



List of *Main Variables*

jump share Elec*2, -jump share Elec, 0 )	(020) avg alpha= Tot CYV / SUM(YVD j[skill!])
act Elect[liquid,industry]= IF THEN ELSE(share En nrg i delay[liquid,industry]>jump share Elec*2,-(1.5+0.5*act Nucl zero)*jump share Elec, 0)	(022) avg byK lambda i[industry]= ( GFCF i real[industry] * lambda i[industry] + ( 1 - depr k i[industry]) * k i[industry] * avg byKlambda i delay[industry])/ ( (1-depr k i[industry]) * k i[industry] + GFCF i real[industry] )
act Elect[gas,industry]= IF THEN ELSE(share En nrg i delay[gas,industry]>jump share Elec*2,-(1+0.2*act Nucl zero)*jump share Elec,0)	(024) avg byNE wageh j[skill]= SUM(wageh ji[skill,industry!]*N Eji[skill,industry!])/ SUM(N Eji[skill,industry !])
act Elect[electrRenew,industry]= -( IF THEN ELSE(share En nrg i delay[gas,industry] > jump share Elec*2, -(1+0.2* act Nucl zero)*jump share Elec, 0)+ IF THEN ELSE(share En nrg i delay[liquid,industry] > jump share Elec*2, -(1.5+0.5*act Nucl zero)*jump share Elec, 0)+ IF THEN ELSE(share En nrg i delay[solid,industry] > jump share Elec*2,-jump share Elec,0))	(025) avg byNEi Wage ji [skill,industry]= (wageh max E ji[skill,industry]* N Eji[skill,industry]* H Ei[industry])/ (SUM( N Eji[skill!,industry!]))
(009) act En mix=IF THEN ELSE(Time>Time ENmix, 1, 0)	(026) avg coef CO2[industry]= (CO2 i[industry]/ TPES i[industry])
(010) act JG= IF THEN ELSE( Time>Time JG , 1 , 0 )	(027) avg eta index= SUM(eta index[industry!])/10
(013) act taxCO2 post2030= Act Carbon	(028) avg etaEN= SUM(avg etaEN i[industry!]* Output i real[industry!])/ SUM(Output i real[industry!])
(014) act WTR= IF THEN ELSE(Time> Time WTR, h week - ramp( WTR reduction/5, 5 ,10), h week )	(029) avg etaEN i[industry]= (GFCF i real[industry]* eta[industry]+ (1 - depr k i[industry])* k i[industry]* avg etaEN i delay[industry]) / ( (1-depr k i[industry])* k i[industry]+ GFCF i real[industry] )
(015) adult pop= Tot POP- Pop 0 To 14	(032) avg lambda index= SUM(lambda index i[industry!])/10
(016) AId[from Industry,toIndustry]= Id[from Industry,toIndustry]-Acoeff[from Industry,toIndustry]	(033) avg lambda max= SUM(lambda index[industry!])/10
(019) alphaY j[low]= 0.9*(1 - CR rate) alphaY j[middle]= 0.85*(1-CR rate) alphaY j[high]= 0.8*(1-CR rate)	(034) avg Wage E= (SUM (avg byNEi Wage ji[skill!,industry!]))
	(035) B demand= Stock Vf[bonds]

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(036) "B short-term"=
      (p Bond delay*(Stock
Bond real-Stock Bond real delay)-
(B supply-(p Bond*
      B supply delay)/p Bond
delay))

(037) B supply=
      2.69577*B demand

(038) B supply delay=
      DELAY1(B supply, 1 )

(039) base TaxB E=
      1 - 0.068 - 0.14 - 0.1

(040) beta eff i[industry]
:EXCEPT: [Fossil
Energy],[Electricity]=
      share Ci[industry] +
share Ci[industry] /
( 1 - 0.0234384 * (share
Ci[Fossil Energy
]/etaHH delay/0.0173107) -
0.0299639 * (share Ci[Electricity
]/etaHH delay/0.0221302)
)*
( 0.0234384 *(1-share Ci[Fossil
Energy
]/etaHH delay/0.0173107) +
0.0299639 * (1-share
Ci[Electricity
]/etaHH delay/0.0221302)
)
      beta eff i[Fossil Energy]=
      0.0234384 * (share
Ci[Fossil Energy]/etaHH
delay/0.0173107 )
      beta eff i[Electricity]=
      0.0299639*( share
Ci[Electricity]/etaHH
delay/0.0221302 )

(041) beta ELG elect=
      TPES
nrg[electrRenew]/(TPES
nrg[gas]+TPES nrg[electrRenew])

(043) beta ELG gas=
      TPES nrg[gas]/(TPES
nrg[gas]+TPES nrg[electrRenew])

(045) BI j[skill]=
      act BI* (BI per
cap[skill]*index avg Wage)*
(N Aj[skill] + N Pj[skill]*BI P
)

(047) BI per cap[low]=
      BI total per
capita/2.5 + ramp(BI total per
capita/10,6,12)
      BI per cap[middle]=
      BI total per
capita/2.5 + ramp(BI total per
capita/10,6,12)
      BI per cap[high]=
      BI total per
capita/2.5 + ramp(BI total per
capita/10,6,12)

(048) BI tot=
      SUM(BI j[skill!])

(050) births=
      IF THEN ELSE ( Time =
pop eq, deaths,
      (
fertility * Pop 15 To 44 * 0.5 /
reproductive lifetime )
)

(052) capitalists gi=
      GFinY Kap+MixY Kap

(053) Carbon Tax rate 2030=
      (7 + ramp(7.5,0,2) +
ramp(8.5,2,6) +ramp(4.4, 6,
16))*1000 + ramp(4.4, 16
, 50)*1000*act taxCO2
post2030

(054) choice eta i[industry]=
      IF THEN
ELSE(Yups1[industry]>0, 0,
      IF THEN
ELSE( Yups2[industry]>0,IF THEN
ELSE(TC1i[industry]<
TC2i[industry
], 0, randN eta2[industry]),
IF THEN ELSE( Yups3[industry]>0,
IF THEN ELSE(TC1i[industry]
< TC3i[industry],0, randN
eta3[industry]),
IF THEN ELSE( Yups4[industry]>0,
IF THEN ELSE

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(TC1i[industry]<
MIN(TC2i[industry],TC3i[industry]
), 0,
IF THEN ELSE
(TC2i[industry]<TC3i[industry],ra
ndN eta2[industry],
randN eta3[industry])),
randN eta3[industry
]
)
)
)
)
(055) choice lambda i[industry]=
IF THEN ELSE(
Yups1[industry]>0, 0 ,
IF THEN
ELSE( Yups2[industry]>0, IF THEN
ELSE(TC1i[industry]< TC2i
[industry], 0, randN
lambda2[industry]),
IF THEN ELSE( Yups3[industry]>0,
IF THEN ELSE(TC1i[industry
]< TC3i[industry], 0, randN
lambda3[industry]),
IF THEN ELSE( Yups4[industry]>0,
IF THEN ELSE
(TC1i[industry]<
MIN(TC2i[industry],
TC3i[industry]), 0,
IF THEN ELSE
(TC2i[industry]<TC3i[industry],ra
ndN lambda2[industry],randN
lambda3
[industry]) ),
randN lambda2[industry
]
)
)
)
)
(056) choice of
technics[industry]=
IF THEN ELSE(
Yups1[industry]>0,
TC1i[industry],
IF THEN
ELSE( Yups2[industry]>0,
MIN(TC1i[industry], TC2i[industry
]),
IF THEN ELSE( Yups3[industry]>0,
MIN(TC1i[industry
], TC3i[industry]),
IF THEN ELSE( Yups4[industry]>0
, MIN(TC1i[industry],
MIN(TC2i[industry],TC3i[industry]
)),
TC4i[industry]
)
)
)
)
(057) CO2 Energy Ratio=
CO2 TOT/Tot
TPES/0.0200185
(058) CO2 for carbon
Tax[Agriculture]=
0
CO2 for carbon Tax[Mining]=
CO2 i[Mining]
CO2 for carbon Tax[Fossil
Energy]=
0
CO2 for carbon
Tax[Manufacturing]=
CO2 i[Manufacturing]
CO2 for carbon
Tax[Electricity]=
0
CO2 for carbon
Tax[Construction]=
CO2 i[Construction]
CO2 for carbon
Tax[Nonfinancial and Social
Economy]=
CO2 i[Nonfinancial and
Social Economy]-4000
CO2 for carbon Tax[Financial
sector]=
CO2 i[Financial
sector]
CO2 for carbon Tax[Public
sector]=

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0	IF THEN ELSE( Time
CO2 for carbon Tax[Other]=	>time HEFF,gamma3 threshold,0.5)
CO2 i[Other]	
(059) CO2 for carbon total=	(071) coef gamma4=
SUM(CO2 for carbon	IF THEN ELSE( Time
Tax[industry!])	>Time HLP,gamma4 threshold,0.8)
(060) CO2 Gas i[industry]=	(081) coeff taxV DG=
coefCO2 nrg	act DG *
i[gas,industry]*TPES	( ramp(
i[industry]*share nrg	multip taxV g alpha* g avg alpha,
i[gas,industry]	5, 15) +
(061) CO2 HH nrg[solid]=	ramp( act
coef CO2	strong DG*g avg alpha, 15,50)
HH[solid]*TPES HH nrg[solid]	)
CO2 HH nrg[liquid]=	(082) cost ETS i[Agriculture]=
coef CO2	0
HH[liquid]*TPES HH nrg[liquid]	cost ETS i[Mining]=
CO2 HH nrg[gas]=	0
coef CO2 HH[gas]*TPES	cost ETS i[Fossil Energy]=
HH nrg[gas]	(CO2 i[Fossil Energy]-
(062) CO2 i[industry]=	Free ETS i[Fossil Energy])*p ETS
CO2 Gas	cost ETS i[Manufacturing]=
i[industry]+CO2 Liq	(CO2
i[industry]+CO2 Sol i[industry]	i[Manufacturing]*0.61 - Free ETS
(063) CO2 Liq i[industry]=	i[Manufacturing])*p ETS
coefCO2 nrg	cost ETS i[Electricity]=
i[liquid,industry]*share nrg	(CO2 i[Electricity]-
i[liquid,industry]*TPES	Free ETS i[Electricity])*p ETS
i[industry	cost ETS i[Construction]=
]	0
(064) CO2 reduction 1990 level=	cost ETS i[Nonfinancial and
CO2 TOT/5551	Social Economy]=
(065) CO2 Sol i[industry]=	4000*p ETS
coefCO2 nrg	cost ETS i[Financial
i[solid,industry]*TPES	sector]=
i[industry]*share nrg	0
i[solid,industry	cost ETS i[Public sector]=
]	0
(066) CO2 TOT=	cost ETS i[Other]=
Tot CO2 Gas+Tot CO2	0
Liq+Tot CO2 Sol	(085) CPI=
(067) CO2 TOT Index=	SUM(beta eff
CO2 TOT/4667.2	i[industry!]*p S14 i[industry!])
(069) coef gamma2=	(087) CR rate=
IF THEN ELSE( Time	ramp(CR yearly, Time
>Time HLP, gamma2 threshold,0.75)	CR, 50) * act CR
(070) coef gamma3=	(089) cumulative lorenz[sort1]=
	for gini
	ordered[sort1]
	cumulative lorenz[sort2]=
	for gini
	ordered[sort2]+for gini
	ordered[sort1]

