Table 1: Endogenous

Variable	LaTeX	Description
ca	ca	ca
rstar	$rstar$	rstar
r	r	r
rk	rk	rk
w	w	w
b	b	b
y	y	y
varpi	$varpi$	varpi
s	s	s
inv	inv	inv
c	c	c
cw	cw	cw
cwper	$cwper$	cwper
cr	cr	cr
crper	$crper$	crper
tauw	$tauw$	tauw
N	N	N
stoyw	$stoyw$	stoyw
PiF	PiF	PiF
Tw	Tw	Tw
hw	hw	hw
Dr	Dr	Dr
Dw	Dw	Dw
ep	ep	ep
varsig	$varsig$	varsig
zetar	$zetar$	zetar
zetay	$zetay$	zetay
gw	gw	gw
g	g	g
gE	gE	gE
iy	iy	iy
gpc	gpc	gpc
gy	gy	gy
zz	zz	zz
far	far	far
faw	faw	faw
dr	dr	dr
dw	dw	dw
mu	mu	mu
k	k	k
u	u	u
del	del	del
delprime	$delprime$	delprime
gM	gM	gM

Table 1 – Continued

Variable	LaTeX	Description
v	v	v
j	j	j
lam	lam	lam
gA	gA	gA
za	za	za
PiA	PiA	PiA
PiRD	$PiRD$	PiRD
fa	fa	fa
n	n	n
gn	gn	gn
gamma	$gamma$	gamma
er	er	er
ey	ey	ey
en	en	en
psi	psi	psi
shockr	$shockr$	shockr
shocky	$shocky$	shocky
shockn	$shockn$	shockn
fert	$fert$	fert
omegay	$omegay$	omegay
shareW	$shareW$	shareW
shareR	$shareR$	shareR
AUX_ENDO_LAG_39_1	$AUX\_ENDO\_LAG\_39\_1$	AUX_ENDO_LAG_39_1
AUX_ENDO_LAG_48_1	$AUX\_ENDO\_LAG\_48\_1$	AUX_ENDO_LAG_48_1
AUX_ENDO_LAG_61_1	$AUX\_ENDO\_LAG\_61\_1$	AUX_ENDO_LAG_61_1
AUX_ENDO_LAG_61_2	$AUX\_ENDO\_LAG\_61\_2$	AUX_ENDO_LAG_61_2
AUX_ENDO_LAG_61_3	$AUX\_ENDO\_LAG\_61\_3$	AUX_ENDO_LAG_61_3
AUX_ENDO_LAG_61_4	$AUX\_ENDO\_LAG\_61\_4$	AUX_ENDO_LAG_61_4
AUX_ENDO_LAG_61_5	$AUX\_ENDO\_LAG\_61\_5$	AUX_ENDO_LAG_61_5
AUX_ENDO_LAG_61_6	$AUX\_ENDO\_LAG\_61\_6$	AUX_ENDO_LAG_61_6
AUX_ENDO_LAG_61_7	$AUX\_ENDO\_LAG\_61\_7$	AUX_ENDO_LAG_61_7
AUX_ENDO_LAG_61_8	$AUX\_ENDO\_LAG\_61\_8$	AUX_ENDO_LAG_61_8
AUX_ENDO_LAG_61_9	$AUX\_ENDO\_LAG\_61\_9$	AUX_ENDO_LAG_61_9
AUX_ENDO_LAG_61_10	$AUX\_ENDO\_LAG\_61\_10$	AUX_ENDO_LAG_61_10
AUX_ENDO_LAG_61_11	$AUX\_ENDO\_LAG\_61\_11$	AUX_ENDO_LAG_61_11
AUX_ENDO_LAG_61_12	$AUX\_ENDO\_LAG\_61\_12$	AUX_ENDO_LAG_61_12
AUX_ENDO_LAG_61_13	$AUX\_ENDO\_LAG\_61\_13$	AUX_ENDO_LAG_61_13
AUX_ENDO_LAG_61_14	$AUX\_ENDO\_LAG\_61\_14$	AUX_ENDO_LAG_61_14
AUX_ENDO_LAG_61_15	$AUX\_ENDO\_LAG\_61\_15$	AUX_ENDO_LAG_61_15
AUX_ENDO_LAG_61_16	$AUX\_ENDO\_LAG\_61\_16$	AUX_ENDO_LAG_61_16
AUX_ENDO_LAG_61_17	$AUX\_ENDO\_LAG\_61\_17$	AUX_ENDO_LAG_61_17
AUX_ENDO_LAG_61_18	$AUX\_ENDO\_LAG\_61\_18$	AUX_ENDO_LAG_61_18
AUX_ENDO_LAG_61_19	$AUX\_ENDO\_LAG\_61\_19$	AUX_ENDO_LAG_61_19
AUX_ENDO_LAG_61_20	$AUX\_ENDO\_LAG\_61\_20$	AUX_ENDO_LAG_61_20
AUX_ENDO_LAG_61_21	$AUX\_ENDO\_LAG\_61\_21$	AUX_ENDO_LAG_61_21

