoothing parameter
theta_pie	θ^π	Taylor rule parameter for inflation
theta_y	θ^y	Taylor rule parameter for output
rhoMS	ρ_{MS}	Persistence of mark-up shock
chi	χ	habits persistence
gammap	γ^p	degree of indexation
Hss	$\bar{H}$	Hours in steady state
sigma_A	σ_A	STD of labour augmentig shock
sigma_G	σ_G	STD of government spendng shock
sigma_MS	σ_{MS}	STD of mark-up shock
sigma_M	σ_M	STD of monetary policy shock

Table 5: Parameter Values

Parameter	**Value**	**Description**
gy	0.200	Government spending output ratio in steady state
ζ	1000.000	Elasticity of substitution across products
α	0.700	Labour share
β	0.990	Discount factor
δ	0.025	Capital depreciation
σ_C	2.000	Inverse of the elasticity of substitution
ρ_A	0.750	Persistence of labour augmentig shock
ρ_G	0.750	Persistence of government spending shock
$\bar{A}$	1.000	Labour technology in steady state
ϕ_X	0.100	Smoothing parameter of investment adjustment costs
ξ	0.000	Calvo parameter
ρ_R	0.700	Interest rate smoothing parameter
θ^π	1.500	Taylor rule parameter for inflation
θ^y	0.300	Taylor rule parameter for output
ρ_{MS}	0.750	Persistence of mark-up shock
χ	0.700	habits persistence
γ^p	0.500	degree of indexation
$\bar{H}$	0.350	Hours in steady state
σ_A	1.000	STD of labour augmentig shock
σ_G	1.000	STD of government spendng shock
σ_{MS}	1.000	STD of mark-up shock
σ_M	1.000	STD of monetary policy shock

Table 6: COEFFICIENTS OF AUTOCORRELATION

$Order$	1	2	3	4	5
yy	0.8525	0.6822	0.5395	0.4281	0.3427
cc	0.9671	0.9182	0.8668	0.8169	0.7698
ii	0.8110	0.5959	0.4202	0.2873	0.1890
hh	0.8238	0.6195	0.4502	0.3201	0.2225
ww	0.7716	0.6271	0.5229	0.4437	0.3822
RR	-0.0880	-0.0165	-0.0011	0.0016	0.0016
$E(RR)$	0.1721	-0.0001	-0.0254	-0.0205	-0.0116
qq	0.1572	-0.0188	-0.0451	-0.0405	-0.0316
RRn	0.5792	0.4404	0.3752	0.3333	0.3015
$\pi\pi$	-0.0041	0.0302	0.0328	0.0292	0.0252

Table 7: MATRIX OF CORRELATIONS

$Variables$	yy	cc	ii	hh	ww	RR	$E(RR)$	qq	RRn	$\pi\pi$
yy	1.0000	0.7983	0.9357	0.6919	0.9192	0.1132	-0.5589	0.5251	-0.8913	-0.2956
cc	0.7983	1.0000	0.5937	0.4632	0.8233	0.0367	-0.2911	0.2322	-0.7299	-0.2064
ii	0.9357	0.5937	1.0000	0.6728	0.8331	0.1337	-0.6372	0.6156	-0.8526	-0.2974
hh	0.6919	0.4632	0.6728	1.0000	0.7875	0.0235	-0.2579	0.2870	-0.4693	-0.1417
ww	0.9192	0.8233	0.8331	0.7875	1.0000	0.1711	-0.6177	0.5996	-0.8827	-0.3257
RR	0.1132	0.0367	0.1337	0.0235	0.1711	1.0000	-0.4097	0.4147	-0.2782	-0.9750
$E(RR)$	-0.5589	-0.2911	-0.6372	-0.2579	-0.6177	-0.4097	1.0000	-0.9957	0.8420	0.4470
qq	0.5251	0.2322	0.6156	0.2870	0.5996	0.4147	-0.9957	1.0000	-0.8058	-0.4413
RRn	-0.8913	-0.7299	-0.8526	-0.4693	-0.8827	-0.2782	0.8420	-0.8058	1.0000	0.4136
$\pi\pi$	-0.2956	-0.2064	-0.2974	-0.1417	-0.3257	-0.9750	0.4470	-0.4413	0.4136	1.0000

Table 8: THEORETICAL MOMENTS

$VARIABLE$	$MEAN$	$STD.DEV.$	$VARIANCE$
yy	1.0000	1.6335	2.6682
cc	1.0000	1.0283	1.0574
ii	1.0000	5.7068	32.5680
hh	1.0000	1.1634	1.3534
ww	1.0000	1.6974	2.8811
RR	1.0000	2.5742	6.6266
$E(RR)$	1.0000	0.5529	0.3057
qq	1.0000	0.6973	0.4862
RRn	1.0000	0.5728	0.3281
$\pi\pi$	1.0000	2.5341	6.4214