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cumulative lorenz[sort3]=
  for gini
ordered[sort2]+for gini
ordered[sort1]+for gini
ordered[sort3]
  cumulative lorenz[sort4]=
    for gini
ordered[sort2]+for gini
ordered[sort1]+for gini
ordered[sort3]+for gini ordered
[sort4]
  cumulative lorenz[sort5]=
    for gini
ordered[sort2]+for gini
ordered[sort1]+for gini
ordered[sort3]+for gini ordered
[sort4]+for gini
ordered[sort5]
  cumulative lorenz[sort6]=
    for gini
ordered[sort2]+for gini
ordered[sort1]+for gini
ordered[sort3]+for gini ordered
[sort4]+for gini
ordered[sort5]
  +for gini ordered[sort6]+for
gini ordered[sort7]
  cumulative lorenz[sort8]=
    for gini
ordered[sort2]+for gini
ordered[sort1]+for gini
ordered[sort3]+for gini ordered
[sort4]+for gini
ordered[sort5]
  +for gini ordered[sort6]+for
gini ordered[sort7]+for gini
ordered[sort8]
  cumulative lorenz[sort9]=
    for gini
ordered[sort2]+for gini
ordered[sort1]+for gini
ordered[sort3]+for gini ordered
[sort4]+for gini
ordered[sort5]
  +for gini ordered[sort6]+for
gini ordered[sort7]+for gini
ordered[sort8]+for gini ordered
[sort9]+for gini
ordered[sort10]=
  for gini
ordered[sort2]+for gini
ordered[sort1]+for gini
ordered[sort3]+for gini ordered
[sort4]+for gini
ordered[sort5]
  +for gini ordered[sort6]+for
gini ordered[sort7]+for gini
ordered[sort8]+for gini ordered
[sort9]+for gini
ordered[sort10]
]
  cumulative lorenz[sort11]=
    for gini
ordered[sort2]+for gini
ordered[sort1]+for gini
ordered[sort3]+for gini ordered
[sort4]+for gini
ordered[sort5]
  +for gini ordered[sort6]+for
gini ordered[sort7]+for gini
ordered[sort8]+for gini ordered
[sort9]+for gini
ordered[sort10]
  ]+for gini ordered[sort11]
  cumulative lorenz[sort12]=
    for gini
ordered[sort2]+for gini
ordered[sort1]+for gini
ordered[sort3]+for gini ordered
[sort4]+for gini
ordered[sort5]
  +for gini ordered[sort6]+for
gini ordered[sort7]+for gini
ordered[sort8]+for gini ordered
[sort9]+for gini
ordered[sort10]
  ]+for gini
ordered[sort11]+for gini
ordered[sort12]
  cumulative lorenz[sort13]=
    for gini
ordered[sort2]+for gini
ordered[sort1]+for gini
ordered[sort3]+for gini ordered
[sort4]+for gini
ordered[sort5]
  +for gini ordered[sort6]+for
gini ordered[sort7]+for gini
ordered[sort8]+for gini ordered
[sort9]+for gini
ordered[sort10]
  ]+for gini
ordered[sort11]+for gini
ordered[sort12]+for gini
ordered[sort13]
]

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(090) CV Kap= CYV Kap*(1-0.091)	(105) deaths 65 plus = Pop 65 Plus * mortality 65
(091) CVj[skill]= CYVj[skill]*(1 - magic CVj)	plus (108) "Deficit/GDP"= Gov Deficit/GDP
(092) CYV Kap= real CYV Kap * CPI	(109) delta B high= 0.1*rrB delay - 0.09*rrEq net delay
(093) CYVj[skill]= real CYV j[skill]*CPI	(110) delta B Kap= 0.38*rrB delay - 0.12*rrEq net delay
(094) d EONIA= sens BCE*(CPI delay - 1+Infl Target)	(111) delta Dep high= 1 - delta B high - delta Eq high
(097) d Lev i[industry]= Lev i[industry]-Lev i delay[industry]	(112) delta Dep Kap= 1-delta B Kap-delta Eq Kap
(098) d NEj delay[skill]= SUM(N Eji[skill,industry!])-SUM(N Eji delay[skill,industry!])	(113) delta Eq= (1/p Eq delay)*(SUM(GFCG i nom[industry!]) - SUM(NFi net[industry!]))*(1 - coef Lev)
(099) d uHM= U rate j delay[high] - U rate j delay[middle]	(114) delta Eq high= -0.16*rrB delay + 0.12*rrEq net delay
(100) d uML= U rate j delay[middle] - U rate j delay[low]	(115) delta Eq Kap= -0.37*rrB delay + 0.12*rrEq net delay
(101) deaths = deaths 0 to 14 44 + deaths 15 to 64 + deaths 45 to 64 + deaths 65 plus	(116) delta Vjf[low,deposits]= 0 delta Vjf[low,bonds]= 0 delta Vjf[low,equities]= 0 delta Vjf[middle,deposits]= 0 delta Vjf[middle,bonds]= 0 delta Vjf[middle,equities]= 0 delta Vjf[high,deposits]= delta Dep high delta Vjf[high,bonds]= delta B high delta Vjf[high,equities]= delta Eq high
(102) deaths 0 to 14= Pop 0 To 14 * mortality 0 to 14	
(103) deaths 15 to 44 = Pop 15 To 44 * mortality 15 to 44	
(104) deaths 45 to 64 = Pop 45 To 64 * mortality 45 to 64	

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(117) delta VKap[deposits]= delta Dep Kap delta VKap[bonds]= delta B Kap delta VKap[equities]= delta Eq Kap	(145) eta 2[sector]= eta[sector]*(1+randN eta2[sector])
(119) Dvd i[industry] :EXCEPT: [Public sector]= MAX(NF i[industry]*Dvd ratio,0) Dvd i[Public sector]= 0	(146) eta 3[industry]= eta[industry]*(1+randN eta3[industry])  (147) eta 4[industry]= eta[industry]*(1+randN eta3[industry])  (149) eta index[industry]=
(120) Dvd j[low]= 0 Dvd j[middle]= share Eq middle * Tot Dvd Dvd j[high]= share Eq high * Tot Dvd	100*eta[industry]/initial eta[industry]  (150) etaHH= 0.0135189*avg etaEN*mult eta HH  (153) FD i nom[industry]= Gov Cdom nom[industry] + Tot CYVeff i dom[industry]+ 1e+06*d inventories[industry]+ real Exp i[industry]+ GFCG i nom[industry]+ JG Ztot i[industry]
(121) Dvd Kap= share Eq Kap*Tot Dvd	(156) Fi res[industry]= FU i[industry] - GFCF i real[industry]
(123) E demand= V equities	(159) for gini ordered[sfor gini]= share income for Gini[sfor gini]
(126) Elec gas= Tot Elec*s gas Elec	(161) Free ETS i[Agriculture]= 0 Free ETS i[Mining]= 0 Free ETS i[Fossil Energy]= 32458.1*share EN ETS[Fossil Energy] Free ETS i[Manufacturing]= 48000*(1- ramp(0.08333,0,6)) Free ETS i[Electricity]= 32458.1*share EN ETS[Electricity] Free ETS i[Nonfinancial and Social Economy]= 2047.42 Free ETS i[Financial sector]= 0 Free ETS i[Public sector]=
(127) Elec HH= TPES HH*s Elec HH	
(128) Elec Nuc= s Nuc Elect * Tot Elec	
(129) Elec oil= Tot Elec*s oil Elec	
(130) Elec Rnw= Tot Elec*s Renew Elec	
(131) Elec solid= Tot Elec*s solid Elec	
(133) En Eff Index= (Tot TPES/Tot Output real/6.10963e-08*100)/1.19368	
(134) EONIA= EONIA delay*d EONIA	
(138) Eq delay= Eq Kap delay+Eq high delay+Eq middle delay	

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0
Free ETS i[Other]=
0

(163) FU i[industry]=
      NF i[industry] - Dvd
i[industry] - ir Debt*Debt i
delay[industry]

(165) g avg alpha=
      (avg alpha - avg alpha
delay)/avg alpha delay

(166) g avg etaEN i
cumul[industry]=
      avg etaEN
i[industry]/avg etaEN i
0[industry]

(167) g exog=
      ramp(g EXP exog
rate,5,50)*act DG

(169) g FD HH=
      (Tot FD HH-Tot FD HH
delay)/Tot FD HH delay

(170) g GFCF=
      (Tot GFCF-Tot GFCF
delay)/Tot GFCF delay

(172) g lambda i[industry]=
      (avg byK lambda
i[industry] - avg byK lambda i
delay[industry]) /
      avg byK lambda i
delay[industry]

(174) g NE ji[skill,industry]=
      (N Eji[skill,industry]
- N Eji delay[skill,industry])/N
Eji delay[skill,industry
]

(175) g NU j[skill]=
      (U rate j[skill] - U
rate j delay[skill]) / U rate j
delay[skill]

(176) g real Exp=
      (real Tot Exp-real Tot
Exp delay)/real Tot Exp delay

(179) gamma2[industry]=
      IF THEN ELSE( randU
gamma2 i[industry] >Prob gamma2
i[industry] , 1 , 0 )

(181) gamma3[industry]=
      IF THEN ELSE( randU
gamma3 i[industry] >Prob gamma3
i[industry] , 1 , 0 )

(183) gamma4[industry]=
      IF THEN ELSE( randU
gamma4 i[industry]>coef gamma4 ,
1 , 0 )

(185) GBond j[skill]=
      ((p Bond-p Bond
delay)/p Bond delay)*Stock V jf
delay[skill,bonds]

(186) GBond Kap=
      (0.001+(p Bond-p Bond
delay)/p Bond delay)*Stock V Kap
f delay[bonds]

(187) GDP=
      SUM(FD i
nom[industry!])

