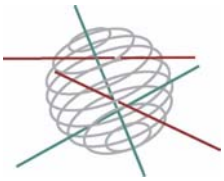
SCIENTIFIC SUPPORT PLAN FOR A SUSTAINABLE DEVELOPMENT POLICY
(SPSD II)



Part 1:
Sustainable production and consumption patterns

FINAL REPORT

GreenMod II: Dynamic Regional and Global Multi-Sectoral Modelling of the Belgian Economy for Impact, Scenario and Equity Analysis

Appendix 1: Equations

CP/51

Université Libre de Bruxelles, DULBEA
Université Catholique de Louvain, CORE
ECONOTEC

Coordinator
Prof. Ali Bayar
Université Libre de Bruxelles
DULBEA – CP140
50 Avenue F. Roosevelt
B-1050 Bruxelles

Tel: +32 2 650 4115
Fax: +32 2 650 4137
Ali.Bayar@ulb.ac.be

May 2006

BELGIAN SCIENCE POLICY ULB UCL ECONOTEC CONSULTANTS

6.2. Equations

Firms:

$$NRES_{agr,r} = aNRES_{agr,r} \cdot (XDm_{agr,r} + \sum_{v} XDv_{agr,v,r}) \quad (6.2.1)$$

$$aKLEm_{sc,r} \cdot XDm_{sc,r} = KLEm_{sc,r} \quad (6.2.2)$$

$$KEm_{sc,r} = KLEm_{sc,r} \cdot (TFP_{sc,r} \cdot aPm1_{sc,r})^{(\sigma Pm1_{sc,r}-1)} \cdot \gamma Pm11_{sc,r}^{\sigma Pm1_{sc,r}} \cdot (PKLEm_{sc,r} / PKEm_{sc,r})^{\sigma Pm1_{sc,r}} \quad (6.2.3)$$

$$Lm_{sc,r} = KLEm_{sc,r} \cdot (TFP_{sc,r} \cdot aPm1_{sc,r})^{(\sigma Pm1_{sc,r}-1)} \cdot \gamma Pm12_{sc,r}^{\sigma Pm1_{sc,r}} \cdot [PKLEm_{sc,r} /((1+tl_{sc,r}) \cdot PL_{sc,r})]^{\sigma Pm1_{sc,r}} - KLEm_{sc,r} \cdot (TFP_{sc,r} \cdot aPm1_{sc,r})^{(\sigma Pm1_{sc,r}-1)} \cdot \gamma Pm12_{sc,r}^{\sigma Pm1_{sc,r}} \cdot [PKLEm_{sc,r} /((1+tl_{sc,r}) \cdot PL_{sc,r})]^{\sigma Pm1_{sc,r}} \cdot (fcLmZ_{sc,r} \cdot NFZ_{sc,r} / LmZ_{scimpf,r}) + NF_{sc,r} \cdot fcLm_{sc,r} \quad (6.2.4)$$

$$KSKm_{scnel,r} = KEm_{scnel,r} \cdot aPm2_{scnel,r}^{(\sigma Pm2_{scnel,r}-1)} \cdot \gamma Pm21_{scnel,r}^{\sigma Pm2_{scnel,r}} \cdot [PKEm_{scnel,r} /((1+tkf_{scnel,r} \cdot MUF + tk_{scnel,r}) \cdot RKm_{scnel,r} + d_{scnel,r} \cdot PI)]^{\sigma Pm2_{scnel,r}} \quad (6.2.5)$$

$$KSKm_{sel,r} = KEm_{sel,r} \cdot aPm2_{sel,r}^{(\sigma Pm2_{sel,r}-1)} \cdot \gamma Pm21_{sel,r}^{\sigma Pm2_{sel,r}} \cdot [PKEm_{sel,r} /((1+tkf_{sel,r} \cdot MUF + tk_{sel,r}) \cdot RKel_{r} + d_{sel,r} \cdot PI)]^{\sigma Pm2_{sel,r}} \quad (6.2.6)$$

$$ENERm_{sc,r} = KEm_{sc,r} \cdot aPm2_{sc,r}^{(\sigma Pm2_{sc,r}-1)} \cdot \gamma Pm22_{sc,r}^{\sigma Pm2_{sc,r}} \cdot (PKEm_{sc,r} / PENm_{sc,r})^{\sigma Pm2_{sc,r}} \quad (6.2.7)$$

$$ENEROGm_{scnl,r} = ENERm_{scnl,r} \cdot (aPm3_{scnl,r} \cdot Pr odEN_{scnl,r})^{(\sigma Pm3_{scnl,r}-1)} \cdot \gamma Pm31_{scnl,r}^{\sigma Pm3_{scnl,r}} \cdot (PENm_{scnl,r} / PEOGm_{scnl,r})^{\sigma Pm3_{scnl,r}} \quad (6.2.8)$$

$$ENEROGm_{scl,r} = aPm3nel_{scl,r} \cdot Pr odEN_{scl,r} \cdot ENERm_{scl,r} \quad (6.2.9)$$

$$ENINPm_{el,scnl,r} = ENERm_{scnl,r} \cdot (aPm3_{scnl,r} \cdot Pr odEN_{scnl,r})^{(\sigma Pm3_{scnl,r}-1)} \cdot \gamma Pm32_{el,scnl,r}^{\sigma Pm3_{scnl,r}} \cdot (PENm_{scnl,r} /((1-tscio_{el,scnl,r} - tsciof_{el,scnl,r}) \cdot (1+vatio_{el,scnl,r}) \cdot P_{el,r}))^{\sigma Pm3_{scnl,r}} \quad (6.2.10)$$

$$ENINPm_{el,scl,r} = aPm3_{scl,r} \cdot Pr odEN_{scl,r} \cdot ENERm_{scl,r} \quad (6.2.11)$$

$$ENINPm_{enl,sc,r} = ENEROGm_{sc,r} \cdot aPm4_{sc,r}^{(\sigma Pm4_{sc,r}-1)} \cdot \gamma Pm4_{enl,sc,r}^{\sigma Pm4_{sc,r}} \cdot [PEOGm_{sc,r} /((1-tscio_{enl,sc,r} - tsciof_{enl,sc,r}) \cdot (1+vatio_{enl,sc,r}) \cdot P_{enl,r})]^{\sigma Pm4_{sc,r}} \quad (6.2.12)$$

$$aLm1_{sl,r} \cdot XDm_{sl,r} = KLm_{sl,r} \quad (6.2.13)$$

$$aLm2_{en,sl,r} \cdot ProdEN_{sl,r} \cdot XDm_{sl,r} = ENINPm_{en,sl,r} \quad (6.2.14)$$

$$aLm1_{sl,r} = aLmT_{sl,r} - \sum_{en} aLm2_{en,sl,r} \cdot ProdEN_{sl,r} - \sum_{nen} io_{nen,sl,r} \tag{6.2.15}$$

$$\begin{aligned} &Lm_{sl,r} = KLm_{sl,r} \cdot (TFP_{sl,r} \cdot aLm3_{sl,r})^{(\sigma Lm1_{sl,r}-1)} \cdot \gamma Lm12_{sl,r}^{\sigma Lm1_{sl,r}} \cdot \\ &[PKLm_{sl,r} / ((1+tl_{sl,r}) \cdot PL_{sl,r})]^{\sigma Lm1_{sl,r}} - \\ &KLm_{sl,r} \cdot (TFP_{sl,r} \cdot aLm3_{sl,r})^{(\sigma Lm1_{sl,r}-1)} \cdot \gamma Lm12_{sl,r}^{\sigma Lm1_{sl,r}} \cdot \\ &[PKLm_{sl,r} / ((1+tl_{sl,r}) \cdot PL_{sl,r})]^{\sigma Lm1_{sl,r}} \cdot \\ &(fcLmZ_{sl,r} \cdot NFZ_{sl,r} / LmZ_{sl,r}) + NF_{sl,r} \cdot fcLm_{sl,r} \end{aligned} \tag{6.2.16}$$

$$\begin{aligned} &KSKm_{slnng,r} = KLm_{slnng,r} \cdot (TFP_{slnng,r} \cdot aLm3_{slnng,r})^{(\sigma Lm1_{slnng,r}-1)} \cdot \gamma Lm11_{slnng,r}^{\sigma Lm1_{slnng,r}} \cdot \\ &[PKLm_{slnng,r} / ((1+tkf_{slnng,r} \cdot MUF + tk_{slnng,r}) \cdot RKm_{slnng,r} + d_{slnng,r} \cdot PI)]^{\sigma Lm1_{slnng,r}} \end{aligned} \tag{6.2.17}$$

$$\begin{aligned} &KSKm_{sng,r} = KLm_{sng,r} \cdot (TFP_{sng,r} \cdot aLm3_{sng,r})^{(\sigma Lm1_{sng,r}-1)} \cdot \gamma Lm11_{sng,r}^{\sigma Lm1_{sng,r}} \cdot \\ &[PKLm_{sng,r} / ((1+tkf_{sng,r} \cdot MUF + tk_{sng,r}) \cdot RKng_{r} + d_{sng,r} \cdot PI)]^{\sigma Lm1_{sng,r}} \end{aligned} \tag{6.2.18}$$

$$aKLEv_{sc,v,r} \cdot XDv_{sc,v,r} = KLEv_{sc,v,r} \tag{6.2.19}$$

$$KEv_{sc,v,r} = KLEv_{sc,v,r} \cdot aPv1_{sc,v,r}^{(\sigma Pv1_{sc,v,r}-1)} \cdot \gamma Pv11_{sc,v,r}^{\sigma Pv1_{sc,v,r}} \cdot (PKLEv_{sc,v,r} / PKEv_{sc,v,r})^{\sigma Pv1_{sc,v,r}} \tag{6.2.20}$$

$$\begin{aligned} &Lv_{sc,v,r} = KLEv_{sc,v,r} \cdot aPv1_{sc,v,r}^{(\sigma Pv1_{sc,v,g}-1)} \cdot \gamma Pv12_{sc,v,r}^{\sigma Pv1_{sc,v,r}} \cdot [PKLEv_{sc,v,r} / ((1+tl_{sc,r}) \cdot PL_{sc,r})]^{\sigma Pv1_{sc,v,r}} - \\ &KLEv_{sc,v,r} \cdot aPv1_{sc,v,r}^{(\sigma Pv1_{sc,v,g}-1)} \cdot \gamma Pv12_{sc,v,r}^{\sigma Pv1_{sci,v,r}} \cdot [PKLEv_{sc,v,r} / ((1+tl_{sc,r}) \cdot PL_{sc,r})]^{\sigma Pv1_{sc,v,r}} \cdot \\ &(fcLvZ_{sc,v,r} \cdot NFZ_{sc,r} / LvZ_{sc,v,r}) + NF_{sc,r} \cdot fcLv_{sc,v,r} \end{aligned} \tag{6.2.21}$$

$$\begin{aligned} &KSKv_{sc,v,r} = KEv_{sc,v,r} \cdot aPv2_{sc,v,r}^{(\sigma Pv2_{sc,v,r}-1)} \cdot \gamma Pv21_{sc,v,r}^{\sigma Pv2_{sc,v,r}} \cdot \\ &[PKEv_{sc,v,r} / ((1+tkf_{sc,r} \cdot MUF + tk_{sc,r}) \cdot RKv_{sc,v,r} + d_{sc,r} \cdot PI)]^{\sigma Pv2_{sc,v,r}} \end{aligned} \tag{6.2.22}$$

$$\begin{aligned} &ENERv_{sc,v,r} = KEv_{sc,v,r} \cdot aPv2_{sc,v,r}^{(\sigma Pv2_{sc,v,r}-1)} \cdot \gamma Pv22_{sc,v,r}^{\sigma Pv2_{sc,v,r}} \cdot \\ &(PKEv_{sc,v,r} / PENv_{sc,v,r})^{\sigma Pv2_{sc,v,r}} \end{aligned} \tag{6.2.23}$$

$$\begin{aligned} &ENEROGv_{scnl,v,r} = ENERv_{scnl,v,r} \cdot aPv3_{scnl,v,r}^{(\sigma Pv3_{scnl,v,r}-1)} \cdot \gamma Pv31_{scnl,v,r}^{\sigma Pv3_{scnl,v,r}} \cdot \\ &(PENv_{scnl,v,r} / PEOGv_{scnl,v,r})^{\sigma Pv3_{scnl,v,r}} \end{aligned} \tag{6.2.24}$$

$$ENEROGv_{scl,v,r} = aPv3nel_{scl,v,r} \cdot ENERv_{scl,v,r} \tag{6.2.25}$$

$$\begin{aligned} &ENINPv_{el,scnl,v,r} = ENERv_{scnl,v,r} \cdot aPv3_{scnl,v,r}^{(\sigma Pv3_{scnl,v,r}-1)} \cdot \gamma Pv32_{el,scnl,v,r}^{\sigma Pv3_{scnl,v,r}} \cdot \\ &[PENv_{scnl,v,r} / ((1-tscio_{el,scnl,r} - tsciof_{el,scnl,r}) \cdot (1+vatio_{el,scnl,r}) \cdot P_{el,r})]^{\sigma Pv3_{scnl,v,r}} \end{aligned} \tag{6.2.26}$$

$$ENINPv_{el,scl,v,r} = aPv3_{scl,v,r} \cdot ENERv_{scl,v,r} \tag{6.2.27}$$

$$\begin{aligned} &ENINPv_{enl,sc,v,r} = ENEROGv_{sc,v,r} \cdot aPv4_{sc,v,r}^{(\sigma Pv4_{sc,v,r}-1)} \cdot \gamma Pv4_{enl,sc,v,r}^{\sigma Pv4_{sc,v,r}} \cdot \\ &[PEOGv_{sc,v,r} / ((1-tscio_{enl,sc,r} - tsciof_{enl,sc,r}) \cdot (1+vatio_{enl,sc,r}) \cdot P_{enl,r})]^{\sigma Pv4_{sc,v,r}} \end{aligned} \tag{6.2.28}$$

$$aLv1_{sl,v,r} \cdot XDv_{sl,v,r} = KLv_{sl,v,r} \tag{6.2.29}$$

$$aLv2_{en,sl,v,r} \cdot XDv_{sl,v,r} = ENINPv_{en,sl,v,r} \tag{6.2.30}$$

$$\begin{aligned} Lv_{sl,v,r} &= KLv_{sl,v,r} \cdot aLv3_{sl,v,r}^{(\sigma Lv1_{sl,v,r}-1)} \cdot \gamma Lv12_{sl,v,r}^{\sigma Lv1_{sl,v,r}} \cdot \\ &[PKLv_{sl,v,r} /((1+tl_{sl,r}) \cdot PL_{sl,r})]^{\sigma Lv1_{sl,v,r}} - \\ &KLv_{sl,v,r} \cdot aLv3_{sl,v,r}^{(\sigma Lv1_{sl,v,r}-1)} \cdot \gamma Lv12_{sl,v,r}^{\sigma Lv1_{sl,v,r}} \cdot \\ &[PKLv_{sl,v,r} /((1+tl_{sl,r}) \cdot PL_{sl,r})]^{\sigma Lv1_{sl,v,r}} \cdot \\ &(fcLvZ_{sl,v,r} \cdot NFZ_{sl,r} / LvZ_{sl,v,r}) + NF_{sl,r} \cdot fcLv_{sl,v,r} \end{aligned} \tag{6.2.31}$$