Table 1 – Continued

Variable	LaTeX	Description
AUX_ENDO_LAG_61_22	$AUX\_ENDO\_LAG\_61\_22$	AUX_ENDO_LAG_61_22
AUX_ENDO_LAG_61_23	$AUX\_ENDO\_LAG\_61\_23$	AUX_ENDO_LAG_61_23
AUX_ENDO_LAG_61_24	$AUX\_ENDO\_LAG\_61\_24$	AUX_ENDO_LAG_61_24
AUX_ENDO_LAG_61_25	$AUX\_ENDO\_LAG\_61\_25$	AUX_ENDO_LAG_61_25
AUX_ENDO_LAG_61_26	$AUX\_ENDO\_LAG\_61\_26$	AUX_ENDO_LAG_61_26
AUX_ENDO_LAG_61_27	$AUX\_ENDO\_LAG\_61\_27$	AUX_ENDO_LAG_61_27
AUX_ENDO_LAG_61_28	$AUX\_ENDO\_LAG\_61\_28$	AUX_ENDO_LAG_61_28
AUX_EXO_LAG_66_0	$AUX\_EXO\_LAG\_66\_0$	AUX_EXO_LAG_66_0
AUX_EXO_LAG_66_1	$AUX\_EXO\_LAG\_66\_1$	AUX_EXO_LAG_66_1
AUX_EXO_LAG_66_2	$AUX\_EXO\_LAG\_66\_2$	AUX_EXO_LAG_66_2
AUX_EXO_LAG_66_3	$AUX\_EXO\_LAG\_66\_3$	AUX_EXO_LAG_66_3
AUX_EXO_LAG_66_4	$AUX\_EXO\_LAG\_66\_4$	AUX_EXO_LAG_66_4
AUX_EXO_LAG_66_5	$AUX\_EXO\_LAG\_66\_5$	AUX_EXO_LAG_66_5
AUX_EXO_LAG_66_6	$AUX\_EXO\_LAG\_66\_6$	AUX_EXO_LAG_66_6
AUX_EXO_LAG_66_7	$AUX\_EXO\_LAG\_66\_7$	AUX_EXO_LAG_66_7
AUX_EXO_LAG_66_8	$AUX\_EXO\_LAG\_66\_8$	AUX_EXO_LAG_66_8
AUX_EXO_LAG_66_9	$AUX\_EXO\_LAG\_66\_9$	AUX_EXO_LAG_66_9
AUX_EXO_LAG_66_10	$AUX\_EXO\_LAG\_66\_10$	AUX_EXO_LAG_66_10
AUX_EXO_LAG_66_11	$AUX\_EXO\_LAG\_66\_11$	AUX_EXO_LAG_66_11
AUX_EXO_LAG_66_12	$AUX\_EXO\_LAG\_66\_12$	AUX_EXO_LAG_66_12
AUX_EXO_LAG_66_13	$AUX\_EXO\_LAG\_66\_13$	AUX_EXO_LAG_66_13
AUX_EXO_LAG_66_14	$AUX\_EXO\_LAG\_66\_14$	AUX_EXO_LAG_66_14
AUX_EXO_LAG_66_15	$AUX\_EXO\_LAG\_66\_15$	AUX_EXO_LAG_66_15
AUX_EXO_LAG_66_16	$AUX\_EXO\_LAG\_66\_16$	AUX_EXO_LAG_66_16
AUX_EXO_LAG_66_17	$AUX\_EXO\_LAG\_66\_17$	AUX_EXO_LAG_66_17
AUX_EXO_LAG_66_18	$AUX\_EXO\_LAG\_66\_18$	AUX_EXO_LAG_66_18
AUX_EXO_LAG_66_19	$AUX\_EXO\_LAG\_66\_19$	AUX_EXO_LAG_66_19
AUX_EXO_LAG_66_20	$AUX\_EXO\_LAG\_66\_20$	AUX_EXO_LAG_66_20
AUX_EXO_LAG_66_21	$AUX\_EXO\_LAG\_66\_21$	AUX_EXO_LAG_66_21
AUX_EXO_LAG_66_22	$AUX\_EXO\_LAG\_66\_22$	AUX_EXO_LAG_66_22
AUX_EXO_LAG_66_23	$AUX\_EXO\_LAG\_66\_23$	AUX_EXO_LAG_66_23
AUX_EXO_LAG_66_24	$AUX\_EXO\_LAG\_66\_24$	AUX_EXO_LAG_66_24
AUX_EXO_LAG_66_25	$AUX\_EXO\_LAG\_66\_25$	AUX_EXO_LAG_66_25
AUX_EXO_LAG_66_26	$AUX\_EXO\_LAG\_66\_26$	AUX_EXO_LAG_66_26
AUX_EXO_LAG_66_27	$AUX\_EXO\_LAG\_66\_27$	AUX_EXO_LAG_66_27
AUX_EXO_LAG_66_28	$AUX\_EXO\_LAG\_66\_28$	AUX_EXO_LAG_66_28

Table 2: Exogenous

Variable	LaTeX	Description
delall	*delall*	delall

Table 3: Parameters

Variable	LaTeX	Description
SHINNOVW	$SHINNOVW$	SHINNOVW
YINNOVSH	$YINNOVSH$	YINNOVSH
OMEGAR	$OMEGAR$	OMEGAR
ZETAYSS	$ZETAYSS$	ZETAYSS
ZETARSS	$ZETARSS$	ZETARSS
REPLACSS	$REPLACSS$	REPLACSS
RHOYW	$RHOYW$	RHOYW
LAMY	$LAMY$	LAMY
PSISS	$PSISS$	PSISS
GSS	GSS	GSS
PERS	$PERS$	PERS
RATIODEL	$RATIODEL$	RATIODEL
OMEGAYSS	$OMEGAYSS$	OMEGAYSS
RHOU	$RHOU$	RHOU
BBETA	$BBETA$	BBETA
ALPHA	$ALPHA$	ALPHA
GAMMAI	$GAMMAI$	GAMMAI
VARNU	$VARNU$	VARNU
BMEGA	$BMEGA$	BMEGA
CHI	CHI	CHI
RHO	RHO	RHO
PHI	PHI	PHI
ELASMU	$ELASMU$	ELASMU
ELASLAM	$ELASLAM$	ELASLAM
DELPRIMESS	$DELPRIMESS$	DELPRIMESS
DELSS	$DELSS$	DELSS
MUSS	$MUSS$	MUSS
LAMSS	$LAMSS$	LAMSS
USS	USS	USS
VARPISS	$VARPISS$	VARPISS
ZASS	$ZASS$	ZASS
KSS	KSS	KSS
NSS	NSS	NSS
GAMMASS	$GAMMASS$	GAMMASS
RHOE	$RHOE$	RHOE
CHIE	$CHIE$	CHIE
gn_1	gn_1	gn_1
gn_2	gn_2	gn_2
gn_3	gn_3	gn_3
gn_4	gn_4	gn_4
gn_5	gn_5	gn_5
gn_6	gn_6	gn_6

Table 3 – Continued

Variable	LaTeX	Description
gn_7	gn_7	gn_7
gn_8	gn_8	gn_8
gn_9	gn_9	gn_9
gn_10	gn_10	gn_10
gn_11	gn_11	gn_11
gn_12	gn_12	gn_12
gn_13	gn_13	gn_13
gn_14	gn_14	gn_14
gn_15	gn_15	gn_15
gn_16	gn_16	gn_16
gn_17	gn_17	gn_17
gn_18	gn_18	gn_18
gn_19	gn_19	gn_19
gn_20	gn_20	gn_20
gn_21	gn_21	gn_21
gn_22	gn_22	gn_22
gn_23	gn_23	gn_23
gn_24	gn_24	gn_24
gn_25	gn_25	gn_25
gn_26	gn_26	gn_26
gn_27	gn_27	gn_27
gn_28	gn_28	gn_28
gn_29	gn_29	gn_29
gn_30	gn_30	gn_30
dws_1	dws_1	dws_1
dws_2	dws_2	dws_2
dws_3	dws_3	dws_3
dws_4	dws_4	dws_4
dws_5	dws_5	dws_5
dws_6	dws_6	dws_6
dws_7	dws_7	dws_7
dws_8	dws_8	dws_8
dws_9	dws_9	dws_9
dws_10	dws_10	dws_10
dws_11	dws_11	dws_11
dws_12	dws_12	dws_12
dws_13	dws_13	dws_13
dws_14	dws_14	dws_14
dws_15	dws_15	dws_15
dws_16	dws_16	dws_16
dws_17	dws_17	dws_17
dws_18	dws_18	dws_18
dws_19	dws_19	dws_19
dws_20	dws_20	dws_20
dws_21	dws_21	dws_21