(190) GDP growth=
      (GDP-GDP delay)/GDP
delay

(191) GDP growth real=
      (GDP real-GDP delay
real)/GDP delay real

(192) GDP per capita growth real=
      (GDP perCap real-GDP
perCap real delay)/GDP perCap
real delay

(193) GDP perCap nom=
      GDP/Tot POP

(194) GDP perCap real=
      GDP real/Tot POP

(196) GDP real=
      GDP/CPI

(197) GEq j[skill]=
      SMOOTH(((p Eq-p Eq
delay)/p Eq delay),7)*Stock V jf
delay[skill,equities]

(198) GEq Kap=
      SMOOTH((0.01+(p Eq-p
Eq delay)/p Eq delay),7)*Stock V
Kap f delay[equities
]

(199) GF i[industry]=

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<p>VAd i[industry] - Tax  VAT i[industry] - LabC i  delay[industry]</p> <p>(200) GFCF i real[industry]  :EXCEPT: [Public  sector],[Other],[Agriculture  ]=  MAX(MIN(GFCFi  max[industry]/p k,kappa  i[industry]*k i[industry]+depr k  i[  industry]*k i[industry]),0)  GFCF i real[Public sector]=  MAX(kappa i[Public  sector]*k i[Public sector]+depr k  i[Public sector]*k i  [Public sector],0)  GFCF i real[Other]=  depr k i[Other]*k  i[Other]+coef k nonprod*k  i[Other]  GFCF i real[Agriculture]=  MAX(kappa  i[Agriculture]*k  i[Agriculture]+depr k  i[Agriculture]*k i[Agriculture  ],0)</p> <p>(201) GFCF imp i[industry]=  Tot GFCF*share GFCF  imp i[industry]</p> <p>(202) GFCFi max[industry]=  SMOOTH(NFi net  delay[industry]/EqDebt ratio, 5)</p> <p>(203) GFCG i nom[industry]=  GFCF i  real[industry]*p k</p> <p>(204) GFinY j[skill]=  SUM(Int V  jf[skill,wealth!])+Dvd  j[skill]+GBond j[skill]+GEq  j[skill]</p> <p>(205) GFinY Kap=  SUM(Int V Kap  f[wealth!])+Dvd Kap+GBond Kap+GEq  Kap</p> <p>(206) Gini[G1]=  low innac gi  Gini[G2]=  mid innac gi  Gini[G3]=  high innac gi</p>	<p>Gini[G4]=  low pens gi  Gini[G5]=  mid pens gi  Gini[G6]=  high pens gi  Gini[G7]=  low unemp gi  Gini[G8]=  mid unemp gi  Gini[G9]=  high uemp gi  Gini[G10]=  low emp gi  Gini[G11]=  mid emp gi  Gini[G12]=  high emp gi  Gini[G13]=  capitalists gi</p> <p>(207) GINI Coeff=  (1-(  pop  ordered[sort1]*cumulative  lorenz[sort1]+  (cumulative  lorenz[sort1]+cumulative  lorenz[sort2])*pop  ordered[sort2]+  (cumulative  lorenz[sort2]+cumulative  lorenz[sort3])*pop  ordered[sort3]+  (cumulative  lorenz[sort3]+cumulative  lorenz[sort4])*pop  ordered[sort4]+  (cumulative  lorenz[sort4]+cumulative  lorenz[sort5])*pop  ordered[sort5]+  (cumulative  lorenz[sort5]+cumulative  lorenz[sort6])*pop  ordered[sort6]+  (cumulative  lorenz[sort6]+cumulative  lorenz[sort7])*pop  ordered[sort7]+  (cumulative  lorenz[sort7]+cumulative  lorenz[sort8])*pop  ordered[sort8]+  (cumulative  lorenz[sort8]+cumulative  lorenz[sort9])*pop  ordered[sort9]+</p>
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$\begin{aligned} & (\text{cumulative} \\ \text{lorenz}[\text{sort9}] + \text{cumulative} \\ \text{lorenz}[\text{sort10}] * \text{pop} \\ \text{ordered}[\text{sort10}] + \\ & (\text{cumulative} \\ \text{lorenz}[\text{sort10}] + \text{cumulative} \\ \text{lorenz}[\text{sort11}] * \text{pop} \\ \text{ordered}[\text{sort11}] \\ & + \\ & (\text{cumulative} \\ \text{lorenz}[\text{sort11}] + \text{cumulative} \\ \text{lorenz}[\text{sort12}] * \text{pop} \\ \text{ordered}[\text{sort12}] \\ & + \\ & (\text{cumulative} \\ \text{lorenz}[\text{sort12}] + \text{cumulative} \\ \text{lorenz}[\text{sort13}] * \text{pop} \\ \text{ordered}[\text{sort13}] \\ & )) * 100 \end{aligned}$	$\begin{aligned} & \text{low emp gi} + \text{low unemp} \\ \text{gi} + \text{low pens gi} + \text{low innac gi} \\ & \text{gini skill}[\text{middle}] = \\ & \text{mid emp gi} + \text{mid unemp} \\ \text{gi} + \text{mid pens gi} + \text{mid innac gi} \\ & \text{gini skill}[\text{high}] = \\ & \text{high emp gi} + \text{high uemp} \\ \text{gi} + \text{high pens gi} + \text{high innac gi} \end{aligned}$
$\begin{aligned} & (\text{208}) \text{ gini coefficient skill} = \\ & (1 - \\ & ( \\ & (\text{gini} \\ \text{skill}[\text{low}] / (\text{SUM}(\text{gini} \\ \text{skill}[\text{skill!}] + \text{capitalists} \\ \text{gi})) * ((\text{N Aj}[\text{low}] + \text{N Pj} \\ [\text{low}] / (\text{SUM}(\text{N} \\ \text{Aj}[\text{skill!}] + \text{SUM}(\text{N Pj}[\text{skill!}]))) \\ & + ((2 * \text{gini} \\ \text{skill}[\text{low}] + \text{gini} \\ \text{skill}[\text{middle}] / (\text{SUM}(\text{gini} \\ \text{skill}[\text{skill!}] + \text{capitalists gi} \\ )) * ((\text{N Aj}[\text{middle}] + \text{N} \\ \text{Pj}[\text{middle}] / (\text{SUM}(\text{N} \\ \text{Aj}[\text{skill!}] + \text{SUM}(\text{N Pj}[\text{skill!}]))) \\ & + ((2 * (\text{gini} \\ \text{skill}[\text{low}] + \text{gini} \\ \text{skill}[\text{middle}] + \text{gini} \\ \text{skill}[\text{high}] / (\text{SUM}(\text{gini skill} \\ [\text{skill!}] + \text{capitalists} \\ \text{gi})) * ((\text{N Aj}[\text{high}] + \text{N} \\ \text{Pj}[\text{high}] / (\text{SUM}(\text{N Aj}[\text{skill!}] + \text{SUM} \\ (\text{N Pj}[\text{skill!}]))) \\ & + ((2 * (\text{gini} \\ \text{skill}[\text{low}] + \text{gini} \\ \text{skill}[\text{middle}] + \text{gini} \\ \text{skill}[\text{high}] + \text{capitalists gi} \\ ) / (\text{SUM}(\text{gini} \\ \text{skill}[\text{skill!}] + \text{capitalists} \\ \text{gi})) * (0.001) \\ & )) / 0.193 * 100 \end{aligned}$	$\begin{aligned} & (210) \text{ gini skill per capta}[\text{low}] = \\ & (\text{low emp gi} + \text{low} \\ \text{unemp gi} + \text{low pens gi} + \text{low innac} \\ \text{gi}) / (\text{SUM}(\text{N Eji}[\text{low}, \text{industry} \\ !]) + \text{N inA j}[\text{low}] + \text{N Uj}[\text{low}] + \text{N} \\ \text{Pj}[\text{low}]) \\ & \text{gini skill per} \\ \text{capta}[\text{middle}] = \\ & (\text{mid emp gi} + \text{mid unemp} \\ \text{gi} + \text{mid pens gi} + \text{mid innac} \\ \text{gi}) / (\text{SUM}(\text{N Eji}[\text{middle}, \text{industry} \\ !]) + \text{N inA j}[\text{middle}] + \text{N} \\ \text{Uj}[\text{middle}] + \text{N Pj} \\ [\text{middle}]) \\ & \text{gini skill per capta}[\text{high}] = \\ & (\text{high emp gi} + \text{high uemp} \\ \text{gi} + \text{high pens gi} + \text{high innac} \\ \text{gi}) / (\text{SUM}(\text{N Eji}[\text{high}, \text{industry} \\ !]) + \text{N inA j}[\text{high}] + \text{N} \\ \text{Uj}[\text{high}] + \text{N Pj}[\text{high} \\ ]) \end{aligned}$
$\begin{aligned} & (\text{209}) \text{ gini skill}[\text{low}] = \end{aligned}$	$\begin{aligned} & (211) \text{ Gov C} = \\ & \text{Gov C nom} + \text{Gov} \\ \text{Ck}[\text{Public sector}] + \\ & \text{Gov CTr} + \text{Gov} \\ \text{CW}[\text{Public sector}] + \\ & \text{Int B} + \text{Gov CJG} \end{aligned}$
	$\begin{aligned} & (212) \text{ Gov C nom} = \\ & \text{Gov FD} * \text{CPI} * (1 - \text{share} \\ \text{Gov C}[\text{Public sector}]) \end{aligned}$
	$\begin{aligned} & (213) \text{ "Gov C/GDP"} = \\ & \text{Gov C/GDP} \end{aligned}$
	$\begin{aligned} & (214) \text{ Gov Cdom nom}[\text{industry}] = \\ & \text{CPI} * (1 - \text{share Gov} \\ \text{imp}) * \text{Gov FD} * \text{share Gov C}[\text{industry}] \end{aligned}$
	$\begin{aligned} & (215) \text{ Gov CJG} = \\ & \text{SUM}(\text{JG Ztot} \\ \text{i}[\text{industry!}]) \end{aligned}$
	$\begin{aligned} & (216) \text{ Gov Ck}[\text{Public sector}] = \\ & \text{GFCG i nom}[\text{Public} \\ \text{sector}] \end{aligned}$
	$\begin{aligned} & (217) \text{ Gov CTr} = \end{aligned}$