$$\begin{aligned} KSKv_{sl,v,r} &= KLv_{sl,v,r} \cdot aLv3_{sl,v,r}^{(\sigma Lv1_{sl,v,r}-1)} \cdot \gamma Lv11_{sl,v,r}^{\sigma Lv1_{sl,v,r}} \cdot \\ &[PKLv_{sl,v,r} /((1+tkf_{sl,r} \cdot MUF + tk_{sl,r}) \cdot RKv_{sl,v,r} + d_{sl,r} \cdot PI)]^{\sigma Lv1_{sl,v,r}} \end{aligned} \tag{6.2.32}$$

$$KLm_{bkng,r} = aLm1_{bkng,r} \cdot markupBK_{bkng,r} \cdot XDm_{bkng,r} \tag{6.2.33}$$

$$ENINPm_{co,bkng,r} = aLm2_{co,bkng,r} \cdot markupBK_{bkng,r} \cdot XDm_{bkng,r} \tag{6.2.34}$$

$$\begin{aligned} KSKm_{bkng,r} &= KLm_{bkng,r} \cdot \gamma BKng2_{r}^{\sigma BKng_r} \cdot \\ &[PKLm_{bkng,r} /((1+tkf_{bkng,r} \cdot MUF + tk_{bkng,r}) \cdot RKng_{r} + d_{bkng,r} \cdot PI)]^{\sigma BKng_r} \end{aligned} \tag{6.2.35}$$

$$Lm_{bkng,r} = KLm_{bkng,r} \cdot \gamma BKngl_{r}^{\sigma BKng_r} \cdot [PKLm_{bkng,r} /((1+tl_{bkng,r}) \cdot PL_{bkng,r})]^{\sigma BKng_r} \tag{6.2.36}$$

$$\begin{aligned} &NRES_{bkel,r} \cdot (PNRES_{r} \cdot markupBK_{bkel,r})^{\sigma BKel1_{bkel,r}} = XDmEL_{bkel,r} \cdot \\ &(\sum_{el} P_{el,r})^{\sigma BKel1_{bkel,r}} \cdot \gamma BKel11_{bkel,r}^{\sigma BKel1_{bkel,r}} \end{aligned} \tag{6.2.37}$$

$$FKLO_{bkel,r} \cdot PFKLO_{bkel,r}^{\sigma BKel1_{bkel,r}} = XDmEL_{bkel,r} \cdot (\sum_{el} P_{el,r})^{\sigma BKel1_{bkel,r}} \cdot \gamma BKel12_{bkel,r}^{\sigma BKel1_{bkel,r}} \tag{6.2.38}$$

$$FF_{bkel,r} \cdot (PFF_{r} \cdot markupBK_{bkel,r})^{\sigma BKel2_{bkel,r}} = FKLO_{bkel,r} \cdot PFKLO_{bkel,r}^{\sigma BKel2_{bkel,r}} \cdot \gamma BKel21_{bkel,r}^{\sigma BKel2_{bkel,r}} \tag{6.2.39}$$

$$KLO_{bkel,r} = FKLO_{bkel,r} \cdot (PFKLO_{bkel,r} / PKLO_{bkel,r})^{\sigma BKel2_{bkel,r}} \cdot \gamma BKel22_{bkel,r}^{\sigma BKel2_{bkel,r}} \tag{6.2.40}$$

$$KLm_{bkel,r} = aLm1_{bkel,r} \cdot markupBK_{bkel,r} \cdot KLO_{bkel,r} \tag{6.2.41}$$

$$\begin{aligned} KSKm_{bkel,r} &= KLm_{bkel,r} \cdot [PKLm_{bkel,r} / (RKel_{r} \cdot (1+tkf_{bkel,r} \cdot MUF + tk_{bkel,r}) + \\ &PI \cdot d_{bkel,r})]^{\sigma BKel3_{bkel,r}} \cdot \gamma BKel31_{bkel,r}^{\sigma BKel3_{bkel,r}} \end{aligned} \tag{6.2.42}$$

$$Lm_{bkel,r} = KLm_{bkel,r} \cdot [PKLm_{bkel,r} / ((1+tl_{bkel,r}) \cdot PL_{bkel,r})]^{\sigma BKel3_{bkel,r}} \cdot \gamma BKel32_{bkel,r}^{\sigma BKel3_{bkel,r}} \tag{6.2.43}$$

$$XDv_{s,v,r} = XDrig_{s,r} \cdot aO2_{s,r}^{(\sigma O2_{s,r}-1)} \cdot \gamma O2_{s,v,r}^{\sigma O2_{s,r}} \cdot (PDrig_{s,r} / PDv_{s,v,r})^{\sigma O2_{s,r}} \tag{6.2.44}$$

$$\begin{aligned} XDrig_{s,r} &= (XD_{s,r} - CSEARCH_{s,r} / PD_{s,r}) \cdot aO1_{s,r}^{(\sigma O1_{s,r}-1)} \cdot \gamma O12_{s,r}^{\sigma O1_{s,r}} \\ &\cdot (PD_{s,r} / PDrig_{s,r})^{\sigma O1_{s,r}} \end{aligned} \tag{6.2.45}$$

$$XDm_{s,r} = (XD_{s,r} - CSEARCH_{s,r} / PD_{s,r}) \cdot aO1_{s,r}^{(\sigma O1_{s,r}-1)} \cdot \gamma O11_{s,r}^{\sigma O1_{s,r}} \cdot (PD_{s,r}/PDma_{s,r})^{\sigma O1_{s,r}} \quad (6.2.46)$$

$$SF_r = (1 - \sum_d aich_{d,r}) \cdot (\sum_{scnel} KSKm_{scnel,r} \cdot RKm_{scnel,r} + \sum_{slnng} KSKm_{slnng,r} \cdot RKm_{slnng,r} + \sum_{sel} KSKm_{sel,r} \cdot RKel_r + \sum_{sng} KSKm_{sng,r} \cdot RKng_r + \sum_{s,v} KSKv_{s,v,r} \cdot RKv_{s,v,r}) - TRFGF_r \cdot INDEX_r - TRHF_r \cdot INDEX_r + \sum_{bkng} KSK_{bkng,r} \cdot RKng_r + \sum_{bkel} KSK_{bkel,r} \cdot RKel_r \quad (6.2.47)$$

$$MCOSTS_{s,r} \cdot (XD_{s,r} - CSEARCH_{s,r} / PD_{s,r}) \cdot (1 - tp_{s,r} - tpf_{s,r} + tsp_{s,r} + tspf_{s,r}) = [(XD_{s,r} \cdot PD_{s,r} - CSEARCH_{s,r}) \cdot (1 - tp_{s,r} - tpf_{s,r} + tsp_{s,r} + tspf_{s,r}) - (fcL_{s,r} + fcK_{s,r}) \cdot NF_{s,r} \cdot GDPDEF] \quad (6.2.48)$$

$$MCOSTS_{bkng,r} = \sum_{ng} P_{ng,r} \cdot (\varepsilon RegB_{bkng,r} \cdot NF_{bkng,r} - 1) / (elas RegB_{bkng,r} \cdot NF_{bkng,r}) \quad (6.2.49)$$

$$MCOSTS_{bkel,r} = \sum_{el} P_{el,r} \cdot (\varepsilon RegB_{bkel,r} \cdot NF_{bkel,r} - 1) / (elas RegB_{bkel,r} \cdot NF_{bkel,r}) \quad (6.2.50)$$

$$NF_{s,r} = PROFITS_{s,r} / [(fcL_{s,r} + fcK_{s,r}) \cdot GDPDEF] \quad (6.2.51)$$

$$NF_{bkng,r} = (PROFITS_{bkng,r} + \sum_{sng} PROFITSDZ_{sng,r} \cdot GDPDEF) / [(fcLm_{bkng,r} + fcK_{bkng,r}) \cdot GDPDEF] \quad (6.2.52)$$

$$NF_{bkel,r} = (PROFITS_{bkel,r} + \sum_{sel} PROFITSDZ_{sel,r} \cdot GDPDEF) / [(fcLm_{bkel,r} + fcK_{bkel,r}) \cdot GDPDEF] \quad (6.2.53)$$

$$PROFITS_{solig,r} = \sum_c [(XDD_{solig,c,r} + EM_{solig,c,r,rr} + EM_{solig,c,r,rrr}) \cdot MCOSTS_{solig,r} / (elasReg_{solig,c,r} \cdot NF_{solig,r} - 1)] \quad (6.2.54)$$

$$PROFITS_{bkng,r} = XDm_{bkng,r} \cdot MCOSTS_{bkng,r} / (elas RegB_{bkng,r} \cdot NF_{bkng,r} - 1) \quad (6.2.55)$$

$$PROFITS_{bkel,r} = XDmEL_{bkel,r} \cdot MCOSTS_{bkel,r} / (elas RegB_{bkel,r} \cdot NF_{bkel,r} - 1) \quad (6.2.56)$$

$$PROFITS_{smon,r} = \sum_c [(XDD_{smon,c,r} + EM_{smon,c,r,rr} + EM_{smon,c,r,rrr}) \cdot MCOSTS_{smon,r} / elasReg_{smon,c,r}] \quad (6.2.57)$$

$$MARKUP_{s,c,r} = (PDD_{s,c,r} - MCOSTS_{s,r}) / MCOSTS_{s,r} \quad (6.2.58)$$

$$MARKUPB_{bkng,r} \cdot MCOSTS_{bkng,r} = \sum_{ng} P_{ng,r} - MCOSTS_{bkng,r} \quad (6.2.59)$$

$$MARKUPB_{bkel,r} \cdot MCOSTS_{bkel,r} = \sum_{el} P_{el,r} - MCOSTS_{bkel,r} \quad (6.2.60)$$

$$ENEFF_{s,w} = [(\sum_{enl} ENINP_{enl,s,w} + 2 \cdot \sum_{el} ENINP_{el,s,w}) / (XD_{s,w} - CSEARCH_{s,w} / PD_{s,w})] / [(\sum_{enl} ENINPZ_{enl,s,w} + 2 \cdot \sum_{el} ENINPZ_{el,s,w}) / (XDZ_{s,w} - CSEARCHZ_{s,w} / PDZ_{s,w})] \quad (6.2.61)$$

$$ENEFF_{s,f} = [(\sum_{enl} ENINP_{enl,s,f} + 2 \cdot \sum_{el} ENINP_{el,s,f}) / (XD_{s,f} - CSEARCH_{s,f} / PD_{s,f})] / [(\sum_{enl} ENINPZ_{enl,s,f} + 2 \cdot \sum_{el} ENINPZ_{el,s,f}) / (XDZ_{s,f} - CSEARCHZ_{s,f} / PDZ_{s,f})] \quad (6.2.62)$$

Households:

$$(1-tsc_{c,d,r}-tscf_{c,d,r})\cdot(1+tcf_{c,d,r})\cdot(1+vat_{c,d,r}+tc_{c,d,r})\cdot P_{c,r}\cdot C_{c,d,r} = (1-tsc_{c,d,r}-tscf_{c,d,r})\cdot(1+tcf_{c,d,r})\cdot(1+vat_{c,d,r}+tc_{c,d,r})\cdot P_{c,r}\cdot \mu H_{c,d,r} + \alpha H_{c,d,r}\cdot\{CBUD_{d,r} - \sum_{cc}[\mu H_{cc,d,r}\cdot(1-tsc_{cc,d,r}-tscf_{cc,d,r})\cdot(1+tcf_{cc,d,r})\cdot (1+vat_{cc,d,r}+tc_{cc,d,g})\cdot P_{cc,r}]\} \quad (6.2.63)$$

$$(1-ty_{d,r}-tyf_{d,r}\cdot MU)\cdot PW_r\cdot CLES_{d,r} = (1-ty_{d,r}-tyf_{d,r}\cdot MU)\cdot PW_r\cdot \mu HLES_{d,r} + \alpha HLES_{d,r}/(1-\alpha HLES_{d,r})\cdot\{CBUD_{d,r} - \sum_{c}[\mu H_{c,d,r}\cdot(1-tsc_{c,d,r}-tscf_{c,d,r})\cdot (1+tcf_{c,d,r})\cdot(1+vat_{c,d,r}+tc_{c,d,r})\cdot P_{c,r}]\} \quad (6.2.64)$$

$$LSRD_{d,r} = TSD_{d,r} - CLES_{d,r} \quad (6.2.65)$$

$$LSR_r = \sum_d LSRD_{d,r} \quad (6.2.66)$$

$$YH_{d,w} = aich_{d,w}\cdot[\sum_{scnel} KSKm_{scnel,w}\cdot RKm_{scnel,w} + \sum_{sel} KSKm_{sel,w}\cdot RKel_w + \sum_{slnng} KSKm_{slnng,w}\cdot RKm_{slnng,w} + \sum_{sng} KSKm_{sng,w}\cdot RKng_w + \sum_{s,v} KSKv_{s,v,w}\cdot RKv_{s,v,w}] + \sum_r ailh_{d,r,w}\cdot[\sum_{sbk} Lm_{sbk,w}\cdot PL_{sbk,w} + \sum_{s,v} Lv_{s,v,w}\cdot PL_{s,w}] + shWBxD_d\cdot[\sum_{sbk} Lm_{sbk,b}\cdot PL_{sbk,b} + \sum_{s,v} Lv_{s,v,b}\cdot PL_{s,b}] + shWFlD_d\cdot[\sum_{sbk} Lm_{sbk,f}\cdot PL_{sbk,f} + \sum_{s,v} Lv_{s,v,f}\cdot PL_{s,f}] + shldec_{d,w}\cdot LW_w\cdot PLWZ\cdot ER + TRHG_{d,w}\cdot INDEX_w + TRHFG_{d,w} + TRHF_{d,w}\cdot INDEX_w + aichl_{d,w}\cdot(PNRES_w\cdot\sum_{agr} NRES_{agr,w} + PNRES_w\cdot\sum_{bkel} NRES_{bkel,w}\cdot markupBK_{agr,w}) + aichl_{d,w}\cdot PFF_w\cdot\sum_{bkel} FF_{bkel,w}\cdot markupBK_{bkel,w} \quad (6.2.67)$$

