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Index sets

$$HHD = \{01, 02, 03, 04, 05, 06, 07, 08, 09, 10\}$$

$$ROW = \{eu, neu\}$$

$$SEC = \{A, B, C, D, E, F, G, H, I, J, K\}$$

$h \in HHD$

problem

$$\max_{S^{(h)}, L^{(h)}, K^{(h)}, BTINC^{(h)}, INC^{(h)}, PIT^{base^{(h)}}, SAV^{(h)}, THBANK^{(h)}, (THROW^{(h,r)})_{r \in ROW}, TRAN^{(h)}} U^{(h)} = \left(\alpha^{u^{(h)}} DEM^{(h)} \omega^{u^{(h)}-1} (-1+\omega^{u^{(h)}}) + (1 - \alpha^{u^{(h)}}) LEIS^{(h)} \omega^{u^{(h)}-1} (-1+\omega^{u^{(h)}}) \right)^{\omega^{u^{(h)}} (-1+\omega^{u^{(h)}})^{-1}} \quad (1.1)$$

$$e^{(h)} \left(\lambda^{CONSUMER^1(h)} \right) \quad (1.2)$$

$$\left(\lambda^{CONSUMER^2(h)} \right) \quad (1.3)$$

$$D^{(s,h)} D^{(s,h) \omega^{-1}(-1+\omega)} \left(\lambda^{CONSUMER^3(h)} \right)^{\omega(-1+\omega)^{-1}} \quad (1.4)$$

$$+ \sum_{s \in SEC} p^{cons(s)} D^{(s,h)} \left(\lambda^{CONSUMER^4(h)} \right) \quad (1.5)$$

$$PIT^{base^{(h)}} \left(\lambda^{CONSUMER^5(h)} \right) \quad (1.6)$$

$$C^{(h)} - \alpha p^1 L^{(h)} \left(\lambda^{CONSUMER^6(h)} \right) \quad (1.7)$$

$$K^{(h)} + p^1 L^{(h)} \left(\lambda^{CONSUMER^7(h)} \right) \quad (1.8)$$

$$\left(\lambda^{CONSUMER^8(h)} \right) \quad (1.9)$$

$$CONSUMER^9(h) \quad (1.10)$$

$$\left(\lambda^{CONSUMER^{10}(h)} \right) \quad (1.11)$$

$$r^{(h,r)} = \alpha th^{r^{(h,r)}} INC^{(h)} \left(\lambda^{CONSUMER^{11}(h,r)} \right) \quad (1.12)$$

$$\sum_{r \in ROW} ex^{rate(r)} THROW^{(h,r)} \left(\lambda^{CONSUMER^{12}(h)} \right) \quad (1.13)$$

1.2 Identities

$$TINSTH^{(h)} = TBANKH^{(h)} + TFIRMH^{(h)} + TGOVH^{(h)} + \sum_{r \in ROW} TROWH^{(r,h)} \quad (1.14)$$

1.3 First order conditions

$$s \in SEC: \quad \lambda^{CONSUMER4^{(h)}} p^{cons^{(s)}} + \alpha^{(s,h)} \theta^{dem^{(h)}} \lambda^{CONSUMER3^{(h)}} D^{(s,h)^{-1+\omega^{-1}(-1+\omega)}} \left(\sum_{s \in SEC} \alpha^{(s,h)} D^{(s,h)\omega^{-1}(-1+\omega)} \right)^{-1+\omega(-1+\omega)^{-1}} = 0 \quad (D^{(s,h)}) \quad (1.15)$$

$$-\lambda^{CONSUMER3^{(h)}} + \alpha^{u^{(h)}} DEM^{(h)^{-1+\omega^u(h)^{-1}(-1+\omega^u(h))}} \left(\alpha^{u^{(h)}} DEM^{(h)\omega^u(h)^{-1}(-1+\omega^u(h))} + (1 - \alpha^{u^{(h)}}) LEIS^{(h)\omega^u(h)^{-1}(-1+\omega^u(h))} \right)^{-1+\omega^u(h)(-1+\omega^u(h))^{-1}} = 0 \quad (DEM^{(h)}) \quad (1.16)$$

$$-\lambda^{CONSUMER2^{(h)}} - scale^{(h)} \lambda^{CONSUMER1^{(h)}} = 0 \quad (LL^{(h)}) \quad (1.17)$$

$$\omega \quad -scale^{(h)} \lambda^{CONSUMER1^{(h)}} + (1 - \alpha^{u^{(h)}}) LEIS^{(h)^{-1+\omega^u(h)^{-1}(-1+\omega^u(h))}} \left(\alpha^{u^{(h)}} DEM^{(h)\omega^u(h)^{-1}(-1+\omega^u(h))} + (1 - \alpha^{u^{(h)}}) LEIS^{(h)\omega^u(h)^{-1}(-1+\omega^u(h))} \right)^{-1+\omega^u(h)(-1+\omega^u(h))^{-1}} = 0 \quad (LEIS^{(h)}) \quad (1.18)$$

$$\lambda^{CONSUMER2^{(h)}} + p^l \lambda^{CONSUMER7^{(h)}} - \omega p^l \lambda^{CONSUMER6^{(h)}} = 0 \quad (L^{(h)}) \quad (1.19)$$

$$p^k \lambda^{CONSUMER7^{(h)}} - scale^{(h)} \lambda^{CONSUMER8^{(h)}} = 0 \quad (K^{(h)}) \quad (1.20)$$

$$\lambda^{CONSUMER5^{(h)}} + \lambda^{CONSUMER6^{(h)}} - \lambda^{CONSUMER7^{(h)}} = 0 \quad (BIINC^{(h)}) \quad (1.21)$$

$$-\lambda^{CONSUMER4^{(h)}} - \lambda^{CONSUMER5^{(h)}} + \alpha h^b \lambda^{CONSUMER10^{(h)}} + sw^{(h)} \lambda^{CONSUMER9^{(h)}} + \sum_{r \in ROW} \alpha h^r \lambda^{CONSUMER11^{(h,r)}} = 0 \quad (INC^{(h)}) \quad (1.22)$$

$$-\lambda^{CONSUMER6^{(h)}} - \pi^{tax^{(h)}} \lambda^{CONSUMER5^{(h)}} = 0 \quad (PII^{base^{(h)}}) \quad (1.23)$$

$$\lambda^{CONSUMER4^{(h)}} - \lambda^{CONSUMER9^{(h)}} = 0 \quad (SAV^{(h)}) \quad (1.24)$$

$$-\lambda^{CONSUMER10^{(h)}} + \lambda^{CONSUMER12^{(h)}} = 0 \quad (THBANK^{(h)}) \quad (1.25)$$

$$r \in ROW: \quad ex^{\text{rate}\langle r \rangle} \lambda^{\text{CONSUMER}^{12}\langle h \rangle} - ex^{\text{rate}\langle r \rangle} \lambda^{\text{CONSUMER}^{11}\langle h, r \rangle} = 0 \quad \left(THROW^{\langle h, r \rangle} \right) \quad (1.26)$$

$$\lambda^{\text{CONSUMER}^4\langle h \rangle} - \lambda^{\text{CONSUMER}^{12}\langle h \rangle} = 0 \quad \left(TRAN^{\langle h \rangle} \right) \quad (1.27)$$

1.4 First order conditions after reduction

$$s \in SEC: \quad \lambda^{\text{CONSUMER}^{12}\langle h \rangle} p^{\text{cons}\langle s \rangle} + \alpha^{\langle s, h \rangle} \alpha^{u\langle h \rangle} \theta^{\text{dem}\langle h \rangle} D^{\langle s, h \rangle -1 + \omega^{-1}(-1 + \omega)} DEM^{\langle h \rangle -1 + \omega^u\langle h \rangle -1(-1 + \omega^u\langle h \rangle)} \left(\alpha^{u\langle h \rangle} DEM^{\langle h \rangle \omega^u\langle h \rangle -1(-1 + \omega^u\langle h \rangle)} + (1 - \alpha^{u\langle h \rangle}) LEIS^{\langle h \rangle \omega^u\langle h \rangle -1(-1 + \omega^u\langle h \rangle)} \right) \quad (1.28)$$

$$-scale^{\langle h \rangle} \lambda^{\text{CONSUMER}^1\langle h \rangle} + (1 - \alpha^{u\langle h \rangle}) LEIS^{\langle h \rangle -1 + \omega^u\langle h \rangle -1(-1 + \omega^u\langle h \rangle)} \left(\alpha^{u\langle h \rangle} DEM^{\langle h \rangle \omega^u\langle h \rangle -1(-1 + \omega^u\langle h \rangle)} + (1 - \alpha^{u\langle h \rangle}) LEIS^{\langle h \rangle \omega^u\langle h \rangle -1(-1 + \omega^u\langle h \rangle)} \right)^{-1 + \omega^u\langle h \rangle(-1 + \omega^u\langle h \rangle)^{-1}} = 0 \quad \left(LEIS^{\langle h \rangle} \right) \quad (1.29)$$

$$-scale^{\langle h \rangle} \lambda^{\text{CONSUMER}^1\langle h \rangle} + p^l \left(-\lambda^{\text{CONSUMER}^{12}\langle h \rangle} + \alpha h^b\langle h \rangle \lambda^{\text{CONSUMER}^{12}\langle h \rangle} - pt^{\text{tax}\langle h \rangle} \left(-\lambda^{\text{CONSUMER}^{12}\langle h \rangle} + \alpha h^b\langle h \rangle \lambda^{\text{CONSUMER}^{12}\langle h \rangle} + sw^{\langle h \rangle} \lambda^{\text{CONSUMER}^{12}\langle h \rangle} + \sum_{r \in ROW} \alpha h^r\langle h, r \rangle \lambda^{\text{CONSUMER}^{11}\langle h, r \rangle} \right) \right) \quad (1.30)$$

$$p^k \left(-\lambda^{\text{CONSUMER}^{12}\langle h \rangle} + \alpha h^b\langle h \rangle \lambda^{\text{CONSUMER}^{12}\langle h \rangle} - pt^{\text{tax}\langle h \rangle} \left(-\lambda^{\text{CONSUMER}^{12}\langle h \rangle} + \alpha h^b\langle h \rangle \lambda^{\text{CONSUMER}^{12}\langle h \rangle} + sw^{\langle h \rangle} \lambda^{\text{CONSUMER}^{12}\langle h \rangle} + \sum_{r \in ROW} \alpha h^r\langle h, r \rangle \lambda^{\text{CONSUMER}^{11}\langle h, r \rangle} \right) + sw^{\langle h \rangle} \lambda^{\text{CONSUMER}^{11}\langle h, r \rangle} \right) \quad (1.31)$$

$$r \in ROW: \quad ex^{\text{rate}\langle r \rangle} \lambda^{\text{CONSUMER}^{12}\langle h \rangle} - ex^{\text{rate}\langle r \rangle} \lambda^{\text{CONSUMER}^{11}\langle h, r \rangle} = 0 \quad \left(\left(THROW^{\langle h, r \rangle} \right)_{r \in ROW} \right) \quad (1.32)$$

2 PRODUCTION OF GOODS $s \in SEC$

2.1 Optimisation problem

$$\max_{Y^{(s)}, K^{(s)}, L^{(s)}, Y^{VA(s)}, Y^{INT(s)}, (X^{(s_i, s)})_{s_i \in SEC}} \pi^{(s)} = p^{(s)} Y^{(s)} - \left(1 - \mathit{sub}^{\text{rate}(s)} + \mathit{tax}^{\text{rate}(s)}\right) \left(p^k K^{(s)} (1 + k^{\text{tax}}) + p^l L^{(s)} (1 + l^{\text{tax}}) + \sum_{s_i \in SEC} p^{\text{int}(s_i)} X^{(s_i, s)} \right) \quad (2.1)$$

s.t. :

$$Y^{(s)} = Y^{VA(s)} \left(\lambda^{\text{PRODUCTION_OF_GOODS}^1(s)} \right) \quad (2.2)$$

$$Y^{VA(s)} = Y^{INT(s)} \left(\lambda^{\text{PRODUCTION_OF_GOODS}^2(s)} \right) \quad (2.3)$$

$$Y^{VA(s)} = \gamma^{\text{yva}(s)} K^{(s)\beta^k(s)} L^{(s)\beta^l(s)} \left(\lambda^{\text{PRODUCTION_OF_GOODS}^3(s)} \right) \quad (2.4)$$

$$\mathit{s}_i \in SEC: X^{(s_i, s)} = \beta^{\text{x}(s_i, s)} Y^{INT(s)} \left(\lambda^{\text{PRODUCTION_OF_GOODS}^4(s, \mathit{s}_i)} \right) \quad (2.5)$$

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2.2 First order conditions

$$-\lambda^{\text{PRODUCTION_OF_GOODS}^1(s)} + p^{(s)} = 0 \quad \left(Y^{(s)} \right) \quad (2.6)$$

$$-p^k (1 + k^{\text{tax}}) \left(1 - \mathit{sub}^{\text{rate}(s)} + \mathit{tax}^{\text{rate}(s)}\right) + \beta^k(s) \gamma^{\text{yva}(s)} \lambda^{\text{PRODUCTION_OF_GOODS}^3(s)} K^{(s)-1+\beta^k(s)} L^{(s)\beta^l(s)} = 0 \quad \left(K^{(s)} \right) \quad (2.7)$$

$$-p^l (1 + l^{\text{tax}}) \left(1 - \mathit{sub}^{\text{rate}(s)} + \mathit{tax}^{\text{rate}(s)}\right) + \beta^l(s) \gamma^{\text{yva}(s)} \lambda^{\text{PRODUCTION_OF_GOODS}^3(s)} K^{(s)\beta^k(s)} L^{(s)-1+\beta^l(s)} = 0 \quad \left(L^{(s)} \right) \quad (2.8)$$

$$\lambda^{\text{PRODUCTION_OF_GOODS}^1(s)} - \lambda^{\text{PRODUCTION_OF_GOODS}^2(s)} - \lambda^{\text{PRODUCTION_OF_GOODS}^3(s)} = 0 \quad \left(Y^{VA(s)} \right) \quad (2.9)$$

$$\lambda^{\text{PRODUCTION_OF_GOODS}^2(s)} + \sum_{s_i \in SEC} \beta^{\text{x}(s_i, s)} \lambda^{\text{PRODUCTION_OF_GOODS}^4(s, \mathit{s}_i)} = 0 \quad \left(Y^{INT(s)} \right) \quad (2.10)$$

$$\mathit{s}_i \in SEC: -\lambda^{\text{PRODUCTION_OF_GOODS}^4(s, \mathit{s}_i)} - p^{\text{int}(s_i)} \left(1 - \mathit{sub}^{\text{rate}(s)} + \mathit{tax}^{\text{rate}(s)}\right) = 0 \quad \left(X^{(s_i, s)} \right) \quad (2.11)$$

2.3 First order conditions after reduction

$$-p^k (1 + k^{\text{tax}}) \left(1 - \text{sub}^{\text{rate}(s)} + \text{tax}^{\text{rate}(s)}\right) + \beta^{k(s)} \gamma^{\text{yva}(s)} \left(p^{(s)} + \sum_{\dot{s}i \in \text{SEC}} \beta^{x(\dot{s}i, s)} \lambda^{\text{PRODUCTION OF GOODS}^4(s, \dot{s}i)}\right) K^{(s)-1+\beta^{k(s)}} L^{(s)\beta^{l(s)}} = 0 \quad (K^{(s)}) \quad (2.12)$$

$$-p^l (1 + l^{\text{tax}}) \left(1 - \text{sub}^{\text{rate}(s)} + \text{tax}^{\text{rate}(s)}\right) + \beta^{l(s)} \gamma^{\text{yva}(s)} \left(p^{(s)} + \sum_{\dot{s}i \in \text{SEC}} \beta^{x(\dot{s}i, s)} \lambda^{\text{PRODUCTION OF GOODS}^4(s, \dot{s}i)}\right) K^{(s)\beta^{k(s)}} L^{(s)-1+\beta^{l(s)}} = 0 \quad (L^{(s)}) \quad (2.13)$$

$$\dot{s}i \in \text{SEC}: \quad -\lambda^{\text{PRODUCTION OF GOODS}^4(s, \dot{s}i)} - p^{\text{int}(\dot{s}i)} \left(1 - \text{sub}^{\text{rate}(s)} + \text{tax}^{\text{rate}(s)}\right) = 0 \quad \left(\left(X^{(\dot{s}i, s)}\right)_{\dot{s}i \in \text{SEC}}\right) \quad (2.14)$$

3 TAXES PRODUCER

3.1 Identities

$$s \in \text{SEC}: \quad \text{SUB}^{s(s)} = \text{sub}^{\text{rate}(s)} \left(p^k K^{(s)} (1 + k^{\text{tax}}) + p^l L^{(s)} (1 + l^{\text{tax}}) + \sum_{\dot{s}i \in \text{SEC}} p^{\text{int}(\dot{s}i)} X^{(\dot{s}i, s)}\right) \quad (3.1)$$

$$s \in \text{SEC}: \quad \text{TAX}^{s(s)} = \text{tax}^{\text{rate}(s)} \left(p^k K^{(s)} (1 + k^{\text{tax}}) + p^l L^{(s)} (1 + l^{\text{tax}}) + \sum_{\dot{s}i \in \text{SEC}} p^{\text{int}(\dot{s}i)} X^{(\dot{s}i, s)}\right) \quad (3.2)$$

$$L^{\text{TAX}} = l^{\text{tax}} p^l \left(\sum_{s \in \text{SEC}} L^{(s)}\right) \quad (3.3)$$

$$K^{\text{TAX}} = k^{\text{tax}} p^k \left(\sum_{s \in \text{SEC}} K^{(s)}\right) \quad (3.4)$$

4 EXPORT COMPOSITE $s \in \text{SEC}$

4.1 Optimisation problem

$$\max_{\text{EXPORT}^{(s)}, (\text{EXP}^{(r, s)})_{r \in \text{ROW}}} \Pi^{\text{EXP}(s)} = p^{\text{exp}(s)} \text{EXPORT}^{(s)} - \sum_{r \in \text{ROW}} p^{\text{for}(r)} \text{EXP}^{(r, s)} \quad (4.1)$$

s.t. :

$$\text{EXPORT}^{(s)} = \theta^{\text{exp}(s)} \left(\sum_{r \in \text{ROW}} \alpha^{\text{exp}(r, s)} \left(\text{am}^{\text{exp}(r)} \text{EXP}^{(r, s)}\right)^{\sigma^{\text{exp}(s)} - 1} (1 + \sigma^{\text{exp}(s)})\right)^{\sigma^{\text{exp}(s)} (1 + \sigma^{\text{exp}(s)})^{-1}} \left(\lambda^{\text{EXPORT COMPOSITE}^1(s)}\right) \quad (4.2)$$

4.2 First order conditions

$$-\lambda^{\text{EXPORTCOMPOSITE}^1(s)} + p^{\text{exp}(s)} = 0 \quad \left(\text{EXPORT}^{\langle s \rangle} \right) \quad (4.3)$$

$$r \in \text{ROW}: \quad -p^{\text{for}(r)} + \alpha^{\text{exp}(r,s)} am^{\text{exp}(r)} \theta^{\text{exp}(s)} \lambda^{\text{EXPORTCOMPOSITE}^1(s)} \left(am^{\text{exp}(r)} \text{EXP}^{\langle r,s \rangle} \right)^{-1 + \sigma^{\text{exp}(s)} - 1} \left(1 + \sigma^{\text{exp}(s)} \right) \left(\sum_{r \in \text{ROW}} \alpha^{\text{exp}(r,s)} \left(am^{\text{exp}(r)} \text{EXP}^{\langle r,s \rangle} \right)^{\sigma^{\text{exp}(s)} - 1} \left(1 + \sigma^{\text{exp}(s)} \right) \right)^{-1 + \sigma^{\text{exp}(s)} - 1} \left(1 + \sigma^{\text{exp}(s)} \right) \quad (4.4)$$

4.3 First order conditions after reduction

$$r \in \text{ROW}: \quad -p^{\text{for}(r)} + \alpha^{\text{exp}(r,s)} am^{\text{exp}(r)} \theta^{\text{exp}(s)} p^{\text{exp}(s)} \left(am^{\text{exp}(r)} \text{EXP}^{\langle r,s \rangle} \right)^{-1 + \sigma^{\text{exp}(s)} - 1} \left(1 + \sigma^{\text{exp}(s)} \right) \left(\sum_{r \in \text{ROW}} \alpha^{\text{exp}(r,s)} \left(am^{\text{exp}(r)} \text{EXP}^{\langle r,s \rangle} \right)^{\sigma^{\text{exp}(s)} - 1} \left(1 + \sigma^{\text{exp}(s)} \right) \right)^{-1 + \sigma^{\text{exp}(s)} - 1} \left(1 + \sigma^{\text{exp}(s)} \right) = 0 \quad (4.5)$$