List of *Main Variables*

$j[\text{skill!}] + \text{SUM}(\text{TrSoc } j[\text{skill!}] + \text{SUM}(\text{GUB } j[\text{skill!}] + \text{SUM}(\text{GPB } j[\text{skill!}]))$	(230) $H \text{ Ei}[\text{industry}] = H \text{ annual} * \text{coef } H \text{ week } i[\text{industry}]$
(218) $\text{Gov CW}[\text{Public sector}] = \text{SUM}(\text{GWB } \text{Ej}[\text{skill!}, \text{Public sector}]) * (1 + \text{taxD12 rate } i[\text{Public sector}])$	(232) $\text{high emp gi} = \text{SUM}(\text{GWB } \text{Ej}[\text{high}, \text{industry!}] + (\text{TrSoc } \text{FCj}[\text{high}] + \text{TrSoc } \text{SD } j[\text{high}]) * \text{prop emp}[\text{high}] + \text{BI } j[\text{high}] * \text{prop emp}[\text{high}] * (1 - \text{prop pens}[\text{high}]) + \text{prop emp}[\text{high}] * \text{MixY } \text{E } j[\text{high}])$
(219) $\text{Gov Deficit} = \text{Gov C} - \text{Gov Tax}$	(233) $\text{high innac gi} = (\text{TrSoc } \text{FCj}[\text{high}] + \text{TrSoc } \text{SD } j[\text{high}]) * \text{prop innac}[\text{high}] + \text{BI } j[\text{high}] * \text{prop innac}[\text{high}] * (1 - \text{prop pens}[\text{high}]) + \text{prop innac}[\text{high}] * \text{MixY } \text{E } j[\text{high}]$
(220) $\text{Gov FD} = (1 + \text{g Gov FD exog}) * \text{Gov FD delay}$	(234) $\text{high pens gi} = \text{GPB } j[\text{high}] + \text{BI } j[\text{high}] * \text{BI } \text{P} * \text{prop pens}[\text{high}] + \text{prop pens}[\text{high}] * \text{MixY } \text{E } j[\text{high}]$
(222) $\text{Gov imp} = \text{share Gov imp} * \text{Gov FD}$	(235) $\text{high uemp gi} = \text{GUB } j[\text{high}] + \text{TrSoc } \text{RSAj}[\text{high}] + (\text{TrSoc } \text{FCj}[\text{high}] + \text{TrSoc } \text{SD } j[\text{high}]) * \text{prop unemp}[\text{high}] + \text{BI } j[\text{high}] * \text{prop unemp}[\text{high}] * (1 - \text{prop pens}[\text{high}]) + \text{prop unemp}[\text{high}] * \text{MixY } \text{E } j[\text{high}]$
(223) $\text{Gov Tax} = \text{Tot TaxF} + \text{Tax HH} + \text{Tax Lab} + \text{Tax VAT} + \text{Tax V} + \text{SUM}(\text{TaxC02 } i[\text{industry!}]) + \text{SUM}(\text{Tax BCA } i[\text{industry!}])$	(237) $\text{Imp CO2 } i[\text{industry}] = \text{real Imp } i[\text{industry}] / (\text{p } i[\text{industry}] * \text{avg etaEN } i[\text{industry}]) * (\text{CO2 } i[\text{industry}] / \text{TPES } i[\text{industry}]) / 1e+06$
(224) $\text{"Gov Tax/GDP"} = \text{Gov Tax} / \text{GDP}$	(238) $\text{in b r} = (\text{Gov Deficit})$
(225) $\text{GPB } j[\text{skill}] = \text{income P } j[\text{skill}] * \text{N } \text{Pj}[\text{skill}]$	(239) $\text{in eta } i[\text{industry}] = (\text{choice eta } i[\text{industry}] + \text{eta growth exog}[\text{industry}]) * \text{eta}[\text{industry}]$
(226) $\text{GUB } j[\text{skill}] = \text{coverage UB ratio} * \text{UB } j[\text{skill}] * \text{N } \text{Uj}[\text{skill}]$	(240) $\text{in JG } \text{Ej}[\text{skill}] = \text{act JG} * \text{MAX}(\text{MIN}(0.5 * \text{Uj}[\text{skill}], \text{JG maxNE} * \text{share } \text{Uj}[\text{skill}]))$
(227) $\text{GWB } \text{Ej}[\text{skill}, \text{industry}] : \text{EXCEPT: } [\text{skill}, \text{Public sector}] = \text{wageh max } \text{E } \text{ji}[\text{skill}, \text{industry}] * \text{N } \text{Ej}[\text{skill}, \text{industry}] * \text{H } \text{Ei}[\text{industry}] \text{GWB } \text{Ej}[\text{skill}, \text{Public sector}] = \text{wageh max } \text{E } \text{ji}[\text{skill}, \text{Public sector}] * \text{N } \text{Ej}[\text{skill}, \text{Public sector}] * \text{H } \text{Ei}[\text{Public sector}] + \text{JG } \text{GWBj}[\text{skill}]$	
(229) $\text{H annual} = \text{SMOOTH}(\text{n weeks} * \text{act } \text{WTR}, 5)$	

List of *Main Variables*

	, 0)		(CPI-CPI delay)/CPI
		delay	
(241) in k[industry]=	GFCF i real[industry]-	(256) initial avg Wage=	8725*4
coef k nonprod*k i[industry]			
(242) in lambda i[industry]=	choice lambda	(257) initial Debt i[industry]	:EXCEPT: [Manufacturing],[Public
i[industry]*lambda i[industry]		sector],[Mining	]=
(243) in Tot Vf[wealth]=	SUM(in	coef initial Debt	
Vjf[skill!,wealth])+in VKap	f[wealth]	i[industry]*initial k i[industry]	
		initial Debt	
(244) in Vj[skill]=	YVD j[skill]	i[Manufacturing]=	
		coef initial Debt	
(245) in Vjf[skill,wealth]=	(1+delta	i[Manufacturing]*initial k	
Vjf[skill,wealth])*share	Vjf[skill,wealth]*YVD j	initial Debt i[Public	
Vjf[skill,wealth]*YVD j	delay[skill]	sector]=	
		coef initial Debt	
(246) in VKap f[wealth]=	(1 + delta	i[Public sector]*initial k	
VKap[wealth]) * share Vf	Kap[wealth]*YD Kap delay	i[Public sector]	
		initial Debt i[Mining]=	
(247) Income ordered for Gini[for	gini]=	coef initial Debt	
	VECTOR SORT	i[Mining]*initial k i[Mining]	
ORDER(individual income[for	gini],1)	(263) initial Gov Creal=	initial Gov Cnom/CPI
(248) income P j[skill]=	PW ratio * ( SUM(GWB	(284) initial Tot Vf[wealth]=	SUM(V0
Eji[skill,industry!)) / SUM(N	Eji[skill,industry!))	jf[skill!,wealth]) + V0 Kap	f[wealth]
		(285) initial Tot Vj[skill]=	SUM(share Vj
(249) index avg Wage =	avg Wage E/initial avg	0[skill!]*initial Tot V)	
Wage		(286) initial Tot VKap=	initial Tot V * share
		VKap 0	
(250) individual income[for gini]=	Gini[for gini]/pop	(296) Int B=	Stock Bond real*ir LTB
groups[for gini]		delay	
(251) individual income	ordered[sfor gini]=	(297) Int V jf[skill,wealth]=	ir ff[wealth,wealth] *
	VECTOR	Stock V jf delay[skill,wealth]	
REORDER(individual income[for	gini] ,sort order for gini[for	(298) Int V Kap f[wealth]=	ir
gini] )		ff[wealth,wealth]*Stock V Kap f	delay[wealth]
		(299) inV=	YVD Kap + SUM(YVD
(254) Inflation=		j[skill!])	

List of *Main Variables*

(300) inV c= YVD Kap	IF THEN ELSE(SUM(JG Ej[skill!])>0, JG P13 Serv delay/out Services delay , 0)
(301) Investment rate= Tot GFCF/GDP	(321) JG Serv output= JG Lab Serv + JG Zserv
(302) ir Debt= MAX(ir Debt delay + 0.201806*d EONIA+0.335394*d EONIA delay, 0 )*0+0.01	(323) JG share Ej0[skill]= (JG Ej[skill]+in JG Ej[skill])/(JG Ej[skill]+in JG Ej[skill]+Uj[skill])
(305) ir Dep= MAX(0.828*ir Debt- 0.004223, 0) * act Dep	(324) JG Tot output= JG Serv output + JG Eco output
(306) ir ff[deposits,wealth]= ir Dep ir ff[bonds,wealth]= ir LTB ir ff[equities,wealth]= 0.01	(325) JG wage= 10.7*CPI
(307) ir LTB= 0*IF THEN ELSE(Time>0, IF THEN ELSE(Time>1,IF THEN ELSE(Time >2,IF THEN ELSE (Time >3, IF THEN ELSE(Time >4,0.011 ,0.009),0.008) ,0.005),0.008) ,ir LTB delay )+ir LTB delay-0.0166925*(p Bond-p Bond delay)	(327) JG ZEco= JG Z h * H Ei[Public sector] * SUM(JG Ej[skill!]) * JG Eco share
(310) JG Eco output= JG Lab Eco + JG ZEco	(328) JG ZEco i[industry]= JG ZEco*JG ZEco share i[industry]
(311) JG Eco output share= JG Eco output/Tot Output real	(330) JG Zserv= JG Z h * H Ei[Public sector] * SUM(JG Ej[skill!]) * JG Serv share
(313) JG Eco share= 1-JG Serv share	(331) JG Zserv i[industry]= JG Zserv*JG Zserv share i[industry]
(315) JG GWBj[skill]= JG Ej[skill]*JG wage*H Ei[Public sector]	(333) JG Ztot i[industry]= JG Zserv i[industry] + JG ZEco i[industry]
(316) JG Lab Eco= (1 + taxD12 rate i[Public sector])*SUM(JG GWBj[skill!])*JG Eco share	(334) jump Nucl= MAX( (1-act Nucl zero)*0.0171943, act Nucl zero*(0.775108/(Time Nucl zero - Time ENmix)) )
(317) JG Lab Serv= (1 + taxD12 rate i[Public sector])*SUM(JG GWBj[skill!])*JG Serv share	(336) k deprec i[industry]= depr k i[industry]*k i[industry]
(320) JG PubPriv ratio=	(339) kappa i[industry]= kappa uc i[industry] + kappa Fi delay[industry]

List of *Main Variables*

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(341) kappa uc i[industry]=
      coef k nonprod + elast
k uc*sens k uc i[industry] * (uc
i delay[industry]
      - uc i normal[industry])

(342) Ki nom[industry]=
      p k*k i[industry]

(344) LAB industry rate[industry]=
      (LabC i[industry]-LabC
i delay[industry])/LabC i
delay[industry]

(345) LabC i[industry]=
      SUM(GWB
Eji[skill!,industry])*(1 + taxD12
rate i[industry])

(346) LabC i delay[industry]=
      SUM(GWB Eji
delay[skill!,industry])*(1+taxD12
rate i[industry])

(347) labour share=
      SUM(GWB
Eji[skill!,industry!])/(SUM(GWB
Eji[skill!,industry!])+SUM(NF
i[industry
!]))