Table 9: VARIANCE DECOMPOSITION (in percent)

	ϵ^A	ϵ^G	ϵ^{MS}	ϵ^M
yy	75.21	0.27	24.51	0.00
cc	67.83	1.64	30.53	0.00
ii	77.10	2.59	20.31	0.00
hh	14.49	1.30	84.21	0.00
ww	44.48	0.29	55.23	0.00
RR	20.22	0.22	5.03	74.52
$E(RR)$	77.58	2.69	19.73	0.00
qq	74.85	2.30	22.85	0.00
RRn	81.42	0.88	17.71	0.00
$\pi\pi$	18.36	0.14	4.59	76.90

$$\varrho_t = (\bar{\varrho}) \tag{1}$$

$$U_t = \frac{\left((C_t - \chi\, C_{t-1})^{1-\varrho_t}\ (1 - H_t)^{\varrho_t}\right)^{1-\sigma_C} - 1}{1 - \sigma_C} \tag{2}$$

$$UC_t = (1 - \varrho_t)\ (C_t - \chi\, C_{t-1})^{(1-\varrho_t)\,(1-\sigma_C)-1}\ (1 - H_t)^{\varrho_t\,(1-\sigma_C)} \tag{3}$$

$$UH_t = (-\varrho_t)\ (C_t - \chi\, C_{t-1})^{(1-\varrho_t)\,(1-\sigma_C)}\ (1 - H_t)^{\varrho_t\,(1-\sigma_C)-1} \tag{4}$$

$$\lambda_t = \frac{UC_t\,\beta}{UC_{t-1}} \tag{5}$$

$$R_{t+1}\,\lambda_{t+1} = 1 \tag{6}$$

$$R_t = \frac{Rn_{t-1}}{\pi_t} \tag{7}$$

$$E(R)_t = \frac{Rn_t}{\pi_{t+1}} \tag{8}$$

$$\frac{(-UH_t)}{UC_t} = W_t \tag{9}$$

$$\delta_t = \xi\,\tilde{\pi}_t^{\zeta}\,\delta_{t-1} + (1 - \xi)\ \left(\frac{J_t}{JJ_t}\right)^{(-\zeta)} \tag{10}$$

$$Y_t = \frac{(H_t\,A_t)^{\alpha}\ K_{t-1}^{1-\alpha}}{\delta_t} \tag{11}$$

$$R^K{}_t = \frac{\frac{\delta_t\,Y_t\,(1-\alpha)\,P^W{}_t}{K_{t-1}} + (1 - \delta)\ Q_t}{Q_{t-1}} \tag{12}$$

$$Q_t\ \left(1 - S_t - X_t\,S^l{}_t\right) + \lambda_{t+1}\,Q_{t+1}\,S^l{}_{t+1}\,X_{t+1}^2 = 1 \tag{13}$$

$$\lambda_{t+1}\,R^K{}_{t+1} = 1 \tag{14}$$

$$\frac{P^W{}_t\,\delta_t\,Y_t\,\alpha}{H_t} = W_t \tag{15}$$

$$Y_t = C_t + G_t + I_t \tag{16}$$

$$K_t = (1 - S_t)\ I_t + K_{t-1}\ (1 - \delta) \tag{17}$$

$$X_t = \frac{I_t}{I_{t-1}} \tag{18}$$

$$S_t = \phi_X\ (X_t - 1)^2 \tag{19}$$

$$S^l{}_t = (X_t - 1)\ 2\,\phi_X \tag{20}$$

$$G_t = Tax_t \tag{21}$$

$$JJ_t - \beta\,\xi\,\tilde{J}J_{t+1} = UC_t\,Y_t \tag{22}$$

$$J_t - \beta\,\xi\,\tilde{J}_{t+1} = UC_t\,Y_t\,\frac{1}{1 - \frac{1}{\zeta}}\,MC_t\,MS_t \tag{23}$$

$$\tilde{J}J_t = JJ_t\,\tilde{\pi}_t^{\zeta-1} \tag{24}$$

$$\tilde{J}_t = \tilde{\pi}_t^{\zeta}\,J_t \tag{25}$$

$$1 = \xi\,\tilde{\pi}_t^{\zeta-1} + (1 - \xi)\ \left(\frac{J_t}{JJ_t}\right)^{1-\zeta} \tag{26}$$