Table 3 – Continued

Variable	LaTeX	Description
dws_22	dws_22	dws_22
dws_23	dws_23	dws_23
dws_24	dws_24	dws_24
dws_25	dws_25	dws_25
dws_26	dws_26	dws_26
dws_27	dws_27	dws_27
dws_28	dws_28	dws_28
dws_29	dws_29	dws_29
dws_30	dws_30	dws_30
drs_1	drs_1	drs_1
drs_2	drs_2	drs_2
drs_3	drs_3	drs_3
drs_4	drs_4	drs_4
drs_5	drs_5	drs_5
drs_6	drs_6	drs_6
drs_7	drs_7	drs_7
drs_8	drs_8	drs_8
drs_9	drs_9	drs_9
drs_10	drs_10	drs_10
drs_11	drs_11	drs_11
drs_12	drs_12	drs_12
drs_13	drs_13	drs_13
drs_14	drs_14	drs_14
drs_15	drs_15	drs_15
drs_16	drs_16	drs_16
drs_17	drs_17	drs_17
drs_18	drs_18	drs_18
drs_19	drs_19	drs_19
drs_20	drs_20	drs_20
drs_21	drs_21	drs_21
drs_22	drs_22	drs_22
drs_23	drs_23	drs_23
drs_24	drs_24	drs_24
drs_25	drs_25	drs_25
drs_26	drs_26	drs_26
drs_27	drs_27	drs_27
drs_28	drs_28	drs_28
drs_29	drs_29	drs_29
drs_30	drs_30	drs_30
Rh_1	Rh_1	Rh_1
Rh_2	Rh_2	Rh_2
Rh_3	Rh_3	Rh_3
Rh_4	Rh_4	Rh_4
Rh_5	Rh_5	Rh_5
Rh_6	Rh_6	Rh_6

Table 3 – Continued

Variable	LaTeX	Description
Rh_7	Rh_7	Rh_7
Rh_8	Rh_8	Rh_8
Rh_9	Rh_9	Rh_9
Rh_10	Rh_10	Rh_10
Rh_11	Rh_11	Rh_11
Rh_12	Rh_12	Rh_12
Rh_13	Rh_13	Rh_13
Rh_14	Rh_14	Rh_14
Rh_15	Rh_15	Rh_15
Rh_16	Rh_16	Rh_16
Rh_17	Rh_17	Rh_17
Rh_18	Rh_18	Rh_18
Rh_19	Rh_19	Rh_19
Rh_20	Rh_20	Rh_20
Rh_21	Rh_21	Rh_21
Rh_22	Rh_22	Rh_22
Rh_23	Rh_23	Rh_23
Rh_24	Rh_24	Rh_24
Rh_25	Rh_25	Rh_25
Rh_26	Rh_26	Rh_26
Rh_27	Rh_27	Rh_27
Rh_28	Rh_28	Rh_28
Rh_29	Rh_29	Rh_29
Rh_30	Rh_30	Rh_30
Rstar_SS	$Rstar\_SS$	Rstar_SS

Table 4: Parameter Values

Parameter	**Value**
$SHINNOVW$	0.010
$YINNOVSH$	0.060
$OMEGAR$	0.975
$ZETAYSS$	0.700
$ZETARSS$	0.227
$REPLACSS$	0.756
$RHOYW$	0.512
$LAMY$	0.049
$PSISS$	0.708
GSS	1.046
$PERS$	0.900
$RATIODEL$	0.333
$OMEGAYSS$	0.950
$RHOU$	-3.000
$BBETA$	0.960
$ALPHA$	0.333
$GAMMAI$	0.500
$VARNU$	1.667
$BMEGA$	0.128
CHI	64.671
RHO	0.900
PHI	0.850
$ELASMU$	-1.000
$ELASLAM$	0.855
$DELPRIMESS$	0.301
$DELSS$	0.080
$MUSS$	1.100
$LAMSS$	0.100
USS	0.800
$VARPISS$	0.135
$ZASS$	3.126
KSS	0.658
NSS	1.010
$GAMMASS$	0.900
$RHOE$	0.900
$CHIE$	1689.513
gn_1	1.012
gn_2	1.013
gn_3	1.013
gn_4	1.013
gn_5	1.012
gn_6	1.012
gn_7	1.012

Table 4 – Continued

Parameter	**Value**
gn_8	1.011
gn_9	1.011
gn_10	1.011
gn_11	1.010
gn_12	1.010
gn_13	1.010
gn_14	1.010
gn_15	1.009
gn_16	1.009
gn_17	1.009
gn_18	1.009
gn_19	1.009
gn_20	1.008
gn_21	1.008
gn_22	1.008
gn_23	1.008
gn_24	1.008
gn_25	1.008
gn_26	1.008
gn_27	1.007
gn_28	1.007
gn_29	1.007
gn_30	1.007
dws_1	-0.001
dws_2	-0.001
dws_3	-0.001
dws_4	-0.001
dws_5	-0.001
dws_6	-0.003
dws_7	-0.002
dws_8	-0.002
dws_9	-0.002
dws_10	-0.003
dws_11	-0.003
dws_12	-0.003
dws_13	-0.004
dws_14	-0.004
dws_15	-0.004
dws_16	-0.005
dws_17	-0.005
dws_18	-0.005
dws_19	-0.004
dws_20	-0.003
dws_21	-0.003

Table 4 – Continued

Parameter	**Value**
dws_22	-0.002
dws_23	-0.001
dws_24	-0.001
dws_25	-0.001
dws_26	-0.001
dws_27	-0.001
dws_28	-0.000
dws_29	-0.000
dws_30	-0.000
drs_1	0.003
drs_2	0.004
drs_3	0.004
drs_4	0.004
drs_5	0.005
drs_6	0.004
drs_7	0.005
drs_8	0.005
drs_9	0.005
drs_10	0.005
drs_11	0.005
drs_12	0.005
drs_13	0.005
drs_14	0.005
drs_15	0.006
drs_16	0.005
drs_17	0.005
drs_18	0.005
drs_19	0.005
drs_20	0.004
drs_21	0.003
drs_22	0.003
drs_23	0.002
drs_24	0.002
drs_25	0.002
drs_26	0.001
drs_27	0.001
drs_28	0.001
drs_29	0.001
drs_30	0.002
Rh_1	0.015
Rh_2	0.015
Rh_3	0.014
Rh_4	0.014
Rh_5	0.013