(349) lambda 2[industry]=
      lambda i[industry]*(1
+ randN lambda2[industry])

(350) lambda 3[industry]=
      lambda i[industry]*(1
+ randN lambda3[industry])

(351) lambda 4[industry]=
      lambda i[industry]*(1
+ randN lambda2[industry])

(353) lambda index[industry]=
      100*lambda
i[industry]/initial lambda
i[industry]

(354) lambda index i[industry]=
      100 * avg byK lambda
i[industry] / (initial lambda
i[industry])

(356) Leont ii[from
Industry,toIndustry]=
      INVERT MATRIX(AId[from
Industry,toIndustry],10)

(357) Lev i[industry]=
      Debt i[industry]/Ki
nom[industry]

(359) LFP rate=
      MIN(0.711*(1 -
SMOOTH(3.5*("Unemployment rate-
1"-0.1029),4)) ,1)

(360) LFS high=
      Tot LFS - LFS middle -
LFS low

(361) LFS j[low]=
      LFS low
LFS j[middle]=
      LFS middle
LFS j[high]=
      LFS high

(362) LFS low=
      share low*Tot LFS

(363) LFS middle=
      share middle*Tot LFS

(365) low emp gi=
      SUM(GWB
Eji[low,industry!])+(TrSoc
FCj[low]+TrSoc SD j[low])*prop
emp[low
]+BI j[low]*prop
emp[low]*(1-prop pens[low])+prop
emp[low]*MixY E j
[low]

(366) low innac gi=
      (TrSoc FCj[low]+TrSoc
SD j[low])*prop innac[low]+BI
j[low]*prop innac[low
]* (1-prop pens[low])+prop
innac[low]*MixY E j[low]

(367) low pens gi=
      GPB j[low]+BI
j[low]*BI P*prop pens[low]+prop
pens[low]*MixY E j[low]

(368) low unemp gi=
      GUB j[low]+TrSoc
RSAj[low]+(TrSoc FCj[low]+TrSoc
SD j[low])*prop unemp[low
]+BI j[low]*prop
unemp[low]*(1-prop
pens[low])+prop unemp[low]*MixY E
j[low
]

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List of *Main Variables*

(371) maturation 14 to 15= ( ( Pop 0 To 14 ) ) * ( 1 - mortality 0 to 14 ) / 15	(381) mortality 0 to 14= mortality 0 to 14 table ( life expectancy )
(372) maturation 44 to 45= ( ( Pop 15 To 44 ) ) * ( 1 - mortality 15 to 44 ) / 30	(383) mortality 15 to 44= mortality 15 to 44 table ( life expectancy)
(373) maturation 64 to 65= ( ( Pop 45 To 64 ) ) * ( 1 - mortality 45 to 64 ) / 20	(385) mortality 45 to 64= mortality 45 to 64 table ( life expectancy)
(374) mid emp gi= SUM(GWB Ej[i[middle,industry!]])+(+TrSoc FCj[middle]+TrSoc SD j[middle])*prop emp [middle]+BI j[middle]*prop emp[middle]*(1-prop pens[middle])+ prop emp[middle]*MixY E j[middle]	(387) mortality 65 plus= mortality 65 plus table ( life expectancy)
(375) mid innac gi= (TrSoc FCj[middle]+TrSoc SD j[middle])*prop innac[middle]+BI j[middle]*prop innac [middle]*(1-prop pens[middle])+prop innac[middle]*MixY E j[middle]	(390) mu S14 i[industry]= share Cimp i[industry]
(376) mid pens gi= GPB j[middle]+BI j[middle]*BI P*prop pens[middle]+prop pens[middle]*MixY E j [middle]	(391) mult eta HH= 1 + JG Eco output share delay
(377) mid unemp gi= GUB j[middle]+TrSoc RSAj[middle]+(TrSoc FCj[middle]+TrSoc SD j[middle])*prop unemp [middle]+BI j[middle]*prop unemp[middle]*(1-prop pens[middle])+prop unemp[ middle]*MixY E j[middle]	(393) N Aj[skill]= SUM(N Ej[i[skill,industry!]]) + N Uj[skill] + N inA j[skill]
(378) MixY= initial MixY*(1 + (GDP-initial GDP)/initial GDP)	(394) N E yFC ji[skill,industry]= sigma ji[skill,industry]*share E full time i[industry]*  ( yFC i[industry]*uc i normal[industry] / (avg byK lambda i[industry]*H Ei [industry]) )
(379) MixY E j[skill]= share Vj 0[skill]*MixY	(395) N Ei[industry]= SUM(N Ej[i[skill!,industry]])
(380) MixY Kap= share VKap 0*MixY	(396) N Ej[skill]= SUM(N Ej[i[skill,industry!]])
	(397) N Eji[low,industry]= SMOOTH( MAX(0, ((1 + coef Job polarization j[low]*g lambda i[industry])*sigma ji [low,industry]*Output i real[industry])/
	(coef lambda impact j[low]*avg byK lambda i[industry]*H Ei [industry]))

List of *Main Variables*

	,4)	GFCG i nom[industry] -
N Eji[middle,industry]=	SMOOTH(	FU i[industry]
Job polarization j[middle]*g	MAX(0, ((1+coef	(407) NF i[industry]=
lambda i[industry])*sigma ji	[middle,industry]*Output i	GF i[industry] - TaxF
real[industry])/	(coef	i[industry]
lambda impact j[middle]*avg byK	lambda i[industry]*H Ei	(408) NFi net[industry]=
lambda i[industry]*H Ei	[industry]))	MAX(FU i[industry] +
	,2)	Dvd i[industry],0)
N Eji[high,industry]=	SMOOTH(	(410) NPB j[skill]=
SMOOTH(	MAX(0, ((1 +	(GPB j[skill]-TaxA
coef Job polarization j[high]*g	lambda i[industry])*sigma ji	Pj[skill]-TaxB Pj[skill]-TaxD613
lambda i[industry])*sigma ji	[high,industry]*Output i	Pj[skill])
real[industry])/	(coef	(412) NUB j[skill]=
lambda impact j[high]*avg byK	lambda i[industry]*H Ei	MAX((GUB j[skill]-TaxA
lambda i[industry]*H Ei	[industry]))	Uj[skill]-TaxB U j[skill]-TaxD613
	,2)	Uj[skill]))*(1-act BI
(399) N Fj[skill]=		,0)
1.1*N Aj[skill]		(413) NWB Ej[skill]=
		(SUM (GWB
(400) N inA j[low]=		Eji[skill,industry!])) -
(1-LFP rate)*POP		(SUM (TaxA Eji[skill,industry!]))
Working age*share low		-
N inA j[middle]=		(SUM (TaxB Eji[skill,industry!]))
(1-LFP rate)*POP		-
Working age*share middle		(SUM (TaxD613
N inA j[high]=		Eji[skill,industry!]))
(1-LFP rate)*POP		(418) out JG Ej[skill]=
Working age*share high - N Kap		IF THEN ELSE(JG
		Ej[skill]+in JG Ej[skill]>0,
(401) N Kap=		
0.001*Tot POP		IF THEN ELSE(d NEj
		delay[skill]>0,
(402) N Pj[low]=		
Pop 65 Plus*0.575		MIN(d NEj delay[skill
N Pj[middle]=		]*JG share Ej0[skill],JG
Pop 65 Plus*0.279		Ej[skill]+in JG Ej[skill]),0)
N Pj[high]=		,0)
Pop 65 Plus*0.146		(420) out Vf[wealth]=
		SUM(out
(403) N Uj[skill]=		Vjf[skill!,wealth])+out VKap
LFS j[skill] - SUM(N		f[wealth]
Eji[skill,industry!]) -		
JG Ej[skill]		(421) out Vjf[skill,wealth]=
		(1 + delta
(405) new Eq=		Vjf[skill,wealth]) * share
MAX(delta Eq,0)		Vjf[skill,wealth] * CVj[skill]
(406) newdebt i[industry]=		

List of *Main Variables*

(422) out VKap f[wealth]= (1+delta VKap[wealth])*share Vf Kap[wealth]*CV Kap	i[industry]+mu GFcfi[industry]*p imp i[industry ]
(423) outk[industry]= k i[industry]*depr k i[industry]	(442) p i[industry]= SMOOTH( ( 1 + (1 + lambda sens p i[industry]*g lambda i delay[industry] )*markup i[industry] + MAX(p elast*(uc i delay[industry] - uc i normal[industry ]) + taxVAT rate i[industry],0) )*(ULC delay[industry]+UMC delay[industry])/p i 0[industry] ) ,4)*
(424) Output FD i[industry]= SUM(Leont ii[industry,industry!]*FD i nom[industry!])	
(426) Output i real[industry]= MIN( SUM(Leont ii[industry,industry!]*FD i nom[industry!]/p i[industry]), yFC i[industry])	
(427) outV= Tot CYV	
(428) outV c= CYV Kap	(1 + p En rate i[industry]*Time)
(429) outVj[skill]= CYVj[skill]	(446) p i rate[industry]= (p i[industry]-p i delay[industry])/p i delay[industry]
(430) p Bond= (p Bond delay+0.001*B supply/Stock Bond real)+0/p Bond 0	(447) p imp i[industry]= p dom i[industry]
(433) p dom i[industry]= p i[industry]	(448) p k= SUM(kappa pk i[industry!]*p gfcf[industry!])
(436) p En rate i[industry] :EXCEPT: [Electricity],[Fossil Energy]= coef pEN[industry] p En rate i[Fossil Energy]= p nrg rate exog[liquid] p En rate i[Electricity]= p nrg rate exog[electrRenew]*beta ELG elect delay + p nrg rate exog[gas]*beta ELG gas delay	(449) p nrg[nrg]= p nrg 0[nrg]*(1+p nrg rate exog[nrg]*Time) (452) p nrg share[nrg]= p nrg[nrg]/SUM(p nrg[nrg!])+1/4 (453) p S14 i[industry]= mu S14 i[industry]*p imp i[industry] + (1 - mu S14 i[industry]) * p dom i [industry]
(439) p ETS= 7*1000	(454) per capita GDP index= GDP perCap nom/36190*100
(441) p gfcf[industry]= (1-mu GFcfi[industry])*p dom	(455) per capita GDP index real= GDP perCap real/36190*100

List of *Main Variables*

(456) Per capita GDP real index= GDP perCap real/361.929	(469) Prob gamma3 i[industry]= coef gamma3*(1- 20*Xi[industry])
(462) pop for gini[G1]= N inA j[low]/adult pop pop for gini[G2]= N inA j[middle]/adult pop pop for gini[G3]= N inA j[high]/adult pop pop for gini[G4]= N Pj[low]/adult pop pop for gini[G5]= N Pj[middle]/adult pop pop for gini[G6]= N Pj[high]/adult pop pop for gini[G7]= N Uj[low]/adult pop pop for gini[G8]= N Uj[middle]/adult pop pop for gini[G9]= N Uj[high]/adult pop pop for gini[G10]= (SUM(N Eji[low,industry!])+JG Ej[low])/adult pop pop for gini[G11]= (SUM(N Eji[middle,industry!])+JG Ej[middle])/adult pop pop for gini[G12]= (SUM(N Eji[high,industry!])+JG Ej[high])/adult pop pop for gini[G13]= N Kap/adult pop	(470) prop emp[skill]= SUM(N Eji[skill,industry!])/N Aj[skill] (471) prop innac[skill]= N inA j[skill]/N Aj[skill] (472) prop pens[skill]= N Pj[skill]/(N Aj[skill]+N Pj[skill]) (473) prop unemp[skill]= N Uj[skill]/N Aj[skill] (474) PUBLIC EX TRANS UB= SUM(TrSoc j[skill!])+SUM(GUB j[skill!]) (476) randN eta2[industry]= RANDOM NORMAL(-0.05 , 0.2 , 0.05 , 0.005 , 1) (477) randN eta3[Agriculture]= RANDOM NORMAL(0, 0.15, 0.075, 0.025, 1 ) randN eta3[Mining]= RANDOM NORMAL(0 , 0.06 , 0.03 , 0.01 , 1 ) randN eta3[Fossil Energy]= RANDOM NORMAL(0 , 0.06 , 0.03 , 0.01 , 1 ) randN eta3[Manufacturing]= RANDOM NORMAL(0 , 0.06 , 0.03 , 0.01 , 1 ) randN eta3[Electricity]= RANDOM NORMAL(0 , 0.06 , 0.03 , 0.01 , 1 ) randN eta3[Construction]= RANDOM NORMAL(0 , 0.06 , 0.03 , 0.01 , 1 ) randN eta3[Nonfinancial and Social Economy]= RANDOM NORMAL(0 , 0.06 , 0.03 , 0.01 , 1 ) randN eta3[Financial sector]= RANDOM NORMAL(0 , 0.06 , 0.03 , 0.01 , 1 ) randN eta3[Public sector]= RANDOM NORMAL(0 , 0.06 , 0.03 , 0.01 , 1 )
(463) pop groups[for gini]= adult pop*pop for gini[for gini]	
(464) POP Index= Tot POP/659423	
(465) pop ordered[sfor gini]= share pop for Gini[sfor gini]	
(466) POP Working age= Pop 15 To 44 + Pop 45 To 64	
(468) Prob gamma2 i[industry]= coef gamma2*(1+20*Xi[industry] )	