$$\tilde{\pi}_t = \frac{\pi_t}{\pi_{t-1}^{\gamma^p}} \tag{27}$$

$$\log\left(\frac{Rn_t}{(\bar{Rn})}\right) = \rho_R\,\log\left(\frac{Rn_{t-1}}{(\bar{Rn})}\right) + (1 - \rho_R)\ \theta^{\pi}\,\log\left(\frac{\pi_t}{(\bar{\pi})}\right) + (1 - \rho_R)\ \theta^{y}\,\log\left(\frac{Y_t}{(\bar{Y})}\right) + \sigma_M\,\epsilon^M{}_t \tag{28}$$

$$MC_t = P^W{}_t \tag{29}$$

$$\log(A_t) - \log\left((\bar{A})\right) = \rho_A\ \left(\log(A_{t-1}) - \log\left((\bar{A})\right)\right) + \sigma_A\,\epsilon^A{}_t \tag{30}$$

$$\log(G_t) - \log\left((\bar{G})\right) = \rho_G\ \left(\log(G_{t-1}) - \log\left((\bar{G})\right)\right) + \sigma_G\,\epsilon^G{}_t \tag{31}$$

$$\log(GF_t) - \log\left((\bar{GF})\right) = \sigma_G\,\epsilon^G{}_t + \rho_G\ \left(\log(GF_{t-1}) - \log\left((\bar{GF})\right)\right) \tag{32}$$

$$\log(MS_t) - \log\left((\bar{MS})\right) = \rho_{MS}\ \left(\log(MS_{t-1}) - \log\left((\bar{MS})\right)\right) + \sigma_{MS}\,\epsilon^{MS}{}_t \tag{33}$$

$$yy_t = \frac{Y_t}{(\bar{Y})} \tag{34}$$

$$kk_t = \frac{K_t}{(\bar{K})} \tag{35}$$

$$ii_t = \frac{I_t}{(\bar{I})} \tag{36}$$

$$cc_t = \frac{C_t}{(\bar{C})} \tag{37}$$

$$ww_t = \frac{W_t}{(\bar{W})} \tag{38}$$

$$hh_t = \frac{H_t}{(\bar{H})} \tag{39}$$

$$qq_t = \frac{Q_t}{(\bar{Q})} \tag{40}$$

$$RR_t = \frac{R_t}{(\bar{R})} \tag{41}$$

$$E(RR)_t = \frac{E(R)_t}{(\bar{E(R)})} \tag{42}$$

$$RRn_t = \frac{Rn_t}{(\bar{Rn})} \tag{43}$$

$$\pi\pi_t = \frac{\pi_t}{(\bar{\pi})} \tag{44}$$

$$Ogapogap_t = \frac{OUTGAP_t}{(\bar{OUTGAP})} \tag{45}$$

$$\frac{\bar{K}}{\bar{YW}}_t = \frac{K_t}{Y_t} \tag{46}$$

$$\frac{\bar{I}}{\bar{Y}}_t = \frac{I_t}{Y_t} \tag{47}$$

$$\frac{\bar{C}}{\bar{Y}_t} = \frac{C_t}{Y_t} \tag{48}$$

$$UF_t = \frac{\left((CF_t - \chi\, CF_{t-1})^{1-\varrho_t}\ (1 - HF_t)^{\varrho_t}\right)^{1-\sigma_C} - 1}{1 - \sigma_C} \tag{49}$$

$$UCF_t = (1 - \varrho_t)\ (CF_t - \chi\, CF_{t-1})^{(1-\varrho_t)\,(1-\sigma_C)-1}\ (1 - HF_t)^{\varrho_t\,(1-\sigma_C)} \tag{50}$$

$$ULF_t = (-\varrho_t)\ (CF_t - \chi\, CF_{t-1})^{(1-\varrho_t)\,(1-\sigma_C)}\ (1 - HF_t)^{\varrho_t\,(1-\sigma_C)-1} \tag{51}$$

$$\lambda_t = \frac{\beta\, UCF_t}{UCF_{t-1}} \tag{52}$$

$$RF_t\, \lambda_{t+1} = 1 \tag{53}$$

$$\frac{(-ULF_t)}{UCF_t} = WF_t \tag{54}$$

$$YF_t = (A_t\, HF_t)^{\alpha}\ KF_{t-1}^{1-\alpha} \tag{55}$$

$$RFk_t = \frac{\frac{YF_t\,(1-\alpha)\,PF^W{}_t}{KF_{t-1}} + (1 - \delta)\ QF_t}{QF_{t-1}} \tag{56}$$