$$YH_{d,f} = aich_{d,f}\cdot[\sum_{scnel} KSKm_{scnel,f}\cdot RKm_{scnel,f} + \sum_{sel} KSKm_{sel,f}\cdot RKel_f + \sum_{slnng} KSKm_{slnng,f}\cdot RKm_{slnng,f} + \sum_{sng} KSKm_{sng,f}\cdot RKng_f + \sum_{s,v} KSKv_{s,v,f}\cdot RKv_{s,v,f}] + \sum_r ailh_{d,r,f}\cdot[\sum_{sbk} Lm_{sbk,f}\cdot PL_{sbk,f} + \sum_{s,v} Lv_{s,v,f}\cdot PL_{s,f}] + shFlBxD_d\cdot[\sum_{sbk} Lm_{sbk,b}\cdot PL_{sbk,b} + \sum_{s,v} Lv_{s,v,b}\cdot PL_{s,b}] - shWFlD_d\cdot[\sum_{sbk} L_{sbk,f}\cdot PL_{sbk,f} + \sum_{s,v} Lv_{s,v,f}\cdot PL_{s,f}] + shldec_{d,f}\cdot LW_f\cdot PLWZ\cdot ER + TRHG_{d,f}\cdot INDEX_f + TRHFG_{d,f} + aichl_{d,f}\cdot(PNRES_f\cdot\sum_{agr} NRES_{agr,f} + PNRES_f\cdot\sum_{bkel} NRES_{bkel,f}\cdot markupBK_{bkel,f}) + aichl_{d,f}\cdot(PFF_f\cdot\sum_{bkel} FFS_{bkel,f}\cdot markupBK_{bkel,f}) + TRHF_{d,f}\cdot INDEX_f \quad (6.2.68)$$

$$YH_{d,b} = aich_{d,b} \cdot [\sum_{scnel} KSKm_{scnel,b} \cdot RKm_{scnel,b} + \sum_{sel} KSKm_{sel,b} \cdot RKel_b + \sum_{slnng} KSKm_{slnng,b} \cdot RKm_{slnng,b} + \sum_{sng} KSKm_{sng,b} \cdot RKng_b + \sum_{s,v} KSKv_{s,v,b} \cdot RKv_{s,v,b}] + \sum_{r} ailh_{d,r,b} \cdot [\sum_{sbk} L_{sbk,b} \cdot PL_{sbk,b} + \sum_{s,v} Lv_{s,v,b} \cdot PL_{s,b}] - shWBxD_d \cdot [\sum_{sbk} L_{sbk,b} \cdot PL_{sbk,b} + \sum_{s,v} Lv_{s,v,b} \cdot PL_{s,b}] - shFlBxD_d \cdot [\sum_{sbk} L_{sbk,b} \cdot PL_{sbk,b} + \sum_{s,v} Lv_{s,v,b} \cdot PL_{s,b}] + shldec_{d,b} \cdot LW_b \cdot PLWZ \cdot ER + TRHG_{d,b} \cdot INDEX_b + TRHFG_{d,b} + aichl_{d,b} \cdot (PNRES_b \cdot \sum_{agr} NRES_{agr,b} + PNRES_b \cdot \sum_{bkel} NRES_{bkel,b} \cdot markupBK_{bkel,b}) + aichl_{d,b} \cdot PFF_b \cdot \sum_{bkel} FFS_{bkel,b} \cdot markupBK_{bkel,b} + TRHF_{d,b} \cdot INDEX_b \quad (6.2.69)$$

$$SH_{d,r} = mps_{d,r} \cdot (1 - ty_{d,r} - tyf_{d,r} \cdot MU) \cdot YH_{d,r} \quad (6.2.70)$$

$$CBUD_{d,r} = YH_{d,r} - ty_{d,r} \cdot YH_{d,r} - tyf_{d,r} \cdot MU \cdot YH_{d,r} - SH_{d,r} + ER \cdot TRHW_{d,r} \quad (6.2.71)$$

$$INDEX_r = \sum_{c,d} [(1 - tsc_{c,d,r} - tscf_{c,d,r}) \cdot (1 + tcf_{c,d,r}) \cdot (1 + vat_{c,d,r} + tc_{c,d,r}) \cdot P_{c,r} \cdot CZ_{c,d,r}] / \sum_{c,d} [(1 - tsc0_{c,d,r} - tscf0_{c,d,r}) \cdot (1 + tcf0_{c,d,r}) \cdot (1 + vat0_{c,d,r} + tc0_{c,d,r}) \cdot PZ_{c,r} \cdot CZ_{c,d,r}] \quad (6.2.72)$$

$$CPI = \sum_{c,d,r} [(1 - tsc_{c,d,r} - tscf_{c,d,r}) \cdot (1 + tcf_{c,d,r}) \cdot (1 + vat_{c,d,r} + tc_{c,d,r}) \cdot P_{c,r} \cdot CZ_{c,d,r}] / \sum_{c,d,r} [(1 - tsc0_{c,d,r} - tscf0_{c,d,r}) \cdot (1 + tcf0_{c,d,r}) \cdot (1 + vat0_{c,d,r} + tc0_{c,d,r}) \cdot PZ_{c,r} \cdot CZ_{c,d,r}] \quad (6.2.73)$$

Federal Government :

$$TRHFG_{d,r} = shunempb_{d,r} \cdot trep_r \cdot PW_r \cdot UNEMP_r + TRO_{d,r} \cdot INDEX_r \quad (6.2.74)$$

$$CFGBUD = TAXRF + \sum_r (TRFGF_r \cdot INDEX_r - TRGFG_r \cdot INDEX_r) - \sum_{d,r} TRHFG_{d,r} - TRFCFG \cdot GDPDEF - SFGT \cdot MUFED \cdot GDPDEF - \sum_{c,d,r} tscf_{c,d,r} \cdot P_{c,r} \cdot C_{c,d,r} - \sum_{en,s,r} tsciof_{en,s,r} \cdot P_{en,r} \cdot ENINPm_{en,s,r} - \sum_{en,s,v,r} tsciof_{en,s,r} \cdot P_{en,r} \cdot ENINPv_{en,s,v,r} - \sum_{nen,s,r} tsciof_{nen,s,r} \cdot P_{nen,r} \cdot io_{nen,s,r} \cdot XDm_{s,r} - \sum_{nen,s,v,r} tsciof_{nen,s,r} \cdot P_{nen,r} \cdot io_{nen,s,r} \cdot XDv_{s,v,r} - \sum_{s,r} (XD_{s,r} \cdot PD_{s,r} - CSEARCH_{s,r}) \cdot tspf_{s,r} \quad (6.2.75)$$

$$TAXRF = \sum_{d,r}(tyf_{d,r}\cdot MU\cdot YH_{d,r}) + \sum_{c,d,r}(1-tsc_{c,d,r}-tscf_{c,d,r})\cdot tcf_{c,d,r}\cdot P_{c,r}\cdot C_{c,d,r} +$$
$$\sum_{c,d,r}(1-tsc_{c,d,r}-tscf_{c,d,r})\cdot(1+tcf_{c,d,r})\cdot vat_{c,d,r}\cdot P_{c,r}\cdot C_{c,d,r} +$$
$$\sum_{c,r} tm_{c,r}\cdot M_{c,r}\cdot PWMZ_c\cdot ER + \sum_{c,r} P_{c,r}\cdot I_{c,r}\cdot(vati_{c,r}+tci_{c,r}) +$$
$$\sum_{scnel,r} tkf_{scnel,r}\cdot MUF\cdot KSKm_{scnel,r}\cdot RKm_{scnel,r} + \sum_{sel,r} tkf_{sel,r}\cdot MUF\cdot KSKm_{sel,r}\cdot RKel_r +$$
$$\sum_{slnng,r} tkf_{slnng,r}\cdot MUF\cdot KSKm_{slnng,r}\cdot RKm_{slnng,r} + \sum_{sng,r} tkf_{sng,r}\cdot MUF\cdot KSKm_{sng,r}\cdot RKng_r +$$
$$\sum_{bkel,r} tkf_{bkel,r}\cdot MUF\cdot KSKm_{bkel,r}\cdot RKel_r + \sum_{bkng,r} tkf_{bkng,r}\cdot MUF\cdot KSKm_{bkng,r}\cdot RKng_r +$$
$$\sum_{s,r} tl_{s,r}\cdot Lm_{s,r}\cdot PL_{s,r} + \sum_{s,r,v}(tkf_{s,r}\cdot MUF\cdot KSKv_{s,v,r}\cdot RKv_{s,v,r} + tl_{s,r}\cdot Lv_{s,v,r}\cdot PL_{s,r}) +$$
$$\sum_{bk,r} tl_{bk,r}\cdot Lm_{bk,r}\cdot PL_{bk,r} + \sum_{s,r}[(XD_{s,r}\cdot PD_{s,r} - CSEARCH_{s,r})\cdot tpf_{s,r}] +$$
$$\sum_{en,s,r}(1\text{-}tscio_{en,s,r}\text{-}tsciof_{en,s,r})\cdot P_{en,r}\cdot vatio_{en,s,r}\cdot ENINPm_{en,s,r} +$$
$$\sum_{en,s,v,r}(1\text{-}tscio_{en,s,r}\text{-}tsciof_{en,s,r})\cdot P_{en,r}\cdot vatio_{en,s,r}\cdot ENINPv_{en,s,v,r} +$$
$$\sum_{nen,s,r}(1\text{-}tscio_{nen,s,r}\text{-}tsciof_{nen,s,r})\cdot P_{nen,r}\cdot vatio_{nen,s,r}\cdot io_{nen,s,r}\cdot XDm_{s,r} +$$
$$\sum_{nen,s,v,r}(1\text{-}tscio_{nen,s,r}\text{-}tsciof_{nen,s,r})\cdot P_{nen,r}\cdot vatio_{nen,s,r}\cdot io_{nen,s,r}\cdot XDv_{s,v,r} \qquad (6.2.76)$$

$$P_{c,r}\cdot CFG_{c,r} = \alpha FG_{c,r}\cdot CFGBUD \qquad (6.2.77)$$

Regional Governments:

$$CGBUD_r = TAXR_r + TRGFC_r\cdot INDEX_r + TRGFG_r\cdot INDEX_r -$$
$$\sum_d TRHG_{d,r}\cdot INDEX_r - ER\cdot TRWG_r - SG_r\cdot INDEX_r -$$
$$\sum_{c,d} tsc_{c,d,r}\cdot P_{c,r}\cdot C_{c,d,r} - \sum_s(XD_{s,r}\cdot PD_{s,r} - CSEARCH_{s,r})\cdot tsp_{s,r} - \qquad (6.2.78)$$
$$\sum_{en,s} tscio_{en,s,r}\cdot P_{en,r}\cdot ENINPm_{en,s,r} - \sum_{en,s,v} tscio_{en,s,r}\cdot P_{en,r}\cdot ENINPv_{en,s,v,r} -$$
$$\sum_{nen,s} tscio_{nen,s,r}\cdot P_{nen,r}\cdot io_{nen,s,r}\cdot XDm_{s,r} - \sum_{nen,s,v} tscio_{nen,s,r}\cdot P_{nen,r}\cdot io_{nen,s,r}\cdot XDv_{s,v,r}$$

$$P_{c,r}\cdot CG_{c,r} = \alpha G_{c,r}\cdot CGBUD_r \qquad (6.2.79)$$

$$TAXR_r = \sum_d ty_{d,r}\cdot YH_{d,r} + \sum_{c,d}(1-tsc_{c,d,r}-tscf_{c,d,r})\cdot(1+tcf_{c,d,r})\cdot tc_{c,d,r}\cdot P_{c,r}\cdot C_{c,d,r} +$$
$$\sum_s(XD_{s,r}\cdot PD_{s,r} - CSEARCH_{s,r})\cdot tp_{s,r} + \sum_{scnel} tk_{scnel,r}\cdot KSKm_{scnel,r}\cdot RKm_{scnel,r} +$$
$$\sum_{sel} tk_{sel,r}\cdot KSKm_{sel,r}\cdot RKel_r + \sum_{slnng} tk_{slnng,r}\cdot KSKm_{slnng,r}\cdot RKm_{slnng,r} + \qquad (6.2.80)$$
$$\sum_{sng} tk_{sng,r}\cdot KSKm_{sng,r}\cdot RKng_r + \sum_{bkel} tk_{bkel,r}\cdot KSKm_{bkel,r}\cdot RKel_r +$$
$$\sum_{bkng} tk_{bkng,r}\cdot KSKm_{bkng,r}\cdot RKng_r + \sum_{s,r,v} tk_{s,r}\cdot KSKv_{s,v,r}\cdot RKv_{s,v,r}$$

French Community:

$$CFCBUD = TRFCFG\cdot GDPDEF - TRGFC_w\cdot INDEX_w \qquad (6.2.81)$$

$$P_{c,r} \cdot CFC_{c,r} = \alpha FC_{c,r} \cdot CFCBUD \quad (6.2.82)$$

Inter-regional and foreign trade:

$$PM_{c,r} = (1 + tm_{c,r}) \cdot ER \cdot PWMZ_c \quad (6.2.83)$$

$$M_{c,r} = X_{c,r} \cdot aA_{c,r}^{(\sigma A_{c,r} - 1)} \cdot \gamma A1_{c,r}^{\sigma A_{c,r}} \cdot (P_{c,r}/PM_{c,r})^{\sigma A_{c,r}} \quad (6.2.84)$$

$$ME_{s,c,rr,r} = X_{c,r} \cdot aA_{c,r}^{(\sigma A_{c,r} - 1)} \cdot \gamma A2_{s,c,r}^{\sigma A_{c,r}} \cdot (P_{c,r}/PDM_{s,c,rr,r})^{\sigma A_{c,r}} \quad (6.2.85)$$

$$ME_{s,c,rrr,r} = X_{c,r} \cdot aA_{c,r}^{(\sigma A_{c,r} - 1)} \cdot \gamma A3_{s,c,r}^{\sigma A_{c,r}} \cdot (P_{c,r}/PDM_{s,c,rrr,r})^{\sigma A_{c,r}} \quad (6.2.86)$$

$$XDD_{s,c,r} = X_{c,r} \cdot aA_{c,r}^{(\sigma A_{c,r} - 1)} \cdot \gamma A4_{s,c,r}^{\sigma A_{c,r}} \cdot (P_{c,r}/PDD_{s,c,r})^{\sigma A_{c,r}} \quad (6.2.87)$$

$$PE_s = PWEZ_s \cdot ER \quad (6.2.88)$$

$$E_{s,r} = (XD_{s,r} - CSEARCH_{s,r} / PD_{s,r}) \cdot aT_{s,r}^{(\sigma T_{s,r} - 1)} \cdot \gamma TI_{s,r}^{\sigma T_{s,r}} \cdot (PD_{s,r}/PE_s)^{\sigma T_{s,r}} \quad (6.2.89)$$

$$PDD_{solig,c,r} = MCOSTS_{solig,r} \cdot [elas\,Re\,g_{solig,c,r} \cdot NF_{solig,r} / (elas\,Re\,g_{solig,c,r} \cdot NF_{solig,r} - 1)] \quad (6.2.90)$$

$$PDE_{solig,c,r,rr} = MCOSTS_{solig,r} \cdot [elasReg_{solig,c,r} \cdot NF_{solig,r} / (elasReg_{solig,c,r} \cdot NF_{solig,r} - 1)] \quad (6.2.91)$$

$$PDE_{solig,c,r,rrr} = [MCOSTS_{solig,r} \cdot elasReg_{solig,c,r} \cdot NF_{solig,r} / (elasReg_{solig,c,r} \cdot NF_{solig,r} - 1)] \quad (6.2.92)$$

$$PDD_{smon,c,r} = MCOSTS_{smon,r} / elas\,Re\,g_{smon,c,r} \quad (6.2.93)$$

$$PDE_{smon,c,r,rr} = MCOSTS_{smon,r} / elasReg_{smon,c,r} \quad (6.2.94)$$

$$PDE_{smon,c,r,rrr} = MCOSTS_{smon,r} / elasReg_{smon,c,r} \quad (6.2.95)$$

$$PDE_{s,c,r,rr} \cdot EM_{s,c,r,rr} = PDM_{s,c,r,rr} \cdot ME_{s,c,r,rr} \quad (6.2.96)$$

$$PDE_{s,c,r,rrr} \cdot EM_{s,c,r,rrr} = PDM_{s,c,r,rrr} \cdot ME_{s,c,r,rrr} \quad (6.2.97)$$

$$EM_{s,c,r,rr} = ME_{s,c,r,rr} \quad (6.2.98)$$

$$EM_{s,c,r,rrr} = ME_{s,c,r,rrr} \quad (6.2.99)$$

$$SWT = \sum_{c,r} M_{c,r} \cdot PWMZ_c - \sum_{d,r} TRHW_{d,r} - \sum_{s,r} PWEZ_s \cdot E_{s,r} - LW_r \cdot PLWZ + \\ + \sum_r TRWG_r \quad (6.2.100)$$