List of *Main Variables*


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    randN eta3[Other]=
        RANDOM NORMAL(0 , 0.06
, 0.03 , 0.01 , 1 )
(478) randN lambda2[industry]=
        RANDOM NORMAL(0 , 0.06
, 0.03 , 0.01 , 1 )
(479) randN lambda3[industry]=
        RANDOM NORMAL(-0.1 ,
0.1 , 0 , 0.005 , 1 )
(480) randU gamma2 i[industry]=
        RANDOM UNIFORM(0 , 1 ,
seed)
(481) randU gamma3 i[industry]=
        RANDOM UNIFORM(0 , 1 ,
seed)
(482) randU gamma4 i[industry]=
        RANDOM UNIFORM(0 , 1
,seed)
(483) rate p ex=
        (p Eq-p Eq delay)/p Eq
delay
(484) real CYV j[skill]=
        alphaY j[skill]*real
YDj delay[skill] +
        alphaV j[skill]*real
VDj delay[skill]
(485) real CYV Kap=
        alphaV Kap * real YVD
Kap delay
(486) real CYVeff
ji[skill,industry]=
        beta eff
i[industry]*real CYV j[skill]
(487) real CYVeff Kap i[industry]=
        beta eff
i[industry]*real CYV Kap
(488) real Exp i[industry]=
        Initial Exp
i[industry]*
        (1 - elast p exp*p i
rate[industry])*
        ( 1 +(0.01 + g
exog)*(Time))
(489) real Imp i[industry]
:EXCEPT: [Nonfinancial and
Social Economy]=
        Tot CYVeff i
imp[industry] +
        Tot Zimp i[industry]*p
i[industry]+
        GFCF imp i[industry]
        real Imp i[Nonfinancial and
Social Economy]=
        Tot CYVeff i
imp[Nonfinancial and Social
Economy]+
        Tot Zimp
i[Nonfinancial and Social
Economy]+
        GFCF imp
i[Nonfinancial and Social
Economy]+
        Gov imp*p
i[Nonfinancial and Social
Economy]
(490) real Tot Exp=
        SUM(real Exp
i[industry!])
(492) real Tot Imp=
        SUM(real Imp
i[industry!])
(493) real Trade Bal i[industry]=
        real Exp i[industry] -
        real Imp i[industry]
(494) real VD j[skill]=
        VD j[skill]/CPI
(496) real YD j[skill]=
        YD j[skill]/CPI
(498) real YVD Kap=
        YVD Kap/CPI
(500) real YVDj[skill]=
        YVD j[skill]/CPI
(502) Rnw HH=
        s Rnw HH*TPES HH
(503) rrB=
        ((p Bond-p Bond
delay)/p Bond delay)-((CPI-CPI
delay)/CPI delay)+ir LTB
(505) rrB net=
        (1-taxFin rate)*rrB
(506) rrB net delay=
        DELAY1(rrB net, 1 )

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List of *Main Variables*


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(507)  $rrEq = \frac{(\text{SUM}(GEq\ j[\text{skill!}]) + GEq\ Kap + \text{SUM}(\text{Dvd}\ i[\text{industry!}]))}{\text{Stock}\ Eq\ supply}$  MAX(0.028699 - act En mix\*ramp(0.001,5,36),0)

(511)  $rrEq\ net = (1 - \text{taxFin}\ rate) * rrEq - \text{Inflation}$  (526)  $SAVEPER = \text{TIME}\ STEP$

(513)  $s\ Elec\ HH = 0.35324 + act\ En$  (531)  $sens\ HM = 0.85 + \text{ramp}(0.05,2,9)$   
(533)  $sens\ LM = 0.75 + \text{ramp}(0.05,2,9)$   
(534)  $sens\ MH = 0.45 + \text{ramp}(0.05,2,20)$   
(535)  $sens\ ML = 1 + \text{ramp}(0.05,2,9)$

(514)  $s\ ELG\ Elec[solid] = s\ solid\ Elec$  (537)  $share\ Ci[\text{Agriculture}] = 0.0166039$   
 $s\ ELG\ Elec[liquid] = s\ oil\ Elec$   $share\ Ci[\text{Mining}] = 0.000140174$   
 $s\ ELG\ Elec[gas] = s\ gas\ Elec$   $share\ Ci[\text{Fossil Energy}] = 0.0234384$   
 $s\ ELG\ Elec[electrRenew] = s\ Nuc\ Elect + s\ Renew$   $share\ Ci[\text{Manufacturing}] = 0.173117$   
 $share\ Ci[\text{Electricity}] = 0.0299639$   
 $share\ Ci[\text{Construction}] = 0.234827$   
 $share\ Ci[\text{Nonfinancial and Social Economy}] = 0.403315 * (1 - \text{MIN}(\text{SMOOTH}(\text{JG}\ \text{PubPriv}\ \text{ratio} * \text{subs}\ \text{PubPriv}\ \text{Serv},3), \text{share}\ \text{Services}))$

$Elec$

(515)  $s\ gas\ Elec = \text{MAX}(0.022638 - act\ En \text{mix*ramp}(0.0005,5,36),0)$

(517)  $s\ Liq\ HH = 0.16923 - act\ En$  (541)  $share\ ELG\ i[\text{industry}] = \text{share}\ nrg\ i[\text{electrRenew,industry}] + \text{share}\ nrg\ i[\text{gas,industry}]$   
(542)  $share\ ELG\ nrg[nrg] = \text{gamma}\ ELG\ gas[nrg] * \text{beta}\ ELG\ gas\ delay + s\ ELG\ Elec[nrg] * \text{beta}\ ELG\ elect\ delay$

(518)  $s\ Nuc\ Elect = \text{MAX}(0.775108 - act\ En \text{mix* ramp}(\text{jump}\ \text{Nucl}, 5,36),0)$  (543)  $share\ EN\ ETS[\text{Fossil Energy}] =$

(519)  $s\ NUCLEAR\ TPES = Elec\ Nuc/TPES\ io$

(521)  $s\ Renew\ Elec = 1 - (s\ gas\ Elec + s\ Nuc\ Elect + s\ oil\ Elec + s\ solid\ Elec)$

(522)  $s\ Rnw\ HH = 0.16977 + act\ En$  (544)  $share\ EN\ ETS[\text{Fossil Energy}] =$   
(545)  $share\ EN\ ETS[\text{Fossil Energy}] =$

(523)  $s\ Rnw\ TPES = Elec\ Rnw/TPES\ io$

(524)  $s\ Sol\ HH = 0.00633 - act\ En$  (546)  $share\ EN\ ETS[\text{Fossil Energy}] =$   
(547)  $share\ EN\ ETS[\text{Fossil Energy}] =$

(525)  $s\ solid\ Elec =$

List of *Main Variables*


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$$\frac{\text{CO2 i[Fossil Energy]}}{\text{CO2 i[Fossil Energy]} + \text{CO2 i[Electricity]}}$$

$$\text{share EN ETS[Electricity]} = \frac{\text{CO2 i[Electricity]}}{\text{CO2 i[Fossil Energy]} + \text{CO2 i[Electricity]}}$$

(545) 
$$\text{share Eq high} = \frac{\text{Eq high delay}}{\text{Eq delay}}$$

(546) 
$$\text{share Eq Kap} = \frac{\text{Eq Kap delay}}{\text{Eq delay}}$$

(547) 
$$\text{share Eq middle} = \frac{\text{Eq middle delay}}{\text{Eq delay}}$$

(548) 
$$\text{share FD HH[industry]} = \frac{\text{Tot CYVeff i dom[industry]}}{\text{Tot FD HH}}$$

(549) 
$$\text{share FF i[industry]} = \frac{\text{share nrg i[liquid,industry]} + \text{share nrg i[solid,industry]}}{\text{share nrg i[liquid,industry]} + \text{share nrg i[solid,industry]}}$$

(551) 
$$\text{share GFCG i nom[industry]} = \frac{\text{GFCG i nom[industry]}}{\text{Tot GFCF}}$$

(554) 
$$\text{share GWB Ej[skill]} = \frac{\text{SUM(GWB Ej[skill,industry!])}}{\text{Tot GWB E}}$$

(555) 
$$\text{share high} = \frac{\text{LFS high}}{\text{Tot LFS}}$$

(556) 
$$\text{share income for Gini[sfor gini]} = \text{VECTOR REORDER}(\text{share of income for gini[for gini] , Income ordered for Gini [for gini] } )$$

(557) 
$$\text{share low} = 0.195 * \text{ramp}(0.0015, 1, 100) * (1 + \text{transitions LM})$$

(558) 
$$\text{share middle} = 0.4808 * \text{ramp}(0.0002, 1, 100) * (1 + \text{transitions LM} + \text{transitions MH})$$

(559) 
$$\text{share nrg i[solid,industry]} = \frac{\text{share En nrg i delay[solid,industry]} + \text{act En mix * Elect delay[solid,industry]}}{\text{share nrg i[liquid,industry]} + \text{share En nrg i delay[liquid,industry]} + \text{act En mix * Elect delay[liquid,industry]}}$$

$$\text{share nrg i[gas,industry]} = \frac{\text{share En nrg i delay[gas,industry]} + \text{act En mix * Elect delay[gas,industry]}}{\text{share nrg i[electrRenew,industry]} + \text{share En nrg i delay[electrRenew,industry]} + \text{act En mix * Elect delay[electrRenew,industry]}}$$