5 FINAL PRODUCT COMPOSITE $s \in \text{SEC}$

5.1 Optimisation problem

$$\max_{Y^{\text{f}(s)}, Y^{\text{HOME}(s)}, \text{EXPORT}^{\text{f}(s)}} \quad \Pi^{Y(s)} = p^{\langle s \rangle} Y^{\text{f}(s)} - p^{\text{home}(s)} Y^{\text{HOME}(s)} - p^{\text{exp}(s)} \text{EXPORT}^{\text{f}(s)} \quad (5.1)$$

s.t. :

$$Y^{\text{f}(s)} = \theta^{y(s)} \left(\alpha^{\text{prod}^{\text{h}(s)}} Y^{\text{HOME}(s)} \sigma^{\text{fprod}(s) - 1} \left(1 + \sigma^{\text{fprod}(s)} \right) + \alpha^{\text{prod}^{\text{e}(s)}} \text{EXPORT}^{\text{f}(s)} \sigma^{\text{fprod}(s) - 1} \left(1 + \sigma^{\text{fprod}(s)} \right) \right)^{\sigma^{\text{fprod}(s)}} \left(1 + \sigma^{\text{fprod}(s)} \right)^{-1} \left(\lambda^{\text{FINALPRODUCTCOMPOSITE}^1(s)} \right) \quad (5.2)$$

5.2 First order conditions

$$-\lambda^{\text{FINALPRODUCTCOMPOSITE}^1(s)} + p^{\langle s \rangle} = 0 \quad \left(Y^{\text{f}(s)} \right) \quad (5.3)$$

$$-p^{\text{home}(s)} + \alpha^{\text{prod}^{\text{h}(s)}} \theta^{y(s)} \lambda^{\text{FINALPRODUCTCOMPOSITE}^1(s)} Y^{\text{HOME}(s)} \sigma^{\text{fprod}(s) - 1} \left(1 + \sigma^{\text{fprod}(s)} \right) \left(\alpha^{\text{prod}^{\text{h}(s)}} Y^{\text{HOME}(s)} \sigma^{\text{fprod}(s) - 1} \left(1 + \sigma^{\text{fprod}(s)} \right) + \alpha^{\text{prod}^{\text{e}(s)}} \text{EXPORT}^{\text{f}(s)} \sigma^{\text{fprod}(s) - 1} \left(1 + \sigma^{\text{fprod}(s)} \right) \right)^{\sigma^{\text{fprod}(s)} - 1} \left(1 + \sigma^{\text{fprod}(s)} \right) \quad (5.4)$$

$$-p^{\text{exp}\langle s \rangle} + \alpha^{\text{prod}^e \langle s \rangle} \theta^{y \langle s \rangle} \lambda^{\text{FINALPRODUCTCOMPOSITE}^1 \langle s \rangle} \text{EXPORT}^f \langle s \rangle^{-1 + \sigma^{\text{fProd}\langle s \rangle}} \left(1 + \sigma^{\text{fProd}\langle s \rangle} \right)^{-1} \left(\alpha^{\text{prod}^h \langle s \rangle} Y^{\text{HOME}\langle s \rangle} \sigma^{\text{fProd}\langle s \rangle} \left(1 + \sigma^{\text{fProd}\langle s \rangle} \right)^{-1} + \alpha^{\text{prod}^e \langle s \rangle} \text{EXPORT}^f \langle s \rangle \sigma^{\text{fProd}\langle s \rangle} \left(1 + \sigma^{\text{fProd}\langle s \rangle} \right)^{-1} \right) \quad (5.5)$$

5.3 First order conditions after reduction

$$-p^{\text{home}\langle s \rangle} + \alpha^{\text{prod}^h \langle s \rangle} \theta^{y \langle s \rangle} p \langle s \rangle Y^{\text{HOME}\langle s \rangle} \sigma^{\text{fProd}\langle s \rangle} \left(1 + \sigma^{\text{fProd}\langle s \rangle} \right)^{-1} \left(\alpha^{\text{prod}^h \langle s \rangle} Y^{\text{HOME}\langle s \rangle} \sigma^{\text{fProd}\langle s \rangle} \left(1 + \sigma^{\text{fProd}\langle s \rangle} \right)^{-1} + \alpha^{\text{prod}^e \langle s \rangle} \text{EXPORT}^f \langle s \rangle \sigma^{\text{fProd}\langle s \rangle} \left(1 + \sigma^{\text{fProd}\langle s \rangle} \right)^{-1} \right)^{-1 + \sigma^{\text{fProd}\langle s \rangle}} \left(1 + \sigma^{\text{fProd}\langle s \rangle} \right)^{-1} \quad (5.6)$$

$$-p^{\text{exp}\langle s \rangle} + \alpha^{\text{prod}^e \langle s \rangle} \theta^{y \langle s \rangle} p \langle s \rangle \text{EXPORT}^f \langle s \rangle^{-1 + \sigma^{\text{fProd}\langle s \rangle}} \left(1 + \sigma^{\text{fProd}\langle s \rangle} \right)^{-1} \left(\alpha^{\text{prod}^h \langle s \rangle} Y^{\text{HOME}\langle s \rangle} \sigma^{\text{fProd}\langle s \rangle} \left(1 + \sigma^{\text{fProd}\langle s \rangle} \right)^{-1} + \alpha^{\text{prod}^e \langle s \rangle} \text{EXPORT}^f \langle s \rangle \sigma^{\text{fProd}\langle s \rangle} \left(1 + \sigma^{\text{fProd}\langle s \rangle} \right)^{-1} \right)^{-1 + \sigma^{\text{fProd}\langle s \rangle}} \left(1 + \sigma^{\text{fProd}\langle s \rangle} \right)^{-1} \quad (5.7)$$

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6 IMPORT COMPOSITE $s \in \text{SEC}$

6.1 Optimisation problem

$$\max_{\text{IMPORT}\langle s \rangle, (\text{IMP}\langle r, s \rangle)_{r \in \text{ROW}}} \Pi^{\text{IMP}\langle s \rangle} = p^{\text{imp}\langle s \rangle} \text{IMPORT}\langle s \rangle - \sum_{r \in \text{ROW}} p^{\text{for}\langle r \rangle} \text{ex}^{\text{rate}\langle r \rangle} \text{IMP}\langle r, s \rangle \left(1 + \text{im}^{\text{tax}\langle r, s \rangle} \right) \quad (6.1)$$

s.t. :

$$\text{IMPORT}\langle s \rangle = \theta^{\text{imp}\langle s \rangle} \left(\sum_{r \in \text{ROW}} \alpha^{\text{imp}\langle r, s \rangle} \left(\text{am}^{\text{imp}\langle r \rangle} \text{IMP}\langle r, s \rangle \right)^{\sigma^{\text{imp}\langle s \rangle} - 1} \left(-1 + \sigma^{\text{imp}\langle s \rangle} \right) \right)^{\sigma^{\text{imp}\langle s \rangle}} \left(-1 + \sigma^{\text{imp}\langle s \rangle} \right)^{-1} \left(\lambda^{\text{IMPORTCOMPOSITE}^1 \langle s \rangle} \right) \quad (6.2)$$

6.2 First order conditions

$$-\lambda^{\text{IMPORTCOMPOSITE}^1 \langle s \rangle} + p^{\text{imp}\langle s \rangle} = 0 \quad \left(\text{IMPORT}\langle s \rangle \right) \quad (6.3)$$

$$r \in ROW: \quad -p^{\text{for}\langle r \rangle} ex^{\text{rate}\langle r \rangle} \left(1 + im^{\text{tax}\langle r, s \rangle}\right) + \alpha^{\text{imp}\langle r, s \rangle} am^{\text{imp}\langle r \rangle} \theta^{\text{imp}\langle s \rangle} \lambda^{\text{IMPORTCOMPOSITE}^1\langle s \rangle} \left(am^{\text{imp}\langle r \rangle} IMP^{\langle r, s \rangle}\right)^{-1 + \sigma^{\text{imp}\langle s \rangle} - 1} \left(-1 + \sigma^{\text{imp}\langle s \rangle}\right) \left(\sum_{r \in ROW} \alpha^{\text{imp}\langle r, s \rangle} \left(am^{\text{imp}\langle r \rangle} IMP^{\langle r, s \rangle}\right)^{\sigma^{\text{imp}\langle s \rangle}}\right) \quad (6.4)$$

6.3 First order conditions after reduction

$$r \in ROW: \quad -p^{\text{for}\langle r \rangle} ex^{\text{rate}\langle r \rangle} \left(1 + im^{\text{tax}\langle r, s \rangle}\right) + \alpha^{\text{imp}\langle r, s \rangle} am^{\text{imp}\langle r \rangle} \theta^{\text{imp}\langle s \rangle} p^{\text{imp}\langle s \rangle} \left(am^{\text{imp}\langle r \rangle} IMP^{\langle r, s \rangle}\right)^{-1 + \sigma^{\text{imp}\langle s \rangle} - 1} \left(-1 + \sigma^{\text{imp}\langle s \rangle}\right) \left(\sum_{r \in ROW} \alpha^{\text{imp}\langle r, s \rangle} \left(am^{\text{imp}\langle r \rangle} IMP^{\langle r, s \rangle}\right)^{\sigma^{\text{imp}\langle s \rangle} - 1} \left(-1 + \sigma^{\text{imp}\langle s \rangle}\right)\right) \quad (6.5)$$

7 ARMINGTON COMPOSITE $s \in SEC$

7.1 Optimisation problem

$$\max_{ARM^{\langle s \rangle}, Y^{\text{HOME}^a\langle s \rangle}, IMPORT^a\langle s \rangle} \Pi^{\text{ARM}\langle s \rangle} = -p^{\text{home}\langle s \rangle} Y^{\text{HOME}^a\langle s \rangle} + p^{\text{arm}\langle s \rangle} ARM^{\langle s \rangle} - p^{\text{imp}\langle s \rangle} IMPORT^a\langle s \rangle \quad (7.1)$$

s.t. :

$$ARM^{\langle s \rangle} = \theta^{\text{arm}\langle s \rangle} \left(\alpha^{\text{arm}^h\langle s \rangle} Y^{\text{HOME}^a\langle s \rangle} \sigma^{\text{arm}\langle s \rangle - 1} \left(-1 + \sigma^{\text{arm}\langle s \rangle}\right) + \alpha^{\text{arm}^i\langle s \rangle} IMPORT^a\langle s \rangle \sigma^{\text{arm}\langle s \rangle - 1} \left(-1 + \sigma^{\text{arm}\langle s \rangle}\right) \right)^{\sigma^{\text{arm}\langle s \rangle} \left(-1 + \sigma^{\text{arm}\langle s \rangle}\right) - 1} \left(\lambda^{\text{ARMINGTONCOMPOSITE}^1\langle s \rangle} \right) \quad (7.2)$$

7.2 First order conditions

$$-\lambda^{\text{ARMINGTONCOMPOSITE}^1\langle s \rangle} + p^{\text{arm}\langle s \rangle} = 0 \quad \left(ARM^{\langle s \rangle}\right) \quad (7.3)$$

$$-p^{\text{home}\langle s \rangle} + \alpha^{\text{arm}^h\langle s \rangle} \theta^{\text{arm}\langle s \rangle} \lambda^{\text{ARMINGTONCOMPOSITE}^1\langle s \rangle} Y^{\text{HOME}^a\langle s \rangle} \sigma^{\text{arm}\langle s \rangle - 1} \left(-1 + \sigma^{\text{arm}\langle s \rangle}\right) \left(\alpha^{\text{arm}^h\langle s \rangle} Y^{\text{HOME}^a\langle s \rangle} \sigma^{\text{arm}\langle s \rangle - 1} \left(-1 + \sigma^{\text{arm}\langle s \rangle}\right) + \alpha^{\text{arm}^i\langle s \rangle} IMPORT^a\langle s \rangle \sigma^{\text{arm}\langle s \rangle - 1} \left(-1 + \sigma^{\text{arm}\langle s \rangle}\right) \right)^{-1 + \sigma^{\text{arm}\langle s \rangle}} \quad (7.4)$$

$$-p^{\text{imp}\langle s \rangle} + \alpha^{\text{arm}^i\langle s \rangle} \theta^{\text{arm}\langle s \rangle} \lambda^{\text{ARMINGTONCOMPOSITE}^1\langle s \rangle} IMPORT^a\langle s \rangle \sigma^{\text{arm}\langle s \rangle - 1} \left(-1 + \sigma^{\text{arm}\langle s \rangle}\right) \left(\alpha^{\text{arm}^h\langle s \rangle} Y^{\text{HOME}^a\langle s \rangle} \sigma^{\text{arm}\langle s \rangle - 1} \left(-1 + \sigma^{\text{arm}\langle s \rangle}\right) + \alpha^{\text{arm}^i\langle s \rangle} IMPORT^a\langle s \rangle \sigma^{\text{arm}\langle s \rangle - 1} \left(-1 + \sigma^{\text{arm}\langle s \rangle}\right) \right)^{-1 + \sigma^{\text{arm}\langle s \rangle}} \quad (7.5)$$

7.3 First order conditions after reduction

$$-p^{\text{home}\langle s \rangle} + \alpha^{\text{arm}^{\text{h}}\langle s \rangle} \theta^{\text{arm}\langle s \rangle} p^{\text{arm}\langle s \rangle} Y^{\text{HOME}^{\text{a}}\langle s \rangle} \sigma^{\text{arm}\langle s \rangle} \sigma^{\text{arm}\langle s \rangle}^{-1} (-1 + \sigma^{\text{arm}\langle s \rangle})^{-1} \left(\alpha^{\text{arm}^{\text{h}}\langle s \rangle} Y^{\text{HOME}^{\text{a}}\langle s \rangle} \sigma^{\text{arm}\langle s \rangle} \sigma^{\text{arm}\langle s \rangle}^{-1} (-1 + \sigma^{\text{arm}\langle s \rangle})^{-1} + \alpha^{\text{arm}^{\text{i}}\langle s \rangle} \text{IMPORT}^{\text{a}}\langle s \rangle \sigma^{\text{arm}\langle s \rangle} \sigma^{\text{arm}\langle s \rangle}^{-1} (-1 + \sigma^{\text{arm}\langle s \rangle})^{-1} \right)^{-1 + \sigma^{\text{arm}\langle s \rangle} (-1 + \sigma^{\text{arm}\langle s \rangle})^{-1}} \quad (7.6)$$

$$-p^{\text{imp}\langle s \rangle} + \alpha^{\text{arm}^{\text{i}}\langle s \rangle} \theta^{\text{arm}\langle s \rangle} p^{\text{arm}\langle s \rangle} \text{IMPORT}^{\text{a}}\langle s \rangle \sigma^{\text{arm}\langle s \rangle} \sigma^{\text{arm}\langle s \rangle}^{-1} (-1 + \sigma^{\text{arm}\langle s \rangle})^{-1} \left(\alpha^{\text{arm}^{\text{h}}\langle s \rangle} Y^{\text{HOME}^{\text{a}}\langle s \rangle} \sigma^{\text{arm}\langle s \rangle} \sigma^{\text{arm}\langle s \rangle}^{-1} (-1 + \sigma^{\text{arm}\langle s \rangle})^{-1} + \alpha^{\text{arm}^{\text{i}}\langle s \rangle} \text{IMPORT}^{\text{a}}\langle s \rangle \sigma^{\text{arm}\langle s \rangle} \sigma^{\text{arm}\langle s \rangle}^{-1} (-1 + \sigma^{\text{arm}\langle s \rangle})^{-1} \right)^{-1 + \sigma^{\text{arm}\langle s \rangle} (-1 + \sigma^{\text{arm}\langle s \rangle})^{-1}} \quad (7.7)$$

8 SALES $s \in \text{SEC}$

8.1 Identities

$$\text{TAX}^{\text{p}\langle s \rangle} = \text{EXCISE}^{\langle s \rangle} + \text{VAT}^{\langle s \rangle} \quad (8.1)$$

$$\text{VAT}^{\langle s \rangle} = \text{vat}^{\langle s \rangle} p^{\text{market}\langle s \rangle} \left(1 + \text{excise}^{\langle s \rangle} \right) \left(D^{\text{GOV}\langle s \rangle} + \text{INV}^{\langle s \rangle} + \sum_{h \in \text{HHD}} \text{scale}^{\langle h \rangle} D^{\langle s, h \rangle} \right) \quad (8.2)$$

$$\text{EXCISE}^{\langle s \rangle} = \text{excise}^{\langle s \rangle} p^{\text{market}\langle s \rangle} \left(D^{\text{GOV}\langle s \rangle} + \text{INV}^{\langle s \rangle} + \sum_{h \in \text{HHD}} \text{scale}^{\langle h \rangle} D^{\langle s, h \rangle} + \sum_{\text{si} \in \text{SEC}} X^{\langle s, \text{si} \rangle} \right) \quad (8.3)$$

9 FIRM

9.1 Identities

$$\text{INC}^{\text{FIRM}} = \text{BTINC}^{\text{FIRM}} (1 - \text{firm}^{\text{tax}}) \quad (9.1)$$

$$\text{BTINC}^{\text{FIRM}} = \text{PROFIT} + \text{TBANKFIRM} + \text{TGOVFIRM} + p^{\text{k}} K^{\text{FIRM}} + \sum_{r \in \text{ROW}} \text{TROWFIRM}^{\langle r \rangle} \quad (9.2)$$

$$\text{PROFIT} = \sum_{s \in \text{SEC}} \pi^{\langle s \rangle} \quad (9.3)$$

$$K^{\text{FIRM}} = \alpha \omega^{\text{f}} K^{\text{S}} \quad (9.4)$$

$$\text{SAV}^{\text{FIRM}} + \text{TRAN}^{\text{FIRM}} = \text{INC}^{\text{FIRM}} \quad (9.5)$$

$$TRAN^{\text{FIRM}} = TFIRMBANK + \sum_{h \in \text{HHD}} \text{scale}^{(h)} TFIRMH^{(h)} + \sum_{r \in \text{ROW}} e^{r \cdot \text{rate}^{(r)}} TFIRMROW^{(r)} \quad (9.6)$$

$$h \in \text{HHD}: \quad \text{scale}^{(h)} TFIRMH^{(h)} = \alpha v^f{}^{(h)} INC^{\text{FIRM}} \quad (9.7)$$

$$r \in \text{ROW}: \quad e^{r \cdot \text{rate}^{(r)}} TFIRMROW^{(r)} = \alpha v^f{}^{(r)} INC^{\text{FIRM}} \quad (9.8)$$

$$TFIRMBANK = \alpha v^b{} INC^{\text{FIRM}} \quad (9.9)$$

10 BANK

10.1 Identities

$$INC^{\text{BANK}} = BTINC^{\text{BANK}} (1 - \text{bank}^{\text{tax}}) \quad (10.1)$$

$$BTINC^{\text{BANK}} = TFIRMBANK + TGOVBANK + p^k K^{\text{BANK}} + \sum_{h \in \text{HHD}} \text{scale}^{(h)} THBANK^{(h)} + \sum_{r \in \text{ROW}} TROWBANK^{(r)} \quad (10.2)$$

$$K^{\text{BANK}} = \alpha v^b{} KS \quad (10.3)$$

$$SAV^{\text{BANK}} + TRAN^{\text{BANK}} = INC^{\text{BANK}} \quad (10.4)$$

$$TRAN^{\text{BANK}} = TBANKFIRM + \sum_{h \in \text{HHD}} \text{scale}^{(h)} TBANKH^{(h)} + \sum_{r \in \text{ROW}} e^{r \cdot \text{rate}^{(r)}} TBANKROW^{(r)} \quad (10.5)$$

$$h \in \text{HHD}: \quad \text{scale}^{(h)} TBANKH^{(h)} = \alpha v^b{}^{(h)} INC^{\text{BANK}} \quad (10.6)$$

$$r \in \text{ROW}: \quad e^{r \cdot \text{rate}^{(r)}} TBANKROW^{(r)} = \alpha v^b{}^{(r)} INC^{\text{BANK}} \quad (10.7)$$

$$TBANKFIRM = \alpha v^b{} INC^{\text{BANK}} \quad (10.8)$$

11 GOVERNMENT

11.1 Identities

$$INC^{GOV} = CIT + EXCISE + IMTAX + PIT + SOCTAX + STAX + TROWGOV + VAT \quad (11.1)$$

$$VAT = \sum_{s \in SEC} VAT^{(s)} \quad (11.2)$$

$$EXCISE = \sum_{s \in SEC} EXCISE^{(s)} \quad (11.3)$$

$$STAX = \sum_{s \in SEC} TAX^{s(s)} \quad (11.4)$$

$$SOCTAX = K^{TAX} + L^{TAX} \quad (11.5)$$

$$IMTAX = \sum_{s \in SEC} \sum_{r \in ROW} im^{tax(r,s)} p^{for(r)} ex^{rate(r)} IMP^{(r,s)} \quad (11.6)$$

$$PIT = \sum_{h \in HHD} pit^{tax(h)} scale^{(h)} PIT^{base(h)} \quad (11.7)$$

$$CIT = BANKTAX + FIRMTAX \quad (11.8)$$

$$FIRMTAX = firm^{tax} BIINC^{FIRM} \quad (11.9)$$

$$BANKTAX = bnk^{tax} BTINC^{BANK} \quad (11.10)$$

$$TROWGOV = \sum_{r \in ROW} TROWGOV^{(r)} \quad (11.11)$$

$$EXP^{GOV} = DEM^{GOV} + SUB + TRAN^{GOV} \quad (11.12)$$

$$DEM^{GOV} = \sum_{s \in SEC} p^{cons(s)} D^{GOV(s)} \quad (11.13)$$

$$s \in SEC: p^{cons(s)} D^{GOV(s)} = dgov^{data(s)} \quad (11.14)$$

$$SUB = \sum_{s \in SEC} SUB^{s(s)} + \sum_{s \in SEC} SUB^{p(s)} \quad (11.15)$$