Investment:

$$PI = \prod_{c,r} [P_{c,r} \cdot (1 + vati_{c,r} + tci_{c,r}) / \alpha I_{c,r}]^{\alpha I_{c,r}} \quad (6.2.101)$$

$$S = \sum_r SG_r \cdot INDEX_r + SF_r + SFGT \cdot MUFED \cdot GDPDEF + SWT \cdot ER + \sum_{s,r} DPm_{s,r} \cdot PI + \sum_{bk,r} DPm_{bk,r} \cdot PI + \sum_{s,v,r} DPv_{s,v,r} \cdot PI + \sum_{d,r} SH_{d,r} \quad (6.2.102)$$

$$DPm_{s,r} = d_{s,r} \cdot KSKm_{s,r} \quad (6.2.103)$$

$$DPm_{bk,r} = d_{bk,r} \cdot KSKm_{bk,r} \quad (6.2.104)$$

$$DPv_{s,v,r} = d_{s,r} \cdot KSKv_{s,v,r} \quad (6.2.105)$$

$$SV_{c,r} = svr_{c,r} \cdot X_{c,r} \quad (6.2.106)$$

$$P_{c,r} \cdot I_{c,r} \cdot (1 + vati_{c,r} + tci_{c,r}) = \alpha I_{c,r} \cdot (S - \sum_{cc,rr} SV_{cc,rr} \cdot P_{cc,rr}) \quad (6.2.107)$$

Zero profit conditions:

$$PKLEm_{sc,r} \cdot KLEm_{sc,r} = PKEm_{sc,r} \cdot KEm_{sc,r} + (1 + tl_{sc,r}) \cdot PL_{sc,r} \cdot Lm_{sc,r} \quad (6.2.108)$$

$$(1 - tp_{sc,r} - tpf_{sc,r} + tsp_{sc,r} + tspf_{sc,r}) \cdot PDma_{sc,r} \cdot XDm_{sc,r} = KLEm_{sc,r} \cdot PKLEm_{sc,r} + \sum_{nen} (1\text{-}tscio_{nen,sc,r} \text{-} tsciof_{nen,sc,r}) \cdot (1 + vatio_{nen,sc,r}) \cdot io_{nen,sc,r} \cdot P_{nen,r} \cdot XDm_{sc,r} \quad (6.2.109)$$

$$(1 - tp_{agr,r} - tpf_{agr,r} + tsp_{agr,r} + tspf_{agr,r}) \cdot PDma_{agr,r} \cdot XDm_{agr,r} = KLEm_{agr,r} \cdot PKLEm_{agr,r} + aNRES_{agr,r} \cdot XDm_{agr,r} \cdot PNRES_r + \sum_{nen} (1\text{-}tscio_{nen,sc,r} \text{-} tsciof_{nen,sc,r}) \cdot (1 + vatio_{nen,sc,r}) \cdot io_{nen,agr,r} \cdot P_{nen,r} \cdot XDm_{agr,r} \quad (6.2.110)$$

$$PKEm_{scnel,r} \cdot KEm_{scnel,r} = [(1 + tkf_{scnel,r} \cdot MUF + tk_{scnel,r}) \cdot RKm_{scnel,r} + d_{scnel,r} \cdot PI] \cdot KSKm_{scnel,r} + PENm_{scnel,r} \cdot ENERm_{scnel,r} \quad (6.2.111)$$

$$PKEm_{sel,r} \cdot KEm_{sel,r} = [(1 + tkf_{sel,r} \cdot MUF + tk_{sel,r}) \cdot RKel_r + d_{sel,r} \cdot PI] \cdot KSKm_{sel,r} + PENm_{sel,r} \cdot ENERm_{sel,r} \quad (6.2.112)$$

$$PENm_{sc,r} \cdot ENERm_{sc,r} = \sum_{el} (1\text{-}tscio_{el,sc,r} \text{-} tsciof_{el,sc,r}) \cdot (1 + vatio_{el,sc,r}) \cdot P_{el,r} \cdot ENINPm_{el,sc,r} + PEOGm_{sc,r} \cdot ENEROGm_{sc,r} \quad (6.2.113)$$

$$PEOGm_{sc,r} \cdot ENEROGm_{sc,r} = \sum_{enl} [P_{enl,r} \cdot (1\text{-}tscio_{enl,sc,r} \text{-} tsciof_{enl,sc,r}) \cdot (1 + vatio_{enl,sc,r}) \cdot ENINPm_{enl,sc,r}] \quad (6.2.114)$$

$$PKLm_{slnng,r} \cdot KLm_{slnng,r} = [(1 + tkf_{slnng,r} \cdot MUF + tk_{slnng,r}) \cdot RKm_{slnng,r} + d_{slnng,r} \cdot PI] \cdot KSKm_{slnng,r} + (1 + tl_{slnng,r}) \cdot PL_{slnng,r} \cdot Lm_{slnng,r} \quad (6.2.115)$$

$$PKLm_{sng,r} \cdot KLm_{sng,r} = [(1 + tkf_{sng,r} \cdot MUF + tk_{sng,r}) \cdot RKng_r + d_{sng,r} \cdot PI) \cdot KSKm_{sng,r} + (1 + tl_{sng,r}) \cdot PL_{sng,r} \cdot Lm_{sng,r} \quad (6.2.116)$$

$$(1-tp_{sl,r}-tpf_{sl,r}+tsp_{sl,r}+tspf_{sl,r})\cdot PDma_{sl,r}\cdot XDm_{sl,r}=PKLm_{sl,r}\cdot KLm_{sl,r}+\sum_{en}(1\text{-}tscio_{en,sl,r}\text{-}tsciof_{en,sl,r})\cdot(1+vatio_{en,sl,r})\cdot P_{en,r}\cdot ENINPm_{en,sl,r}+\sum_{nen}(1\text{-}tscio_{nen,sl,r}\text{-}tsciof_{nen,sl,r})\cdot(1+vatio_{nen,sl,r})\cdot P_{nen,r}\cdot io_{nen,sl,r}\cdot XDm_{sl,r} \quad (6.2.117)$$

$$PKLEv_{sc,v,r}\cdot KLEv_{sc,v,r}=PKEv_{sc,v,r}\cdot KEv_{sc,v,r}+(1+tl_{sc,r})\cdot PL_{sc,r}\cdot Lv_{sc,v,r} \quad (6.2.118)$$

$$(1-tp_{sc,r}-tpf_{sc,r}+tsp_{sc,r}+tspf_{sc,r})\cdot PDv_{sc,v,r}\cdot XDv_{sc,v,r}=PKLEv_{sc,v,r}\cdot KLEv_{sc,v,r}+\sum_{nen}(1\text{-}tscio_{nen,sc,r}-tsciof_{nen,sc,r})\cdot(1+vatio_{nen,sc,r})\cdot P_{nen,r}\cdot io_{nen,sc,r}\cdot XDv_{sc,v,r} \quad (6.2.119)$$

$$(1-tp_{agr,r}-tpf_{agr,r}+tsp_{agr,r}+tspf_{agr,r})\cdot PDv_{agr,v,r}\cdot XDv_{agr,v,r}=PKLEv_{agr,v,r}\cdot KLEv_{agr,v,r}+\sum_{nen}(1\text{-}tscio_{nen,agr,r}-tsciof_{nen,agr,r})\cdot(1+vatio_{nen,agr,r})\cdot P_{nen,r}\cdot io_{nen,agr,r}\cdot XDv_{agr,v,r}+aNRES_{agr,r}\cdot PNRES_{r}\cdot XDv_{agr,v,r} \quad (6.2.120)$$

$$PKEv_{sc,v,r}\cdot KEv_{sc,v,r}=[(1+tkf_{sc,r}\cdot MUF+tk_{sc,r})\cdot RKv_{sc,v,r}+d_{sc,r}\cdot PI]\cdot KSKv_{sc,v,r}+PENv_{sc,v,r}\cdot ENERv_{sc,v,r} \quad (6.2.121)$$

$$PENv_{sc,v,r}\cdot ENERv_{sc,v,r}=PEOGv_{sc,v,r}\cdot ENEROGv_{sc,v,r}+\sum_{el}(1\text{-}tscio_{el,sc,r}\text{-}tsciof_{el,sc,r})\cdot(1+vatio_{el,sc,r})\cdot P_{el,r}\cdot ENINPv_{el,sc,v,r} \quad (6.2.122)$$

$$PEOGv_{sc,v,r}\cdot ENEROGv_{sc,v,r}=\sum_{enl}[P_{enl,sc,r}\cdot(1\text{-}tscio_{enl,sc,r}\text{-}tsciof_{enl,sc,r})\cdot(1+vatio_{enl,sc,r})\cdot ENINPv_{enl,sc,v,r}] \quad (6.2.123)$$

$$PKLv_{sl,v,r}\cdot KLv_{sl,v,r}=[(1+tkf_{sl,r}\cdot MUF+tk_{sl,r})\cdot RKv_{sl,v,r}+d_{sl,r}\cdot PI]\cdot KSKv_{sl,v,r}+(1+tl_{sl,r})\cdot PL_{sl,r}\cdot Lv_{sl,v,r} \quad (6.2.124)$$

$$(1-tp_{sl,r}-tpf_{sl,r}+tsp_{sl,r}+tspf_{sl,r})\cdot PDv_{sl,v,r}\cdot XDv_{sl,v,r}=KLv_{sl,v,r}\cdot PKLv_{sl,v,r}+\sum_{en}(1-tscio_{en,sl,r}-tsciof_{en,sl,r})\cdot(1+vatio_{en,sl,r})\cdot P_{en,r}\cdot ENINPv_{en,sl,v,r}+\sum_{nen}(1-tscio_{nen,sl,r}-tsciof_{nen,sl,r})\cdot(1+vatio_{nen,sl,r})\cdot P_{nen,r}\cdot io_{nen,sl,r}\cdot XDv_{sl,v,r} \quad (6.2.125)$$

$$PKLm_{bkng,r}=[\gamma BKng1_{r}^{\sigma BKng_r}\cdot(PL_{bkng,r}\cdot(1+tl_{bkng,r}))^{(1-\sigma BKng_r)}+\gamma BKng2_{r}^{\sigma BKng_r}\cdot(RKng_{r}\cdot(1+tkf_{bkng,r}\cdot MUF+tk_{bkng,r})+PI\cdot d_{bkng,r})^{(1-\sigma BKng_r)}]^{(1/(1-\sigma BKng_r))} \quad (6.2.126)$$

$$PKLm_{bkng,r}\cdot aLm1_{bkng,r}\cdot markupBK_{bkng,r}+\sum_{co}aLm2_{co,bkng,r}\cdot markupBK_{bkng,r}\cdot P_{co,r}+\sum_{nen}io_{nen,bkng,r}\cdot markupBK_{bkng,r}\cdot P_{nen,r}-P_{ng,reg}\geq 0 \quad (6.2.127)$$

$$[\gamma BKel11_{bkel,r}^{\sigma BKel1_{bkel,r}}\cdot(markupBK_{bkel,r}\cdot PNRES_{r})^{(1-\sigma BKel1_{bkel,r})}+\gamma BKel12_{bkel,r}^{\sigma BKel1_{bkel,r}}\cdot PFKLO_{bkel,r}^{(1-\sigma BKel1_{bkel,r})}]^{(1/(1-\sigma BKel1_{bkel,r}))}-P_{el,r}\geq 0 \quad (6.2.128)$$

$$PFKLO_{bkel,r} = [\,\gamma BKel21_{bkel,r}^{\sigma BKel2_{bkel,r}} \cdot (markupBK_{bkel,r} \cdot PFF_r)^{(1-\sigma BKel2_{bkel,r})} + \gamma BKel22_{bkel,r}^{\sigma BKel2_{bkel,r}} \cdot PKLO_{bkel,r}^{(1-\sigma BKel2_{bkel,r})}\,]^{(1/(1-\sigma BKel2_{bkel,r}))} \quad (6.2.129)$$

$$PKLO_{bkel,r} = aLm1_{bkel,r} \cdot PKLm_{bkel,r} \cdot markupBK_{bkel,r} + \sum_{nen} io_{nen,bkel,r} \cdot P_{nen,r} \cdot markupBK_{bkel,r} \quad (6.2.130)$$

$$PKLm_{bkel,r} = [\,\gamma BKel31_{bkel,r}^{\sigma BKel3_{bkel,r}} \cdot (RKel_r \cdot (1+tkf_{bkel,r} \cdot MUF + tk_{bkel,r}) + PI \cdot d_{bkel,r})^{(1-\sigma BKel3_{bkel,r})} + \gamma BKel32_{bkel,r}^{\sigma BKel3_{bkel,r}} \cdot (PL_{bkel,r} \cdot (1+tl_{bkel,r}))^{(1-\sigma BKel3_{bkel,r})}\,]^{(1/(1-\sigma BKel3_{bkel,r}))} \quad (6.2.131)$$

$$PDrig_{s,r} \cdot XDrig_{s,r} = \sum_v PDv_{s,v,r} \cdot XDv_{s,v,r} \quad (6.2.132)$$

$$PD_{s,r} \cdot XD_{s,r} - CSEARCH_{s,r} = PDma_{s,r} \cdot XDm_{s,r} + PDrig_{s,r} \cdot XDrig_{s,r} \quad (6.2.133)$$

$$P_{c,r} \cdot X_{c,r} = PM_{c,r} \cdot M_{c,r} + \sum_s [ME_{s,c,rr,r} \cdot PDM_{s,c,rr,r} + ME_{s,c,rrr,r} \cdot PDM_{s,c,rrr,r} + PDD_{s,c,r} \cdot XDD_{s,c,r}\,] \quad (6.2.134)$$

$$PD_{s,r} \cdot XD_{s,r} - CSEARCH_{s,r} = PE_s \cdot E_{s,r} + \sum_c [EM_{s,c,r,rr} \cdot PDE_{s,c,r,rr} + EM_{s,c,r,rrr} \cdot PDE_{s,c,r,rrr} + PDD_{s,c,r} \cdot XDD_{s,c,r}\,] \quad (6.2.135)$$