$$QF_t\ \left(1 - SF_t - XF_t\, SF^l{}_t\right) + \lambda_{t+1}\, QF_{t+1}\, SF^l{}_{t+1}\, XF_{t+1}^2 = 1 \tag{57}$$

$$\lambda_{t+1}\, RFk_{t+1} = 1 \tag{58}$$

$$\frac{PF^W{}_t\, \alpha\, YF_t}{HF_t} = WF_t \tag{59}$$

$$YF_t = GF_t + CF_t + IF_t \tag{60}$$

$$KF_t = (1 - SF_t)\ IF_t + (1 - \delta)\ KF_{t-1} \tag{61}$$

$$XF_t = \frac{IF_t}{IF_{t-1}} \tag{62}$$

$$SF_t = \phi_X\ (XF_t - 1)^2 \tag{63}$$

$$SF^{l}{}_{t} = 2\,\phi_X\ (XF_t - 1) \tag{64}$$

$$TaxF_t = GF_t \tag{65}$$

$$PF^{W}{}_{t} = 1 - \frac{1}{\zeta} \tag{66}$$

$$OUTGAP_t = \frac{YF_t}{Y_t} \tag{67}$$

$$\frac{\bar{KF}}{\bar{YF}_t} = \frac{KF_t}{YF_t} \tag{68}$$

$$\frac{\bar{IF}}{\bar{YF}_t} = \frac{IF_t}{YF_t} \tag{69}$$

$$\frac{\bar{CF}}{\bar{YF}_t} = \frac{CF_t}{YF_t} \tag{70}$$

$$\varrho = (\varrho) \tag{71}$$

$$U = \frac{\left((C - C\,\chi)^{1-\varrho}\ (1-H)^{\varrho}\right)^{1-\sigma_C} - 1}{1-\sigma_C} \tag{72}$$

$$UC = (1-\varrho)\ (C - C\,\chi)^{(1-\varrho)\,(1-\sigma_C)-1}\ (1-H)^{\varrho\,(1-\sigma_C)} \tag{73}$$

$$UH = (-\varrho)\ (C - C\,\chi)^{(1-\varrho)\,(1-\sigma_C)}\ (1-H)^{\varrho\,(1-\sigma_C)-1} \tag{74}$$

$$\lambda = \beta \tag{75}$$

$$\lambda\,R = 1 \tag{76}$$

$$R = \frac{Rn}{\pi} \tag{77}$$

$$E(R) = \frac{Rn}{\pi} \tag{78}$$

$$\frac{(-UH)}{UC} = W \tag{79}$$

$$\delta = \delta\,\xi\,\tilde{\pi}^{\zeta} + (1-\xi)\ \left(\frac{J}{JJ}\right)^{(-\zeta)} \tag{80}$$

$$Y = \frac{(H\,A)^{\alpha}\ K^{1-\alpha}}{\delta} \tag{81}$$

$$R^K = \frac{\frac{\delta\,Y\,(1-\alpha)\,P^W}{K} + (1-\delta)\ Q}{Q} \tag{82}$$

$$Q\ \left(1 - S - X\,S^l\right) + S^l\,\lambda\,Q\,X^2 = 1 \tag{83}$$

$$\lambda\,R^K = 1 \tag{84}$$

$$\frac{P^W\,\delta\,Y\,\alpha}{H} = W \tag{85}$$

$$Y = C + G + I \tag{86}$$

$$K = (1 - S)\ I + K\ (1 - \delta) \tag{87}$$

$$X = 1 \tag{88}$$

$$S = \phi_X\ (X - 1)^2 \tag{89}$$

$$S^l = (X - 1)\ 2\,\phi_X \tag{90}$$

$$G = Tax \tag{91}$$

$$JJ - \beta\,\xi\,\tilde{J}J = UC\,Y \tag{92}$$

$$J - \beta\,\xi\,\tilde{J} = UC\,Y\,\frac{1}{1 - \frac{1}{\zeta}}\,MC\,MS \tag{93}$$

$$\tilde{J}J = JJ\,\tilde{\pi}^{\zeta - 1} \tag{94}$$

$$\tilde{J} = \tilde{\pi}^{\zeta}\,J \tag{95}$$

$$1 = \xi\,\tilde{\pi}^{\zeta - 1} + (1 - \xi)\ \left(\frac{J}{JJ}\right)^{1 - \zeta} \tag{96}$$