Table 4 – Continued

Parameter	**Value**
Rh_6	0.013
Rh_7	0.012
Rh_8	0.012
Rh_9	0.011
Rh_10	0.011
Rh_11	0.010
Rh_12	0.009
Rh_13	0.008
Rh_14	0.007
Rh_15	0.006
Rh_16	0.005
Rh_17	0.004
Rh_18	0.003
Rh_19	0.001
Rh_20	0.000
Rh_21	-0.001
Rh_22	-0.003
Rh_23	-0.004
Rh_24	-0.005
Rh_25	-0.006
Rh_26	-0.008
Rh_27	-0.009
Rh_28	-0.010
Rh_29	-0.011
Rh_30	-0.012
$Rstar\_SS$	1.013

$$
\begin{aligned}
shockR = {} & delall_t\, Rh\_1 + delall_{t-1}\, Rh\_2 + delall_{t-2}\, Rh\_3 + delall_{t-3}\, Rh\_4 + delall_{t-4}\, Rh\_5 \\
& + delall_{t-5}\, Rh\_6 + delall_{t-6}\, Rh\_7 + delall_{t-7}\, Rh\_8 + delall_{t-8}\, Rh\_9 + delall_{t-9}\, Rh\_10 \\
& + delall_{t-10}\, Rh\_11 + delall_{t-11}\, Rh\_12 + delall_{t-12}\, Rh\_13 + delall_{t-13}\, Rh\_14 \\
& + delall_{t-14}\, Rh\_15 + delall_{t-15}\, Rh\_16 + delall_{t-16}\, Rh\_17 + delall_{t-17}\, Rh\_18 \\
& + delall_{t-18}\, Rh\_19 + delall_{t-19}\, Rh\_20 + delall_{t-20}\, Rh\_21 + delall_{t-21}\, Rh\_22 \\
& + delall_{t-22}\, Rh\_23 + delall_{t-23}\, Rh\_24 + delall_{t-24}\, Rh\_25 + delall_{t-25}\, Rh\_26 \\
& + delall_{t-26}\, Rh\_27 + delall_{t-27}\, Rh\_28 + delall_{t-28}\, Rh\_29 + delall_{t-29}\, Rh\_30
\end{aligned}
$$

$$
hw_t = w_t + \frac{OMEGAR}{r_t\, zz_t}\, \frac{g_{t+1}}{gw_t}\, hw_{t+1} \tag{1}
$$

$$
Tw_t = tauw_t + \frac{OMEGAR}{r_t\, zz_t}\, \frac{g_{t+1}}{gw_t}\, Tw_{t+1} \tag{2}
$$

$$
Dr_t = dr_t + \frac{g_{t+1}\, Dr_{t+1}\, gamma_t\, zetar_{t-1}}{gw_t\, r_t\, zetar_t} \tag{3}
$$

$$
Dw_t = dw_t + \frac{OMEGAR}{r_t\, zz_t}\, \frac{g_{t+1}}{gw_t}\, Dw_{t+1} + Dr_{t+1}\, \frac{(1 - OMEGAR)\; ep_{t+1}^{\frac{RHOU-1}{RHOU}}}{r_t\, zz_t}\, \frac{g_{t+1}}{gw_t\, zetar_t} \tag{4}
$$

$$
cw_t = varsig_t\, \left(Dw_t + hw_t + \frac{r_{t-1}\, faw_{t-1}}{g_t} - Tw_t \right) \tag{5}
$$

$$
cr_t = varsig_t\, ep_t\, \left(Dr_t + \frac{r_{t-1}\, far_{t-1}}{g_t} \right) \tag{6}
$$

$$
1 - varsig_t\, ep_t = \frac{gamma_t\; (r_t\, BBETA)^{\frac{1}{1-RHOU}}}{r_t}\, \frac{varsig_t\, ep_t}{ep_{t+1}\, varsig_{t+1}} \tag{7}
$$

$$
1 - varsig_t = \frac{(zz_t\, r_t\, BBETA)^{\frac{1}{1-RHOU}}}{r_t\, zz_t}\, \frac{varsig_t}{varsig_{t+1}} \tag{8}
$$

$$
zz_t = OMEGAR + (1 - OMEGAR)\; ep_{t+1}^{\frac{RHOU-1}{RHOU}} \tag{9}
$$

$$
cwper_t = cw_t\; (zetar_t + 1 + zetay_t) \tag{10}
$$

$$
crper_t = \frac{cr_t\; (zetar_t + 1 + zetay_t)}{zetar_t} \tag{11}
$$

$$
gw_t = OMEGAR + (1 - omegay_t)\; zetay_{t-1} \tag{12}
$$

$$n_t = gw_t \, \frac{zetay_t}{zetay_{t-1}} \tag{13}$$

$$gw_t \, zetar_t = 1 - OMEGAR + gamma_t \, zetar_{t-1} \tag{14}$$

$$gn_t = \left(gw_t \, zetar_t + gw_t + zetay_{t-1} \, n_t\right) \, \left(zetay_{t-1} + 1 + zetar_{t-1}\right)^{(-1)} \tag{15}$$

$$gE_t = \frac{OMEGAR + (1 - omegay_t) \; zetay_{t-1} \; \left(RHOE + \frac{CHIE}{2} \, iy_t^2\right)}{gw_t} \tag{16}$$

$$tauw_t = w_t \, iy_t \tag{17}$$

$$varsig_t^{\frac{(-1)}{RHOU}} = \frac{g_{t+1} \, iy_t \, CHIE \, zetay_t \, BBETA \, varsig_{t+1}^{\frac{(-1)}{RHOU}} \; \left(1 - omegay_{t+1}\right) \; w_{t+1}}{n_t \, gE_t \, w_t \, gw_t} \tag{18}$$

$$fert_t = n_t - omegay_t \tag{19}$$

$$(1 - ALPHA) \; (1 - GAMMAI) = w_t \, mu_t \tag{20}$$

$$ALPHA \; (1 - GAMMAI) = mu_t \; (rk_t + del_t) \; \frac{k_{t-1}}{g_t} \tag{21}$$

$$ALPHA \; (1 - GAMMAI) = \frac{k_{t-1}}{g_t} \, mu_t \, delprime_t \, u_t \tag{22}$$