Labor market:

$$\sum_{sbk} L_{sbk,w} = LSR_w - shWBx \cdot \sum_{sbk} L_{sbk,b} - shWFl \cdot \sum_{sbk} L_{sbk,f} - UNEMP_w \quad (6.2.136)$$

$$\sum_{sbk} L_{sbk,f} = LSR_f - shFlBx \cdot \sum_{sbk} L_{sbk,b} + shWFl \cdot \sum_{sbk} L_{sbk,f} - UNEMP_f \quad (6.2.137)$$

$$\sum_{sbk} L_{sbk,b} = LSR_b + shWBx \cdot \sum_{sbk} L_{sbk,b} + shFlBx \cdot \sum_{sbk} L_{sbk,b} - UNEMP_b \quad (6.2.138)$$

$$L_{s,r} = Lm_{s,r} + \sum_v Lv_{s,v,r} \quad (6.2.139)$$

$$L_{bk,r} = Lm_{bk,r} \quad (6.2.140)$$

$$LS_r = LSR_r + LW_r \quad (6.2.141)$$

$$LSN = \sum_r LS_r \quad (6.2.142)$$

$$\sum_{sbk} L_{sbk,w} \cdot PL_{sbk,w} = LSR_w \cdot PW_w - shWBx \cdot \sum_{sbk} L_{sbk,b} \cdot PL_{sbk,b} - shWFl \cdot \sum_{sbk} L_{sbk,f} \cdot PL_{sbk,f} - UNEMP_w \cdot PW_w \quad (6.2.143)$$

$$\sum_{sbk} L_{sbk,f} \cdot PL_{sbk,f} = LSR_f \cdot PW_f - shFlBx \cdot \sum_{sbk} L_{sbk,b} \cdot PL_{sbk,b} + shWFl \cdot \sum_{sbk} L_{sbk,f} \cdot PL_{sbk,f} - UNEMP_f \cdot PW_f \quad (6.2.144)$$

$$\sum_{sbk} L_{sbk,b} \cdot PL_{sbk,b} = LSR_b \cdot PW_b + shWBx \cdot \sum_{sbk} L_{sbk,b} \cdot PL_{sbk,b} + shFlBx \cdot \sum_{sbk} L_{sbk,b} \cdot PL_{sbk,b} - UNEMP_b \cdot PW_b \quad (6.2.145)$$

$$UNRATE_r = (UNEMP_r / LS_r) \cdot 100 \quad (6.2.146)$$

$$UNRATEN = (\sum_r UNEMP_r / LSN) \cdot 100 \quad (6.2.147)$$

$$PL_{s,r} \cdot L_{s,r} \cdot (1+tl_{s,r}) = PLU_{s,r} \cdot L_{s,r} \cdot (1+tl_{s,r}) - (1-\alpha B) \cdot scalB_{s,r} \cdot PROFITS_{s,r} \quad (6.2.148)$$

$$PL_{bkng,r} \cdot (Lm_{bkng,r} + LZ_{sng,r}) \cdot (1+tl_{bkng,r}) = PLU_{bkng,r} \cdot (Lm_{bkng,r} + LZ_{sng,r}) \cdot (1+tl_{bkng,r}) - (1-\alpha B) \cdot scalB_{bkng,r} \cdot (PROFITS_{bkng,r} + PROFITSZ_{sng,r} \cdot GDPDEF) \quad (6.2.149)$$

$$PL_{bkel,r} \cdot (Lm_{bkel,r} + LZ_{sel,r}) \cdot (1+tl_{bkel,r}) = PLU_{bkel,r} \cdot (Lm_{bkel,r} + LZ_{sel,r}) \cdot (1+tl_{bkel,r}) - (1-\alpha B) \cdot scalB_{bkel,r} \cdot (PROFITS_{bkel,r} + PROFITSZ_{sel,r} \cdot GDPDEF) \quad (6.2.150)$$

$$PLU_{s,r} = (1-PR_r) \cdot PLZ_{s,r} \cdot INDEX_r \cdot trep_r + PR_r \cdot PW_r \quad (6.2.151)$$

$$PLU_{bk,r} = (1-PR_r) \cdot PLZ_{bk,r} \cdot INDEX_r \cdot trep_r + PR_r \cdot PW_r \quad (6.2.152)$$

$$PR_r = NM_r \cdot 100 / (LS_r \cdot UNRATE_r) \quad (6.2.153)$$

$$QR_r = NM_r / \sum_{sbk} NV_{sbk,r} \quad (6.2.154)$$

$$NV_{s,r} \cdot QR_r = L_{s,r} - LDZ_{s,r} + \mu \cdot LDZ_{s,r} \quad (6.2.155)$$

$$NV_{bk,r} \cdot QR_r = Lm_{bk,r} - LmDZ_{bk,r} + \mu \cdot LmDZ_{bk,r} \quad (6.2.156)$$

$$NM_r = aM_r \cdot [\alpha M_r \cdot (\sum_{sbk} NV_{sbk,r})^{((\sigma M-1)/\sigma M)} + (1-\alpha M_r) \cdot (LS_r \cdot UNRATE_r)^{((\sigma M-1)/\sigma M)}]^{(\sigma M/(\sigma M-1))} \quad (6.2.157)$$

$$CSEARCH_{s,r} = NV_{s,r} \cdot wv_{s,r} \cdot INDEX_r \quad (6.2.158)$$

$$CSEARCH_{bk,r} = NV_{bk,r} \cdot wv_{bk,r} \cdot INDEX_r \quad (6.2.159)$$

Market clearing:

$$\sum_d C_{nen,d,r} + I_{nen,r} + SV_{nen,r} + \sum_s io_{nen,s,r} \cdot XDm_{s,r} + \sum_{s,v} io_{nen,s,r} \cdot XDv_{s,v,r} + \sum_{bkng} io_{nen,bkng,r} \cdot markupBK_{bkng,r} \cdot XDm_{bkng,r} + \sum_{bkel} io_{nen,bkel,r} \cdot KLO_{bkel,r} \cdot markupBK_{bkel,r} + CG_{nen,r} + CFG_{nen,r} + CFC_{nen,r} = X_{nen,r} \quad (6.2.160)$$

$$\sum_d C_{enlg,d,r} + I_{enlg,r} + SV_{enlg,r} + \sum_{sbk} ENINPm_{enlg,sbk,r} + \sum_{s,v} ENINPv_{enlg,s,v,r} + CG_{enlg,r} + CFG_{enlg,r} + CFC_{enlg,r} = X_{enlg,r} \quad (6.2.161)$$

$$\sum_{d} C_{el,d,r} + I_{el,r} + SV_{el,r} + \sum_{sbk} ENINPm_{el,sbk,r} + \sum_{s,v} ENINPv_{el,s,v,r} + CG_{el,r} + CFG_{el,r} + CFC_{el,r} = X_{el,r} + \sum_{bkel} XDmEL_{bkel,r} \quad (6.2.162)$$

$$\sum_{d} C_{ng,d,r} + I_{ng,r} + SV_{ng,r} + \sum_{sbk} ENINPm_{ng,sbk,r} + \sum_{s,v} ENINPv_{ng,s,v,r} + CG_{ng,r} + CFG_{ng,r} + CFC_{ng,r} = X_{ng,r} + \sum_{bkng} XDm_{bkng,r} \quad (6.2.163)$$

$$KSK_{s,r} = KSKm_{s,r} + \sum_{v} KSKv_{s,v,r} \quad (6.2.164)$$

$$KSK_{bk,r} = KSKm_{bk,r} \quad (6.2.165)$$

$$KSKTng_{r} = \sum_{bkng} KSKm_{bkng,r} + \sum_{sng} KSKm_{sng,r} \quad (6.2.166)$$

$$KSKTel_{r} = \sum_{bkel} KSKm_{bkel,r} + \sum_{sel} KSKm_{sel,r} \quad (6.2.167)$$

$$NRESS_{r} \geq \sum_{agr} NRES_{agr,r} + \sum_{bkel} NRES_{bkel,r} \quad (6.2.168)$$

$$FFS_{r} \geq \sum_{bkel} FF_{bkel,r} \quad (6.2.169)$$

Greenhouse gases emissions:

$$CO2EMISEN_{enl,s,r} = CO2GJ_{enl,r} \cdot GJOULE_{enl,s,r} \cdot (ENINPm_{enl,s,r} + \sum_{v} ENINPv_{enl,s,v,r}) \cdot CO2SCAL_{s,r} \quad (6.2.170)$$

$$CO2EMIS_{s,r} = CO2SCAL_{s,r} \cdot \sum_{enl} [CO2GJ_{enl,r} \cdot GJOULE_{enl,s,r} \cdot (ENINPm_{enl,s,r} + \sum_{v} ENINPv_{enl,s,v,r})] \quad (6.2.171)$$

$$CO2EMISH_{r} = CO2SCALH_{r} \cdot \sum_{enl} (CO2GJ_{enl,r} \cdot GJOULEH_{enl,r} \cdot \sum_{d} C_{enl,d,r}) \quad (6.2.172)$$

$$CO2EMISHD_{d,r} = CO2SCALHD_{d,r} \cdot \sum_{enl} CO2GJ_{enl,r} \cdot GJOULEHD_{enl,d,r} \cdot C_{enl,d,r} \quad (6.2.173)$$

$$CO2EMISR_{r} = \sum_{s} (CO2EMIS_{s,r} + CO2PROC_{s,r}) + CO2EMISH_{r} \quad (6.2.174)$$

$$CO2EMISRS_{r} = \sum_{s} (CO2EMIS_{s,r} + CO2PROC_{s,r}) \quad (6.2.175)$$

$$CO2EMISN_{s} = \sum_{r} (CO2EMIS_{s,r} + CO2PROC_{s,r}) \quad (6.2.176)$$

$$CO2EMISNAT = \sum_{s} CO2EMISN_{s} + \sum_{r} CO2EMISH_{r} \quad (6.2.177)$$

$$CO2PROC_{s,r} = CO2GJPROC_{s,r} \cdot (XD_{s,r} - CSEARCH_{s,r}/PD_{s,r}) \quad (6.2.178)$$

$$CH4EMIS_{s,r} = CH4SCAL_{s,r} \cdot \sum_{enl} [CH4GJ_{enl,s,r} \cdot GJOULE_{enl,s,r} \cdot (ENINPm_{enl,s,r} + \sum_{v} ENINPv_{enl,s,v,r})] \quad (6.2.179)$$

$$CH4EMISH_{r} = CH4SCALH_{r} \cdot \sum_{enl} [CH4GJH_{enl,r} \cdot GJOULEH_{enl,r} \cdot \sum_{d} C_{enl,d,r}] \quad (6.2.180)$$

$$CH4EMISHD_{d,r} = CH4SCALHD_{d,r} \cdot \sum_{enl} CH4GJH_{enl,r} \cdot GJOULEHD_{enl,d,r} \cdot C_{enl,d,r} \quad (6.2.181)$$

$$CH4EMISR_{r} = \sum_{s} CH4EMIS_{s,r} + CH4EMISH_{r} + \sum_{s} CH4PROC_{s,r} \quad (6.2.182)$$

$$CH4EMISRS_{r} = \sum_{s} CH4EMIS_{s,r} + \sum_{s} CH4PROC_{s,r} \quad (6.2.183)$$

$$CH4EMISN_{s} = \sum_{r} CH4EMIS_{s,r} + \sum_{r} CH4PROC_{s,r} \quad (6.2.184)$$

$$CH4EMISNAT = \sum_{s} CH4EMISN_{s} + \sum_{r} CH4EMISH_{r} \quad (6.2.185)$$

$$CH4PROC_{s,r} = CH4GJPROC_{s,r} \cdot (XD_{s,r} - CSEARCH_{s,r}/PD_{s,r}) \quad (6.2.186)$$

$$N2OEMIS_{s,r} = N2OSCAL_{s,r} \cdot \sum_{enl} [N2OGJ_{enl,s,r} \cdot GJOULE_{enl,s,r} \cdot (ENINPm_{enl,s,r} + \sum_{v} ENINPv_{enl,s,v,r})] \quad (6.2.187)$$

$$N2OEMISH_{r} = N2OSCALH_{r} \cdot \sum_{enl} (N2OGJH_{enl,r} \cdot GJOULEH_{enl,r} \cdot \sum_{d} C_{enl,d,r}) \quad (6.2.188)$$

$$N2OEMISHD_{d,r} = N2OSCALHD_{d,r} \cdot \sum_{enl} N2OGJH_{enl,r} \cdot GJOULEHD_{enl,d,r} \cdot C_{enl,d,r} \quad (6.2.189)$$

$$N2OEMISR_{r} = \sum_{s} N2OEMIS_{s,r} + N2OEMISH_{r} + \sum_{s} N2OPROC_{s,r} \quad (6.2.190)$$

$$N2OEMISRS_{r} = \sum_{s} N2OEMIS_{s,r} + \sum_{s} N2OPROC_{s,r} \quad (6.2.191)$$

$$N2OEMISN_{s} = \sum_{r} N2OEMIS_{s,r} + \sum_{r} N2OPROC_{s,r} \quad (6.2.192)$$

$$N2OEMISNAT = \sum_{s} N2OEMISN_{s} + \sum_{r} N2OEMISH_{r} \quad (6.2.193)$$

$$N2OPROC_{s,r} = N2OGJPROC_{s,r} \cdot (XD_{s,r} - CSEARCH_{s,r}/PD_{s,r}) \quad (6.2.194)$$