$$s \in SEC: \quad SUB^{p(s)} = sub^{p(s)} ARM^{(s)} \quad (11.16)$$

$$TRAN^{GOV} = TGOVFIRM + TGOVBANK + \sum_{h \in HHD} scale^{(h)} TGOVH^{(h)} + \sum_{r \in ROW} ex^{rate(r)} TGOVROW^{(r)} \quad (11.17)$$

$$h \in HHD: \quad scale^{(h)} TGOVH^{(h)} = tgovh^{data^{(h)}} + tgovh^{data^{extra}(h)} \quad (11.18)$$

$$r \in ROW: \quad ex^{rate(r)} TGOVROW^{(r)} = tgovrow^{data^{(r)}} \quad (11.19)$$

$$TGOVFIRM = tgovfirm^{data} \quad (11.20)$$

$$TGOVBANK = tgovbank^{data} \quad (11.21)$$

$$INC^{GOV} = EXP^{GOV} + SAV^{GOV} \quad (11.22)$$

12 REST OF THE WORLD $r \in ROW$

12.1 Identities

$$INC^{ROW(r)} = IMPORT^{ROW(r)} + ex^{rate(r)} \left(TBANKROW^{(r)} + TFIRMROW^{(r)} + TGOVROW^{(r)} + \sum_{h \in HHD} scale^{(h)} THROW^{(h,r)} \right) \quad (12.1)$$

$$IMPORT^{ROW(r)} = p^{for(r)} ex^{rate(r)} \left(\sum_{s \in SEC} IMP^{(r,s)} \right) \quad (12.2)$$

$$EXP^{ROW(r)} = EXPORT^{ROW(r)} + TRAN^{(r)} \quad (12.3)$$

$$EXPORT^{ROW(r)} = p^{for(r)} \left(\sum_{s \in SEC} EXP^{(r,s)} \right) \quad (12.4)$$

$$TRAN^{(r)} = TROWFIRM^{(r)} + TROWBANK^{(r)} + TROWGOV^{(r)} + \sum_{h \in HHD} scale^{(h)} TROWH^{(r,h)} \quad (12.5)$$

$$TROWFIRM^{(r)} = t^{rf(r)} EXP^{ROW(r)} \quad (12.6)$$

$$TROWGOV^{(r)} = t^{rg(r)} EXP^{ROW(r)} \quad (12.7)$$

$$h \in HHD: \quad scale^{(h)} TROWH^{(r,h)} = t^{rh(r,h)} EXP^{ROW(r)} \quad (12.8)$$

$$TROWBANK^{(r)} = t^{rb(r)} EXP^{ROW(r)} \quad (12.9)$$

$$INC^{ROW(r)} = EXP^{ROW(r)} + SAV^{(r)} \quad (12.10)$$

13 CAPITAL

13.1 Identities

$$SAV = SAV^{FIRM} + SAV^{BANK} + SAV^{GOV} + \sum_{h \in HHD} scale^{(h)} SAV^{(h)} + \sum_{r \in ROW} SAV^{(r)} \quad (13.1)$$

$$s \in SEC: \quad p^{cons(s)} INV^{(s)} = iw^{(s)} INV \quad (13.2)$$

14 MARKET CLEARING

14.1 Identities

$$s \in SEC: \quad ARM^{(s)} = D^{GOV(s)} + INV^{(s)} + \sum_{h \in HHD} scale^{(h)} D^{(s,h)} + \sum_{\tilde{s} \in SEC} X^{(s,\tilde{s})} \quad (14.1)$$

$$s \in SEC: \quad EXPORIT^f(s) = EXPORIT(s) \quad (14.2)$$

$$s \in SEC: \quad IMPORIT^a(s) = IMPORIT(s) \quad (14.3)$$

$$s \in SEC: \quad Y^{HOME^a(s)} = Y^{HOME(s)} \quad (14.4)$$

$$s \in SEC: \quad Y^f(s) = Y(s) \quad (14.5)$$

$$\left(\sum_{s \in SEC} p^{(s)} ARM^{(s)} \right) \left(\sum_{\tilde{s} \in SEC} ARM^{(\tilde{s})} \right)^{-1} = 1 \quad (14.6)$$

$$KS = \sum_{s \in SEC} K^{(s)} \quad (14.7)$$

$$KS = k^{\text{totaldata}} \quad (14.8)$$

$$\sum_{s \in SEC} L^{(s)} = \sum_{h \in HHD} \text{scale}^{(h)} L^{(h)} \quad (14.9)$$

$$LS = \sum_{h \in HHD} \text{scale}^{(h)} L^{(h)} \quad (14.10)$$

$$h \in HHD: \quad UNEMP^{(h)} = 0 \quad (14.11)$$

$$r \in ROW: \quad \text{ex}^{\text{rate}(r)} = 1 \quad (14.12)$$

$$s \in SEC: \quad p^{\text{int}(s)} = p^{\text{market}(s)} (1 + \text{excise}^{(s)}) \quad (14.13)$$

$$s \in SEC: \quad p^{\text{cons}(s)} = p^{\text{market}(s)} (1 + \text{excise}^{(s)}) (1 + \text{ut}^{(s)}) \quad (14.14)$$

$$s \in SEC: \quad p^{\text{market}(s)} = -\text{sub}^{\text{D}(s)} + p^{\text{arm}(s)} \quad (14.15)$$

15 Equilibrium relationships (before expansion and reduction)

$$1 - \left(\sum_{s \in SEC} p^{(s)} ARM^{(s)} \right) \left(\sum_{si \in SEC} ARM^{(si)} \right)^{-1} = 0 \quad (15.1)$$

$$k^{\text{totaldata}} - KS = 0 \quad (15.2)$$

$$\text{tgvfirm}^{\text{data}} - TGOVFIRM = 0 \quad (15.3)$$

$$\text{tgvbank}^{\text{data}} - TGOVBANK = 0 \quad (15.4)$$

$$-BANKTAX + \text{bnk}^{\text{tax}} BTINC^{\text{BANK}} = 0 \quad (15.5)$$

$$-DEM^{GOV} + \sum_{s \in SEC} p^{\text{cons}(s)} D^{GOV(s)} = 0 \quad (15.6)$$

$$-EXCISE + \sum_{s \in SEC} EXCISE^{(s)} = 0 \quad (15.7)$$

$$-FIRMTAX + firm^{\text{tax}} BTINC^{\text{FIRM}} = 0 \quad (15.8)$$

$$-IMTAX + \sum_{s \in SEC} \sum_{r \in ROW} im^{\text{tax}(r,s)} p^{\text{for}(r)} ex^{\text{rate}(r)} IMP^{(r,s)} = 0 \quad (15.9)$$

$$-INC^{\text{FIRM}} + BTINC^{\text{FIRM}} (1 - firm^{\text{tax}}) = 0 \quad (15.10)$$

$$-INC^{\text{BANK}} + BTINC^{\text{BANK}} (1 - bank^{\text{tax}}) = 0 \quad (15.11)$$

$$-K^{\text{TAX}} + k^{\text{tax}} p^k \left(\sum_{s \in SEC} K^{(s)} \right) = 0 \quad (15.12)$$

$$-K^{\text{FIRM}} + \alpha c^f KS = 0 \quad (15.13)$$

$$-K^{\text{BANK}} + \alpha c^b KS = 0 \quad (15.14)$$

$$-KS + \sum_{s \in SEC} K^{(s)} = 0 \quad (15.15)$$

$$-L^{\text{TAX}} + l^{\text{tax}} p^l \left(\sum_{s \in SEC} L^{(s)} \right) = 0 \quad (15.16)$$

$$-LS + \sum_{h \in HHD} scale^{(h)} L^{(h)} = 0 \quad (15.17)$$

$$-PIT + \sum_{h \in HHD} pit^{\text{tax}(h)} scale^{(h)} PIT^{\text{base}(h)} = 0 \quad (15.18)$$

$$-PROFIT + \sum_{s \in SEC} \pi^{(s)} = 0 \quad (15.19)$$

$$-STAX + \sum_{s \in SEC} TAX^s(s) = 0 \quad (15.20)$$

$$-TBANKFIRM + \alpha b^f INC^{BANK} = 0 \quad (15.21)$$

$$-TFIRMBANK + \alpha w^b INC^{FIRM} = 0 \quad (15.22)$$

$$-TROWGOV + \sum_{r \in ROW} TROWGOV^{(r)} = 0 \quad (15.23)$$

$$-VAT + \sum_{s \in SEC} VAT^{(s)} = 0 \quad (15.24)$$

$$\sum_{h \in HHD} scale^{(h)} L^{(h)} - \sum_{s \in SEC} L^{(s)} = 0 \quad (15.25)$$

$$BANKTAX - CIT + FIRMTAX = 0 \quad (15.26)$$

$$EXP^{GOV} - INC^{GOV} + SAV^{GOV} = 0 \quad (15.27)$$

$$INC^{FIRM} - SAV^{FIRM} - TRAN^{FIRM} = 0 \quad (15.28)$$

$$INC^{BANK} - SAV^{BANK} - TRAN^{BANK} = 0 \quad (15.29)$$

$$K^{TAX} + L^{TAX} - SOCTAX = 0 \quad (15.30)$$

$$-SUB + \sum_{s \in SEC} SUB^{s(s)} + \sum_{s \in SEC} SUB^p(s) = 0 \quad (15.31)$$

$$DEM^{GOV} - EXP^{GOV} + SUB + TRAN^{GOV} = 0 \quad (15.32)$$

$$TBANKFIRM - TRAN^{BANK} + \sum_{h \in HHD} scale^{(h)} TBANKH^{(h)} + \sum_{r \in ROW} ex^{rate(r)} TBANKROW^{(r)} = 0 \quad (15.33)$$

$$TFIRMBANK - TRAN^{FIRM} + \sum_{h \in HHD} scale^{(h)} TFIRMH^{(h)} + \sum_{r \in ROW} ex^{rate(r)} TFIRMROW^{(r)} = 0 \quad (15.34)$$

$$TGOVFIRM + TGOVBANK - TRAN^{GOV} + \sum_{h \in HHD} scale^{(h)} TGOVH^{(h)} + \sum_{r \in ROW} ex^{rate(r)} TGOVROW^{(r)} = 0 \quad (15.35)$$

$$-BTINC^{\text{FIRM}} + PROFIT + TBANKFIRM + TGOVFIRM + p^k K^{\text{FIRM}} + \sum_{r \in \text{ROW}} TROWFIRM^{(r)} = 0 \quad (15.36)$$

$$-BTINC^{\text{BANK}} + TFIRMBANK + TGOVBANK + p^k K^{\text{BANK}} + \sum_{h \in \text{HHD}} \text{scale}^{(h)} THBANK^{(h)} + \sum_{r \in \text{ROW}} TROWBANK^{(r)} = 0 \quad (15.37)$$

$$-SAV + SAV^{\text{FIRM}} + SAV^{\text{BANK}} + SAV^{\text{GOV}} + \sum_{h \in \text{HHD}} \text{scale}^{(h)} SAV^{(h)} + \sum_{r \in \text{ROW}} SAV^{(r)} = 0 \quad (15.38)$$

$$CIT + EXCISE + IMTAX - INC^{\text{GOV}} + PIT + SOCTAX + STAX + TROWGOV + VAT = 0 \quad (15.39)$$

$$h \in \text{HHD}: \quad -UNEMP^{(h)} = 0 \quad (15.40)$$

$$h \in \text{HHD}: \quad le^{(h)} - \text{scale}^{(h)} (LEIS^{(h)} + LL^{(h)}) = 0 \quad (15.41)$$

$$h \in \text{HHD}: \quad -DEM^{(h)} + \theta^{\text{dem}(h)} \left(\sum_{s \in \text{SEC}} \alpha^{(s,h)} D^{(s,h)} \omega^{-1(-1+\omega)} \right)^{\omega(-1+\omega)^{-1}} = 0 \quad (15.42)$$

$$h \in \text{HHD}: \quad -SAV^{(h)} + \text{sw}^{(h)} INC^{(h)} = 0 \quad (15.43)$$

$$h \in \text{HHD}: \quad -THBANK^{(h)} + \alpha \text{th}^{\text{b}(h)} INC^{(h)} = 0 \quad (15.44)$$

$$h \in \text{HHD}: \quad U^{(h)} - \left(\alpha^{\text{u}(h)} DEM^{(h)} \omega^{\text{u}(h)^{-1}(-1+\omega^{\text{u}(h)})} + (1 - \alpha^{\text{u}(h)}) LEIS^{(h)} \omega^{\text{u}(h)^{-1}(-1+\omega^{\text{u}(h)})} \right)^{\omega^{\text{u}(h)}(-1+\omega^{\text{u}(h)})^{-1}} = 0 \quad (15.45)$$

$$h \in \text{HHD}: \quad k^{\text{total data}} \alpha \text{w}^{(h)} - \text{scale}^{(h)} K^{(h)} = 0 \quad (15.46)$$

$$h \in \text{HHD}: \quad \alpha \text{w}^{\text{f}(h)} INC^{\text{FIRM}} - \text{scale}^{(h)} TFIRMH^{(h)} = 0 \quad (15.47)$$

$$h \in \text{HHD}: \quad \alpha \text{w}^{\text{h}(h)} INC^{\text{BANK}} - \text{scale}^{(h)} TBANKH^{(h)} = 0 \quad (15.48)$$

$$h \in \text{HHD}: \quad -\text{scale}^{(h)} \lambda^{\text{CONSUMER}^1(h)} + (1 - \alpha^{\text{u}(h)}) LEIS^{(h)} \omega^{-1+\omega^{\text{u}(h)^{-1}(-1+\omega^{\text{u}(h)})} \left(\alpha^{\text{u}(h)} DEM^{(h)} \omega^{\text{u}(h)^{-1}(-1+\omega^{\text{u}(h)})} + (1 - \alpha^{\text{u}(h)}) LEIS^{(h)} \omega^{\text{u}(h)^{-1}(-1+\omega^{\text{u}(h)})} \right)^{-1+\omega^{\text{u}(h)}(-1+\omega^{\text{u}(h)})^{-1}} = 0 \quad (15.49)$$

$$h \in HHD: \quad p^k \left(-\lambda^{\text{CONSUMER}^{12}\langle h \rangle} + \alpha h^b \langle h \rangle \lambda^{\text{CONSUMER}^{12}\langle h \rangle} - \pi t^{\text{tax}\langle h \rangle} \left(-\lambda^{\text{CONSUMER}^{12}\langle h \rangle} + \alpha h^b \langle h \rangle \lambda^{\text{CONSUMER}^{12}\langle h \rangle} + \text{sw} \langle h \rangle \lambda^{\text{CONSUMER}^{12}\langle h \rangle} + \sum_{r \in \text{ROW}} \alpha h^r \langle h, r \rangle \lambda^{\text{CONSUMER}^{11}\langle h \rangle} \right) \right) \quad (15.50)$$

$$h \in HHD: \quad \text{tgo}h^{\text{data}\langle h \rangle} + \text{tgo}h^{\text{data}^{\text{extra}}\langle h \rangle} - \text{scale} \langle h \rangle \text{TGOVH} \langle h \rangle = 0 \quad (15.51)$$

$$h \in HHD: \quad \text{BTINC} \langle h \rangle - \text{INC} \langle h \rangle - \pi t^{\text{tax}\langle h \rangle} \text{PIT}^{\text{base}\langle h \rangle} = 0 \quad (15.52)$$

$$h \in HHD: \quad L \langle h \rangle - LL \langle h \rangle + \text{UNEMP} \langle h \rangle = 0 \quad (15.53)$$

$$h \in HHD: \quad \text{THBANK} \langle h \rangle - \text{TRAN} \langle h \rangle + \sum_{r \in \text{ROW}} \text{ex}^{\text{rate}\langle r \rangle} \text{THROW} \langle h, r \rangle = 0 \quad (15.54)$$

$$h \in HHD: \quad -\text{scale} \langle h \rangle \lambda^{\text{CONSUMER}^1 \langle h \rangle} + p^1 \left(-\lambda^{\text{CONSUMER}^{12}\langle h \rangle} + \alpha h^b \langle h \rangle \lambda^{\text{CONSUMER}^{12}\langle h \rangle} - \pi t^{\text{tax}\langle h \rangle} \left(-\lambda^{\text{CONSUMER}^{12}\langle h \rangle} + \alpha h^b \langle h \rangle \lambda^{\text{CONSUMER}^{12}\langle h \rangle} + \text{sw} \langle h \rangle \lambda^{\text{CONSUMER}^{12}\langle h \rangle} + \sum_{r \in \text{ROW}} \alpha h^r \langle h, r \rangle \lambda^{\text{CONSUMER}^{11}\langle h \rangle} \right) \right) \quad (15.55)$$

$$h \in HHD: \quad -\pi t^{\text{free}} + \text{BTINC} \langle h \rangle - \text{PIT}^{\text{base}\langle h \rangle} - \alpha i p^1 L \langle h \rangle = 0 \quad (15.56)$$

$$h \in HHD: \quad -\text{BTINC} \langle h \rangle + \text{TINSTH} \langle h \rangle + p^k K \langle h \rangle + p^1 L \langle h \rangle = 0 \quad (15.57)$$

$$h \in HHD: \quad -\text{INC} \langle h \rangle + \text{SAV} \langle h \rangle + \text{TRAN} \langle h \rangle + \sum_{s \in \text{SEC}} p^{\text{cons}\langle s \rangle} D \langle s, h \rangle = 0 \quad (15.58)$$

$$h \in HHD: \quad \text{TBANKH} \langle h \rangle + \text{TFIRMH} \langle h \rangle + \text{TGOVH} \langle h \rangle - \text{TINSTH} \langle h \rangle + \sum_{r \in \text{ROW}} \text{TROWH} \langle r, h \rangle = 0 \quad (15.59)$$

$$h \in HHD: \quad r \in \text{ROW}: \quad \alpha h^r \langle h, r \rangle \text{INC} \langle h \rangle - \text{ex}^{\text{rate}\langle r \rangle} \text{THROW} \langle h, r \rangle = 0 \quad (15.60)$$

$$h \in HHD: \quad r \in \text{ROW}: \quad \text{ex}^{\text{rate}\langle r \rangle} \lambda^{\text{CONSUMER}^{12}\langle h \rangle} - \text{ex}^{\text{rate}\langle r \rangle} \lambda^{\text{CONSUMER}^{11}\langle h, r \rangle} = 0 \quad (15.61)$$

$$h \in HHD: \quad s \in \text{SEC}: \quad \lambda^{\text{CONSUMER}^{12}\langle h \rangle} p^{\text{cons}\langle s \rangle} + \alpha \langle s, h \rangle \alpha^u \langle h \rangle \theta^{\text{dem}\langle h \rangle} D \langle s, h \rangle^{-1+\omega^{-1}(-1+\omega)} \text{DEM} \langle h \rangle^{-1+\omega^u \langle h \rangle - 1} (-1+\omega^u \langle h \rangle) \left(\alpha^u \langle h \rangle \text{DEM} \langle h \rangle^{\omega^u \langle h \rangle - 1} (-1+\omega^u \langle h \rangle) \right) + \left(1 - \alpha^u \langle h \rangle \right) \text{LEIS} \langle h \rangle^{\omega^u \langle h \rangle} \quad (15.62)$$

$$r \in ROW: \quad 1 - ex^{rate\langle r \rangle} = 0 \quad (15.63)$$

$$r \in ROW: \quad t_{g\text{row}}^{data\langle r \rangle} - ex^{rate\langle r \rangle} TGOVROW\langle r \rangle = 0 \quad (15.64)$$

$$r \in ROW: \quad -EXPORT^{ROW\langle r \rangle} + p^{for\langle r \rangle} \left(\sum_{s \in SEC} EXP\langle r,s \rangle \right) = 0 \quad (15.65)$$

$$r \in ROW: \quad -IMPORT^{ROW\langle r \rangle} + p^{for\langle r \rangle} ex^{rate\langle r \rangle} \left(\sum_{s \in SEC} IMP\langle r,s \rangle \right) = 0 \quad (15.66)$$

$$r \in ROW: \quad -TROWFIRM\langle r \rangle + t^{rf\langle r \rangle} EXP^{ROW\langle r \rangle} = 0 \quad (15.67)$$

$$r \in ROW: \quad -TROWBANK\langle r \rangle + t^{rb\langle r \rangle} EXP^{ROW\langle r \rangle} = 0 \quad (15.68)$$

$$r \in ROW: \quad -TROWGOV\langle r \rangle + t^{rg\langle r \rangle} EXP^{ROW\langle r \rangle} = 0 \quad (15.69)$$