$$g_t = \frac{mu_t}{mu_{t-1}} \, gM_t \, gA_{t-1}^{1-VARNU} \tag{23}$$

$$g_t \tag{24}$$
$$= gM_t^{GAMMAI} \; \left(gE_{t-1} \, gw_{t-1}\right)^{(1-ALPHA)\,(1-GAMMAI)} \; \frac{N_t^{mu_t - 1}}{N_{t-1}^{mu_{t-1} - 1}} \; \left(\frac{k_{t-1} \, u_t \, g_{t-1}}{u_{t-1} \, AUX\_ENDO\_LAG\_39\_1_{t-1}}\right)^{ALPHA\,(1-G}$$

$$\frac{mu_t - 1}{mu_t} \, N_t^{(-mu_t)} = BMEGA \, v_t \tag{25}$$

$$mu_t = MUSS \; (1 + ELASMU \; (N_t - 1)) \tag{26}$$

$$del_t = DELSS + delprime_t \; (u_t - USS) \tag{27}$$

$$delprime_t = DELPRIMESS + \frac{(u_t - USS) \; DELPRIMESS \, RATIODEL}{USS} \tag{28}$$

$$\frac{gA_t\, za_t}{za_{t-1}} = stoyw_t^{RHOYW}\, CHI\, \left(\frac{s_t}{psi_t}\right)^{RHO} + PHI \tag{29}$$

$$stoyw_t = \frac{zetay_{t-1}\,(1-omegay_t)\,YINNOVSH}{zetar_{t-1}+1+zetay_{t-1}} + \frac{OMEGAR\,(1-LAMY)}{gn_t}\, stoyw_{t-1} \tag{30}$$

$$gA_t = PHI + PHI\, lam_t\,(za_{t-1}-1) \tag{31}$$

$$s_t = PHI\,\frac{g_{t+1}}{r_t}\, j_{t+1}\,\left(1-\frac{za_{t-1}\,PHI}{gA_t\, za_t}\right) \tag{32}$$

$$v_t = \frac{GAMMAI\,\left(1-\frac{1}{VARNU}\right)}{mu_t} + \frac{g_{t+1}}{gA_t}\,\frac{PHI}{r_t}\, v_{t+1} \tag{33}$$

$$varpi_t = \frac{PHI}{r_t}\,\frac{g_{t+1}}{gA_t}\, za_{t-1}\, lam_t\, ELASLAM\,\left(v_{t+1}-\frac{j_{t+1}}{za_t}\right) \tag{34}$$

$$j_t = \frac{PHI}{r_t}\, za_{t-1}\,\frac{g_{t+1}}{gA_t}\,\left(lam_t\, v_{t+1} + \frac{j_{t+1}\,(1-lam_t)}{za_t}\right) - varpi_t \tag{35}$$

$$lam_t = LAMSS\,\left(1+ELASLAM\,\left(\frac{varpi_t - VARPISS}{VARPISS} - \frac{za_{t-1}-ZASS}{ZASS} - \frac{psi_t - PSISS}{PSISS}\right)\right) \tag{36}$$

$$\begin{aligned} PiA_t = {} & \frac{GAMMAI\,\left(1-\frac{1}{VARNU}\right)}{mu_t} - PHI\, j_t\,\left(1-\frac{PHI\, AUX\_ENDO\_LAG\_48\_1_{t-1}}{gA_{t-1}\, za_{t-1}}\right) \\ & - \frac{r_{t-1}\, varpi_{t-1}\,\left(1-\frac{1}{AUX\_ENDO\_LAG\_48\_1_{t-1}}\right)}{g_t} \end{aligned} \tag{37}$$

$$PiRD_t = PHI\, j_t\,\left(1-\frac{PHI\, AUX\_ENDO\_LAG\_48\_1_{t-1}}{gA_{t-1}\, za_{t-1}}\right) - \frac{r_{t-1}\, s_{t-1}}{g_t} \tag{38}$$

$$psi_t = v_t \tag{39}$$

$$r_t = 1 + rk_{t+1} \tag{40}$$

$$dr_t = \frac{far_{t-1}\, PiF_t}{fa_{t-1}} \tag{41}$$

$$dw_t = \frac{faw_{t-1}\, PiF_t}{fa_{t-1}} + SHINNOVW\ (PiA_t + PiRD_t) \tag{42}$$

$$b_t = s_t + varpi_t\ \left(1 - \frac{1}{za_{t-1}}\right) \tag{43}$$

$$\begin{aligned} PiF_t = {} & \frac{k_{t-1}}{g_t}\ (1 + rk_t) + \frac{r_{t-1}\, b_{t-1}}{g_t} + \frac{ca_{t-1}\, rstar_{t-1}}{g_t} - \frac{r_{t-1}\, fa_{t-1}}{g_t} - k_t \\ & - b_t - ca_t + fa_t + (PiA_t + PiRD_t)\ (1 - SHINNOVW) \end{aligned} \tag{44}$$

$$k_t = \frac{k_{t-1}}{g_t}\ (1 - del_t) + inv_t \tag{45}$$

$$y_t = 1 - \frac{GAMMAI}{mu_t\, VARNU} - psi_t\, N_t\, BMEGA \tag{46}$$

$$y_t = tauw_t + ca_t + varpi_t\ \left(1 - \frac{1}{za_{t-1}}\right) + s_t + inv_t + c_t \tag{47}$$

$$c_t = cw_t + cr_t \tag{48}$$

$$fa_t = ca_t + b_t + k_t \tag{49}$$

$$far_t = dr_t + \frac{r_{t-1}\, far_{t-1}}{g_t} - cr_t + (1 - OMEGAR)\ \left(dw_t + w_t + \frac{r_{t-1}\, faw_{t-1}}{g_t} - cw_t - tauw_t\right) \tag{50}$$