Gross domestic product (national and regional) and other aggregate variables:

$$GDP = \sum_{c,d,r}[PZ_{c,r}\cdot C_{c,d,r}\cdot(1-tsc0_{c,d,r}-tscf0_{c,d,r})\cdot(1+tcf0_{c,d,r})\cdot (1+vat0_{c,d,r}+tc0_{c,d,r})] + \sum_{c,r}[PZ_{c,r}\cdot CG_{c,r}+PZ_{c,r}\cdot CFG_{c,r}+PZ_{c,r}\cdot CFC_{c,r}+ PZ_{c,r}\cdot I_{c,r}\cdot(1+vati0_{c,r}+tci0_{c,r})-PWMZ_c\cdot ERZ\cdot M_{c,r}]+\sum_{s,r}PEZ_s\cdot E_{s,r} \quad (6.2.195)$$

$$GDPC = \sum_{c,d,r}[P_{c,r}\cdot C_{c,d,r}\cdot(1-tsc_{c,d,r}-tscf_{c,d,r})\cdot(1+tcf_{c,d,r})\cdot (1+vat_{c,d,r}+tc_{c,d,r})] + \sum_{c,r}[P_{c,r}\cdot CG_{c,r}+P_{c,r}\cdot CFG_{c,r}+P_{c,r}\cdot CFC_{c,r}+ P_{c,r}\cdot I_{c,r}\cdot(1+vati_{c,r}+tci_{c,r})-PWMZ_c\cdot ER\cdot M_{c,r}]+\sum_{s,r}PE_s\cdot E_{s,r} \quad (6.2.196)$$

$$GDPDEF = GDPC / GDP \quad (6.2.197)$$

$$GDPR_r = \sum_{c,d}[PZ_{c,r}\cdot C_{c,d,r}\cdot(1-tsc0_{c,d,r}-tscf0_{c,d,r})\cdot(1+tcf0_{c,d,r})\cdot (1+vat0_{c,d,r}+tc0_{c,d,r})] + \sum_{c}[PZ_{c,r}\cdot CG_{c,r}+PZ_{c,r}\cdot CFG_{c,r}+PZ_{c,r}\cdot CFC_{c,r}+ PZ_{c,r}\cdot I_{c,r}\cdot(1+vati0_{c,r}+tci0_{c,r})-PWMZ_c\cdot ERZ\cdot M_{c,r}]+\sum_{s}PEZ_s\cdot E_{s,r} \quad (6.2.198)$$

$$RATIO = CFGBUD / GDPC \quad (6.2.199)$$

$$RINT = [\sum_{scnel,r}(RKm_{scnel,r}/PDma_{scnel,r})\cdot KSKm_{scnel,r}+\sum_{sel,r}(RKel_r/PDma_{sel,r})\cdot KSKm_{sel,r}+ \sum_{slnng,r}(RKm_{slnng,r}/PDma_{slnng,r})\cdot KSKm_{slnng,r}+\sum_{sng,r}(RKng_r/PDma_{sng,r})\cdot KSKm_{sng,r}+ \sum_{s,v,r}(RKv_{s,v,r}/PDv_{s,v,r})\cdot KSKv_{s,v,r}]/[\sum_{s,r}KSKm_{s,r}+\sum_{s,v,r}KSKv_{s,v,r}] \quad (6.2.200)$$

$$ENINP_{en,s,r} = ENINPm_{en,s,r}+\sum_{v}ENINPv_{en,s,v,r} \quad (6.2.201)$$

Equivalent variation

$$PLES_{d,r} = \{\prod_{c}[(1-tsc_{c,d,r}-tscf_{c,d,r})\cdot(1+tcf_{c,d,r})\cdot(1+tc_{c,d,r}+vat_{c,d,r})\cdot P_{c,r}]^{\alpha H_{c,d,r}}\}^{(1-\alpha HLES_{d,r})}\cdot[PW_r\cdot(1-ty_{d,r}-tyf_{d,r}\cdot MU)]^{\alpha HLES_{d,r}} \quad (6.2.202)$$

$$SI_{d,r} = CBUD_{d,r} - \sum_{c}[\mu H_{c,d,r}\cdot(1-tsc_{c,d,r}-tscf_{c,d,r})\cdot(1+tcf_{c,d,r})\cdot (1+vat_{c,d,r}+tc_{c,d,r})\cdot P_{c,r}] \quad (6.2.203)$$

$$EV_{d,r} = (PLESZ_{d,r}/PLES_{d,r})\cdot SI_{d,r}-SIZ_{d,r} \quad (6.2.204)$$

$$VLES_{d,r} = \{\prod_{c}[\alpha H_{c,d,r}/((1-tsc_{c,d,r}-tscf_{c,d,r})\cdot(1+tcf_{c,d,r})\cdot (1+tc_{c,d,r}+vat_{c,d,r})\cdot P_{c,r})]^{\alpha H_{c,d,r}}\}^{(1-\alpha HLES_{d,r})}\cdot[\alpha HLES_{d,r}/((1-\alpha HLES_{d,r})\cdot PW_r\cdot(1-ty_{d,r}-tyf_{d,r}\cdot MU))]^{\alpha HLES_{d,r}}\cdot SI_{d,r} \quad (6.2.205)$$

Incorporation of recursive dynamics

$$ROR_{sng,r,t} = -1 + [RKm_{sng,r,t} / PI_t + 1] / [1 + RINT_t] \quad (6.2.206)$$

$$ROR_{sel,r,t} = -1 + [RKel_{r,t} / PI_t + 1] / [1 + RINT_t] \quad (6.2.207)$$

$$ROR_{bkel,r,t} = -1 + [RKel_{r,t} / PI_t + 1] / [1 + RINT_t] \quad (6.2.208)$$

$$ROR_{sng,r,t} = -1 + [RKng_{r,t} / PI_t + 1] / [1 + RINT_t] \quad (6.2.209)$$

$$ROR_{bkng,r,t} = -1 + [RKng_{r,t} / PI_t + 1] / [1 + RINT_t] \quad (6.2.210)$$

$$\begin{aligned} INV_{sbk,r,t} = {} & KSKm_{sbk,r,t} \cdot \{[e^{B_{sbk,r} \cdot (ROR_{sbk,r,t} - RORZ_{sbk,r,t})} \cdot KSKg\,max_{sbk,r} \cdot \\ & (KSKtrend_{sbk,r} - KSKg\,min_{sbk,r}) + KSKg\,min_{sbk,r} \cdot \\ & (KSKg\,max_{sbk,r} - KSKtrend_{sbk,r})] / [e^{B_{sbk,r} \cdot (ROR_{sbk,r,t} - RORZ_{sbk,r,t})} \cdot \\ & (KSKtrend_{sbk,r} - KSKg\,min_{sbk,r}) + (KSKg\,max_{sbk,r} - KSKtrend_{sbk,r})] + 1\} \\ & - KSKm_{sbk,r,t} \cdot (1 - \phi_{sbk,r}) \cdot (1 - d_{sbk,r}) \end{aligned} \quad (6.2.211)$$

$$KSKm_{s,r,t+1} = (1 - d_{s,r}) \cdot (1 - \phi_{s,r}) \cdot KSKm_{s,r,t} + INV_{s,r,t} \quad (6.2.212)$$

$$KSKv_{s,v,r,t+1} = \phi_{s,r} \cdot (1 - d_{s,r}) \cdot KSKm_{s,r} \quad \text{for v = 1} \quad (6.2.213)$$

$$KSKv_{s,v+1,r,t+1} = (1 - d_{s,r}) \cdot KSKv_{s,v,r,t} \quad \text{for v = 2,3,...} \quad (6.2.214)$$

Name of the variables:

$aLm1_{sbk,r}$	technical coefficient corresponding to the capital-energy bundle (KLm) in the Leontief production function for the LEO sectors (first nest) (corresponding to the output produced using malleable capital)
$CBUD_{d,r}$	household budget disposable for consumption by decile and region
$C_{c,d,r}$	households consumption demand (excluding vat and consumption taxes) by commodity, decile and region
CFCBUD	French community disposable budget
$CFC_{c,r}$	French community demand for commodities
CFGBUD	federal government disposable budget
$CFG_{c,r}$	federal government demand for commodities
$CGBUD_r$	regional governments budget disposable for consumption
$CG_{c,r}$	regional government demand for commodities
$CH4EMISEN_{enl,s,r}$	CH4 emissions by fuel sector and region (Kt CO2eq)
$CH4EMISHD_{d,r}$	CH4 emissions generated by the households consumption of fuels, by decile (Kt CO2eq)
$CH4EMISH_r$	CH4 emissions generated by the households consumption of fuels (Kt CO2eq)
CH4EMISNAT	national CH4 emissions (Kt CO2eq)
$CH4EMISN_s$	national CH4 emissions by sector (Kt CO2eq)
$CH4EMISR_r$	regional CH4 emissions including households emissions (Kt CO2eq)
$CH4EMISRS_r$	regional CH4 emissions excluding households emissions (Kt CO2eq)
$CH4EMIS_{s,r}$	CH4 emissions by sector and region (Kt CO2eq)
$CH4PROC_{s,r}$	CH4 process emission factor expressed in Kg/GJ by sector and region
$CLES_{d,r}$	households demand for leisure
$CO2EMISEN_{enl,s,r}$	CO2 emissions by fuel sector and region (Kt)

$CO2EMISHD_{d,r}$	CO2 emissions generated by the households consumption of fuels by decile (Kt)
$CO2EMISH_{r}$	CO2 emissions generated by the households consumption of fuels (Kt)
CO2EMISNAT	national CO2 emissions (Kt)
$CO2EMISN_{s}$	national CO2 emissions by sector (Kt)
$CO2EMISR_{r}$	regional CO2 emissions including households emissions (Kt)
$CO2EMISRS_{r}$	regional CO2 emissions excluding households emissions (Kt)
$CO2EMIS_{s,r}$	CO2 emissions by sector and region (Kt)
$CO2PROC_{s,r}$	CO2 process emissions (Kt)
CPI	consumer price index at the national level
$CSEARCH_{sbk,r}$	labor search costs
$DPm_{sbk,r}$	depreciation corresponding to the malleable capital
$DPv_{s,v,r}$	depreciation corresponding to the vintage capital
$EM_{s,c,r,rr}$	export supply to the other Belgian regions by sector commodity region of origin and region of destination
$ENEFF_{s,r}$	energy efficiency
$ENERm_{s,r}$	energy bundle demand by the CES sectors including electricity (corresponding to the output produced using malleable capital)
$ENEROGm_{sc,r}$	energy bundle demand by the CES sectors excluding electricity (corresponding to the output produced using malleable capital)
$ENEROGv_{sc,v,r}$	energy bundle demand by the CES sectors excluding electricity (corresponding to the output produced using rigid capital)
$ENER_{s,r}$	energy bundle demand by the sectors including electricity (corresponding to the output produced using malleable and rigid capital)
$ENERv_{s,v,r}$	energy bundle demand by the CES sectors including electricity (corresponding to the output produced using rigid capital)
$ENINP_{en,sbk,r}$	energy inputs consumed by the CES and LEO sectors in the production process (corresponding to the composite output produced using malleable and rigid capital)
$ENINPm_{en,sbk,r}$	energy inputs consumed by the CES and LEO sectors in the production process (corresponding to the output produced using malleable capital)
$ENINPv_{en,sbk,v,r}$	energy inputs consumed by the CES and LEO sectors in the production process (corresponding to the output produced using rigid capital)
ER	exchange rate
$E_{s,r}$	export supply to the ROW (Rest of the World) by region
$EV_{d,r}$	equivalent variation in income
$FF_{bk,r}$	demand for fixed factor by the backstop electricity sector by region
FFS_{r}	supply of fixed factor by region
$FKLO_{bk,r}$	fixed factor-capital-labor-intermediate consumption bundle demand by the backstop electricity sector
GDP	gross domestic product at constant market prices
GDPC	gross domestic product at current market prices
GDPDEF	GDP deflator
$GDPR_{r}$	regional gross domestic product at constant market prices
$I_{c,r}$	demand for investment commodities by region (excluding vat and other taxes)
$INDEX_{r}$	regional consumer price index
$INV_{sbk,r}$	investments carried out in the sectors
$KEm_{sbk,r}$	capital-energy bundle demand by the CES sectors (corresponding to the output produced using malleable capital)
$KEv_{s,v,r}$	capital-energy bundle demand by the CES sectors (corresponding to the output produced using rigid capital)

$KLEm_{sc,r}$	capital-labor-energy bundle demand by the CES sectors (corresponding to the output produced using malleable capital)
$KLEv_{sc,v,r}$	capital-labor-energy bundle demand by the CES sectors (corresponding to the output produced using rigid capital)
$KLm_{sbk,r}$	capital-labor bundle demand by the LEO sectors (corresponding to the output produced using malleable capital)
$KLO_{bk,r}$	capital-labor-intermediate consumption bundle demand by the backstop electricity sector
$KLv_{s,v,r}$	capital-labor bundle demand by the LEO sectors (corresponding to the output produced using rigid capital)
$KSKm_{sbk,r}$	capital stock by sector and region (capital stock corresponding to the output produced using malleable capital)
$KSK_{sbk,r}$	capital stock by sector and region (capital stock corresponding to the composite output produced using malleable and rigid capital)
$KSKTel_{r}$	total capital stock corresponding to the conventional and backstop electricity sectors
$KSKTng_{r}$	total capital stock corresponding to the conventional and backstop natural gas sectors
$KSKv_{sbk,v,r}$	capital stock by sector and region (capital stock corresponding to the output produced using rigid capital)
$Lm_{sbk,r}$	labor oultays by sector and region (corresponding to the output produced using malleable capital)
$L_{s,r}$	labor oultays by sector and region (corresponding to the composite output produced using malleable and rigid capital)
LSN	national labor supply to domestic and non-residential firms
LS_{r}	regional labor supply to domestic and non-residential firms
$LSRD_{d,r}$	regional labor supply to domestic firms by decile
LSR_{r}	regional labor supply to domestic firms
$Lv_{s,v,r}$	labor oultays by sector and region (corresponding to the output produced using rigid capital)
LW_{r}	labor supply to non-residential firms
$MARKUPB_{bk,r}$	markup for the backstop sectors
$MARKUP_{s,c,r}$	markup of imperfectly competitive sectors
$M_{c,r}$	import demand from the RoW by commodity and region
$MCOSTS_{s,r}$	marginal costs of oligopolistic sectors
$ME_{s,c,r,rr}$	import demand from the other Belgian regions by sector commodity region of destination and region of origin
MU	dummy variable to be used for the decrease in the households income tax rate
MUF	dummy variable to be used for the decrease in the corporate income tax rate
MUFED	dummy variable to be used to fix the federal government disposable budget to the GDP ratio and compensate with a change in the federal government savings
$N2OEMISEN_{enl,s,r}$	N2O emissions by fuel sector and region (Kt CO2eq)
$N2OEMISHD_{d,r}$	N2O emissions generated by the households consumption of fuels by decile (Kt CO2eq)
$N2OEMISH_{r}$	N2O emissions generated by the households consumption of fuels (Kt CO2eq)
N2OEMISNAT	national N2O emissions (Kt CO2eq)
$N2OEMISN_{s}$	national N2O emissions by sector (Kt CO2eq)
$N2OEMISR_{r}$	regional N2O emissions including households emissions (Kt CO2eq)
$N2OEMISRS_{r}$	regional N2O emissions excluding households emissions (Kt CO2eq)