$$r \in ROW: \quad \alpha w^{f\langle r \rangle} INC^{FIRM} - ex^{rate\langle r \rangle} TFIRMROW\langle r \rangle = 0 \quad (15.70)$$

$$r \in ROW: \quad \alpha w^{r\langle r \rangle} INC^{BANK} - ex^{rate\langle r \rangle} TBANKROW\langle r \rangle = 0 \quad (15.71)$$

$$r \in ROW: \quad -EXP^{ROW\langle r \rangle} + EXPORT^{ROW\langle r \rangle} + TRAN\langle r \rangle = 0 \quad (15.72)$$

$$r \in ROW: \quad EXP^{ROW\langle r \rangle} - INC^{ROW\langle r \rangle} + SAV\langle r \rangle = 0 \quad (15.73)$$

$$r \in ROW: \quad IMPORT^{ROW\langle r \rangle} - INC^{ROW\langle r \rangle} + ex^{rate\langle r \rangle} \left(TBANKROW\langle r \rangle + TFIRMROW\langle r \rangle + TGOVROW\langle r \rangle + \sum_{h \in HHD} scale^{(h)} THROW\langle h,r \rangle \right) = 0 \quad (15.74)$$

$$r \in ROW: \quad -TRAN\langle r \rangle + TROWFIRM\langle r \rangle + TROWBANK\langle r \rangle + TROWGOV\langle r \rangle + \sum_{h \in HHD} scale^{(h)} TROWH\langle r,h \rangle = 0 \quad (15.75)$$

$$r \in ROW: \quad h \in HHD: \quad t^{rh\langle r,h \rangle} EXP^{ROW\langle r \rangle} - scale^{(h)} TROWH\langle r,h \rangle = 0 \quad (15.76)$$

$$s \in SEC: \quad d_{g\text{ow}}^{data\langle s \rangle} - p^{cons\langle s \rangle} D^{GOV\langle s \rangle} = 0 \quad (15.77)$$

$$s \in SEC: \quad -p^{\text{cons}\langle s \rangle} + p^{\text{market}\langle s \rangle} \left(1 + \text{excise}\langle s \rangle\right) \left(1 + \text{wt}\langle s \rangle\right) = 0 \quad (15.78)$$

$$s \in SEC: \quad -p^{\text{int}\langle s \rangle} + p^{\text{market}\langle s \rangle} \left(1 + \text{excise}\langle s \rangle\right) = 0 \quad (15.79)$$

$$s \in SEC: \quad -p^{\text{exp}\langle s \rangle} + \alpha^{\text{prod}^e\langle s \rangle} \theta^{y\langle s \rangle} p^{\langle s \rangle} \text{EXPORT}^f\langle s \rangle^{-1 + \sigma^{\text{fProd}\langle s \rangle} - 1} \left(1 + \sigma^{\text{fProd}\langle s \rangle}\right) \left(\alpha^{\text{prod}^h\langle s \rangle} Y^{\text{HOME}\langle s \rangle} \sigma^{\text{fProd}\langle s \rangle - 1} \left(1 + \sigma^{\text{fProd}\langle s \rangle}\right) + \alpha^{\text{prod}^e\langle s \rangle} \text{EXPORT}^f\langle s \rangle \sigma^{\text{fProd}\langle s \rangle - 1} \left(1 + \sigma^{\text{fProd}\langle s \rangle}\right) \right)^{-1 + \sigma^{\text{fProd}\langle s \rangle}} \quad (15.80)$$

$$s \in SEC: \quad -p^{\text{home}\langle s \rangle} + \alpha^{\text{prod}^h\langle s \rangle} \theta^{y\langle s \rangle} p^{\langle s \rangle} Y^{\text{HOME}\langle s \rangle}^{-1 + \sigma^{\text{fProd}\langle s \rangle} - 1} \left(1 + \sigma^{\text{fProd}\langle s \rangle}\right) \left(\alpha^{\text{prod}^h\langle s \rangle} Y^{\text{HOME}\langle s \rangle} \sigma^{\text{fProd}\langle s \rangle - 1} \left(1 + \sigma^{\text{fProd}\langle s \rangle}\right) + \alpha^{\text{prod}^e\langle s \rangle} \text{EXPORT}^f\langle s \rangle \sigma^{\text{fProd}\langle s \rangle - 1} \left(1 + \sigma^{\text{fProd}\langle s \rangle}\right) \right)^{-1 + \sigma^{\text{fProd}\langle s \rangle}} \quad (15.81)$$

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$$s \in SEC: \quad -p^{\text{home}\langle s \rangle} + \alpha^{\text{arm}^h\langle s \rangle} \theta^{\text{arm}\langle s \rangle} p^{\text{arm}\langle s \rangle} Y^{\text{HOME}^a\langle s \rangle}^{-1 + \sigma^{\text{arm}\langle s \rangle} - 1} \left(-1 + \sigma^{\text{arm}\langle s \rangle}\right) \left(\alpha^{\text{arm}^h\langle s \rangle} Y^{\text{HOME}^a\langle s \rangle} \sigma^{\text{arm}\langle s \rangle - 1} \left(-1 + \sigma^{\text{arm}\langle s \rangle}\right) + \alpha^{\text{arm}^i\langle s \rangle} \text{IMPORT}^a\langle s \rangle \sigma^{\text{arm}\langle s \rangle - 1} \left(-1 + \sigma^{\text{arm}\langle s \rangle}\right) \right)^{-1 + \sigma^{\text{arm}\langle s \rangle}} \quad (15.82)$$

$$s \in SEC: \quad -p^{\text{imp}\langle s \rangle} + \alpha^{\text{arm}^i\langle s \rangle} \theta^{\text{arm}\langle s \rangle} p^{\text{arm}\langle s \rangle} \text{IMPORT}^a\langle s \rangle^{-1 + \sigma^{\text{arm}\langle s \rangle} - 1} \left(-1 + \sigma^{\text{arm}\langle s \rangle}\right) \left(\alpha^{\text{arm}^h\langle s \rangle} Y^{\text{HOME}^a\langle s \rangle} \sigma^{\text{arm}\langle s \rangle - 1} \left(-1 + \sigma^{\text{arm}\langle s \rangle}\right) + \alpha^{\text{arm}^i\langle s \rangle} \text{IMPORT}^a\langle s \rangle \sigma^{\text{arm}\langle s \rangle - 1} \left(-1 + \sigma^{\text{arm}\langle s \rangle}\right) \right)^{-1 + \sigma^{\text{arm}\langle s \rangle}} \quad (15.83)$$

$$s \in SEC: \quad -\text{ARM}\langle s \rangle + \theta^{\text{arm}\langle s \rangle} \left(\alpha^{\text{arm}^h\langle s \rangle} Y^{\text{HOME}^a\langle s \rangle} \sigma^{\text{arm}\langle s \rangle - 1} \left(-1 + \sigma^{\text{arm}\langle s \rangle}\right) + \alpha^{\text{arm}^i\langle s \rangle} \text{IMPORT}^a\langle s \rangle \sigma^{\text{arm}\langle s \rangle - 1} \left(-1 + \sigma^{\text{arm}\langle s \rangle}\right) \right)^{\sigma^{\text{arm}\langle s \rangle} \left(-1 + \sigma^{\text{arm}\langle s \rangle}\right)^{-1}} = 0 \quad (15.84)$$

$$s \in SEC: \quad -\text{EXPORT}^f\langle s \rangle + \text{EXPORT}\langle s \rangle = 0 \quad (15.85)$$

$$s \in SEC: \quad -\text{EXPORT}\langle s \rangle + \theta^{\text{exp}\langle s \rangle} \left(\sum_{r \in \text{ROW}} \alpha^{\text{exp}\langle r, s \rangle} \left(\text{am}^{\text{exp}\langle r \rangle} \text{EXP}\langle r, s \rangle \right)^{\sigma^{\text{exp}\langle s \rangle} - 1} \left(1 + \sigma^{\text{exp}\langle s \rangle}\right) \right)^{\sigma^{\text{exp}\langle s \rangle} \left(1 + \sigma^{\text{exp}\langle s \rangle}\right)^{-1}} = 0 \quad (15.86)$$

$$s \in SEC: \quad -\text{EXCISE}\langle s \rangle + \text{excise}\langle s \rangle p^{\text{market}\langle s \rangle} \left(D^{\text{GOV}\langle s \rangle} + \text{INV}\langle s \rangle + \sum_{h \in \text{HHD}} \text{scale}\langle h \rangle D^{\langle s, h \rangle} + \sum_{si \in \text{SEC}} X^{\langle s, si \rangle} \right) = 0 \quad (15.87)$$

$$s \in SEC: \quad - IMPORT^{a(s)} + IMPORT^{(s)} = 0 \quad (15.88)$$

$$s \in SEC: \quad - IMPORT^{(s)} + \theta^{imp(s)} \left(\sum_{r \in ROW} \alpha^{imp(r,s)} \left(am^{imp(r)} IMP^{(r,s)} \right)^{\sigma^{imp(s)} - 1} (-1 + \sigma^{imp(s)}) \right)^{\sigma^{imp(s)} (-1 + \sigma^{imp(s)})^{-1}} = 0 \quad (15.89)$$

$$s \in SEC: \quad - SUB^{s(s)} + sub^{rate(s)} \left(p^k K^{(s)} (1 + k^{tax}) + p^l L^{(s)} (1 + l^{tax}) + \sum_{\tilde{s} \in SEC} p^{int(\tilde{s})} X^{(\tilde{s},s)} \right) = 0 \quad (15.90)$$

$$s \in SEC: \quad - SUB^p(s) + sub^p(s) ARM^{(s)} = 0 \quad (15.91)$$

$$s \in SEC: \quad - TAX^{s(s)} + tax^{rate(s)} \left(p^k K^{(s)} (1 + k^{tax}) + p^l L^{(s)} (1 + l^{tax}) + \sum_{\tilde{s} \in SEC} p^{int(\tilde{s})} X^{(\tilde{s},s)} \right) = 0 \quad (15.92)$$

$$s \in SEC: \quad - VAT^{(s)} + wt^{(s)} p^{market(s)} \left(1 + exise^{(s)} \right) \left(D^{GOV(s)} + INV^{(s)} + \sum_{h \in HHD} scale^{(h)} D^{(s,h)} \right) = 0 \quad (15.93)$$

$$s \in SEC: \quad - Y^{(s)} + Y^{VA(s)} = 0 \quad (15.94)$$

$$s \in SEC: \quad Y^{(s)} - Y^f(s) = 0 \quad (15.95)$$

$$s \in SEC: \quad - Y^{VA(s)} + Y^{INT(s)} = 0 \quad (15.96)$$

$$s \in SEC: \quad - Y^{VA(s)} + \gamma^{yva(s)} K^{(s)\beta^k(s)} L^{(s)\beta^l(s)} = 0 \quad (15.97)$$

$$s \in SEC: \quad - Y^{HOME^a(s)} + Y^{HOME(s)} = 0 \quad (15.98)$$

$$s \in SEC: \quad - Y^f(s) + \theta^{y(s)} \left(\alpha^{prod^h(s)} Y^{HOME(s)} \sigma^{fprod(s)} \left(1 + \sigma^{fprod(s)} \right)^{-1} + \alpha^{prod^e(s)} EXPORT^f(s) \sigma^{fprod(s)} \left(1 + \sigma^{fprod(s)} \right)^{-1} \right)^{\sigma^{fprod(s)} \left(1 + \sigma^{fprod(s)} \right)^{-1}} = 0 \quad (15.99)$$

$$s \in SEC: \quad iw^{(s)} INV - p^{cons(s)} INV^{(s)} = 0 \quad (15.100)$$

$$s \in SEC: \quad -p^k (1 + k^{\text{tax}}) \left(1 - sb^{\text{rate}(s)} + tax^{\text{rate}(s)}\right) + \beta^{k(s)} \gamma^{yva(s)} \left(p^{(s)} + \sum_{si \in SEC} \beta^{x(si,s)} \lambda^{\text{PRODUCTION OF GOODS}^4(s, si)} \right) K^{(s)-1+\beta^{k(s)}} L^{(s)\beta^{1(s)}} = 0 \quad (15.101)$$

$$s \in SEC: \quad -p^l (1 + l^{\text{tax}}) \left(1 - sb^{\text{rate}(s)} + tax^{\text{rate}(s)}\right) + \beta^{l(s)} \gamma^{yva(s)} \left(p^{(s)} + \sum_{si \in SEC} \beta^{x(si,s)} \lambda^{\text{PRODUCTION OF GOODS}^4(s, si)} \right) K^{(s)\beta^{k(s)}} L^{(s)-1+\beta^{1(s)}} = 0 \quad (15.102)$$

$$s \in SEC: \quad -sb^p(s) + p^{\text{arm}(s)} - p^{\text{market}(s)} = 0 \quad (15.103)$$

$$s \in SEC: \quad \pi^{(s)} - p^{(s)} Y^{(s)} + \left(1 - sb^{\text{rate}(s)} + tax^{\text{rate}(s)}\right) \left(p^k K^{(s)} (1 + k^{\text{tax}}) + p^l L^{(s)} (1 + l^{\text{tax}}) + \sum_{si \in SEC} p^{\text{int}(si)} X^{(si,s)} \right) = 0 \quad (15.104)$$

$$s \in SEC: \quad EXCISE^{(s)} - TAX^p(s) + VAT^{(s)} = 0 \quad (15.105)$$

$$s \in SEC: \quad \Pi^{\text{EXP}(s)} - p^{\text{exp}(s)} EXPORT^{(s)} + \sum_{r \in ROW} p^{\text{for}(r)} EXP^{(r,s)} = 0 \quad (15.106)$$

$$s \in SEC: \quad \Pi^{\text{IMP}(s)} - p^{\text{imp}(s)} IMPORT^{(s)} + \sum_{r \in ROW} p^{\text{for}(r)} ex^{\text{rate}(r)} IMP^{(r,s)} \left(1 + im^{\text{tax}(r,s)}\right) = 0 \quad (15.107)$$

$$s \in SEC: \quad \Pi^Y(s) - p^{(s)} Y^f(s) + p^{\text{exp}(s)} EXPORT^f(s) + p^{\text{home}(s)} Y^{\text{HOME}(s)} = 0 \quad (15.108)$$

$$s \in SEC: \quad \Pi^{\text{ARM}(s)} + p^{\text{home}(s)} Y^{\text{HOME}^a(s)} + p^{\text{imp}(s)} IMPORT^a(s) - p^{\text{arm}(s)} ARM^{(s)} = 0 \quad (15.109)$$

$$s \in SEC: \quad -ARM^{(s)} + D^{\text{GOV}(s)} + INV^{(s)} + \sum_{h \in \text{HHD}} scale^{(h)} D^{(s,h)} + \sum_{si \in SEC} X^{(s,si)} = 0 \quad (15.110)$$

$$s \in SEC: \quad r \in ROW: \quad -p^{\text{for}(r)} + \alpha^{\text{exp}(r,s)} am^{\text{exp}(r)} \theta^{\text{exp}(s)} p^{\text{exp}(s)} \left(am^{\text{exp}(r)} EXP^{(r,s)} \right)^{-1+\sigma^{\text{exp}(s)-1} (1+\sigma^{\text{exp}(s)})} \left(\sum_{r \in ROW} \alpha^{\text{exp}(r,s)} \left(am^{\text{exp}(r)} EXP^{(r,s)} \right)^{\sigma^{\text{exp}(s)-1} (1+\sigma^{\text{exp}(s)})} \right)^{-1+\sigma^{\text{exp}(s)} (1+\sigma^{\text{exp}(s)})} = 0 \quad (15.111)$$

$$s \in SEC: \quad r \in ROW: \quad -p^{\text{for}(r)} ex^{\text{rate}(r)} \left(1 + im^{\text{tax}(r,s)}\right) + \alpha^{\text{imp}(r,s)} am^{\text{imp}(r)} \theta^{\text{imp}(s)} p^{\text{imp}(s)} \left(am^{\text{imp}(r)} IMP^{(r,s)} \right)^{-1+\sigma^{\text{imp}(s)-1} (-1+\sigma^{\text{imp}(s)})} \left(\sum_{r \in ROW} \alpha^{\text{imp}(r,s)} \left(am^{\text{imp}(r)} IMP^{(r,s)} \right)^{\sigma^{\text{imp}(s)-1} (-1+\sigma^{\text{imp}(s)})} \right)^{-1+\sigma^{\text{imp}(s)} (-1+\sigma^{\text{imp}(s)})} = 0 \quad (15.112)$$

$$s \in SEC: \quad \dot{s} \in SEC: \quad -\lambda^{\text{PRODUCTION OF GOODS}^4 \langle s, \dot{s} \rangle} - p^{\text{int} \langle \dot{s} \rangle} \left(1 - sb^{\text{rate} \langle s \rangle} + tax^{\text{rate} \langle s \rangle} \right) = 0 \quad (15.113)$$

$$s \in SEC: \quad \dot{s} \in SEC: \quad -X^{\langle \dot{s}, s \rangle} + \beta^x \langle \dot{s}, s \rangle Y^{\text{INT} \langle s \rangle} = 0 \quad (15.114)$$

16 Equilibrium relationships (after expansion and reduction)

$$-UNEMP^{(01)} = 0 \quad (16.1)$$

$$-UNEMP^{(02)} = 0 \quad (16.2)$$

$$-UNEMP^{(03)} = 0 \quad (16.3)$$

$$-UNEMP^{(04)} = 0 \quad (16.4)$$

$$-UNEMP^{(05)} = 0 \quad (16.5)$$

$$-UNEMP^{(06)} = 0 \quad (16.6)$$

$$-UNEMP^{(07)} = 0 \quad (16.7)$$

$$-UNEMP^{(08)} = 0 \quad (16.8)$$

$$-UNEMP^{(09)} = 0 \quad (16.9)$$

$$-UNEMP^{(10)} = 0 \quad (16.10)$$

$$1 - ex^{\text{rate} \langle \text{eu} \rangle} = 0 \quad (16.11)$$

$$1 - ex^{\text{rate} \langle \text{neu} \rangle} = 0 \quad (16.12)$$

$$1 - \left(ARM^{(A)} + ARM^{(B)} + ARM^{(C)} + ARM^{(D)} + ARM^{(E)} + ARM^{(F)} + ARM^{(G)} + ARM^{(H)} + ARM^{(I)} + ARM^{(J)} + ARM^{(K)} \right)^{-1} \left(p^{(A)} ARM^{(A)} + p^{(B)} ARM^{(B)} + p^{(C)} ARM^{(C)} + p^{(D)} ARM^{(D)} + \dots \right) = 0 \quad (16.13)$$

$$k^{\text{totaldata}} - KS = 0 \quad (16.14)$$

$$tgvfirm^{\text{data}} - TGOVFIRM = 0 \quad (16.15)$$

$$tgotank^{\text{data}} - TGOVBANK = 0 \quad (16.16)$$

$$dgv^{\text{data}\langle A \rangle} - p^{\text{cons}\langle A \rangle} D^{\text{GOV}\langle A \rangle} = 0 \quad (16.17)$$

$$dgv^{\text{data}\langle B \rangle} - p^{\text{cons}\langle B \rangle} D^{\text{GOV}\langle B \rangle} = 0 \quad (16.18)$$

$$dgv^{\text{data}\langle C \rangle} - p^{\text{cons}\langle C \rangle} D^{\text{GOV}\langle C \rangle} = 0 \quad (16.19)$$

$$dgv^{\text{data}\langle D \rangle} - p^{\text{cons}\langle D \rangle} D^{\text{GOV}\langle D \rangle} = 0 \quad (16.20)$$

$$dgv^{\text{data}\langle E \rangle} - p^{\text{cons}\langle E \rangle} D^{\text{GOV}\langle E \rangle} = 0 \quad (16.21)$$

$$dgv^{\text{data}\langle F \rangle} - p^{\text{cons}\langle F \rangle} D^{\text{GOV}\langle F \rangle} = 0 \quad (16.22)$$

$$dgv^{\text{data}\langle G \rangle} - p^{\text{cons}\langle G \rangle} D^{\text{GOV}\langle G \rangle} = 0 \quad (16.23)$$

$$dgv^{\text{data}\langle H \rangle} - p^{\text{cons}\langle H \rangle} D^{\text{GOV}\langle H \rangle} = 0 \quad (16.24)$$

$$dgv^{\text{data}\langle I \rangle} - p^{\text{cons}\langle I \rangle} D^{\text{GOV}\langle I \rangle} = 0 \quad (16.25)$$

$$dgv^{\text{data}\langle J \rangle} - p^{\text{cons}\langle J \rangle} D^{\text{GOV}\langle J \rangle} = 0 \quad (16.26)$$

$$dgv^{\text{data}\langle K \rangle} - p^{\text{cons}\langle K \rangle} D^{\text{GOV}\langle K \rangle} = 0 \quad (16.27)$$

$$le^{(01)} - scale^{(01)} \left(LEIS^{(01)} + LL^{(01)} \right) = 0 \quad (16.28)$$

$$le^{(02)} - scale^{(02)} \left(LEIS^{(02)} + LL^{(02)} \right) = 0 \quad (16.29)$$