$$fa_t = far_t + faw_t \tag{51}$$

$$r_{t+1} - rstar_{t+1} = r_t - rstar_t \tag{52}$$

$$\begin{aligned} rstar_t = {} & Rstar\_SS + delall_t\, Rh\_1 + Rh\_2\, AUX\_EXO\_LAG\_66\_0_{t-1} \\ & + Rh\_3\, AUX\_EXO\_LAG\_66\_1_{t-1} + Rh\_4\, AUX\_EXO\_LAG\_66\_2_{t-1} \\ & + Rh\_5\, AUX\_EXO\_LAG\_66\_3_{t-1} + Rh\_6\, AUX\_EXO\_LAG\_66\_4_{t-1} \\ & + Rh\_7\, AUX\_EXO\_LAG\_66\_5_{t-1} + Rh\_8\, AUX\_EXO\_LAG\_66\_6_{t-1} \\ & + Rh\_9\, AUX\_EXO\_LAG\_66\_7_{t-1} + Rh\_10\, AUX\_EXO\_LAG\_66\_8_{t-1} \\ & + Rh\_11\, AUX\_EXO\_LAG\_66\_9_{t-1} + Rh\_12\, AUX\_EXO\_LAG\_66\_10_{t-1} \\ & + Rh\_13\, AUX\_EXO\_LAG\_66\_11_{t-1} + Rh\_14\, AUX\_EXO\_LAG\_66\_12_{t-1} \\ & + Rh\_15\, AUX\_EXO\_LAG\_66\_13_{t-1} + Rh\_16\, AUX\_EXO\_LAG\_66\_14_{t-1} \\ & + Rh\_17\, AUX\_EXO\_LAG\_66\_15_{t-1} + Rh\_18\, AUX\_EXO\_LAG\_66\_16_{t-1} \\ & + Rh\_19\, AUX\_EXO\_LAG\_66\_17_{t-1} + Rh\_20\, AUX\_EXO\_LAG\_66\_18_{t-1} \\ & + Rh\_21\, AUX\_EXO\_LAG\_66\_19_{t-1} + Rh\_22\, AUX\_EXO\_LAG\_66\_20_{t-1} \\ & + Rh\_23\, AUX\_EXO\_LAG\_66\_21_{t-1} + Rh\_24\, AUX\_EXO\_LAG\_66\_22_{t-1} \\ & + Rh\_25\, AUX\_EXO\_LAG\_66\_23_{t-1} + Rh\_26\, AUX\_EXO\_LAG\_66\_24_{t-1} \\ & + Rh\_27\, AUX\_EXO\_LAG\_66\_25_{t-1} + Rh\_28\, AUX\_EXO\_LAG\_66\_26_{t-1} \\ & + Rh\_29\, AUX\_EXO\_LAG\_66\_27_{t-1} + Rh\_30\, AUX\_EXO\_LAG\_66\_28_{t-1} \end{aligned} \tag{53}$$

$$gpc_t = \frac{g_{t-1}\,\frac{y_t}{y_{t-1}}}{gn_{t-1}} \tag{54}$$

$$gy_t = g_t\,\frac{y_t}{y_{t-1}} \tag{55}$$

$$gn_t = NSS + en_t \tag{56}$$

$$shareW_t = \frac{1}{zetar_t + 1 + zetay_t} \tag{57}$$

$$shareR_t = \frac{zetar_t}{zetar_t + 1 + zetay_t} \tag{58}$$

$$\frac{1}{zetar_t + 1 + zetay_t} = \frac{1}{1 + ZETAYSS + ZETARSS} + ey_t \tag{59}$$

$$\frac{zetar_t}{zetar_t + 1 + zetay_t} = \frac{ZETARSS}{1 + ZETAYSS + ZETARSS} + er_t \tag{60}$$

$$\begin{aligned}
en_t = {} & shockn_t\ (gn_1 - NSS) + shockn_{t-1}\ (gn_2 - NSS) \\
& + (gn_3 - NSS)\ AUX_ENDO_LAG_61_1_{t-1} + (gn_4 - NSS)\ AUX_ENDO_LAG_61_2_{t-1} \\
& + (gn_5 - NSS)\ AUX_ENDO_LAG_61_3_{t-1} + (gn_6 - NSS)\ AUX_ENDO_LAG_61_4_{t-1} \\
& + (gn_7 - NSS)\ AUX_ENDO_LAG_61_5_{t-1} + (gn_8 - NSS)\ AUX_ENDO_LAG_61_6_{t-1} \\
& + (gn_9 - NSS)\ AUX_ENDO_LAG_61_7_{t-1} + (gn_10 - NSS)\ AUX_ENDO_LAG_61_8_{t-1} \\
& + (gn_11 - NSS)\ AUX_ENDO_LAG_61_9_{t-1} \\
& + (gn_12 - NSS)\ AUX_ENDO_LAG_61_10_{t-1} \\
& + (gn_13 - NSS)\ AUX_ENDO_LAG_61_11_{t-1} \\
& + (gn_14 - NSS)\ AUX_ENDO_LAG_61_12_{t-1} \\
& + (gn_15 - NSS)\ AUX_ENDO_LAG_61_13_{t-1} \\
& + (gn_16 - NSS)\ AUX_ENDO_LAG_61_14_{t-1} \\
& + (gn_17 - NSS)\ AUX_ENDO_LAG_61_15_{t-1} \\
& + (gn_18 - NSS)\ AUX_ENDO_LAG_61_16_{t-1} \\
& + (gn_19 - NSS)\ AUX_ENDO_LAG_61_17_{t-1} \\
& + (gn_20 - NSS)\ AUX_ENDO_LAG_61_18_{t-1} \\
& + (gn_21 - NSS)\ AUX_ENDO_LAG_61_19_{t-1} \\
& + (gn_22 - NSS)\ AUX_ENDO_LAG_61_20_{t-1} \\
& + (gn_23 - NSS)\ AUX_ENDO_LAG_61_21_{t-1} \\
& + (gn_24 - NSS)\ AUX_ENDO_LAG_61_22_{t-1} \\
& + (gn_25 - NSS)\ AUX_ENDO_LAG_61_23_{t-1} \\
& + (gn_26 - NSS)\ AUX_ENDO_LAG_61_24_{t-1} \\
& + (gn_27 - NSS)\ AUX_ENDO_LAG_61_25_{t-1} \\
& + (gn_28 - NSS)\ AUX_ENDO_LAG_61_26_{t-1} \\
& + (gn_29 - NSS)\ AUX_ENDO_LAG_61_27_{t-1} \\
& + (gn_30 - NSS)\ AUX_ENDO_LAG_61_28_{t-1}
\end{aligned} \tag{61}$$