(560) 
$$\text{Share Nuclear Electr tpes} = \frac{\text{s Nuc Elect}}{\text{s Nuc Elect} + \text{s Renew Elec}} * \text{share TPES energy[electrRenew]}$$

(561) 
$$\text{share of GWB j[skill]} = \frac{\text{SUM(GWB Eji[skill,industry!])}}{\text{SUM(GWB Eji[skill!,industry!])}}$$

(562) 
$$\text{share of income for gini[for gini]} = \frac{\text{Gini[for gini]}}{\text{total income}}$$

(563) 
$$\text{share of income ordered[sfor gini]} = \text{VECTOR REORDER}(\text{share of income for gini[for gini] , sort order for gini[for gini] } )$$

(564) 
$$\text{SHARE OF JG} = \frac{\text{SUM(JG Ej[skill!])}}{\text{SUM(JG Ej[skill!])} + \text{Tot N E}}$$

(565) 
$$\text{share pop for Gini[sfor gini]} = \text{VECTOR REORDER}(\text{pop for gini[for gini] , Income ordered for Gini[for gini] } )$$

List of *Main Variables*

(566) share Renewable electricity tpes= s Renew Elec/(s Nuc Elect+s Renew Elec)*share TPES energy[electrRenew]	(598) tax floor 5[skill]= (initial tax floor 5- act BI*BI per cap[skill])*index avg Wage
(568) share skill[low]= share low share skill[middle]= share middle share skill[high]= share high	(599) Tax HH= SUM(TaxA Eji[skill!,industry!]) + SUM(TaxA Pj[skill!]) + SUM(TaxA Uj[skill !]) + SUM(TaxB Eji[skill!,industry!]) + SUM(TaxB Pj[skill!]) + SUM(TaxB U j[skill !]) + SUM(TaxD613 Eji[skill!,industry!]) + SUM(TaxD613 Pj[skill!]) + SUM(TaxD613 Uj [skill!]) + SUM(Tax FinG j[skill!]) + Tax FinG Kap
(569) share Tot CYVimp= Tot CYV imp/Tot CYV	(600) Tax Lab= SUM(Tax Lab i[industry!])-Tax Lab i[Public sector]
(570) share TPES energy[nrg]= TPES nrg[nrg]/TPES io	(601) Tax Lab i[industry]= taxD12 rate i[industry]*SUM(GWB Eji[skill!,industry])
(571) share Uj[skill]= Uj[skill]/Tot U	(602) Tax V= Stock Tot V * taxV rate
(592) Tax BCA i[industry] :EXCEPT: [Agriculture]= Imp CO2 i[industry]*Carbon Tax rate 2030*act BCA Tax BCA i[Agriculture]= 0	(603) Tax VAT= SUM(Tax VAT i[industry!])
(593) Tax FinG j[skill]= taxFin rate*(SUM(Int V jf[skill,wealth!])+Dvd j[skill]+MAX(GBond j[skill] ,0)+MAX(GEq j[skill],0))	(604) Tax VAT i[industry]= VAd i[industry]*taxVAT rate i[industry]
(594) Tax FinG Kap= taxFin rate*(SUM(Int V Kap f[wealth!]) + Dvd Kap +MAX(GBond Kap,0)+MAX(GEq Kap ,0))	(607) TaxA Eji[skill,industry]= taxA E rate*taxA E base*GWB Eji[skill,industry]
(595) tax floor 2[skill]= (initial tax floor 2- act BI*BI per cap[skill])*index avg Wage	(609) TaxA Pj[skill]= taxA P rate*GPB j[skill]
(596) tax floor 3[skill]= (initial tax floor 3- act BI*BI per cap[skill])*index avg Wage	(612) TaxA Uj[skill]= taxA U rate*taxA U base*GUB j[skill]
(597) tax floor 4[skill]= (initial tax floor 4- act BI*BI per cap[skill])*index avg Wage	(617) TaxB Eji[skill,industry]=

List of *Main Variables*

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( taxB E 2 rate*
MIN(tax floor 3[skill]-tax floor
2[skill],
MAX(base TaxB E*(wageh max E
ji[skill,industry]*H Ei
[industry])-tax floor
2[skill], 0)) +
taxB E 3 rate*
MIN(tax floor 4[skill]-tax floor
3[skill],
MAX(base TaxB E*(wageh max E
ji[skill,industry]*H Ei
[industry])-tax floor
3[skill], 0)) +
taxB E 4 rate*
MIN(tax floor 5[skill]-tax floor
4[skill],
MAX(base TaxB E*(wageh max E
ji[skill,industry]*H Ei
[industry])-tax floor
4[skill], 0)) +
taxB E 5
rate*MAX(base TaxB E*(wageh max E
ji[skill,industry]*H Ei[industry
])-tax floor 5[skill], 0)
) * N
Eji[skill,industry]
(618) taxB P base=
1-0.059-0.073
(619) TaxB Pj[skill]=
(taxB E 2 rate*MIN(tax
floor 3[skill]-tax floor
2[skill], MAX( taxB P base
*income P j[skill]-tax floor
2[skill] , 0 )) +
taxB E 3 rate*MIN(tax
floor 4[skill]-tax floor
3[skill], MAX( taxB P base
*income P j[skill]-tax floor
3[skill] , 0 )) +
taxB E 4 rate*MIN(tax
floor 5[skill]-tax floor
4[skill], MAX( taxB P base
*income P j[skill]-tax floor
4[skill] , 0 )) +
taxB E 5 rate*MAX(
taxB P base*income P j[skill]-tax
floor 5[skill] , 0
))*N Pj[skill]
(620) taxB U base=
1-0.038-0.053
(621) TaxB U j[skill]=
(
taxB E 2 rate*MIN(tax
floor 3[skill]-tax floor
2[skill], MAX( taxB U base
*UB j[skill]-tax floor
2[skill], 0 )) +
taxB E 3 rate*MIN(tax
floor 4[skill]-tax floor
3[skill], MAX( taxB U base
*UB j[skill]-tax floor
3[skill], 0 )) +
taxB E 4 rate*MIN(tax
floor 5[skill]-tax floor
4[skill], MAX( taxB U base
*UB j[skill]-tax floor
4[skill], 0 )) +
taxB E 5
rate*MAX(taxB U base*UB j[skill]-
tax floor 5[skill], 0 )
)*coverage UB ratio*N
Uj[skill]
(622) TaxC02 i[industry]=
Carbon Tax rate 2030 *
CO2 for carbon Tax[industry]
(625) TaxD613 Eji[skill,industry]=
(taxD613 E rate)*GWB
Eji[skill,industry]*coef taxD613
(627) TaxD613 Pj[skill]=
taxD613 P rate*GPB
j[skill]*coef taxD613
(629) TaxD613 Uj[skill]=
taxD613 U rate*GUB
j[skill]*coef taxD613
(630) TaxF i[industry]=
MAX(taxF rate
i[industry]*GF i[industry], 0)
(631) taxF rate i[industry]=
IF THEN ELSE( Time>7,
0.25,
IF THEN
ELSE(Time>6, 0.265,
IF THEN ELSE(Time>5, 0.28,
IF THEN ELSE(GF
i[industry]>500000
, IF THEN ELSE(Time>4, 0.31,
0.3333),
0.28

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List of *Main Variables*


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)
)
)
)
(633) taxV rate=
      0.00015*(1 + coeff
taxV DG)
(635) TC1i[industry]=
      SUM(wageh
ji[skill!,industry]*sigma
ji[skill!,industry] )*Output i
real[industry
      ]/lambda 1[industry] +
      p ELG
i[industry]*Output i
real[industry]*share ELG
i[industry]/eta 1[industry
      ] +
      p FF
i[industry]*Output i
real[industry]*share FF
i[industry]/eta 1[industry
      ] +
      (TaxC02 i[industry] +
cost ETS i[industry])/eta
1[industry]
(636) TC2i[industry]=
      SUM(wageh
ji[skill!,industry]*sigma
ji[skill!,industry] )*Output i
real[industry
      ]/lambda 2[industry]+
      p ELG
i[industry]*Output i
real[industry]*share ELG
i[industry]/eta 2[industry
      ]+
      p FF
i[industry]*Output i
real[industry]*share FF
i[industry]/eta 2[industry
      ]+
      (TaxC02
i[industry]+cost ETS
i[industry])/eta 2[industry]
(637) TC3i[industry]=
      SUM(wageh
ji[skill!,industry]*sigma
ji[skill!,industry] )*Output i
real[industry
      ]/lambda 3[industry]+
      p ELG
i[industry]*Output i
real[industry]*share ELG
i[industry]/eta 3[industry
      ]+
      p FF
i[industry]*Output i
real[industry]*share FF
i[industry]/eta 3[industry
      ]+
      (TaxC02
i[industry]+cost ETS
i[industry])/eta 3[industry]
(638) TC4i[industry]=
      SUM(wageh
ji[skill!,industry]*sigma
ji[skill!,industry] )*Output i
real[industry
      ]/lambda 4[industry]+
      p ELG
i[industry]*Output i
real[industry]*share ELG
i[industry]/eta 4[industry
      ]+
      p FF
i[industry]*Output i
real[industry]*share FF
i[industry]/eta 4[industry
      ]+
      (TaxC02
i[industry]+cost ETS
i[industry])/eta 4[industry]
(645) Time Nucl zero=
      2050 - 2014
(650) Tot CO2 Gas=
      SUM(CO2 Gas
i[industry!]) + CO2 HH nrg[gas]
(651) TOT CO2 HH=
      CO2 HH nrg[solid] +
CO2 HH nrg[liquid] +CO2 HH
nrg[gas]
(652) Tot CO2 Liq=
      SUM(CO2 Liq
i[industry!])+ CO2 HH nrg[liquid]
(653) Tot CO2 Sect=
      SUM(CO2 i[industry!])
(654) Tot CO2 Sol=