$$le^{(03)} - scale^{(03)} \left(LEIS^{(03)} + LL^{(03)} \right) = 0 \quad (16.30)$$

$$le^{(04)} - scale^{(04)} \left(LEIS^{(04)} + LL^{(04)} \right) = 0 \quad (16.31)$$

$$le^{(05)} - scale^{(05)} \left(LEIS^{(05)} + LL^{(05)} \right) = 0 \quad (16.32)$$

$$le^{(06)} - scale^{(06)} \left(LEIS^{(06)} + LL^{(06)} \right) = 0 \quad (16.33)$$

$$le^{(07)} - scale^{(07)} \left(LEIS^{(07)} + LL^{(07)} \right) = 0 \quad (16.34)$$

$$le^{(08)} - scale^{(08)} \left(LEIS^{(08)} + LL^{(08)} \right) = 0 \quad (16.35)$$

$$le^{(09)} - scale^{(09)} \left(LEIS^{(09)} + LL^{(09)} \right) = 0 \quad (16.36)$$

$$le^{(10)} - scale^{(10)} \left(LEIS^{(10)} + LL^{(10)} \right) = 0 \quad (16.37)$$

$$-p^{\text{for}(\text{eu})} + \alpha^{\text{exp}(\text{eu},A)} am^{\text{exp}(\text{eu})} \theta^{\text{exp}(A)} p^{\text{exp}(A)} \left(\alpha^{\text{exp}(\text{eu},A)} \left(am^{\text{exp}(\text{eu})} EXP^{\text{exp}(A)} \right)^{\sigma^{\text{exp}(A)} - 1} (1 + \sigma^{\text{exp}(A)}) + \alpha^{\text{exp}(\text{neu},A)} \left(am^{\text{exp}(\text{neu})} EXP^{\text{exp}(A)} \right)^{\sigma^{\text{exp}(A)} - 1} (1 + \sigma^{\text{exp}(A)}) \right)^{-1 + \sigma^{\text{exp}(A)} (1 + \sigma^{\text{exp}(A)})^{-1}} \quad (16.38)$$

$$-p^{\text{for}(\text{eu})} + \alpha^{\text{exp}(\text{eu},B)} am^{\text{exp}(\text{eu})} \theta^{\text{exp}(B)} p^{\text{exp}(B)} \left(\alpha^{\text{exp}(\text{eu},B)} \left(am^{\text{exp}(\text{eu})} EXP^{\text{exp}(B)} \right)^{\sigma^{\text{exp}(B)} - 1} (1 + \sigma^{\text{exp}(B)}) + \alpha^{\text{exp}(\text{neu},B)} \left(am^{\text{exp}(\text{neu})} EXP^{\text{exp}(B)} \right)^{\sigma^{\text{exp}(B)} - 1} (1 + \sigma^{\text{exp}(B)}) \right)^{-1 + \sigma^{\text{exp}(B)} (1 + \sigma^{\text{exp}(B)})^{-1}} \quad (16.39)$$

$$-p^{\text{for}(\text{eu})} + \alpha^{\text{exp}(\text{eu},C)} am^{\text{exp}(\text{eu})} \theta^{\text{exp}(C)} p^{\text{exp}(C)} \left(\alpha^{\text{exp}(\text{eu},C)} \left(am^{\text{exp}(\text{eu})} EXP^{\text{exp}(C)} \right)^{\sigma^{\text{exp}(C)} - 1} (1 + \sigma^{\text{exp}(C)}) + \alpha^{\text{exp}(\text{neu},C)} \left(am^{\text{exp}(\text{neu})} EXP^{\text{exp}(C)} \right)^{\sigma^{\text{exp}(C)} - 1} (1 + \sigma^{\text{exp}(C)}) \right)^{-1 + \sigma^{\text{exp}(C)} (1 + \sigma^{\text{exp}(C)})^{-1}} \quad (16.40)$$

$$-p^{\text{for}(\text{eu})} + \alpha^{\text{exp}(\text{eu},D)} am^{\text{exp}(\text{eu})} \theta^{\text{exp}(D)} p^{\text{exp}(D)} \left(\alpha^{\text{exp}(\text{eu},D)} \left(am^{\text{exp}(\text{eu})} EXP^{\text{exp}(D)} \right)^{\sigma^{\text{exp}(D)} - 1} (1 + \sigma^{\text{exp}(D)}) + \alpha^{\text{exp}(\text{neu},D)} \left(am^{\text{exp}(\text{neu})} EXP^{\text{exp}(D)} \right)^{\sigma^{\text{exp}(D)} - 1} (1 + \sigma^{\text{exp}(D)}) \right)^{-1 + \sigma^{\text{exp}(D)} (1 + \sigma^{\text{exp}(D)})^{-1}} \quad (16.41)$$

$$-p^{\text{for}(\text{neu})} + \alpha^{\text{exp}(\text{neu,H})} am^{\text{exp}(\text{neu})} \theta^{\text{exp}(\text{H})} p^{\text{exp}(\text{H})} \left(\alpha^{\text{exp}(\text{eu,H})} \left(am^{\text{exp}(\text{eu})} EXP^{\text{exp}(\text{eu,H})} \right)^{\sigma^{\text{exp}(\text{H})-1} (1+\sigma^{\text{exp}(\text{H})})} + \alpha^{\text{exp}(\text{neu,H})} \left(am^{\text{exp}(\text{neu})} EXP^{\text{exp}(\text{neu,H})} \right)^{\sigma^{\text{exp}(\text{H})-1} (1+\sigma^{\text{exp}(\text{H})})} \right)^{-1+\sigma^{\text{exp}(\text{H})} (1+\sigma^{\text{exp}(\text{H})})} \quad (16.56)$$

$$-p^{\text{for}(\text{neu})} + \alpha^{\text{exp}(\text{neu,I})} am^{\text{exp}(\text{neu})} \theta^{\text{exp}(\text{I})} p^{\text{exp}(\text{I})} \left(\alpha^{\text{exp}(\text{eu,I})} \left(am^{\text{exp}(\text{eu})} EXP^{\text{exp}(\text{eu,I})} \right)^{\sigma^{\text{exp}(\text{I})-1} (1+\sigma^{\text{exp}(\text{I})})} + \alpha^{\text{exp}(\text{neu,I})} \left(am^{\text{exp}(\text{neu})} EXP^{\text{exp}(\text{neu,I})} \right)^{\sigma^{\text{exp}(\text{I})-1} (1+\sigma^{\text{exp}(\text{I})})} \right)^{-1+\sigma^{\text{exp}(\text{I})} (1+\sigma^{\text{exp}(\text{I})})} \left(am^{\text{exp}(\text{neu})} \right) \quad (16.57)$$

$$-p^{\text{for}(\text{neu})} + \alpha^{\text{exp}(\text{neu,J})} am^{\text{exp}(\text{neu})} \theta^{\text{exp}(\text{J})} p^{\text{exp}(\text{J})} \left(\alpha^{\text{exp}(\text{eu,J})} \left(am^{\text{exp}(\text{eu})} EXP^{\text{exp}(\text{eu,J})} \right)^{\sigma^{\text{exp}(\text{J})-1} (1+\sigma^{\text{exp}(\text{J})})} + \alpha^{\text{exp}(\text{neu,J})} \left(am^{\text{exp}(\text{neu})} EXP^{\text{exp}(\text{neu,J})} \right)^{\sigma^{\text{exp}(\text{J})-1} (1+\sigma^{\text{exp}(\text{J})})} \right)^{-1+\sigma^{\text{exp}(\text{J})} (1+\sigma^{\text{exp}(\text{J})})} \left(am^{\text{exp}(\text{neu})} \right) \quad (16.58)$$

$$-p^{\text{for}(\text{neu})} + \alpha^{\text{exp}(\text{neu,K})} am^{\text{exp}(\text{neu})} \theta^{\text{exp}(\text{K})} p^{\text{exp}(\text{K})} \left(\alpha^{\text{exp}(\text{eu,K})} \left(am^{\text{exp}(\text{eu})} EXP^{\text{exp}(\text{eu,K})} \right)^{\sigma^{\text{exp}(\text{K})-1} (1+\sigma^{\text{exp}(\text{K})})} + \alpha^{\text{exp}(\text{neu,K})} \left(am^{\text{exp}(\text{neu})} EXP^{\text{exp}(\text{neu,K})} \right)^{\sigma^{\text{exp}(\text{K})-1} (1+\sigma^{\text{exp}(\text{K})})} \right)^{-1+\sigma^{\text{exp}(\text{K})} (1+\sigma^{\text{exp}(\text{K})})} \quad (16.59)$$

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$$t_{\text{govrow}}^{\text{data}(\text{eu})} - ex^{\text{rate}(\text{eu})} TGOVROW^{\text{eu}} = 0 \quad (16.60)$$

$$t_{\text{govrow}}^{\text{data}(\text{neu})} - ex^{\text{rate}(\text{neu})} TGOVROW^{\text{neu}} = 0 \quad (16.61)$$

$$-BANKTAX + \text{bank}^{\text{tax}} BTINC^{\text{BANK}} = 0 \quad (16.62)$$

$$-FIRMTAX + \text{firm}^{\text{tax}} BTINC^{\text{FIRM}} = 0 \quad (16.63)$$

$$-INC^{\text{FIRM}} + BTINC^{\text{FIRM}} (1 - \text{firm}^{\text{tax}}) = 0 \quad (16.64)$$

$$-INC^{\text{BANK}} + BTINC^{\text{BANK}} (1 - \text{bank}^{\text{tax}}) = 0 \quad (16.65)$$

$$-K^{\text{TAX}} + k^{\text{tax}} p^{\text{k}} \left(K^{(\text{A})} + K^{(\text{B})} + K^{(\text{C})} + K^{(\text{D})} + K^{(\text{E})} + K^{(\text{F})} + K^{(\text{G})} + K^{(\text{H})} + K^{(\text{I})} + K^{(\text{J})} + K^{(\text{K})} \right) = 0 \quad (16.66)$$

$$-K^{\text{FIRM}} + \alpha w^{\text{f}} KS = 0 \quad (16.67)$$

$$-K^{\text{BANK}} + \alpha w^{\text{b}} KS = 0 \quad (16.68)$$

$$-L^{\text{TAX}} + l^{\text{tax}} p^{\text{l}} \left(L^{\langle \text{A} \rangle} + L^{\langle \text{B} \rangle} + L^{\langle \text{C} \rangle} + L^{\langle \text{D} \rangle} + L^{\langle \text{E} \rangle} + L^{\langle \text{F} \rangle} + L^{\langle \text{G} \rangle} + L^{\langle \text{H} \rangle} + L^{\langle \text{I} \rangle} + L^{\langle \text{J} \rangle} + L^{\langle \text{K} \rangle} \right) = 0 \quad (16.69)$$

$$-TBANKFIRM + \alpha w^{\text{f}} INC^{\text{BANK}} = 0 \quad (16.70)$$

$$-TFIRMBANK + \alpha w^{\text{b}} INC^{\text{FIRM}} = 0 \quad (16.71)$$

$$-p^{\text{cons}\langle \text{A} \rangle} + p^{\text{market}\langle \text{A} \rangle} \left(1 + \text{ewise}^{\langle \text{A} \rangle} \right) \left(1 + \text{wt}^{\langle \text{A} \rangle} \right) = 0 \quad (16.72)$$

$$-p^{\text{cons}\langle \text{B} \rangle} + p^{\text{market}\langle \text{B} \rangle} \left(1 + \text{ewise}^{\langle \text{B} \rangle} \right) \left(1 + \text{wt}^{\langle \text{B} \rangle} \right) = 0 \quad (16.73)$$

$$-p^{\text{cons}\langle \text{C} \rangle} + p^{\text{market}\langle \text{C} \rangle} \left(1 + \text{ewise}^{\langle \text{C} \rangle} \right) \left(1 + \text{wt}^{\langle \text{C} \rangle} \right) = 0 \quad (16.74)$$

$$-p^{\text{cons}\langle \text{D} \rangle} + p^{\text{market}\langle \text{D} \rangle} \left(1 + \text{ewise}^{\langle \text{D} \rangle} \right) \left(1 + \text{wt}^{\langle \text{D} \rangle} \right) = 0 \quad (16.75)$$

$$-p^{\text{cons}\langle \text{E} \rangle} + p^{\text{market}\langle \text{E} \rangle} \left(1 + \text{ewise}^{\langle \text{E} \rangle} \right) \left(1 + \text{wt}^{\langle \text{E} \rangle} \right) = 0 \quad (16.76)$$

$$-p^{\text{cons}\langle \text{F} \rangle} + p^{\text{market}\langle \text{F} \rangle} \left(1 + \text{ewise}^{\langle \text{F} \rangle} \right) \left(1 + \text{wt}^{\langle \text{F} \rangle} \right) = 0 \quad (16.77)$$

$$-p^{\text{cons}\langle \text{G} \rangle} + p^{\text{market}\langle \text{G} \rangle} \left(1 + \text{ewise}^{\langle \text{G} \rangle} \right) \left(1 + \text{wt}^{\langle \text{G} \rangle} \right) = 0 \quad (16.78)$$

$$-p^{\text{cons}\langle \text{H} \rangle} + p^{\text{market}\langle \text{H} \rangle} \left(1 + \text{ewise}^{\langle \text{H} \rangle} \right) \left(1 + \text{wt}^{\langle \text{H} \rangle} \right) = 0 \quad (16.79)$$

$$-p^{\text{cons}\langle \text{I} \rangle} + p^{\text{market}\langle \text{I} \rangle} \left(1 + \text{ewise}^{\langle \text{I} \rangle} \right) \left(1 + \text{wt}^{\langle \text{I} \rangle} \right) = 0 \quad (16.80)$$

$$-p^{\text{cons}\langle \text{J} \rangle} + p^{\text{market}\langle \text{J} \rangle} \left(1 + \text{ewise}^{\langle \text{J} \rangle} \right) \left(1 + \text{wt}^{\langle \text{J} \rangle} \right) = 0 \quad (16.81)$$

$$-p^{\text{cons}\langle \text{K} \rangle} + p^{\text{market}\langle \text{K} \rangle} \left(1 + \text{ewise}^{\langle \text{K} \rangle} \right) \left(1 + \text{wt}^{\langle \text{K} \rangle} \right) = 0 \quad (16.82)$$

$$-p^{\text{int}\langle A \rangle} + p^{\text{market}\langle A \rangle} (1 + \text{wise}\langle A \rangle) = 0 \quad (16.83)$$

$$-p^{\text{int}\langle B \rangle} + p^{\text{market}\langle B \rangle} (1 + \text{wise}\langle B \rangle) = 0 \quad (16.84)$$

$$-p^{\text{int}\langle C \rangle} + p^{\text{market}\langle C \rangle} (1 + \text{wise}\langle C \rangle) = 0 \quad (16.85)$$

$$-p^{\text{int}\langle D \rangle} + p^{\text{market}\langle D \rangle} (1 + \text{wise}\langle D \rangle) = 0 \quad (16.86)$$

$$-p^{\text{int}\langle E \rangle} + p^{\text{market}\langle E \rangle} (1 + \text{wise}\langle E \rangle) = 0 \quad (16.87)$$

$$-p^{\text{int}\langle F \rangle} + p^{\text{market}\langle F \rangle} (1 + \text{wise}\langle F \rangle) = 0 \quad (16.88)$$

$$-p^{\text{int}\langle G \rangle} + p^{\text{market}\langle G \rangle} (1 + \text{wise}\langle G \rangle) = 0 \quad (16.89)$$

$$-p^{\text{int}\langle H \rangle} + p^{\text{market}\langle H \rangle} (1 + \text{wise}\langle H \rangle) = 0 \quad (16.90)$$

$$-p^{\text{int}\langle I \rangle} + p^{\text{market}\langle I \rangle} (1 + \text{wise}\langle I \rangle) = 0 \quad (16.91)$$

$$-p^{\text{int}\langle J \rangle} + p^{\text{market}\langle J \rangle} (1 + \text{wise}\langle J \rangle) = 0 \quad (16.92)$$

$$-p^{\text{int}\langle K \rangle} + p^{\text{market}\langle K \rangle} (1 + \text{wise}\langle K \rangle) = 0 \quad (16.93)$$

$$-p^{\text{exp}\langle A \rangle} + \alpha^{\text{prod}^e\langle A \rangle} \theta^v\langle A \rangle p^{\langle A \rangle} \text{EXPORT}\langle A \rangle^{-1 + \sigma^{\text{fprod}\langle A \rangle}} (1 + \sigma^{\text{fprod}\langle A \rangle})^{-1} \left(\alpha^{\text{prod}^h\langle A \rangle} Y^{\text{HOME}\langle A \rangle} \sigma^{\text{fprod}\langle A \rangle} (1 + \sigma^{\text{fprod}\langle A \rangle})^{-1} + \alpha^{\text{prod}^e\langle A \rangle} \text{EXPORT}\langle A \rangle \sigma^{\text{fprod}\langle A \rangle} (1 + \sigma^{\text{fprod}\langle A \rangle})^{-1} \right)^{-1 + \sigma^{\text{fprod}\langle A \rangle}} (1 + \sigma^{\text{fprod}\langle A \rangle}) \quad (16.94)$$

$$-p^{\text{exp}\langle B \rangle} + \alpha^{\text{prod}^e\langle B \rangle} \theta^v\langle B \rangle p^{\langle B \rangle} \text{EXPORT}\langle B \rangle^{-1 + \sigma^{\text{fprod}\langle B \rangle}} (1 + \sigma^{\text{fprod}\langle B \rangle})^{-1} \left(\alpha^{\text{prod}^h\langle B \rangle} Y^{\text{HOME}\langle B \rangle} \sigma^{\text{fprod}\langle B \rangle} (1 + \sigma^{\text{fprod}\langle B \rangle})^{-1} + \alpha^{\text{prod}^e\langle B \rangle} \text{EXPORT}\langle B \rangle \sigma^{\text{fprod}\langle B \rangle} (1 + \sigma^{\text{fprod}\langle B \rangle})^{-1} \right)^{-1 + \sigma^{\text{fprod}\langle B \rangle}} (1 + \sigma^{\text{fprod}\langle B \rangle}) \quad (16.95)$$

$$-ARM^{(K)} + \theta^{arm(K)} \left(\alpha^{arm^h(K)} Y_{HOME}^{(K)} \sigma^{arm(K)-1} (-1 + \sigma^{arm(K)}) + \alpha^{arm^i(K)} IMPORT^{(K)} \sigma^{arm(K)-1} (-1 + \sigma^{arm(K)}) \right)^{\sigma^{arm(K)} (-1 + \sigma^{arm(K)})^{-1}} = 0 \quad (16.148)$$

$$-DEM^{(01)} + \theta^{dem(01)} \left(\alpha^{(A,01)} D^{(A,01)} \omega^{-1} (-1 + \omega) + \alpha^{(B,01)} D^{(B,01)} \omega^{-1} (-1 + \omega) + \alpha^{(C,01)} D^{(C,01)} \omega^{-1} (-1 + \omega) + \alpha^{(D,01)} D^{(D,01)} \omega^{-1} (-1 + \omega) + \alpha^{(E,01)} D^{(E,01)} \omega^{-1} (-1 + \omega) + \alpha^{(F,01)} D^{(F,01)} \omega^{-1} (-1 + \omega) \right) \quad (16.149)$$

$$-DEM^{(02)} + \theta^{dem(02)} \left(\alpha^{(A,02)} D^{(A,02)} \omega^{-1} (-1 + \omega) + \alpha^{(B,02)} D^{(B,02)} \omega^{-1} (-1 + \omega) + \alpha^{(C,02)} D^{(C,02)} \omega^{-1} (-1 + \omega) + \alpha^{(D,02)} D^{(D,02)} \omega^{-1} (-1 + \omega) + \alpha^{(E,02)} D^{(E,02)} \omega^{-1} (-1 + \omega) + \alpha^{(F,02)} D^{(F,02)} \omega^{-1} (-1 + \omega) \right) \quad (16.150)$$

$$-DEM^{(03)} + \theta^{dem(03)} \left(\alpha^{(A,03)} D^{(A,03)} \omega^{-1} (-1 + \omega) + \alpha^{(B,03)} D^{(B,03)} \omega^{-1} (-1 + \omega) + \alpha^{(C,03)} D^{(C,03)} \omega^{-1} (-1 + \omega) + \alpha^{(D,03)} D^{(D,03)} \omega^{-1} (-1 + \omega) + \alpha^{(E,03)} D^{(E,03)} \omega^{-1} (-1 + \omega) + \alpha^{(F,03)} D^{(F,03)} \omega^{-1} (-1 + \omega) \right) \quad (16.151)$$

$$-DEM^{(04)} + \theta^{dem(04)} \left(\alpha^{(A,04)} D^{(A,04)} \omega^{-1} (-1 + \omega) + \alpha^{(B,04)} D^{(B,04)} \omega^{-1} (-1 + \omega) + \alpha^{(C,04)} D^{(C,04)} \omega^{-1} (-1 + \omega) + \alpha^{(D,04)} D^{(D,04)} \omega^{-1} (-1 + \omega) + \alpha^{(E,04)} D^{(E,04)} \omega^{-1} (-1 + \omega) + \alpha^{(F,04)} D^{(F,04)} \omega^{-1} (-1 + \omega) \right) \quad (16.152)$$