$N2OEMIS_{s,r}$	N2O emissions by sector and region (Kt CO2eq)
$N2OPROC_{s,r}$	N2O process emission factor expressed in Kg/GJ by sector and region
$NF_{s,r}$	equilibrium number of imperfectly competitive firms by sector and region
NM_r	number of job matches
$NRES_{sbk,r}$	natural resources used by the agricultural sector and the backstop electricity sectors
$NRESS_r$	supply of natural resources
$NV_{sbk,r}$	number of vacancies
$P_{c,r}$	regional price level of domestic composite commodities from imports and domestic supply (net of taxes)
$PDD_{s,c,r}$	producer price of domestic output supplied to domestic market, by sector, commodity and region
$PDE_{s,c,r,rr}$	domestic price of exports to the other Belgian regions by sector, commodity, region of origin and region of destination
$PDma_{s,r}$	price of output produced using malleable capital
$PDM_{s,c,r,rr}$	domestic price of imports from the other Belgian regions by sector, commodity, region of destination and region of origin
$PDrig_{s,r}$	price of output produced using rigid capital
$PD_{s,r}$	price level of domestic output by sector and region (corresponding to the composite output produced using malleable and rigid capital)
$PDv_{s,v,r}$	price of output produced using different vintages of capital
$PENm_{sc,r}$	price of energy bundle (ENERm) including electricity (corresponding to the output produced using malleable capital)
$PENv_{sc,v,r}$	price of energy bundle (ENERv) including electricity (corresponding to the output produced using rigid capital)
$PEOGm_{sc,r}$	price of energy bundle (ENEROGm) excluding electricity (corresponding to the composite output produced using malleable capital)
$PEOGv_{sc,v,r}$	price of energy bundle (ENEROGv) excluding electricity (corresponding to the composite output produced using rigid capital)
PE_s	domestic price of exports by sector
PFF_r	price of fixed factor by region
$PFKLO_{bk,r}$	average return to fixed factor-capital-labor-intermediate consumption bundle (FKLO) in the backstop electricity sector
PI	price of the composite investment good
$PKEm_{sbk,r}$	price of capital-energy bundle (KEm) (corresponding to the output produced using malleable capital)
$PKEv_{s,v,r}$	price of capital-energy bundle (KEv) (corresponding to the output produced using rigid capital)
$PKLEm_{sc,r}$	price of capital-labor-energy bundle (KLEm) (corresponding to the output produced using malleable capital)
$PKLEv_{sc,v,r}$	price of capital-labor-energy bundle (KLEv) (corresponding to the output produced using rigid capital)
$PKLm_{sbk,r}$	price of capital-labor bundle (KLm) (corresponding to the output produced using malleable capital)
$PKLO_{bk,r}$	average return to capital-labor-intermediate consumption bundle (KLO) in the backstop electricity sector
$PKLv_{s,v,r}$	price of capital-labor bundle (KLv) (corresponding to the output produced using rigid capital)
$PLES_{d,r}$	aggregate price level in the "proposed change" used in the derivation of equivalent variation in income
$PL_{sbk,r}$	average wage rate by sector and region
$PLU_{sbk,r}$	reservation wage

$PM_{c,r}$	domestic price of imports (including tariffs) by commodity and region
$PNRES_r$	average return to natural resources
$ProdCET_{s,r}$	increase in exports productivity
$ProdEN\_VA_{s,r}$	increase in the energy efficiency due to voluntary agreements
$ProdEN_{s,r}$	increase in the energy efficiency by sector and region
$PROFITS_{s,r}$	oligopolistic profits by sector and region
PR_r	probability to find a job
PWE_s	world price of exports
PWM_c	world price of imports
PW_r	regional wage rate
QR_r	probability to fill in a vacancy
RATIO	federal government disposable budget to GDP ratio
RGD	nominal interest rate (average return to capital)
$RKel_r$	average return to capital in the production of backstop and conventional electricity
$RKm_{sbk,r}$	return to capital corresponding to the malleable capital
$RKng_r$	average return to capital in the production of backstop and conventional natural gas
$RKv_{s,v,r}$	return to capital corresponding to the vintage capital
S	national savings
SFGT	federal government savings
SF_r	firms savings by region
SG_r	regional governments savings
$SH_{d,r}$	household savings by decile and region
$SI_{d,r}$	supernumerary income in the "proposed change" used in the derivation of equivalent variation in income
$SV_{c,r}$	demand for inventories by commodity and region
SWT	foreign savings
TAXRF	federal government tax revenues
$TAXR_r$	regional governments tax revenues
$TFP_{sbk,r}$	total factor productivity
TRFCFG	transfers received by the french community from the federal government
$TRFGF_r$	transfers received by the federal government from the firms
$TRFW_r$	transfers from the firms to the ROW
$TRGFC_r$	transfers received by the regional government (Wallonia) from the French community
$TRGFG_r$	transfers received by the regional governments from the federal government
$TRHF_{d,r}$	transfers received by the households from the firms
$TRHFG_{d,r}$	total transfers received by the households from the federal government by decile and region
$TRHG_{d,r}$	total transfers received by the households from the regional governments by decile
$TRHW_{d,r}$	transfers received by the households from the ROW by decile and region
$TRO_{d,r}$	other transfers received by the households from the federal government by decile and region
$TRWG_r$	transfers of the regional governments to the ROW
$TSD_{d,r}$	regional time endowment by decile
$UNEMP_r$	regional unemployment
UNRATEN	national unemployment rate
$UNRATE_r$	regional unemployment rate
$VLES_{d,r}$	households indirect utility function in the "proposed change"
$X_{c,r}$	regional domestic sales from domestic supply and imports

$XDD_{s,v,r}$	domestic output supplied to domestic market by sector, commodity and region
$XDmEL_{bk,r}$	production of backstop electricity
$XDm_{sbk,r}$	domestic output (gross output produced using malleable capital)
$XDrig_{s,r}$	domestic output (gross output produced using total rigid capital)
$XD_{s,r}$	regional domestic output (composite gross output produced using malleable and rigid capital)
$XDv_{sbk,v,r}$	domestic output (gross output produced using different vintages of capital)
$YH_{d,r}$	household income by decile and region

Name of the parameters:

$aA_{c,r}$	efficiency parameter (in the ARMINGTON function)
$aich_{d,r}$	share of capital income received by the households, by decile and region
$aichl_{d,r}$	share of rents on natural resources received by the households
$ailh_{d,r,rr}$	share of labor income received by the households from the region of residence or other Belgian region, by decile
$aKLEm_{s,r}$	efficiency parameter in the Leontief production function (first nest) for the CES sectors (corresponding to the output produced using malleable capital)
$aKLEv_{s,v,r}$	efficiency parameter in the Leontief production function (first nest) for the CES sectors (corresponding to the output produced using vintage capital)
$aLm2_{en,sbk,r}$	technical coefficients corresponding to different energy inputs (ENINPm) in the Leontief production function for the LEO sectors (first nest) (corresponding to the output produced using malleable capital)
$aLm3_{sbk,r}$	efficiency parameter in the CES production function (second nest) for the LEO sectors (corresponding to the output produced using malleable capital)
$aLmT_{sl,r}$	sum of the technical coefficients corresponding to the capital-energy bundle (KLm),energy inputs (ENINPm) and other non-energy inputs in the Leontief production function for the LEO sectors (first nest) (corresponding to the output produced using malleable capital)
$aLv1_{sbk,v,r}$	technical coefficient corresponding to the capital-energy bundle (KLv) in the Leontief production function for the LEO sectors (first nest) (corresponding to the output produced using vintage capital)
$aLv2_{en,sbk,v,r}$	technical coefficients corresponding to different energy inputs (ENINPv) in the Leontief production function for the LEO sectors (first nest) (corresponding to the output produced using vintage capital)
$aLv3_{s,v,r}$	efficiency parameter in the CES production function (second nest) for the LEO sectors (corresponding to the output produced using vintage capital)
aM_{r}	scale parameter of the matching function
$aNRES_{sbk,r}$	technical coefficient corresponding to natural resources
$aO1_{s,r}$	efficiency parameter in the CES function used to aggregate the output produced using malleable capital and the total output produced using rigid capital
$aO2_{s,r}$	efficiency parameter in the CES function used to aggregate the output produced using different vintages of capital in the total output produced using rigid capital
$aPm1_{s,r}$	efficiency parameter in CES production function (second nest) for the CES sectors (corresponding to the output produced using malleable capital)
$aPm2_{sbk,r}$	efficiency parameter in CES production function (third nest) for the CES sectors (corresponding to the output produced using malleable capital)

$aPm3nel_{s,r}$	efficiency parameter in the Leontief production function (fourth nest) corresponding to the non-electric energy bundle for the cesnel sectors (corresponding to the output produced using malleable capital)
$aPm3_{s,r}$	efficiency parameter in CES production function (fourth nest) for the CES sectors (corresponding to the output produced using malleable capital)
$aPm4_{s,r}$	efficiency parameter in CES production function (fifth nest) for the CES sectors (corresponding to the output produced using malleable capital)
$aPv1_{s,v,r}$	efficiency parameter in CES production function (second nest) for the CES sectors (corresponding to the output produced using vintage capital)
$aPv2_{s,v,r}$	efficiency parameter in CES production function (third nest) for the CES sectors (corresponding to the output produced using vintage capital)
$aPv3nel_{s,v,r}$	efficiency parameter in the Leontief production function (fourth nest) corresponding to the non-electric energy bundle for the cesnel sectors (corresponding to the output produced using vintage capital)
$aPv3_{s,v,r}$	efficiency parameter in CES production function (fourth nest) for the CES sectors (corresponding to the output produced using vintage capital)
$aPv4_{s,v,r}$	efficiency parameter in CES production function (fifth nest) for the CES sectors (corresponding to the output produced using vintage capital)
$aT_{s,r}$	efficiency parameter (in the CET function)
$beta_r$	value of wage curve parameter, by region
$CH4GJ_{en,s,r}$	CH4 emission factor expressed in Kg/GJ by fuel, sector and region
$CH4GJH_{en,r}$	households CH4 emission factor expressed in Kg/GJ by fuel and region
$CH4GJPROC_{s,r}$	CH4 process emission factor expressed in Kg/GJ by sector and region
$CH4SCALHD_{d,r}$	scaling factor for households CH4 emissions by decile and region (derived using 2003 as the base year)
$CH4SCALH_r$	scaling factor for households CH4 emissions by region (derived using 2003 as the base year)
$CH4SCAL_{s,r}$	scaling factor for CH4 emissions by sector and region (derived using 2003 as the base year)
$CO2GJ_{en,r}$	CO2 emission factor expressed in Kg/GJ
$CO2GJPROC_{s,r}$	CO2 process emission factor expressed in Kg/GJ by sector and region
$CO2SCALHD_{d,r}$	scaling factor for households CO2 emissions by decile and region (derived using 2003 as the base year)
$CO2SCALH_r$	scaling factor for households CO2 emissions by region (derived using 2003 as the base year)
$CO2SCAL_{s,r}$	scaling factor for CO2 emissions by sector and region (derived using 2003 as the base year)
$d_{sbk,r}$	depreciation rate, by sector and region
$elasReg_{s,c,r}$	demand elasticity for imperfectly competitive sectors, by region
$elasY\_LS_r$	income elasticity of labor supply, by region
$elasY_{c,r}$	income elasticities of demand for commodities by region
$elasYd_{c,d,r}$	income elasticities of demand for commodities by decile and region
err_r	error term in the wage curve regression
$fcKm_{s,r}$	capital fixed costs corresponding to the output produced using malleable capital
$fcKmZ_{s,r}$	capital fixed costs corresponding to the output produced using malleable capital - benchmark value
$fcK_{s,r}$	total capital fixed costs
$fcKv_{s,v,r}$	capital fixed costs corresponding to the output produced using vintage capital
$fcKvZ_{s,v,r}$	capital fixed costs corresponding to the output produced using vintage capital - benchmark value

$fcLm_{s,r}$	labor fixed costs corresponding to the output produced using malleable capital
$fcLmZ_{s,r}$	labor fixed costs corresponding to the output produced using malleable capital - benchmark value
$fcL_{s,r}$	total labor fixed costs
$fcLv_{s,v,r}$	labor fixed costs corresponding to the output produced using vintage capital
$fcLvZ_{s,v,r}$	labor fixed costs corresponding to the output produced using vintage capital - benchmark value
$fcReg_{s,r}$	share of fixed costs in total costs for imperfectly competitive sectors, by region
$frisch_r$	value of Frisch parameter in the nested-LES utility function, by region
$GJOULE_{enl,s,r}$	ratio between consumption of energy inputs by sector and region, expressed in GJ and the consumption of energy inputs by sector and region, expressed in bil EUR
$GJOULEHD_{enl,d,r}$	ratio between households consumption of energy inputs by decile, expressed in GJ and households consumption of energy inputs by decile, expressed in billions EUR
$GJOULEH_{enl,r}$	ratio between households consumption of energy inputs, expressed in GJ and households consumption of energy inputs expressed in billions EUR
growthza	growth rate at the national level (weighted average)
$growthz_r$	regional growth rates
$io_{c,sbk,r}$	technical coefficients by commodity, sector and region
$ldec_r$	labor income received by all households groups from the region of residence
$LDZ_{s,r}$	last year labor demand
$LmDZ_{bk,r}$	last year labor demand for the backstop sectors
$markupBK_{bk,r}$	markup for the backstop technologies above the base-year cost of the fuel for which they are perfect substitute
$mps_{d,r}$	average propensity to save by region
$N2OGJ_{en,s,r}$	N2O emission factor expressed in Kg/GJ by fuel, sector and region
$N2OGJH_{en,r}$	households N2O emission factor expressed in Kg/GJ by fuel and region
$N2OGJPROC_{s,r}$	N2O process emission factor expressed in Kg/GJ by sector and region
$N2OSCALHD_{d,r}$	scaling factor for households N2O emissions by decile and region (derived using 2003 as the base year)
$N2OSCALH_r$	scaling factor for households N2O emissions by region (derived using 2003 as the base year)
$N2OSCAL_{s,r}$	scaling factor for N2O emissions by sector and region (derived using 2003 as the base year)
$phi_{sbk,r}$	share of malleable capital that becomes rigid at the end of each period
$PLESZ_{d,r}$	aggregate price level in the "benchmark equilibrium", used in the derivation of equivalent variation in income
PLWZ	average wage rate paid by the non-residential firms
$PROFITSDZ_{s,r}$	additional parameter for profits
$\Phi_{s,r}$	share of malleable capital that becomes rigid at the end of each period
$scalB_{sbk,r}$	bargaining power of workers by sector and region
shFlBx	share of commuters from Flanders to Bruxelles
$shFlBxD_d$	share of commuters from Flanders to Brussels, by decile
$shldec_{d,r}$	share of labor income received by each decile from the region of residence in the total labor income received by all households groups from the region of residence
$shunempb_{d,r}$	distribution of unemployment benefits by decile and region
shWBx	share of commuters from Wallonia to Bruxelles
$shWBxD_d$	share of commuters from Wallonia to Brussels, by decile