$$er_t = shockr_t \tag{62}$$

$$ey_t = shocky_t \tag{63}$$

$$\begin{aligned} shocky_t = {} & shocky_{t-1} + delall_t\, dws\_1 + dws\_2\, AUX\_EXO\_LAG\_66\_0_{t-1} \\ & + dws\_3\, AUX\_EXO\_LAG\_66\_1_{t-1} + dws\_4\, AUX\_EXO\_LAG\_66\_2_{t-1} \\ & + dws\_5\, AUX\_EXO\_LAG\_66\_3_{t-1} + dws\_6\, AUX\_EXO\_LAG\_66\_4_{t-1} \\ & + dws\_7\, AUX\_EXO\_LAG\_66\_5_{t-1} + dws\_8\, AUX\_EXO\_LAG\_66\_6_{t-1} \\ & + dws\_9\, AUX\_EXO\_LAG\_66\_7_{t-1} + dws\_10\, AUX\_EXO\_LAG\_66\_8_{t-1} \\ & + dws\_11\, AUX\_EXO\_LAG\_66\_9_{t-1} + dws\_12\, AUX\_EXO\_LAG\_66\_10_{t-1} \\ & + dws\_13\, AUX\_EXO\_LAG\_66\_11_{t-1} + dws\_14\, AUX\_EXO\_LAG\_66\_12_{t-1} \\ & + dws\_15\, AUX\_EXO\_LAG\_66\_13_{t-1} + dws\_16\, AUX\_EXO\_LAG\_66\_14_{t-1} \\ & + dws\_17\, AUX\_EXO\_LAG\_66\_15_{t-1} + dws\_18\, AUX\_EXO\_LAG\_66\_16_{t-1} \\ & + dws\_19\, AUX\_EXO\_LAG\_66\_17_{t-1} + dws\_20\, AUX\_EXO\_LAG\_66\_18_{t-1} \\ & + dws\_21\, AUX\_EXO\_LAG\_66\_19_{t-1} + dws\_22\, AUX\_EXO\_LAG\_66\_20_{t-1} \\ & + dws\_23\, AUX\_EXO\_LAG\_66\_21_{t-1} + dws\_24\, AUX\_EXO\_LAG\_66\_22_{t-1} \\ & + dws\_25\, AUX\_EXO\_LAG\_66\_23_{t-1} + dws\_26\, AUX\_EXO\_LAG\_66\_24_{t-1} \\ & + dws\_27\, AUX\_EXO\_LAG\_66\_25_{t-1} + dws\_28\, AUX\_EXO\_LAG\_66\_26_{t-1} \\ & + dws\_29\, AUX\_EXO\_LAG\_66\_27_{t-1} + dws\_30\, AUX\_EXO\_LAG\_66\_28_{t-1} \end{aligned} \tag{64}$$

$$\begin{aligned} shockr_t = {} & delall_t\, dws\_1 + shockr_{t-1} + drs\_2\, AUX\_EXO\_LAG\_66\_0_{t-1} \\ & + drs\_3\, AUX\_EXO\_LAG\_66\_1_{t-1} + drs\_4\, AUX\_EXO\_LAG\_66\_2_{t-1} \\ & + drs\_5\, AUX\_EXO\_LAG\_66\_3_{t-1} + drs\_6\, AUX\_EXO\_LAG\_66\_4_{t-1} \\ & + drs\_7\, AUX\_EXO\_LAG\_66\_5_{t-1} + drs\_8\, AUX\_EXO\_LAG\_66\_6_{t-1} \\ & + drs\_9\, AUX\_EXO\_LAG\_66\_7_{t-1} + drs\_10\, AUX\_EXO\_LAG\_66\_8_{t-1} \\ & + drs\_11\, AUX\_EXO\_LAG\_66\_9_{t-1} + drs\_12\, AUX\_EXO\_LAG\_66\_10_{t-1} \\ & + drs\_13\, AUX\_EXO\_LAG\_66\_11_{t-1} + drs\_14\, AUX\_EXO\_LAG\_66\_12_{t-1} \\ & + drs\_15\, AUX\_EXO\_LAG\_66\_13_{t-1} + drs\_16\, AUX\_EXO\_LAG\_66\_14_{t-1} \\ & + drs\_17\, AUX\_EXO\_LAG\_66\_15_{t-1} + drs\_18\, AUX\_EXO\_LAG\_66\_16_{t-1} \\ & + drs\_19\, AUX\_EXO\_LAG\_66\_17_{t-1} + drs\_20\, AUX\_EXO\_LAG\_66\_18_{t-1} \\ & + drs\_21\, AUX\_EXO\_LAG\_66\_19_{t-1} + drs\_22\, AUX\_EXO\_LAG\_66\_20_{t-1} \\ & + drs\_23\, AUX\_EXO\_LAG\_66\_21_{t-1} + drs\_24\, AUX\_EXO\_LAG\_66\_22_{t-1} \\ & + drs\_25\, AUX\_EXO\_LAG\_66\_23_{t-1} + drs\_26\, AUX\_EXO\_LAG\_66\_24_{t-1} \\ & + drs\_27\, AUX\_EXO\_LAG\_66\_25_{t-1} + drs\_28\, AUX\_EXO\_LAG\_66\_26_{t-1} \\ & + drs\_29\, AUX\_EXO\_LAG\_66\_27_{t-1} + drs\_30\, AUX\_EXO\_LAG\_66\_28_{t-1} \end{aligned} \tag{65}$$