$$-DEM^{(05)} + \theta^{dem(05)} \left(\alpha^{(A,05)} D^{(A,05)} \omega^{-1} (-1 + \omega) + \alpha^{(B,05)} D^{(B,05)} \omega^{-1} (-1 + \omega) + \alpha^{(C,05)} D^{(C,05)} \omega^{-1} (-1 + \omega) + \alpha^{(D,05)} D^{(D,05)} \omega^{-1} (-1 + \omega) + \alpha^{(E,05)} D^{(E,05)} \omega^{-1} (-1 + \omega) + \alpha^{(F,05)} D^{(F,05)} \omega^{-1} (-1 + \omega) \right) \quad (16.153)$$

$$-DEM^{(06)} + \theta^{dem(06)} \left(\alpha^{(A,06)} D^{(A,06)} \omega^{-1} (-1 + \omega) + \alpha^{(B,06)} D^{(B,06)} \omega^{-1} (-1 + \omega) + \alpha^{(C,06)} D^{(C,06)} \omega^{-1} (-1 + \omega) + \alpha^{(D,06)} D^{(D,06)} \omega^{-1} (-1 + \omega) + \alpha^{(E,06)} D^{(E,06)} \omega^{-1} (-1 + \omega) + \alpha^{(F,06)} D^{(F,06)} \omega^{-1} (-1 + \omega) \right) \quad (16.154)$$

$$-DEM^{(07)} + \theta^{dem(07)} \left(\alpha^{(A,07)} D^{(A,07)} \omega^{-1} (-1 + \omega) + \alpha^{(B,07)} D^{(B,07)} \omega^{-1} (-1 + \omega) + \alpha^{(C,07)} D^{(C,07)} \omega^{-1} (-1 + \omega) + \alpha^{(D,07)} D^{(D,07)} \omega^{-1} (-1 + \omega) + \alpha^{(E,07)} D^{(E,07)} \omega^{-1} (-1 + \omega) + \alpha^{(F,07)} D^{(F,07)} \omega^{-1} (-1 + \omega) \right) \quad (16.155)$$

$$-DEM^{(08)} + \theta^{dem(08)} \left(\alpha^{(A,08)} D^{(A,08)} \omega^{-1} (-1 + \omega) + \alpha^{(B,08)} D^{(B,08)} \omega^{-1} (-1 + \omega) + \alpha^{(C,08)} D^{(C,08)} \omega^{-1} (-1 + \omega) + \alpha^{(D,08)} D^{(D,08)} \omega^{-1} (-1 + \omega) + \alpha^{(E,08)} D^{(E,08)} \omega^{-1} (-1 + \omega) + \alpha^{(F,08)} D^{(F,08)} \omega^{-1} (-1 + \omega) \right) \quad (16.156)$$

$$-DEM^{(09)} + \theta^{\text{dem}(09)} \left(\alpha^{\langle A,09 \rangle} D^{\langle A,09 \rangle} \omega^{-1(-1+\omega)} + \alpha^{\langle B,09 \rangle} D^{\langle B,09 \rangle} \omega^{-1(-1+\omega)} + \alpha^{\langle C,09 \rangle} D^{\langle C,09 \rangle} \omega^{-1(-1+\omega)} + \alpha^{\langle D,09 \rangle} D^{\langle D,09 \rangle} \omega^{-1(-1+\omega)} + \alpha^{\langle E,09 \rangle} D^{\langle E,09 \rangle} \omega^{-1(-1+\omega)} + \alpha^{\langle F,09 \rangle} D^{\langle F,09 \rangle} \omega^{-1(-1+\omega)} \right) \quad (16.157)$$

$$-DEM^{(10)} + \theta^{\text{dem}(10)} \left(\alpha^{\langle A,10 \rangle} D^{\langle A,10 \rangle} \omega^{-1(-1+\omega)} + \alpha^{\langle B,10 \rangle} D^{\langle B,10 \rangle} \omega^{-1(-1+\omega)} + \alpha^{\langle C,10 \rangle} D^{\langle C,10 \rangle} \omega^{-1(-1+\omega)} + \alpha^{\langle D,10 \rangle} D^{\langle D,10 \rangle} \omega^{-1(-1+\omega)} + \alpha^{\langle E,10 \rangle} D^{\langle E,10 \rangle} \omega^{-1(-1+\omega)} + \alpha^{\langle F,10 \rangle} D^{\langle F,10 \rangle} \omega^{-1(-1+\omega)} \right) \quad (16.158)$$

$$-EXPORT^{(A)} + \theta^{\text{exp}(A)} \left(\alpha^{\text{exp}(eu,A)} \left(am^{\text{exp}(eu)} EXP^{\langle eu,A \rangle} \right)^{\sigma^{\text{exp}(A)-1}(1+\sigma^{\text{exp}(A)})} + \alpha^{\text{exp}(neu,A)} \left(am^{\text{exp}(neu)} EXP^{\langle neu,A \rangle} \right)^{\sigma^{\text{exp}(A)-1}(1+\sigma^{\text{exp}(A)})} \right)^{\sigma^{\text{exp}(A)}(1+\sigma^{\text{exp}(A)})^{-1}} = 0 \quad (16.159)$$

$$-EXPORT^{(B)} + \theta^{\text{exp}(B)} \left(\alpha^{\text{exp}(eu,B)} \left(am^{\text{exp}(eu)} EXP^{\langle eu,B \rangle} \right)^{\sigma^{\text{exp}(B)-1}(1+\sigma^{\text{exp}(B)})} + \alpha^{\text{exp}(neu,B)} \left(am^{\text{exp}(neu)} EXP^{\langle neu,B \rangle} \right)^{\sigma^{\text{exp}(B)-1}(1+\sigma^{\text{exp}(B)})} \right)^{\sigma^{\text{exp}(B)}(1+\sigma^{\text{exp}(B)})^{-1}} = 0 \quad (16.160)$$

$$-EXPORT^{(C)} + \theta^{\text{exp}(C)} \left(\alpha^{\text{exp}(eu,C)} \left(am^{\text{exp}(eu)} EXP^{\langle eu,C \rangle} \right)^{\sigma^{\text{exp}(C)-1}(1+\sigma^{\text{exp}(C)})} + \alpha^{\text{exp}(neu,C)} \left(am^{\text{exp}(neu)} EXP^{\langle neu,C \rangle} \right)^{\sigma^{\text{exp}(C)-1}(1+\sigma^{\text{exp}(C)})} \right)^{\sigma^{\text{exp}(C)}(1+\sigma^{\text{exp}(C)})^{-1}} = 0 \quad (16.161)$$

$$-EXPORT^{(D)} + \theta^{\text{exp}(D)} \left(\alpha^{\text{exp}(eu,D)} \left(am^{\text{exp}(eu)} EXP^{\langle eu,D \rangle} \right)^{\sigma^{\text{exp}(D)-1}(1+\sigma^{\text{exp}(D)})} + \alpha^{\text{exp}(neu,D)} \left(am^{\text{exp}(neu)} EXP^{\langle neu,D \rangle} \right)^{\sigma^{\text{exp}(D)-1}(1+\sigma^{\text{exp}(D)})} \right)^{\sigma^{\text{exp}(D)}(1+\sigma^{\text{exp}(D)})^{-1}} = 0 \quad (16.162)$$

$$-EXPORT^{(E)} + \theta^{\text{exp}(E)} \left(\alpha^{\text{exp}(eu,E)} \left(am^{\text{exp}(eu)} EXP^{\langle eu,E \rangle} \right)^{\sigma^{\text{exp}(E)-1}(1+\sigma^{\text{exp}(E)})} + \alpha^{\text{exp}(neu,E)} \left(am^{\text{exp}(neu)} EXP^{\langle neu,E \rangle} \right)^{\sigma^{\text{exp}(E)-1}(1+\sigma^{\text{exp}(E)})} \right)^{\sigma^{\text{exp}(E)}(1+\sigma^{\text{exp}(E)})^{-1}} = 0 \quad (16.163)$$

$$-EXPORT^{(F)} + \theta^{\text{exp}(F)} \left(\alpha^{\text{exp}(eu,F)} \left(am^{\text{exp}(eu)} EXP^{\langle eu,F \rangle} \right)^{\sigma^{\text{exp}(F)-1}(1+\sigma^{\text{exp}(F)})} + \alpha^{\text{exp}(neu,F)} \left(am^{\text{exp}(neu)} EXP^{\langle neu,F \rangle} \right)^{\sigma^{\text{exp}(F)-1}(1+\sigma^{\text{exp}(F)})} \right)^{\sigma^{\text{exp}(F)}(1+\sigma^{\text{exp}(F)})^{-1}} = 0 \quad (16.164)$$

$$-EXPORT^{(G)} + \theta^{\exp(G)} \left(\alpha^{\exp(eu,G)} \left(am^{\exp(eu)} EXP^{(eu,G)} \right)^{\sigma^{\exp(G)-1} (1+\sigma^{\exp(G)})} + \alpha^{\exp(neu,G)} \left(am^{\exp(neu)} EXP^{(neu,G)} \right)^{\sigma^{\exp(G)-1} (1+\sigma^{\exp(G)})} \right)^{\sigma^{\exp(G)} (1+\sigma^{\exp(G)})^{-1}} = 0 \quad (16.165)$$

$$-EXPORT^{(H)} + \theta^{\exp(H)} \left(\alpha^{\exp(eu,H)} \left(am^{\exp(eu)} EXP^{(eu,H)} \right)^{\sigma^{\exp(H)-1} (1+\sigma^{\exp(H)})} + \alpha^{\exp(neu,H)} \left(am^{\exp(neu)} EXP^{(neu,H)} \right)^{\sigma^{\exp(H)-1} (1+\sigma^{\exp(H)})} \right)^{\sigma^{\exp(H)} (1+\sigma^{\exp(H)})^{-1}} = 0 \quad (16.166)$$

$$-EXPORT^{(I)} + \theta^{\exp(I)} \left(\alpha^{\exp(eu,I)} \left(am^{\exp(eu)} EXP^{(eu,I)} \right)^{\sigma^{\exp(I)-1} (1+\sigma^{\exp(I)})} + \alpha^{\exp(neu,I)} \left(am^{\exp(neu)} EXP^{(neu,I)} \right)^{\sigma^{\exp(I)-1} (1+\sigma^{\exp(I)})} \right)^{\sigma^{\exp(I)} (1+\sigma^{\exp(I)})^{-1}} = 0 \quad (16.167)$$

$$-EXPORT^{(J)} + \theta^{\exp(J)} \left(\alpha^{\exp(eu,J)} \left(am^{\exp(eu)} EXP^{(eu,J)} \right)^{\sigma^{\exp(J)-1} (1+\sigma^{\exp(J)})} + \alpha^{\exp(neu,J)} \left(am^{\exp(neu)} EXP^{(neu,J)} \right)^{\sigma^{\exp(J)-1} (1+\sigma^{\exp(J)})} \right)^{\sigma^{\exp(J)} (1+\sigma^{\exp(J)})^{-1}} = 0 \quad (16.168)$$

$$-EXPORT^{(K)} + \theta^{\exp(K)} \left(\alpha^{\exp(eu,K)} \left(am^{\exp(eu)} EXP^{(eu,K)} \right)^{\sigma^{\exp(K)-1} (1+\sigma^{\exp(K)})} + \alpha^{\exp(neu,K)} \left(am^{\exp(neu)} EXP^{(neu,K)} \right)^{\sigma^{\exp(K)-1} (1+\sigma^{\exp(K)})} \right)^{\sigma^{\exp(K)} (1+\sigma^{\exp(K)})^{-1}} = 0 \quad (16.169)$$

$$-EXCISE^{(A)} + \text{excise}^{(A)} p^{\text{market}^{(A)}} \left(D^{\text{GOV}^{(A)}} + INV^{(A)} + X^{(A,A)} + X^{(A,B)} + X^{(A,C)} + X^{(A,D)} + X^{(A,E)} + X^{(A,F)} + X^{(A,G)} + X^{(A,H)} + X^{(A,I)} + X^{(A,J)} + X^{(A,K)} + \text{scale}^{(01)} D^{(A,01)} \right) \quad (16.170)$$

$$-EXCISE^{(B)} + \text{excise}^{(B)} p^{\text{market}^{(B)}} \left(D^{\text{GOV}^{(B)}} + INV^{(B)} + X^{(B,A)} + X^{(B,B)} + X^{(B,C)} + X^{(B,D)} + X^{(B,E)} + X^{(B,F)} + X^{(B,G)} + X^{(B,H)} + X^{(B,I)} + X^{(B,J)} + X^{(B,K)} + \text{scale}^{(01)} D^{(B,01)} \right) \quad (16.171)$$

$$-EXCISE^{(C)} + \text{excise}^{(C)} p^{\text{market}^{(C)}} \left(D^{\text{GOV}^{(C)}} + INV^{(C)} + X^{(C,A)} + X^{(C,B)} + X^{(C,C)} + X^{(C,D)} + X^{(C,E)} + X^{(C,F)} + X^{(C,G)} + X^{(C,H)} + X^{(C,I)} + X^{(C,J)} + X^{(C,K)} + \text{scale}^{(01)} D^{(C,01)} \right) \quad (16.172)$$

$$-EXCISE^{(D)} + \text{excise}^{(D)} p^{\text{market}^{(D)}} \left(D^{\text{GOV}^{(D)}} + INV^{(D)} + X^{(D,A)} + X^{(D,B)} + X^{(D,C)} + X^{(D,D)} + X^{(D,E)} + X^{(D,F)} + X^{(D,G)} + X^{(D,H)} + X^{(D,I)} + X^{(D,J)} + X^{(D,K)} + \text{scale}^{(01)} D^{(D,01)} \right) \quad (16.173)$$

$$-EXCISE^{(E)} + \text{excise}^{(E)} p^{\text{market}^{(E)}} \left(D^{\text{GOV}^{(E)}} + INV^{(E)} + X^{(E,A)} + X^{(E,B)} + X^{(E,C)} + X^{(E,D)} + X^{(E,E)} + X^{(E,F)} + X^{(E,G)} + X^{(E,H)} + X^{(E,I)} + X^{(E,J)} + X^{(E,K)} + \text{scale}^{(01)} D^{(E,01)} + \text{scale}^{(02)} D^{(E,02)} \right) \quad (16.174)$$

$$-EXCISE^{(F)} + \text{excise}^{(F)} p^{\text{market}^{(F)}} \left(D^{\text{GOV}^{(F)}} + INV^{(F)} + X^{(F,A)} + X^{(F,B)} + X^{(F,C)} + X^{(F,D)} + X^{(F,E)} + X^{(F,F)} + X^{(F,G)} + X^{(F,H)} + X^{(F,I)} + X^{(F,J)} + X^{(F,K)} + \text{scale}^{(01)} D^{(F,01)} + \text{scale}^{(02)} D^{(F,02)} \right) \quad (16.175)$$

$$-EXCISE^{(G)} + \text{excise}^{(G)} p^{\text{market}^{(G)}} \left(D^{\text{GOV}^{(G)}} + INV^{(G)} + X^{(G,A)} + X^{(G,B)} + X^{(G,C)} + X^{(G,D)} + X^{(G,E)} + X^{(G,F)} + X^{(G,G)} + X^{(G,H)} + X^{(G,I)} + X^{(G,J)} + X^{(G,K)} + \text{scale}^{(01)} D^{(G,01)} + \text{scale}^{(02)} D^{(G,02)} \right) \quad (16.176)$$

$$-EXCISE^{(H)} + \text{excise}^{(H)} p^{\text{market}^{(H)}} \left(D^{\text{GOV}^{(H)}} + INV^{(H)} + X^{(H,A)} + X^{(H,B)} + X^{(H,C)} + X^{(H,D)} + X^{(H,E)} + X^{(H,F)} + X^{(H,G)} + X^{(H,H)} + X^{(H,I)} + X^{(H,J)} + X^{(H,K)} + \text{scale}^{(01)} D^{(H,01)} + \text{scale}^{(02)} D^{(H,02)} \right) \quad (16.177)$$

$$-EXCISE^{(I)} + \text{excise}^{(I)} p^{\text{market}^{(I)}} \left(D^{\text{GOV}^{(I)}} + INV^{(I)} + X^{(I,A)} + X^{(I,B)} + X^{(I,C)} + X^{(I,D)} + X^{(I,E)} + X^{(I,F)} + X^{(I,G)} + X^{(I,H)} + X^{(I,I)} + X^{(I,J)} + X^{(I,K)} + \text{scale}^{(01)} D^{(I,01)} + \text{scale}^{(02)} D^{(I,02)} \right) \quad (16.178)$$

$$-EXCISE^{(J)} + \text{excise}^{(J)} p^{\text{market}^{(J)}} \left(D^{\text{GOV}^{(J)}} + INV^{(J)} + X^{(J,A)} + X^{(J,B)} + X^{(J,C)} + X^{(J,D)} + X^{(J,E)} + X^{(J,F)} + X^{(J,G)} + X^{(J,H)} + X^{(J,I)} + X^{(J,J)} + X^{(J,K)} + \text{scale}^{(01)} D^{(J,01)} + \text{scale}^{(02)} D^{(J,02)} \right) \quad (16.179)$$

$$-EXCISE^{(K)} + \text{excise}^{(K)} p^{\text{market}^{(K)}} \left(D^{\text{GOV}^{(K)}} + INV^{(K)} + X^{(K,A)} + X^{(K,B)} + X^{(K,C)} + X^{(K,D)} + X^{(K,E)} + X^{(K,F)} + X^{(K,G)} + X^{(K,H)} + X^{(K,I)} + X^{(K,J)} + X^{(K,K)} + \text{scale}^{(01)} D^{(K,01)} + \text{scale}^{(02)} D^{(K,02)} \right) \quad (16.180)$$

$$-EXPORT^{\text{ROW}^{(eu)}} + p^{\text{for}^{(eu)}} \left(EXP^{(eu,A)} + EXP^{(eu,B)} + EXP^{(eu,C)} + EXP^{(eu,D)} + EXP^{(eu,E)} + EXP^{(eu,F)} + EXP^{(eu,G)} + EXP^{(eu,H)} + EXP^{(eu,I)} + EXP^{(eu,J)} + EXP^{(eu,K)} \right) = 0 \quad (16.181)$$

$$-EXPORT^{\text{ROW}^{(neu)}} + p^{\text{for}^{(neu)}} \left(EXP^{(neu,A)} + EXP^{(neu,B)} + EXP^{(neu,C)} + EXP^{(neu,D)} + EXP^{(neu,E)} + EXP^{(neu,F)} + EXP^{(neu,G)} + EXP^{(neu,H)} + EXP^{(neu,I)} + EXP^{(neu,J)} + EXP^{(neu,K)} \right) = 0 \quad (16.182)$$

$$-IMPORT^{(A)} + \theta^{\text{imp}^{(A)}} \left(\alpha^{\text{imp}^{(eu,A)}} \left(\text{am}^{\text{imp}^{(eu)}} IMP^{(eu,A)} \right)^{\sigma^{\text{imp}^{(A)}-1} (-1 + \sigma^{\text{imp}^{(A)}})} + \alpha^{\text{imp}^{(neu,A)}} \left(\text{am}^{\text{imp}^{(neu)}} IMP^{(neu,A)} \right)^{\sigma^{\text{imp}^{(A)}-1} (-1 + \sigma^{\text{imp}^{(A)}})} \right)^{\sigma^{\text{imp}^{(A)}} (-1 + \sigma^{\text{imp}^{(A)}})^{-1}} = 0 \quad (16.183)$$

$$-IMPORT^{(I)} + \theta^{imp(I)} \left(\alpha^{imp(eu,I)} \left(am^{imp(eu)} IMP^{(eu,I)} \right)^{\sigma^{imp(I)-1}(-1+\sigma^{imp(I)})} + \alpha^{imp(neu,I)} \left(am^{imp(neu)} IMP^{(neu,I)} \right)^{\sigma^{imp(I)-1}(-1+\sigma^{imp(I)})} \right)^{\sigma^{imp(I)}(-1+\sigma^{imp(I)})^{-1}} = 0 \quad (16.191)$$

$$-IMPORT^{(J)} + \theta^{imp(J)} \left(\alpha^{imp(eu,J)} \left(am^{imp(eu)} IMP^{(eu,J)} \right)^{\sigma^{imp(J)-1}(-1+\sigma^{imp(J)})} + \alpha^{imp(neu,J)} \left(am^{imp(neu)} IMP^{(neu,J)} \right)^{\sigma^{imp(J)-1}(-1+\sigma^{imp(J)})} \right)^{\sigma^{imp(J)}(-1+\sigma^{imp(J)})^{-1}} = 0 \quad (16.192)$$

$$-IMPORT^{(K)} + \theta^{imp(K)} \left(\alpha^{imp(eu,K)} \left(am^{imp(eu)} IMP^{(eu,K)} \right)^{\sigma^{imp(K)-1}(-1+\sigma^{imp(K)})} + \alpha^{imp(neu,K)} \left(am^{imp(neu)} IMP^{(neu,K)} \right)^{\sigma^{imp(K)-1}(-1+\sigma^{imp(K)})} \right)^{\sigma^{imp(K)}(-1+\sigma^{imp(K)})^{-1}} = 0 \quad (16.193)$$