$$\tilde{\pi} = \frac{\pi}{\pi^{\gamma^p}} \tag{97}$$

$$\log\left(\frac{Rn}{(Rn)}\right) = \log\left(\frac{Rn}{(Rn)}\right)\ \rho_R + (1 - \rho_R)\ \theta^{\pi}\ \log\left(\frac{\pi}{(\pi)}\right) + (1 - \rho_R)\ \theta^{y}\ \log\left(\frac{Y}{(Y)}\right) + \sigma_M\,\epsilon^M \tag{98}$$

$$MC = P^W \tag{99}$$

$$\log(A) - \log((A)) = (\log(A) - \log((A)))\ \rho_A + \sigma_A\,\epsilon^A \tag{100}$$

$$\log(G) - \log((G)) = (\log(G) - \log((G)))\ \rho_G + \sigma_G\,\epsilon^G \tag{101}$$

$$\log(GF) - \log((GF)) = \sigma_G\,\epsilon^G + \rho_G\ (\log(GF) - \log((GF))) \tag{102}$$

$$\log(MS) - \log((MS)) = (\log(MS) - \log((MS)))\ \rho_{MS} + \sigma_{MS}\,\epsilon^{MS} \tag{103}$$

$$yy = \frac{Y}{(Y)} \tag{104}$$

$$kk = \frac{K}{(K)} \tag{105}$$

$$ii = \frac{I}{(I)} \tag{106}$$

$$cc = \frac{C}{(C)} \tag{107}$$

$$ww = \frac{W}{(W)} \tag{108}$$

$$hh = \frac{H}{(H)} \tag{109}$$

$$qq = \frac{Q}{(Q)} \tag{110}$$

$$RR = \frac{R}{(R)} \tag{111}$$

$$E(RR) = \frac{E(R)}{(E(R))} \tag{112}$$

$$RRn = \frac{Rn}{(Rn)} \tag{113}$$

$$\pi\pi = \frac{\pi}{(\pi)} \tag{114}$$

$$Ogapogap = \frac{OUTGAP}{(OUTGAP)} \tag{115}$$

$$\frac{\bar{K}}{Y\bar{W}} = \frac{K}{Y} \tag{116}$$

$$\frac{\bar{I}}{\bar{Y}} = \frac{I}{Y} \tag{117}$$

$$\frac{\bar{C}}{\bar{Y}} = \frac{C}{Y} \tag{118}$$

$$UF = \frac{\left((CF - \chi\, CF)^{1-\varrho}\ (1 - HF)^{\varrho} \right)^{1-\sigma_C} - 1}{1 - \sigma_C} \tag{119}$$

$$UCF = (1 - \varrho)\ (CF - \chi\, CF)^{(1-\varrho)\,(1-\sigma_C)-1}\ (1 - HF)^{\varrho\,(1-\sigma_C)} \tag{120}$$

$$ULF = (-\varrho)\ (CF - \chi\, CF)^{(1-\varrho)\,(1-\sigma_C)}\ (1 - HF)^{\varrho\,(1-\sigma_C)-1} \tag{121}$$

$$\lambda = \beta \tag{122}$$

$$\lambda\, RF = 1 \tag{123}$$

$$\frac{(-ULF)}{UCF} = WF \tag{124}$$

$$YF = (A\, HF)^{\alpha}\ KF^{1-\alpha} \tag{125}$$

$$RFk = \frac{\frac{YF\,(1-\alpha)\,PF^{W}}{KF} + (1 - \delta)\ QF}{QF} \tag{126}$$

$$QF\ \left(1 - SF - XF\, SF^{l}\right) + SF^{l}\, \lambda\, QF\, XF^{2} = 1 \tag{127}$$

$$\lambda\, RFk = 1 \tag{128}$$

$$\frac{PF^{W}\, \alpha\, YF}{HF} = WF \tag{129}$$

$$YF = GF + CF + IF \tag{130}$$

$$KF = (1 - SF)\ IF + (1 - \delta)\ KF \tag{131}$$

$$XF = 1 \tag{132}$$

$$SF = \phi_X\ (XF - 1)^{2} \tag{133}$$

$$SF^{l} = 2\, \phi_X\ (XF - 1) \tag{134}$$

$$TaxF = GF \tag{135}$$

$$PF^{W} = 1 - \frac{1}{\zeta} \tag{136}$$

$$OUTGAP = \frac{YF}{Y} \tag{137}$$

$$\frac{\bar{KF}}{\bar{YF}} = \frac{KF}{YF} \tag{138}$$

$$\frac{\bar{IF}}{\bar{YF}} = \frac{IF}{YF} \tag{139}$$

$$\frac{\bar{CF}}{\bar{YF}} = \frac{CF}{YF} \tag{140}$$