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List of *Main Variables*

$\text{SUM}(\text{CO2 Sol } i[\text{industry!}]) + \text{CO2 HH nrg}[\text{solid}]$	rate	$\text{POP Working age} * \text{LFP}$
(655) Tot CYV= $\text{CYV Kap} + \text{SUM}(\text{CYVj}[\text{skill!}])$	(672) Tot N E= $\text{SUM}(\text{N Ei}[\text{industry!}])$	
(656) Tot CYV imp= $\text{SUM}(\text{Tot CYVeff } i \text{ imp}[\text{industry!}])$	(673) Tot NEyFC ji[skill]= $\text{SUM}(\text{N E yFC } ji[\text{skill}, \text{industry!}])$	
(657) Tot CYVeff i[industry]= $\text{Tot CYV} * \text{beta eff } i[\text{industry}]$	(674) Tot NF= $\text{SUM}(\text{NF } i[\text{industry!}])$	
(658) Tot CYVeff i dom[industry]= $\text{Tot CYVeff } i[\text{industry}] * (1 - \text{share Cimp } i[\text{industry}])$	(675) Tot Output real= $\text{SUM}(\text{Output } i \text{ real}[\text{industry!}])$	
(659) Tot CYVeff i imp[industry]= $\text{share Cimp } i[\text{industry}] * \text{Tot CYVeff } i[\text{industry}]$	(676) Tot POP= Pop 0 To 14 + Pop 15 To 44 + Pop 45 To 64 + Pop 65	
(660) Tot Debt= $\text{SUM}(\text{Debt } i[\text{industry!}])$	Plus	
(661) Tot Dvd= $\text{SUM}(\text{Tot Dvd } i[\text{industry!}])$	(677) Tot real C noKap= $\text{SUM}(\text{real CYV } j[\text{skill!}])$	
(662) Tot Dvd i[industry]= $\text{Extra Dvd } i[\text{industry}] + \text{Dvd } i[\text{industry}]$	(678) Tot real CYV= $\text{SUM}(\text{real CYV } j[\text{skill!}]) + \text{real CYV Kap}$	
(663) Tot Elec= $\text{Elec HH} + \text{TPES Elec}$	(679) Tot real Trade Bal= $\text{SUM}(\text{real Trade Bal } i[\text{industry!}])$	
(664) Tot ETS= $\text{SUM}(\text{cost ETS } i[\text{industry!}])$	(680) Tot real YVD= $\text{real YVD Kap} + \text{Tot real YVD noKap}$	
(665) Tot FD HH= $\text{SUM}(\text{Tot CYVeff } i \text{ dom}[\text{industry!}])$	(681) Tot real YVD noKap= $\text{SUM}(\text{real YVDj}[\text{skill!}])$	
(667) Tot GFCF= $\text{SUM}(\text{GFCG } i \text{ nom}[\text{industry!}])$	(682) Tot realCYVeff i[industry]= $\text{SUM}(\text{real CYVeff } ji[\text{skill!}, \text{industry}]) + \text{real CYVeff Kap } i[\text{industry}]$	
(669) Tot GWB E= $\text{SUM}(\text{GWB } Eji[\text{skill!}, \text{industry!}])$	(683) "Tot Rnw/TPES"= $(\text{Elec Rnw} + \text{Rnw HH}) / \text{Tot TPES}$	
(670) Tot in JG Ej= $\text{SUM}(\text{in JG } Eji[\text{skill!}])$	(684) Tot Tax BCA= $\text{SUM}(\text{Tax BCA } i[\text{industry!}])$	
(671) Tot LFS=		

List of *Main Variables*

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(685) Tot Tax CO2=                               Tot Zimp i[Public sector]=
      SUM(TaxC02                                  0
i[industry!])                                     Tot Zimp i[Other]=
                                                    0

(686) Tot TaxF=                                   (694) total income=
      SUM(TaxF                                     SUM(Gini[for gini!])
i[industry!])-TaxF i[Public
sector]

(687) Tot TPES=                                   (695) TPES Elec=
      TPES HH+TPES io                             SUM(TPES
i[industry!]*share Elect
i[industry!])

(688) Tot TrB=                                   (696) TPES HH=
      SUM(TrB j[skill!])                          (Tot realCYVeff
i[Fossil Energy]+Tot realCYVeff
i[Electricity])/etaHH/1e+06

(689) Tot U=                                       (697) TPES HH nrg[solid]=
      SUM(LFS j[skill!])-Tot                      s Sol HH*TPES HH
N E-SUM(JG Ej[skill!])                          TPES HH nrg[liquid]=
                                                    s Liq HH*TPES HH
                                                    TPES HH nrg[gas]=
                                                    s Gas HH*TPES HH

(690) Tot U rate=                                 (698) TPES i[industry]=
      Tot U/SUM(LFS                               Output i
j[skill!])                                       real[industry]/avg etaEN
                                                    i[industry]/1e+06

(691) Tot Wage j[skill]=                         (699) TPES io=
      SUM(wageh max E                             SUM(TPES i[industry!])
ji[skill,industry!]*N
Eji[skill,industry!]*H
Ei[industry!
])

(692) Tot YVD=                                   (700) TPES nrg[solid]=
      SUM(YVD j[skill!])+YVD                      SUM(TPES
Kap                                               i[industry!]*share nrg
(693) Tot Zimp i [Agriculture]=                  i[solid,industry!])
      SUM(Zimp                                     TPES nrg[liquid]=
ii[Agriculture,industry!])                       SUM(TPES
      Tot Zimp i[Mining]=                         i[industry!]*share nrg
      SUM(Zimp                                     i[liquid,industry!])
ii[Mining,industry!])                            TPES nrg[gas]=
      Tot Zimp i[Fossil Energy]=                  SUM(TPES
      SUM(Zimp ii[Fossil                           i[industry!]*share nrg
Energy,industry!])                               i[gas,industry!])
      Tot Zimp i[Manufacturing]=                  TPES nrg[electrRenew]=
      SUM(Zimp                                     SUM(TPES
ii[Manufacturing,industry!])                    i[industry!]*share nrg
      Tot Zimp i[Electricity]=                   i[electrRenew,industry!])
      0
      Tot Zimp i[Construction]=
      0
      Tot Zimp i[Nonfinancial and
Social Economy]=
      SUM(Zimp
ii[Nonfinancial and Social
Economy,industry!])
      Tot Zimp i[Financial
sector]=
0

(701) transitions LM=
      IF THEN
ELSE (Time>0, (1+ramp(0.01,1,10))*
SMOOTH(IF THEN ELSE( d uML = 0,
0,

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List of *Main Variables*


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IF THEN ELSE(d uML>0, sens ML*d uML
uML
,
sens LM*d uML)
)
,4) ,
-0.043)
(702) transitions MH=
IF THEN
ELSE(Time>0,(1+ramp(0.005,1,10))*
SMOOTH(IF THEN ELSE(d uHM=0, 0 ,
IF THEN ELSE(d uHM>0, sens
HM*d uHM , sens MH*d uHM ) ),4),-
0.019)
(703) TrB j[skill]=
GPB j[skill] + GUB
j[skill] + TrSoc j[skill]
(705) TrSoc FCj[skill]=
TrSoc FC j
delay[skill]*(1+Inflation)
(706) TrSoc j[skill]=
TrSoc SD
j[skill]+TrSoc FCj[skill]+TrSoc
RSAj[skill]+BI j[skill]
(707) TrSoc RSAj[skill]=
(1-act BI)*coverage
RSAj ratio[skill]*initial TrSoc
RSA j[skill]*(N inA j
[skill]+(1-act JG)*N
Uj[skill])*(CPI)
(708) TrSoc SD j[skill]=
(MAX(TrSoc SD j
delay[skill]*(1+Inflation)-
0.0774*BI j[skill], 0 ))
(710) U rate j[skill]=
Uj[skill]/LFS j[skill]
(712) UB j[skill]=
UBW ratio * ( (SUM
(GWB Eji[skill,industry!]))/
(SUM (N
Eji[skill,industry!]))
)
(714) uc i[industry]=
(Output FD
i[industry]/p i[industry])/(yFC
i[industry])
(717) Uj[skill]=
LFS j[skill] - N
Ej[skill] - JG Ej[skill]
(718) ULC delay[industry]=
LabC i
delay[industry]/Output i
delay[industry]
(719) UMC delay[industry]=
(Zi
delay[industry]+Zimp i
delay[industry]+k deprec
i[industry])/(Output i delay
[industry])
(721) V equities=
Stock Vf[equities]
(722) V0 jf[skill,wealth]=
initial Tot V*V0jf
weights[skill,wealth]
(723) V0 Kap f[wealth]=
initial Tot V*V0f
weights[wealth]
(726) VAd i[industry]=
Output i
real[industry] - Z i[industry] -
Zimp i[industry]
(727) VD j[skill]=
GFinY j[skill]-Tax
FinG j[skill]
(728) VD Kap=
GFinY Kap - Tax FinG
Kap
(729) W JG=
10.79*CPI
(730) wageh ji[skill,industry]=
(1- omegal) * (1 +
omega lambda j[skill] * SMOOTH( g
lambda i[industry],
3) +
omega
gNE j[skill] * g NE
ji[skill,industry] -
0*omega
gNU j[skill]*g NU j[skill]
)

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List of *Main Variables*

	*wageh	
ji delay[skill,industry]		(748) Z i[industry]=
(732) wageh max E		SUM(Zii[industry!,industry])
ji[skill,industry]=		+ TaxC02 i[industry] + cost ETS
MAX(wageh		i[industry]
ji[skill,industry], act JG*W JG )		+ Tax BCA i[industry]
(735) Xi[industry]=		(750) ZEn i[industry]=
ZEn rate i[industry] -		(Zii[Fossil
LAB industry rate[industry]		Energy,industry]+Zii[Electricity,
(736) YD j[skill]=		industry)+TaxC02 i[industry
NWB Ej[skill] + NUB		] + cost ETS i[industry]
j[skill] + NPB j[skill] +		(751) ZEn rate i[industry]=
TrSoc j[skill] + MixY		(ZEn i[industry] - ZEn
E j[skill]		delay i[industry])/MAX(ZEn delay
(738) yFC i[industry]=		i[industry],0.1)
eps k i[industry]*k		(753) Zii[Agriculture,industry]=
i[industry]		Acoeff[Agriculture,industry]
(739) Yups1[industry]=		*Output i real[industry]
gamma1[industry]*(1-		Zii[Mining,industry]=
gamma2[industry])* (1-		Acoeff[Mining,industry]*MAX(
gamma3[industry])* (1-		Output i real[industry],0)
gamma4[industry		Zii[Fossil Energy,industry]=
)]		Acoeff[Fossil
(740) Yups2[industry]=		Energy,industry]*MAX(Output i
gamma1[industry]*gamma2[indu		real[industry],0)
stry]*(1-gamma3[industry])* (1-		Zii[Manufacturing,industry]=
gamma4[industry		Acoeff[Manufacturing,industr
)]		]*MAX(Output i real[industry],0)
(741) Yups3[industry]=		Zii[Electricity,industry]=
gamma1[industry]*gamma3[indu		Acoeff[Electricity,industry]
stry]*(1-gamma2[industry])* (1-		*MAX(Output i real[industry],0)
gamma4[industry		Zii[Construction,industry]=
)]		Acoeff[Construction,industry
(742) Yups4[industry]=		]*MAX(Output i real[industry],0)
gamma1[industry]*gamma2[indu		Zii[Nonfinancial and Social
stry]*gamma3[industry]*(1-		Economy,industry]=
gamma4[industry))		Acoeff[Nonfinancial
(743) Yups5[industry]=		and Social
gamma4[industry]		Economy,industry]*MAX(Output i
(744) YVD j[skill]=		real[industry
YD j[skill] + VD		],0)
j[skill]		Zii[Financial
(746) YVD Kap=		sector,industry]=
VD Kap + MixY Kap		Acoeff[Financial
		sector,industry]*MAX(Output i
		real[industry],0)
		Zii[Public sector,industry]=