$$-IMPORT^{ROW(eu)} + p^{for(eu)} ex^{rate(eu)} \left(IMP^{(eu,A)} + IMP^{(eu,B)} + IMP^{(eu,C)} + IMP^{(eu,D)} + IMP^{(eu,E)} + IMP^{(eu,F)} + IMP^{(eu,G)} + IMP^{(eu,H)} + IMP^{(eu,I)} + IMP^{(eu,J)} + IMP^{(eu,K)} \right) = 0 \quad (16.194)$$

$$-IMPORT^{ROW(neu)} + p^{for(neu)} ex^{rate(neu)} \left(IMP^{(neu,A)} + IMP^{(neu,B)} + IMP^{(neu,C)} + IMP^{(neu,D)} + IMP^{(neu,E)} + IMP^{(neu,F)} + IMP^{(neu,G)} + IMP^{(neu,H)} + IMP^{(neu,I)} + IMP^{(neu,J)} \right) = 0 \quad (16.195)$$

$$-SAV^{(01)} + sw^{(01)} INC^{(01)} = 0 \quad (16.196)$$

$$-SAV^{(02)} + sw^{(02)} INC^{(02)} = 0 \quad (16.197)$$

$$-SAV^{(03)} + sw^{(03)} INC^{(03)} = 0 \quad (16.198)$$

$$-SAV^{(04)} + sw^{(04)} INC^{(04)} = 0 \quad (16.199)$$

$$-SAV^{(05)} + sw^{(05)} INC^{(05)} = 0 \quad (16.200)$$

$$-SAV^{(06)} + sw^{(06)} INC^{(06)} = 0 \quad (16.201)$$

$$-SAV^{(07)} + sw^{(07)} INC^{(07)} = 0 \quad (16.202)$$

$$-SAV^{(08)} + sw^{(08)} INC^{(08)} = 0 \quad (16.203)$$

$$-SAV^{(09)} + sw^{(09)} INC^{(09)} = 0 \quad (16.204)$$

$$-SAV^{(10)} + sw^{(10)} INC^{(10)} = 0 \quad (16.205)$$

$$-SUB^{s(A)} + sb^{rate(A)} \left(p^{int(A)} X^{(A,A)} + p^{int(B)} X^{(B,A)} + p^{int(C)} X^{(C,A)} + p^{int(D)} X^{(D,A)} + p^{int(E)} X^{(E,A)} + p^{int(F)} X^{(F,A)} + p^{int(G)} X^{(G,A)} + p^{int(H)} X^{(H,A)} + p^{int(I)} X^{(I,A)} + p^{int(J)} X^{(J,A)} \right) \quad (16.206)$$

$$-SUB^{s(B)} + sb^{rate(B)} \left(p^{int(A)} X^{(A,B)} + p^{int(B)} X^{(B,B)} + p^{int(C)} X^{(C,B)} + p^{int(D)} X^{(D,B)} + p^{int(E)} X^{(E,B)} + p^{int(F)} X^{(F,B)} + p^{int(G)} X^{(G,B)} + p^{int(H)} X^{(H,B)} + p^{int(I)} X^{(I,B)} + p^{int(J)} X^{(J,B)} \right) \quad (16.207)$$

$$-SUB^{s(C)} + sb^{rate(C)} \left(p^{int(A)} X^{(A,C)} + p^{int(B)} X^{(B,C)} + p^{int(C)} X^{(C,C)} + p^{int(D)} X^{(D,C)} + p^{int(E)} X^{(E,C)} + p^{int(F)} X^{(F,C)} + p^{int(G)} X^{(G,C)} + p^{int(H)} X^{(H,C)} + p^{int(I)} X^{(I,C)} + p^{int(J)} X^{(J,C)} \right) \quad (16.208)$$

$$-SUB^{s(D)} + sb^{rate(D)} \left(p^{int(A)} X^{(A,D)} + p^{int(B)} X^{(B,D)} + p^{int(C)} X^{(C,D)} + p^{int(D)} X^{(D,D)} + p^{int(E)} X^{(E,D)} + p^{int(F)} X^{(F,D)} + p^{int(G)} X^{(G,D)} + p^{int(H)} X^{(H,D)} + p^{int(I)} X^{(I,D)} + p^{int(J)} X^{(J,D)} \right) \quad (16.209)$$

$$-SUB^{s(E)} + sb^{rate(E)} \left(p^{int(A)} X^{(A,E)} + p^{int(B)} X^{(B,E)} + p^{int(C)} X^{(C,E)} + p^{int(D)} X^{(D,E)} + p^{int(E)} X^{(E,E)} + p^{int(F)} X^{(F,E)} + p^{int(G)} X^{(G,E)} + p^{int(H)} X^{(H,E)} + p^{int(I)} X^{(I,E)} + p^{int(J)} X^{(J,E)} \right) \quad (16.210)$$

$$-SUB^{s(F)} + sb^{rate(F)} \left(p^{int(A)} X^{(A,F)} + p^{int(B)} X^{(B,F)} + p^{int(C)} X^{(C,F)} + p^{int(D)} X^{(D,F)} + p^{int(E)} X^{(E,F)} + p^{int(F)} X^{(F,F)} + p^{int(G)} X^{(G,F)} + p^{int(H)} X^{(H,F)} + p^{int(I)} X^{(I,F)} + p^{int(J)} X^{(J,F)} \right) \quad (16.211)$$

$$-SUB^{s(G)} + sb^{rate(G)} \left(p^{int(A)} X^{(A,G)} + p^{int(B)} X^{(B,G)} + p^{int(C)} X^{(C,G)} + p^{int(D)} X^{(D,G)} + p^{int(E)} X^{(E,G)} + p^{int(F)} X^{(F,G)} + p^{int(G)} X^{(G,G)} + p^{int(H)} X^{(H,G)} + p^{int(I)} X^{(I,G)} + p^{int(J)} X^{(J,G)} \right) \quad (16.212)$$

$$-SUB^{s(H)} + sb^{rate(H)} \left(p^{int(A)} X^{(A,H)} + p^{int(B)} X^{(B,H)} + p^{int(C)} X^{(C,H)} + p^{int(D)} X^{(D,H)} + p^{int(E)} X^{(E,H)} + p^{int(F)} X^{(F,H)} + p^{int(G)} X^{(G,H)} + p^{int(H)} X^{(H,H)} + p^{int(I)} X^{(I,H)} + p^{int(J)} X^{(J,H)} \right) \quad (16.213)$$

$$-SUB^{s(I)} + sb^{rate(I)} \left(p^{int(A)} X^{(A,I)} + p^{int(B)} X^{(B,I)} + p^{int(C)} X^{(C,I)} + p^{int(D)} X^{(D,I)} + p^{int(E)} X^{(E,I)} + p^{int(F)} X^{(F,I)} + p^{int(G)} X^{(G,I)} + p^{int(H)} X^{(H,I)} + p^{int(I)} X^{(I,I)} + p^{int(J)} X^{(J,I)} + p^{int(K)} X^{(K,I)} \right) \quad (16.214)$$

$$-SUB^{s(J)} + sb^{rate(J)} \left(p^{int(A)} X^{(A,J)} + p^{int(B)} X^{(B,J)} + p^{int(C)} X^{(C,J)} + p^{int(D)} X^{(D,J)} + p^{int(E)} X^{(E,J)} + p^{int(F)} X^{(F,J)} + p^{int(G)} X^{(G,J)} + p^{int(H)} X^{(H,J)} + p^{int(I)} X^{(I,J)} + p^{int(J)} X^{(J,J)} + p^{int(K)} X^{(K,J)} \right) \quad (16.215)$$

$$-SUB^{s(K)} + sb^{rate(K)} \left(p^{int(A)} X^{(A,K)} + p^{int(B)} X^{(B,K)} + p^{int(C)} X^{(C,K)} + p^{int(D)} X^{(D,K)} + p^{int(E)} X^{(E,K)} + p^{int(F)} X^{(F,K)} + p^{int(G)} X^{(G,K)} + p^{int(H)} X^{(H,K)} + p^{int(I)} X^{(I,K)} + p^{int(J)} X^{(J,K)} + p^{int(K)} X^{(K,K)} \right) \quad (16.216)$$

$$-SUB^{p(A)} + sb^{p(A)} ARM^{(A)} = 0 \quad (16.217)$$

$$-SUB^{p(B)} + sb^{p(B)} ARM^{(B)} = 0 \quad (16.218)$$

$$-SUB^{p(C)} + sb^{p(C)} ARM^{(C)} = 0 \quad (16.219)$$

$$-SUB^{p(D)} + sb^{p(D)} ARM^{(D)} = 0 \quad (16.220)$$

$$-SUB^{p(E)} + sb^{p(E)} ARM^{(E)} = 0 \quad (16.221)$$

$$-SUB^{p(F)} + sb^{p(F)} ARM^{(F)} = 0 \quad (16.222)$$

$$-SUB^{p(G)} + sb^{p(G)} ARM^{(G)} = 0 \quad (16.223)$$

$$-SUB^{p(H)} + sb^{p(H)} ARM^{(H)} = 0 \quad (16.224)$$

$$-SUB^{p(I)} + sb^{p(I)} ARM^{(I)} = 0 \quad (16.225)$$

$$-SUB^{p(J)} + sb^{p(J)} ARM^{(J)} = 0 \quad (16.226)$$

$$-SUB^{p(K)} + sb^{p(K)} ARM^{(K)} = 0 \quad (16.227)$$

$$-TAX^{s(A)} + tax^{rate(A)} \left(p^{int(A)} X^{(A,A)} + p^{int(B)} X^{(B,A)} + p^{int(C)} X^{(C,A)} + p^{int(D)} X^{(D,A)} + p^{int(E)} X^{(E,A)} + p^{int(F)} X^{(F,A)} + p^{int(G)} X^{(G,A)} + p^{int(H)} X^{(H,A)} + p^{int(I)} X^{(I,A)} + p^{int(J)} X^{(J,A)} \right) \quad (16.228)$$

$$-TAX^{s(B)} + tax^{rate(B)} \left(p^{int(A)} X^{(A,B)} + p^{int(B)} X^{(B,B)} + p^{int(C)} X^{(C,B)} + p^{int(D)} X^{(D,B)} + p^{int(E)} X^{(E,B)} + p^{int(F)} X^{(F,B)} + p^{int(G)} X^{(G,B)} + p^{int(H)} X^{(H,B)} + p^{int(I)} X^{(I,B)} + p^{int(J)} X^{(J,B)} \right) \quad (16.229)$$

$$-TAX^{s(C)} + tax^{rate(C)} \left(p^{int(A)} X^{(A,C)} + p^{int(B)} X^{(B,C)} + p^{int(C)} X^{(C,C)} + p^{int(D)} X^{(D,C)} + p^{int(E)} X^{(E,C)} + p^{int(F)} X^{(F,C)} + p^{int(G)} X^{(G,C)} + p^{int(H)} X^{(H,C)} + p^{int(I)} X^{(I,C)} + p^{int(J)} X^{(J,C)} \right) \quad (16.230)$$

$$-TAX^{s(D)} + tax^{rate(D)} \left(p^{int(A)} X^{(A,D)} + p^{int(B)} X^{(B,D)} + p^{int(C)} X^{(C,D)} + p^{int(D)} X^{(D,D)} + p^{int(E)} X^{(E,D)} + p^{int(F)} X^{(F,D)} + p^{int(G)} X^{(G,D)} + p^{int(H)} X^{(H,D)} + p^{int(I)} X^{(I,D)} + p^{int(J)} X^{(J,D)} \right) \quad (16.231)$$

$$-TAX^{s(E)} + tax^{rate(E)} \left(p^{int(A)} X^{(A,E)} + p^{int(B)} X^{(B,E)} + p^{int(C)} X^{(C,E)} + p^{int(D)} X^{(D,E)} + p^{int(E)} X^{(E,E)} + p^{int(F)} X^{(F,E)} + p^{int(G)} X^{(G,E)} + p^{int(H)} X^{(H,E)} + p^{int(I)} X^{(I,E)} + p^{int(J)} X^{(J,E)} \right) \quad (16.232)$$

$$-TAX^{s(F)} + tax^{rate(F)} \left(p^{int(A)} X^{(A,F)} + p^{int(B)} X^{(B,F)} + p^{int(C)} X^{(C,F)} + p^{int(D)} X^{(D,F)} + p^{int(E)} X^{(E,F)} + p^{int(F)} X^{(F,F)} + p^{int(G)} X^{(G,F)} + p^{int(H)} X^{(H,F)} + p^{int(I)} X^{(I,F)} + p^{int(J)} X^{(J,F)} \right) \quad (16.233)$$

$$-TAX^{s(G)} + tax^{rate(G)} \left(p^{int(A)} X^{(A,G)} + p^{int(B)} X^{(B,G)} + p^{int(C)} X^{(C,G)} + p^{int(D)} X^{(D,G)} + p^{int(E)} X^{(E,G)} + p^{int(F)} X^{(F,G)} + p^{int(G)} X^{(G,G)} + p^{int(H)} X^{(H,G)} + p^{int(I)} X^{(I,G)} + p^{int(J)} X^{(J,G)} \right) \quad (16.234)$$

$$-TAX^{s(H)} + tax^{rate(H)} \left(p^{int(A)} X^{(A,H)} + p^{int(B)} X^{(B,H)} + p^{int(C)} X^{(C,H)} + p^{int(D)} X^{(D,H)} + p^{int(E)} X^{(E,H)} + p^{int(F)} X^{(F,H)} + p^{int(G)} X^{(G,H)} + p^{int(H)} X^{(H,H)} + p^{int(I)} X^{(I,H)} + p^{int(J)} X^{(J,H)} \right) \quad (16.235)$$

$$-TAX^{s(I)} + tax^{rate(I)} \left(p^{int(A)} X^{(A,I)} + p^{int(B)} X^{(B,I)} + p^{int(C)} X^{(C,I)} + p^{int(D)} X^{(D,I)} + p^{int(E)} X^{(E,I)} + p^{int(F)} X^{(F,I)} + p^{int(G)} X^{(G,I)} + p^{int(H)} X^{(H,I)} + p^{int(I)} X^{(I,I)} + p^{int(J)} X^{(J,I)} + p^{int(J)} X^{(J,I)} \right) \quad (16.236)$$

$$-TAX^{s(J)} + tax^{rate(J)} \left(p^{int(A)} X^{(A,J)} + p^{int(B)} X^{(B,J)} + p^{int(C)} X^{(C,J)} + p^{int(D)} X^{(D,J)} + p^{int(E)} X^{(E,J)} + p^{int(F)} X^{(F,J)} + p^{int(G)} X^{(G,J)} + p^{int(H)} X^{(H,J)} + p^{int(I)} X^{(I,J)} + p^{int(J)} X^{(J,J)} + p^{int(J)} X^{(J,J)} \right) \quad (16.237)$$

$$-TAX^{s(K)} + tax^{rate(K)} \left(p^{int(A)} X^{(A,K)} + p^{int(B)} X^{(B,K)} + p^{int(C)} X^{(C,K)} + p^{int(D)} X^{(D,K)} + p^{int(E)} X^{(E,K)} + p^{int(F)} X^{(F,K)} + p^{int(G)} X^{(G,K)} + p^{int(H)} X^{(H,K)} + p^{int(I)} X^{(I,K)} + p^{int(J)} X^{(J,K)} \right) \quad (16.238)$$

$$-THBANK^{(01)} + \alpha h^b^{(01)} INC^{(01)} = 0 \quad (16.239)$$

$$-THBANK^{(02)} + \alpha h^b^{(02)} INC^{(02)} = 0 \quad (16.240)$$

$$-THBANK^{(03)} + \alpha h^b^{(03)} INC^{(03)} = 0 \quad (16.241)$$

$$-THBANK^{(04)} + \alpha h^b^{(04)} INC^{(04)} = 0 \quad (16.242)$$

$$-THBANK^{(05)} + \alpha h^b^{(05)} INC^{(05)} = 0 \quad (16.243)$$

$$-THBANK^{(06)} + \alpha h^b^{(06)} INC^{(06)} = 0 \quad (16.244)$$

$$-THBANK^{(07)} + \alpha h^b^{(07)} INC^{(07)} = 0 \quad (16.245)$$

$$-THBANK^{(08)} + \alpha h^b^{(08)} INC^{(08)} = 0 \quad (16.246)$$

$$-THBANK^{(09)} + \alpha h^b^{(09)} INC^{(09)} = 0 \quad (16.247)$$

$$-THBANK^{(10)} + \alpha h^b^{(10)} INC^{(10)} = 0 \quad (16.248)$$

$$-TROWFIRM^{(eu)} + t^{rf(eu)} EXP^{ROW(eu)} = 0 \quad (16.249)$$

$$-TROWFIRM^{(neu)} + t^{rf(neu)} EXP^{ROW(neu)} = 0 \quad (16.250)$$

$$-TROWBANK^{(eu)} + t^{rb(eu)} EXP^{ROW(eu)} = 0 \quad (16.251)$$

$$-TROWBANK^{(neu)} + t^{rb(neu)} EXP^{ROW(neu)} = 0 \quad (16.252)$$

$$-TROWGOV^{(eu)} + t^{rg(eu)} EXP^{ROW(eu)} = 0 \quad (16.253)$$

$$-TROWGOV^{(neu)} + t^{rg(neu)} EXP^{ROW(neu)} = 0 \quad (16.254)$$

$$U^{(01)} - \left(\alpha^{u(01)} DEM^{(01)} \omega^{u(01)-1} (-1 + \omega^{u(01)}) + (1 - \alpha^{u(01)}) LEIS^{(01)} \omega^{u(01)-1} (-1 + \omega^{u(01)}) \right)^{\omega^{u(01)} (-1 + \omega^{u(01)})^{-1}} = 0 \quad (16.255)$$

$$U^{(02)} - \left(\alpha^{u(02)} DEM^{(02)} \omega^{u(02)-1} (-1 + \omega^{u(02)}) + (1 - \alpha^{u(02)}) LEIS^{(02)} \omega^{u(02)-1} (-1 + \omega^{u(02)}) \right)^{\omega^{u(02)} (-1 + \omega^{u(02)})^{-1}} = 0 \quad (16.256)$$

$$U^{(03)} - \left(\alpha^{u(03)} DEM^{(03)} \omega^{u(03)-1} (-1 + \omega^{u(03)}) + (1 - \alpha^{u(03)}) LEIS^{(03)} \omega^{u(03)-1} (-1 + \omega^{u(03)}) \right)^{\omega^{u(03)} (-1 + \omega^{u(03)})^{-1}} = 0 \quad (16.257)$$

$$U^{(04)} - \left(\alpha^{u(04)} DEM^{(04)} \omega^{u(04)-1} (-1 + \omega^{u(04)}) + (1 - \alpha^{u(04)}) LEIS^{(04)} \omega^{u(04)-1} (-1 + \omega^{u(04)}) \right)^{\omega^{u(04)} (-1 + \omega^{u(04)})^{-1}} = 0 \quad (16.258)$$

$$U^{(05)} - \left(\alpha^{u(05)} DEM^{(05)} \omega^{u(05)-1} (-1 + \omega^{u(05)}) + (1 - \alpha^{u(05)}) LEIS^{(05)} \omega^{u(05)-1} (-1 + \omega^{u(05)}) \right)^{\omega^{u(05)} (-1 + \omega^{u(05)})^{-1}} = 0 \quad (16.259)$$

$$U^{(06)} - \left(\alpha^{u(06)} DEM^{(06)} \omega^{u(06)-1} (-1 + \omega^{u(06)}) + (1 - \alpha^{u(06)}) LEIS^{(06)} \omega^{u(06)-1} (-1 + \omega^{u(06)}) \right)^{\omega^{u(06)} (-1 + \omega^{u(06)})^{-1}} = 0 \quad (16.260)$$

$$U^{(07)} - \left(\alpha^{u(07)} DEM^{(07)} \omega^{u(07)-1} (-1 + \omega^{u(07)}) + (1 - \alpha^{u(07)}) LEIS^{(07)} \omega^{u(07)-1} (-1 + \omega^{u(07)}) \right)^{\omega^{u(07)} (-1 + \omega^{u(07)})^{-1}} = 0 \quad (16.261)$$

$$U^{(08)} - \left(\alpha^{u(08)} DEM^{(08)} \omega^{u(08)-1} (-1 + \omega^{u(08)}) + (1 - \alpha^{u(08)}) LEIS^{(08)} \omega^{u(08)-1} (-1 + \omega^{u(08)}) \right)^{\omega^{u(08)} (-1 + \omega^{u(08)})^{-1}} = 0 \quad (16.262)$$

$$U^{(09)} - \left(\alpha^{u(09)} DEM^{(09)} \omega^{u(09)-1} (-1 + \omega^{u(09)}) + (1 - \alpha^{u(09)}) LEIS^{(09)} \omega^{u(09)-1} (-1 + \omega^{u(09)}) \right)^{\omega^{u(09)} (-1 + \omega^{u(09)})^{-1}} = 0 \quad (16.263)$$