shWFl	share of commuters from Wallonia to Flanders
$shWFlD_d$	share of commuters from Wallonia to Flanders, by decile
$SIZ_{d,r}$	supernumerary income in the "benchmark equilibrium", used in the derivation of equivalent variation in income
$svr_{c,r}$	inventory investment ratio, by commodity and region
$tc0_{c,d,r}$	effective tax rate on private consumption (other taxes on consumption paid to the regional government) by commodity, decile and region (benchmark value to be used in the derivation of the consumer price index)
$tc_{c,d,r}$	effective tax rate on private consumption (other taxes on consumption paid to the regional government) by commodity, decile and region
$tcf0_{c,d,r}$	effective tax rate on private consumption (other taxes on consumption paid to the federal government) by commodity, decile and region (benchmark value to be used in the derivation of the consumer price index)
$tcf_{c,d,r}$	effective tax rate on private consumption (other taxes on consumption paid to the federal government) by commodity, decile and region
$tci0_{c,r}$	effective tax rate on investment goods (other taxes on investment goods paid to the federal government) by commodity and region - benchmark value
$tci_{c,r}$	effective tax rate on investment goods (other taxes on investment goods paid to the federal government) by commodity and region
$tk0_{s,r}$	effective tax rate on capital use (other taxes on capital use paid to the regional government) by sector and region - benchmark value
$tkf0_{sbk,r}$	effective corporate tax rate (corporate taxes paid to the federal government) by sector and region benchmark value
$tkf_{sbk,r}$	effective corporate tax rate (corporate taxes paid to the federal government) by sector and region
$tk_{sbk,r}$	effective tax rate on capital use (other taxes on capital use paid to the regional government) by sector and region
$tl_{sbk,r}$	social security contributions rate (social security contributions paid to the federal government) by sector and region
$tm_{c,r}$	effective tariff rate on imports (tariffs paid to the federal government) by commodity and region
$tpf_{s,r}$	effective tax rate on production (taxes on production paid to the federal government) by sector and region
$tp_{s,r}$	effective tax rate on production (taxes on production paid to the regional governments) by sector and region
$trep_r$	replacement rate by region
$tsc0_{c,d,r}$	effective subsidy rate on private consumption (subsidies on private consumption paid by the regional governments) by commodity, decile and region (benchmark value to be used in the derivation of the consumer price index)
$tsc_{c,d,r}$	effective subsidy rate on private consumption (subsidies on private consumption paid by the regional governments) by commodity, decile and region
$tscf0_{c,d,r}$	effective subsidy rate on private consumption (subsidies on private consumption paid by the federal government) by commodity, decile and region (benchmark value to be used in the derivation of the consumer price index)
$tscf_{c,d,r}$	effective subsidy rate on private consumption (subsidies on private consumption paid by the federal government) by commodity, decile and region
$tscio_{c,s,r}$	effective subsidy rate on intermediate consumption (subsidies paid by the regional governments)

$tsciof_{c,s,r}$	effective subsidy rate on intermediate consumption (subsidies paid by the federal government)
$tspf_{s,r}$	effective subsidy rate on production (subsidies on production paid by the federal government) by sector and region
$tsp_{s,r}$	effective subsidy rate on production (subsidies on production paid by the regional governments) by sector and region
$ty0_{d,r}$	benchmark tax rate on households income paid to the regional governments (to be used in the derivation of equivalent variation)
$ty_{d,r}$	tax rate on households income paid to the regional governments, by decile
$tyf0_{d,r}$	benchmark tax rate on households income paid to the federal government (to be used in the derivation of equivalent variation)
$tyf_{d,r}$	tax rate on households income paid to the federal government, by decile and region
$vat0_{c,d,r}$	effective VAT rate on private consumption by commodity, decile and region (benchmark value to be used in the derivation of the consumer price index)
$vat_{c,d,r}$	effective VAT rate on private consumption by commodity, decile and region
$vati0_{c,r}$	effective VAT rate on investment commodities, by type of commodity and region - benchmark value
$vati_{c,r}$	effective VAT rate on investment commodities, by type of commodity and region
$vatio_{c,d,r}$	effective VAT rate on intermediate consumption (non-deductible VAT)
$wv_{sbk,r}$	cost of posting a vacancy (employee's search costs)
$\alpha FC_{c,r}$	Cobb-Douglas share parameter corresponding to the demand for commodities by the French community
$\alpha FG_{c,r}$	Cobb-Douglas share parameter corresponding to the demand for commodities by the federal government
$\alpha G_{c,r}$	Cobb-Douglas share parameter corresponding to the demand for commodities by the regional governments
$\alpha H_{c,d,r}$	income elasticity of household demand for commodities
$\alpha HLES_{d,r}$	income elasticity of household demand for leisure
$\alpha I_{c,r}$	Cobb-Douglas share parameter corresponding to the demand for investment commodities
αM_{r}	share parameter of the matching function related to vacancies
$\gamma A1_{c,r}$	CES distribution parameter for imports from the ROW (in the ARMINGTON function)
$\gamma A2_{s,c,r}$	CES distribution parameter for imports from one of the Belgian regions (in the ARMINGTON function)
$\gamma A3_{s,c,r}$	CES distribution parameter for imports from the other Belgian region (in the ARMINGTON function)
$\gamma A4_{s,c,r}$	CES distribution parameter for demand from the domestic regional producers (in the ARMINGTON function)
$\gamma BKel11_{bk,r}$	CES distribution parameter for natural resources in the production of backstop electricity (first nest)
$\gamma BKel12_{bk,r}$	distribution parameter for fixed factor-capital-labor-intermediate consumption bundle (FKLO) in the production of backstop electricity (first nest)
$\gamma BKel21_{bk,r}$	CES distribution parameter for fixed factor in the production of backstop electricity (second nest)
$\gamma BKel22_{bk,r}$	CES distribution parameter for capital-labor-intermediate consumption bundle in the production of backstop electricity (second nest)
$\gamma BKel31_{sbk,r}$	CES distribution parameter for capital in the production of backstop electricity (third nest)

$\gamma BKel32_{sbk,r}$	CES distribution parameter for labor in the production of backstop electricity (third nest)
$\gamma BKng1_{r}$	CES distribution parameter for labor in the production of backstop natural gas
$\gamma BKng2_{r}$	distribution parameter for capital in the production of backstop natural gas
$\gamma Lm11_{sbk,r}$	CES distribution parameter for capital - KSKm (second nest) for the LEO sectors (corresponding to the output produced using malleable capital)
$\gamma Lm12_{sbk,r}$	CES distribution parameter for labor - Lm (second nest) for the LEO sectors (corresponding to the output produced using malleable capital)
$\gamma Lv11_{s,v,r}$	CES distribution parameter for capital - KSKv (second nest) for the LEO sectors (corresponding to the output produced using vintage capital)
$\gamma Lv12_{s,v,r}$	CES distribution parameter for labor - Lv (second nest) for the LEO sectors (corresponding to the output produced using vintage capital)
$\gamma O11_{s,r}$	CES distribution parameter for the output produced using malleable capital
$\gamma O12_{s,r}$	CES distribution parameter for the total output produced using rigid capital
$\gamma O2_{s,v,r}$	CES distribution parameter for the output produced using different vintages of capital
$\gamma Pm11_{sc,r}$	CES distribution parameter for capital-energy bundle – Kem (second nest) for the CES sectors (corresponding to the output produced using malleable capital)
$\gamma Pm12_{sc,r}$	CES distribution parameter for labor - Lm (second nest) for the CES sectors (corresponding to the output produced using malleable capital)
$\gamma Pm21_{sbk,r}$	CES distribution parameter for capital - KSKm (third nest) for the CES sectors (corresponding to the output produced using malleable capital)
$\gamma Pm22_{sbk,r}$	CES distribution parameter for energy composite, including electricity - ENERm (third nest) for the CES sectors (corresponding to the output produced using malleable capital)
$\gamma Pm31_{sc,r}$	CES distribution parameter for energy composite, excluding electricity - ENEROGm (fourth nest) for the CES sectors (corresponding to the output produced using malleable capital)
$\gamma Pm32_{el,sc,r}$	CES distribution parameter for electricity (fourth nest) for the CES sectors (corresponding to the output produced using malleable capital)
$\gamma Pm4_{en,s,r}$	CES distribution parameter for different non-electric energy inputs - ENINPm (fifth nest) for the CES sectors (corresponding to the output produced using malleable capital)
$\gamma Pv11_{sc,v,r}$	CES distribution parameter for capital-energy bundle – KEv (second nest) for the CES sectors (corresponding to the output produced using vintage capital)
$\gamma Pv12_{sc,v,r}$	CES distribution parameter for labor - Lv (second nest) for the CES sectors (corresponding to the output produced using vintage capital)
$\gamma Pv21_{s,v,r}$	CES distribution parameter for capital - KSKv (third nest) for the CES sectors (corresponding to the output produced using vintage capital)
$\gamma Pv22_{s,v,r}$	CES distribution parameter for energy composite, including electricity - ENERv (third nest) for the CES sectors (corresponding to the output produced using vintage capital)
$\gamma Pv31_{sc,v,r}$	CES distribution parameter for energy composite, excluding electricity - ENEROGv (fourth nest) for the CES sectors (corresponding to the output produced using vintage capital)
$\gamma Pv32_{el,sc,v,r}$	CES distribution parameter for electricity (fourth nest) for the CES sectors (corresponding to the output produced using vintage capital)
$\gamma Pv4_{en,s,v,r}$	CES distribution parameter for different non-electric energy inputs - ENINPv (fifth nest) for the CES sectors (corresponding to the output produced using vintage capital)
$\gamma T1_{s,r}$	CET distribution parameter for exports to the ROW (in the CET function)

$\gamma T2_{s,c,r}$	CET distribution parameter for exports to one of the Belgian regions (in the CET function)
$\gamma T3_{s,c,r}$	CET distribution parameter for exports to the other Belgian region (in the CET function)
$\gamma T4_{s,c,r}$	CET distribution parameter for the supply of the domestic producers to the domestic regional market (in the CET function)
$\mu H_{c,d,r}$	household subsistence consumption of commodities
$\mu HLES_{d,r}$	household subsistence consumption of leisure
$\sigma A_{c,r}$	elasticity of substitution between imports from the ROW, imports from the other Belgian regions and domestic production supplied to the domestic regional markets (in the ARMINGTON function)
$\sigma BKel1_{bk,r}$	CES elasticity of substitution between natural resources and fixed factor-capital-labor-intermediate consumption bundle (FKLO) in the production of backstop electricity (first nest)
$\sigma BKel2_{bk,r}$	CES elasticity of substitution between the fixed factor and capital-labor-intermediate consumption bundle (KLO) in the production of backstop electricity (second nest)
$\sigma BKel3_{sbk,r}$	CES elasticity of substitution between capital and labor in the production of backstop electricity (third nest)
$\sigma BKng_{r}$	CES elasticity of substitution between capital and labor in the production of backstop natural gas
$\sigma Lm1_{sbk,r}$	CES elasticity of substitution between capital and labor (second nest) in the short-run for the LEO sectors (corresponding to the output produced using malleable capital)
$\sigma Lv1_{s,v,r}$	CES elasticity of substitution between capital and labor (second nest) for the LEO sectors (corresponding to the output produced using vintage capital)
σM	elasticity of substitution of the matching function
$\sigma O1_{s,r}$	CES elasticity of substitution between the output produced using malleable and rigid capital
$\sigma O2_{s,r}$	CES elasticity of substitution between the output produced using different vintages of capital
$\sigma Pm1_{s,r}$	CES elasticity of substitution between capital-energy bundle and labor (second nest) in the short-run for the CES sectors (corresponding to the output produced using malleable capital)
$\sigma Pm2l_{s,r}$	CES elasticity of substitution between capital and energy composite, including electricity (third nest) in the long-run for the CES sectors (corresponding to the output produced using malleable capital)
$\sigma Pm2_{sbk,r}$	CES elasticity of substitution between capital and energy composite, including electricity (third nest) in the short-run for the CES sectors (corresponding to the output produced using malleable capital)
$\sigma Pm3_{s,r}$	CES elasticity of substitution between electricity and non-electric energy inputs (fourth nest) in the short-run for the CES sectors (corresponding to the output produced using malleable capital)
$\sigma Pm4_{s,r}$	CES elasticity of substitution between different non-electric energy inputs (fifth nest) in the short-run for the CES sectors (corresponding to the output produced using malleable capital)
$\sigma Pv1_{s,v,r}$	CES elasticity of substitution between capital-energy bundle and labor (second nest) for the CES sectors (corresponding to the output produced using vintage capital)
$\sigma Pv2_{s,v,r}$	CES elasticity of substitution between capital and energy composite, including electricity (third nest) for the CES sectors (corresponding to the output produced using vintage capital)

$\sigma Pv3_{s,v,r}$	CES elasticity of substitution between electricity and non-electric energy inputs (fourth nest) for the CES sectors (corresponding to the output produced using vintage capital)
$\sigma Pv4_{s,v,r}$	CES elasticity of substitution between different non-electric energy inputs (fifth nest) for the CES sectors (corresponding to the output produced using vintage capital)
$\sigma T_{s,r}$	elasticity of substitution between exports to the ROW, exports to the other Belgian regions and domestic production supplied to the domestic regional markets (in the CET function)

Name of the indexes:

agr	agricultural sectors
b	Brussels
bk	backstop sectors
bkel	backstop electricity
bkng	backstop natural gas
c	commodities
cc	same as c (used for simplifying the notations)
co	coal (energy input)
d	deciles
el	electricity (energy input)
en	energy inputs
enl	energy inputs except electricity
enlg	energy inputs except natural gas and electricity
f	Flanders
r	regions
rr	used for one of the three Belgian regions (other than *r*)
rrr	used for one of the three Belgian regions (other than *r* and *rr*)
s	production sectors excluding the backstop sectors
sbk	production sectors including the backstop sectors
sc	production sectors with a nested production structure (CES group)
scl	production and distribution of non-nuclear electricity and air transport sectors
scnel	production sectors with a nested production structure (CES group) excluding production and distribution of non-nuclear electricity
scnl	production sectors with a nested production structure (CES group) excluding production and distribution of non-nuclear electricity and air transport sectors
sel	production and distribution of non-nuclear electricity sector
sl	production sectors with a nested production structure (LEO group)
slnng	production sectors with a nested production structure (LEO group) excluding production and distribution of natural gas sector
smon	monopolistically competitive sectors
sng	production and distribution of natural gas sector
solig	oligopolistic production sectors
v	vintages of capital
w	Wallonia