$$shockn_t = delall_t \tag{66}$$

$$AUX\_ENDO\_LAG\_39\_1_t = k_{t-1} \tag{67}$$

$$AUX\_ENDO\_LAG\_48\_1_t = za_{t-1} \tag{68}$$

$$AUX\_ENDO\_LAG\_61\_1_t = shockn_{t-1} \tag{69}$$

$$AUX\_ENDO\_LAG\_61\_2_t = AUX\_ENDO\_LAG\_61\_1_{t-1} \tag{70}$$

$$AUX\_ENDO\_LAG\_61\_3_t = AUX\_ENDO\_LAG\_61\_2_{t-1} \tag{71}$$

$$AUX\_ENDO\_LAG\_61\_4_t = AUX\_ENDO\_LAG\_61\_3_{t-1} \tag{72}$$

$$AUX\_ENDO\_LAG\_61\_5_t = AUX\_ENDO\_LAG\_61\_4_{t-1} \tag{73}$$

$$AUX\_ENDO\_LAG\_61\_6_t = AUX\_ENDO\_LAG\_61\_5_{t-1} \tag{74}$$

$$AUX\_ENDO\_LAG\_61\_7_t = AUX\_ENDO\_LAG\_61\_6_{t-1} \tag{75}$$

$$AUX\_ENDO\_LAG\_61\_8_t = AUX\_ENDO\_LAG\_61\_7_{t-1} \tag{76}$$

$$AUX\_ENDO\_LAG\_61\_9_t = AUX\_ENDO\_LAG\_61\_8_{t-1} \tag{77}$$

$$AUX\_ENDO\_LAG\_61\_10_t = AUX\_ENDO\_LAG\_61\_9_{t-1} \tag{78}$$

$$AUX\_ENDO\_LAG\_61\_11_t = AUX\_ENDO\_LAG\_61\_10_{t-1} \tag{79}$$

$$AUX\_ENDO\_LAG\_61\_12_t = AUX\_ENDO\_LAG\_61\_11_{t-1} \tag{80}$$

$$AUX\_ENDO\_LAG\_61\_13_t = AUX\_ENDO\_LAG\_61\_12_{t-1} \tag{81}$$

$$AUX\_ENDO\_LAG\_61\_14_t = AUX\_ENDO\_LAG\_61\_13_{t-1} \tag{82}$$

$$AUX\_ENDO\_LAG\_61\_15_t = AUX\_ENDO\_LAG\_61\_14_{t-1} \tag{83}$$

$$AUX\_ENDO\_LAG\_61\_16_t = AUX\_ENDO\_LAG\_61\_15_{t-1} \tag{84}$$

$$AUX\_ENDO\_LAG\_61\_17_t = AUX\_ENDO\_LAG\_61\_16_{t-1} \tag{85}$$

$$AUX\_ENDO\_LAG\_61\_18_t = AUX\_ENDO\_LAG\_61\_17_{t-1} \tag{86}$$

$$AUX\_ENDO\_LAG\_61\_19_t = AUX\_ENDO\_LAG\_61\_18_{t-1} \tag{87}$$

$$AUX\_ENDO\_LAG\_61\_20_t = AUX\_ENDO\_LAG\_61\_19_{t-1} \tag{88}$$

$$AUX\_ENDO\_LAG\_61\_21_t = AUX\_ENDO\_LAG\_61\_20_{t-1} \tag{89}$$

$$AUX\_ENDO\_LAG\_61\_22_t = AUX\_ENDO\_LAG\_61\_21_{t-1} \tag{90}$$

$$AUX\_ENDO\_LAG\_61\_23_t = AUX\_ENDO\_LAG\_61\_22_{t-1} \tag{91}$$

$$AUX\_ENDO\_LAG\_61\_24_t = AUX\_ENDO\_LAG\_61\_23_{t-1} \tag{92}$$

$$AUX\_ENDO\_LAG\_61\_25_t = AUX\_ENDO\_LAG\_61\_24_{t-1} \tag{93}$$

$$AUX\_ENDO\_LAG\_61\_26_t = AUX\_ENDO\_LAG\_61\_25_{t-1} \tag{94}$$

$$AUX\_ENDO\_LAG\_61\_27_t = AUX\_ENDO\_LAG\_61\_26_{t-1} \tag{95}$$

$$AUX\_ENDO\_LAG\_61\_28_t = AUX\_ENDO\_LAG\_61\_27_{t-1} \tag{96}$$

$$AUX\_EXO\_LAG\_66\_0_t = delall_t \tag{97}$$

$$AUX\_EXO\_LAG\_66\_1_t = AUX\_EXO\_LAG\_66\_0_{t-1} \tag{98}$$

$$AUX\_EXO\_LAG\_66\_2_t = AUX\_EXO\_LAG\_66\_1_{t-1} \tag{99}$$

$$AUX\_EXO\_LAG\_66\_3_t = AUX\_EXO\_LAG\_66\_2_{t-1} \tag{100}$$

$$AUX\_EXO\_LAG\_66\_4_t = AUX\_EXO\_LAG\_66\_3_{t-1} \tag{101}$$

$$AUX\_EXO\_LAG\_66\_5_t = AUX\_EXO\_LAG\_66\_4_{t-1} \tag{102}$$

$$AUX\_EXO\_LAG\_66\_6_t = AUX\_EXO\_LAG\_66\_5_{t-1} \tag{103}$$

$$AUX\_EXO\_LAG\_66\_7_t = AUX\_EXO\_LAG\_66\_6_{t-1} \tag{104}$$

$$AUX\_EXO\_LAG\_66\_8_t = AUX\_EXO\_LAG\_66\_7_{t-1} \tag{105}$$

$$AUX\_EXO\_LAG\_66\_9_t = AUX\_EXO\_LAG\_66\_8_{t-1} \tag{106}$$

$$AUX\_EXO\_LAG\_66\_10_t = AUX\_EXO\_LAG\_66\_9_{t-1} \tag{107}$$

$$AUX\_EXO\_LAG\_66\_11_t = AUX\_EXO\_LAG\_66\_10_{t-1} \tag{108}$$

$$AUX\_EXO\_LAG\_66\_12_t = AUX\_EXO\_LAG\_66\_11_{t-1} \tag{109}$$

$$AUX\_EXO\_LAG\_66\_13_t = AUX\_EXO\_LAG\_66\_12_{t-1} \tag{110}$$

$$AUX\_EXO\_LAG\_66\_14_t = AUX\_EXO\_LAG\_66\_13_{t-1} \tag{111}$$

$$AUX\_EXO\_LAG\_66\_15_t = AUX\_EXO\_LAG\_66\_14_{t-1} \tag{112}$$

$$AUX\_EXO\_LAG\_66\_16_t = AUX\_EXO\_LAG\_66\_15_{t-1} \tag{113}$$

$$AUX\_EXO\_LAG\_66\_17_t = AUX\_EXO\_LAG\_66\_16_{t-1} \tag{114}$$

$$AUX\_EXO\_LAG\_66\_18_t = AUX\_EXO\_LAG\_66\_17_{t-1} \tag{115}$$

$$AUX\_EXO\_LAG\_66\_19_t = AUX\_EXO\_LAG\_66\_18_{t-1} \tag{116}$$

$$AUX\_EXO\_LAG\_66\_20_t = AUX\_EXO\_LAG\_66\_19_{t-1} \tag{117}$$

$$AUX\_EXO\_LAG\_66\_21_t = AUX\_EXO\_LAG\_66\_20_{t-1} \tag{118}$$

$$AUX\_EXO\_LAG\_66\_22_t = AUX\_EXO\_LAG\_66\_21_{t-1} \tag{119}$$

$$AUX\_EXO\_LAG\_66\_23_t = AUX\_EXO\_LAG\_66\_22_{t-1} \tag{120}$$

$$AUX\_EXO\_LAG\_66\_24_t = AUX\_EXO\_LAG\_66\_23_{t-1} \tag{121}$$

$$AUX\_EXO\_LAG\_66\_25_t = AUX\_EXO\_LAG\_66\_24_{t-1} \tag{122}$$

$$AUX\_EXO\_LAG\_66\_26_t = AUX\_EXO\_LAG\_66\_25_{t-1} \tag{123}$$

$$AUX\_EXO\_LAG\_66\_27_t = AUX\_EXO\_LAG\_66\_26_{t-1} \tag{124}$$

$$AUX\_EXO\_LAG\_66\_28_t = AUX\_EXO\_LAG\_66\_27_{t-1} \tag{125}$$