$$U^{(10)} - \left(\alpha^{u(10)} DEM^{(10)} \omega^{u(10)-1} (-1 + \omega^{u(10)}) + (1 - \alpha^{u(10)}) LEIS^{(10)} \omega^{u(10)-1} (-1 + \omega^{u(10)}) \right)^{\omega^{u(10)} (-1 + \omega^{u(10)})^{-1}} = 0 \quad (16.264)$$

$$-VAT^{(A)} + \omega t^{(A)} p^{market(A)} \left(1 + \text{excise}^{(A)} \right) \left(D^{GOV(A)} + INV^{(A)} + \text{scale}^{(01)} D^{(A,01)} + \text{scale}^{(02)} D^{(A,02)} + \text{scale}^{(03)} D^{(A,03)} + \text{scale}^{(04)} D^{(A,04)} + \text{scale}^{(05)} D^{(A,05)} + \text{scale}^{(06)} D^{(A,06)} + \text{scale}^{(07)} D^{(A,07)} \right) \quad (16.265)$$

$$-VAT^{(B)} + wt^{(B)} p^{\text{market}^{(B)}} \left(1 + exise^{(B)}\right) \left(D^{\text{GOV}^{(B)}} + INV^{(B)} + scale^{(01)} D^{(B,01)} + scale^{(02)} D^{(B,02)} + scale^{(03)} D^{(B,03)} + scale^{(04)} D^{(B,04)} + scale^{(05)} D^{(B,05)} + scale^{(06)} D^{(B,06)} + scale^{(07)} D^{(B,07)}\right) \quad (16.266)$$

$$-VAT^{(C)} + wt^{(C)} p^{\text{market}^{(C)}} \left(1 + exise^{(C)}\right) \left(D^{\text{GOV}^{(C)}} + INV^{(C)} + scale^{(01)} D^{(C,01)} + scale^{(02)} D^{(C,02)} + scale^{(03)} D^{(C,03)} + scale^{(04)} D^{(C,04)} + scale^{(05)} D^{(C,05)} + scale^{(06)} D^{(C,06)} + scale^{(07)} D^{(C,07)}\right) \quad (16.267)$$

$$-VAT^{(D)} + wt^{(D)} p^{\text{market}^{(D)}} \left(1 + exise^{(D)}\right) \left(D^{\text{GOV}^{(D)}} + INV^{(D)} + scale^{(01)} D^{(D,01)} + scale^{(02)} D^{(D,02)} + scale^{(03)} D^{(D,03)} + scale^{(04)} D^{(D,04)} + scale^{(05)} D^{(D,05)} + scale^{(06)} D^{(D,06)} + scale^{(07)} D^{(D,07)}\right) \quad (16.268)$$

$$-VAT^{(E)} + wt^{(E)} p^{\text{market}^{(E)}} \left(1 + exise^{(E)}\right) \left(D^{\text{GOV}^{(E)}} + INV^{(E)} + scale^{(01)} D^{(E,01)} + scale^{(02)} D^{(E,02)} + scale^{(03)} D^{(E,03)} + scale^{(04)} D^{(E,04)} + scale^{(05)} D^{(E,05)} + scale^{(06)} D^{(E,06)} + scale^{(07)} D^{(E,07)}\right) \quad (16.269)$$

$$-VAT^{(F)} + wt^{(F)} p^{\text{market}^{(F)}} \left(1 + exise^{(F)}\right) \left(D^{\text{GOV}^{(F)}} + INV^{(F)} + scale^{(01)} D^{(F,01)} + scale^{(02)} D^{(F,02)} + scale^{(03)} D^{(F,03)} + scale^{(04)} D^{(F,04)} + scale^{(05)} D^{(F,05)} + scale^{(06)} D^{(F,06)} + scale^{(07)} D^{(F,07)}\right) \quad (16.270)$$

$$-VAT^{(G)} + wt^{(G)} p^{\text{market}^{(G)}} \left(1 + exise^{(G)}\right) \left(D^{\text{GOV}^{(G)}} + INV^{(G)} + scale^{(01)} D^{(G,01)} + scale^{(02)} D^{(G,02)} + scale^{(03)} D^{(G,03)} + scale^{(04)} D^{(G,04)} + scale^{(05)} D^{(G,05)} + scale^{(06)} D^{(G,06)} + scale^{(07)} D^{(G,07)}\right) \quad (16.271)$$

$$-VAT^{(H)} + wt^{(H)} p^{\text{market}^{(H)}} \left(1 + exise^{(H)}\right) \left(D^{\text{GOV}^{(H)}} + INV^{(H)} + scale^{(01)} D^{(H,01)} + scale^{(02)} D^{(H,02)} + scale^{(03)} D^{(H,03)} + scale^{(04)} D^{(H,04)} + scale^{(05)} D^{(H,05)} + scale^{(06)} D^{(H,06)} + scale^{(07)} D^{(H,07)}\right) \quad (16.272)$$

$$-VAT^{(I)} + wt^{(I)} p^{\text{market}^{(I)}} \left(1 + exise^{(I)}\right) \left(D^{\text{GOV}^{(I)}} + INV^{(I)} + scale^{(01)} D^{(I,01)} + scale^{(02)} D^{(I,02)} + scale^{(03)} D^{(I,03)} + scale^{(04)} D^{(I,04)} + scale^{(05)} D^{(I,05)} + scale^{(06)} D^{(I,06)} + scale^{(07)} D^{(I,07)} + scale^{(08)} D^{(I,08)}\right) \quad (16.273)$$

$$-VAT^{(J)} + wt^{(J)} p^{\text{market}^{(J)}} \left(1 + exise^{(J)}\right) \left(D^{\text{GOV}^{(J)}} + INV^{(J)} + scale^{(01)} D^{(J,01)} + scale^{(02)} D^{(J,02)} + scale^{(03)} D^{(J,03)} + scale^{(04)} D^{(J,04)} + scale^{(05)} D^{(J,05)} + scale^{(06)} D^{(J,06)} + scale^{(07)} D^{(J,07)} + scale^{(08)} D^{(J,08)}\right) \quad (16.274)$$

$$-VAT^{(K)} + wt^{(K)} p^{\text{market}^{(K)}} \left(1 + exise^{(K)}\right) \left(D^{\text{GOV}^{(K)}} + INV^{(K)} + scale^{(01)} D^{(K,01)} + scale^{(02)} D^{(K,02)} + scale^{(03)} D^{(K,03)} + scale^{(04)} D^{(K,04)} + scale^{(05)} D^{(K,05)} + scale^{(06)} D^{(K,06)} + scale^{(07)} D^{(K,07)} + scale^{(08)} D^{(K,08)}\right) \quad (16.275)$$

$$-X^{(A,A)} + \beta^{x(A,A)} Y^{\text{INT}(A)} = 0 \quad (16.276)$$

$$-X^{(A,B)} + \beta^{x(A,B)} Y^{\text{INT}(B)} = 0 \quad (16.277)$$

$$-X^{(A,C)} + \beta^{x(A,C)} Y^{\text{INT}(C)} = 0 \quad (16.278)$$

$$-X^{(A,D)} + \beta^{x(A,D)} Y^{\text{INT}(D)} = 0 \quad (16.279)$$

$$-X^{(A,E)} + \beta^{x(A,E)} Y^{\text{INT}(E)} = 0 \quad (16.280)$$

$$-X^{(A,F)} + \beta^{x(A,F)} Y^{\text{INT}(F)} = 0 \quad (16.281)$$

$$-X^{(A,G)} + \beta^{x(A,G)} Y^{\text{INT}(G)} = 0 \quad (16.282)$$

$$-X^{(A,H)} + \beta^{x(A,H)} Y^{\text{INT}(H)} = 0 \quad (16.283)$$

$$-X^{(A,I)} + \beta^{x(A,I)} Y^{\text{INT}(I)} = 0 \quad (16.284)$$

$$-X^{(A,J)} + \beta^{x(A,J)} Y^{\text{INT}(J)} = 0 \quad (16.285)$$

$$-X^{(A,K)} + \beta^{x(A,K)} Y^{\text{INT}(K)} = 0 \quad (16.286)$$

$$-X^{(B,A)} + \beta^{x(B,A)} Y^{\text{INT}(A)} = 0 \quad (16.287)$$

$$-X^{(B,B)} + \beta^{x(B,B)} Y^{\text{INT}(B)} = 0 \quad (16.288)$$

$$-X^{(B,C)} + \beta^{x(B,C)} Y^{\text{INT}(C)} = 0 \quad (16.289)$$

$$-X^{(B,D)} + \beta^{x(B,D)} Y^{\text{INT}(D)} = 0 \quad (16.290)$$

$$-X^{(B,E)} + \beta^{x(B,E)} Y^{\text{INT}(E)} = 0 \quad (16.291)$$

$$-X^{(B,F)} + \beta^{x(B,F)} Y^{\text{INT}(F)} = 0 \quad (16.292)$$

$$-X^{(B,G)} + \beta^{x(B,G)} Y^{\text{INT}(G)} = 0 \quad (16.293)$$

$$-X^{(B,H)} + \beta^{x(B,H)} Y^{\text{INT}(H)} = 0 \quad (16.294)$$

$$-X^{(B,I)} + \beta^{x(B,I)} Y^{\text{INT}(I)} = 0 \quad (16.295)$$

$$-X^{(B,J)} + \beta^{x(B,J)} Y^{\text{INT}(J)} = 0 \quad (16.296)$$

$$-X^{(B,K)} + \beta^{x(B,K)} Y^{\text{INT}(K)} = 0 \quad (16.297)$$

$$-X^{(C,A)} + \beta^{x(C,A)} Y^{\text{INT}(A)} = 0 \quad (16.298)$$

$$-X^{(C,B)} + \beta^{x(C,B)} Y^{\text{INT}(B)} = 0 \quad (16.299)$$

$$-X^{(C,C)} + \beta^{x(C,C)} Y^{\text{INT}(C)} = 0 \quad (16.300)$$

$$-X^{(C,D)} + \beta^{x(C,D)} Y^{\text{INT}(D)} = 0 \quad (16.301)$$

$$-X^{(C,E)} + \beta^{x(C,E)} Y^{\text{INT}(E)} = 0 \quad (16.302)$$

$$-X^{(C,F)} + \beta^{x(C,F)} Y^{\text{INT}(F)} = 0 \quad (16.303)$$

$$-X^{(C,G)} + \beta^{x(C,G)} Y^{\text{INT}(G)} = 0 \quad (16.304)$$

$$-X^{(C,H)} + \beta^{x(C,H)} Y^{\text{INT}(H)} = 0 \quad (16.305)$$

$$-X^{(C,I)} + \beta^{x(C,I)} Y^{\text{INT}(I)} = 0 \quad (16.306)$$

$$-X^{(C,J)} + \beta^{x(C,J)} Y^{\text{INT}(J)} = 0 \quad (16.307)$$

$$-X^{(C,K)} + \beta^{x(C,K)} Y^{\text{INT}(K)} = 0 \quad (16.308)$$

$$-X^{(D,A)} + \beta^{x(D,A)} Y^{\text{INT}(A)} = 0 \quad (16.309)$$

$$-X^{(D,B)} + \beta^{x(D,B)} Y^{\text{INT}(B)} = 0 \quad (16.310)$$

$$-X^{(D,C)} + \beta^{x(D,C)} Y^{\text{INT}(C)} = 0 \quad (16.311)$$

$$-X^{(D,D)} + \beta^{x(D,D)} Y^{\text{INT}(D)} = 0 \quad (16.312)$$

$$-X^{(D,E)} + \beta^{x(D,E)} Y^{\text{INT}(E)} = 0 \quad (16.313)$$

$$-X^{(D,F)} + \beta^{x(D,F)} Y^{\text{INT}(F)} = 0 \quad (16.314)$$

$$-X^{(D,G)} + \beta^{x(D,G)} Y^{\text{INT}(G)} = 0 \quad (16.315)$$

$$-X^{(D,H)} + \beta^{x(D,H)} Y^{\text{INT}(H)} = 0 \quad (16.316)$$

$$-X^{(D,I)} + \beta^{x(D,I)} Y^{\text{INT}(I)} = 0 \quad (16.317)$$

$$-X^{(D,J)} + \beta^{x(D,J)} Y^{\text{INT}(J)} = 0 \quad (16.318)$$

$$-X^{(D,K)} + \beta^{x(D,K)} Y^{\text{INT}(K)} = 0 \quad (16.319)$$

$$-X^{(E,A)} + \beta^{x(E,A)} Y^{\text{INT}(A)} = 0 \quad (16.320)$$

$$-X^{(E,B)} + \beta^{x(E,B)} Y^{\text{INT}(B)} = 0 \quad (16.321)$$

$$-X^{(E,C)} + \beta^{x(E,C)} Y^{\text{INT}(C)} = 0 \quad (16.322)$$

$$-X^{(E,D)} + \beta^{x(E,D)} Y^{\text{INT}(D)} = 0 \quad (16.323)$$

$$-X^{(E,E)} + \beta^{x(E,E)} Y^{INT(E)} = 0 \quad (16.324)$$

$$-X^{(E,F)} + \beta^{x(E,F)} Y^{INT(F)} = 0 \quad (16.325)$$

$$-X^{(E,G)} + \beta^{x(E,G)} Y^{INT(G)} = 0 \quad (16.326)$$

$$-X^{(E,H)} + \beta^{x(E,H)} Y^{INT(H)} = 0 \quad (16.327)$$

$$-X^{(E,I)} + \beta^{x(E,I)} Y^{INT(I)} = 0 \quad (16.328)$$

$$-X^{(E,J)} + \beta^{x(E,J)} Y^{INT(J)} = 0 \quad (16.329)$$

$$-X^{(E,K)} + \beta^{x(E,K)} Y^{INT(K)} = 0 \quad (16.330)$$

$$-X^{(F,A)} + \beta^{x(F,A)} Y^{INT(A)} = 0 \quad (16.331)$$

$$-X^{(F,B)} + \beta^{x(F,B)} Y^{INT(B)} = 0 \quad (16.332)$$

$$-X^{(F,C)} + \beta^{x(F,C)} Y^{INT(C)} = 0 \quad (16.333)$$

$$-X^{(F,D)} + \beta^{x(F,D)} Y^{INT(D)} = 0 \quad (16.334)$$

$$-X^{(F,E)} + \beta^{x(F,E)} Y^{INT(E)} = 0 \quad (16.335)$$

$$-X^{(F,F)} + \beta^{x(F,F)} Y^{INT(F)} = 0 \quad (16.336)$$

$$-X^{(F,G)} + \beta^{x(F,G)} Y^{INT(G)} = 0 \quad (16.337)$$

$$-X^{(F,H)} + \beta^{x(F,H)} Y^{INT(H)} = 0 \quad (16.338)$$

$$-X^{(F,I)} + \beta^{x(F,I)} Y^{INT(I)} = 0 \quad (16.339)$$

$$-X^{(F,J)} + \beta^{x(F,J)} Y^{\text{INT}(J)} = 0 \quad (16.340)$$

$$-X^{(F,K)} + \beta^{x(F,K)} Y^{\text{INT}(K)} = 0 \quad (16.341)$$

$$-X^{(G,A)} + \beta^{x(G,A)} Y^{\text{INT}(A)} = 0 \quad (16.342)$$

$$-X^{(G,B)} + \beta^{x(G,B)} Y^{\text{INT}(B)} = 0 \quad (16.343)$$

$$-X^{(G,C)} + \beta^{x(G,C)} Y^{\text{INT}(C)} = 0 \quad (16.344)$$

$$-X^{(G,D)} + \beta^{x(G,D)} Y^{\text{INT}(D)} = 0 \quad (16.345)$$

$$-X^{(G,E)} + \beta^{x(G,E)} Y^{\text{INT}(E)} = 0 \quad (16.346)$$

$$-X^{(G,F)} + \beta^{x(G,F)} Y^{\text{INT}(F)} = 0 \quad (16.347)$$

$$-X^{(G,G)} + \beta^{x(G,G)} Y^{\text{INT}(G)} = 0 \quad (16.348)$$

$$-X^{(G,H)} + \beta^{x(G,H)} Y^{\text{INT}(H)} = 0 \quad (16.349)$$

$$-X^{(G,I)} + \beta^{x(G,I)} Y^{\text{INT}(I)} = 0 \quad (16.350)$$

$$-X^{(G,J)} + \beta^{x(G,J)} Y^{\text{INT}(J)} = 0 \quad (16.351)$$

$$-X^{(G,K)} + \beta^{x(G,K)} Y^{\text{INT}(K)} = 0 \quad (16.352)$$

$$-X^{(H,A)} + \beta^{x(H,A)} Y^{\text{INT}(A)} = 0 \quad (16.353)$$

$$-X^{(H,B)} + \beta^{x(H,B)} Y^{\text{INT}(B)} = 0 \quad (16.354)$$

$$-X^{(H,C)} + \beta^{x(H,C)} Y^{\text{INT}(C)} = 0 \quad (16.355)$$

$$-X^{(H,D)} + \beta^{x(H,D)} Y^{INT(D)} = 0 \quad (16.356)$$

$$-X^{(H,E)} + \beta^{x(H,E)} Y^{INT(E)} = 0 \quad (16.357)$$

$$-X^{(H,F)} + \beta^{x(H,F)} Y^{INT(F)} = 0 \quad (16.358)$$

$$-X^{(H,G)} + \beta^{x(H,G)} Y^{INT(G)} = 0 \quad (16.359)$$

$$-X^{(H,H)} + \beta^{x(H,H)} Y^{INT(H)} = 0 \quad (16.360)$$

$$-X^{(H,I)} + \beta^{x(H,I)} Y^{INT(I)} = 0 \quad (16.361)$$

$$-X^{(H,J)} + \beta^{x(H,J)} Y^{INT(J)} = 0 \quad (16.362)$$

$$-X^{(H,K)} + \beta^{x(H,K)} Y^{INT(K)} = 0 \quad (16.363)$$

$$-X^{(I,A)} + \beta^{x(I,A)} Y^{INT(A)} = 0 \quad (16.364)$$

$$-X^{(I,B)} + \beta^{x(I,B)} Y^{INT(B)} = 0 \quad (16.365)$$

$$-X^{(I,C)} + \beta^{x(I,C)} Y^{INT(C)} = 0 \quad (16.366)$$

$$-X^{(I,D)} + \beta^{x(I,D)} Y^{INT(D)} = 0 \quad (16.367)$$

$$-X^{(I,E)} + \beta^{x(I,E)} Y^{INT(E)} = 0 \quad (16.368)$$

$$-X^{(I,F)} + \beta^{x(I,F)} Y^{INT(F)} = 0 \quad (16.369)$$

$$-X^{(I,G)} + \beta^{x(I,G)} Y^{INT(G)} = 0 \quad (16.370)$$

$$-X^{(I,H)} + \beta^{x(I,H)} Y^{INT(H)} = 0 \quad (16.371)$$

$$-X^{(I,I)} + \beta^{x(I,I)} Y^{\text{INT}(I)} = 0 \quad (16.372)$$

$$-X^{(I,J)} + \beta^{x(I,J)} Y^{\text{INT}(J)} = 0 \quad (16.373)$$

$$-X^{(I,K)} + \beta^{x(I,K)} Y^{\text{INT}(K)} = 0 \quad (16.374)$$

$$-X^{(J,A)} + \beta^{x(J,A)} Y^{\text{INT}(A)} = 0 \quad (16.375)$$

$$-X^{(J,B)} + \beta^{x(J,B)} Y^{\text{INT}(B)} = 0 \quad (16.376)$$

$$-X^{(J,C)} + \beta^{x(J,C)} Y^{\text{INT}(C)} = 0 \quad (16.377)$$

$$-X^{(J,D)} + \beta^{x(J,D)} Y^{\text{INT}(D)} = 0 \quad (16.378)$$

$$-X^{(J,E)} + \beta^{x(J,E)} Y^{\text{INT}(E)} = 0 \quad (16.379)$$

$$-X^{(J,F)} + \beta^{x(J,F)} Y^{\text{INT}(F)} = 0 \quad (16.380)$$

$$-X^{(J,G)} + \beta^{x(J,G)} Y^{\text{INT}(G)} = 0 \quad (16.381)$$

$$-X^{(J,H)} + \beta^{x(J,H)} Y^{\text{INT}(H)} = 0 \quad (16.382)$$

$$-X^{(J,I)} + \beta^{x(J,I)} Y^{\text{INT}(I)} = 0 \quad (16.383)$$

$$-X^{(J,J)} + \beta^{x(J,J)} Y^{\text{INT}(J)} = 0 \quad (16.384)$$

$$-X^{(J,K)} + \beta^{x(J,K)} Y^{\text{INT}(K)} = 0 \quad (16.385)$$

$$-X^{(K,A)} + \beta^{x(K,A)} Y^{\text{INT}(A)} = 0 \quad (16.386)$$

$$-X^{(K,B)} + \beta^{x(K,B)} Y^{\text{INT}(B)} = 0 \quad (16.387)$$

$$-X^{(K,C)} + \beta^{x(K,C)} Y^{\text{INT}^{(C)}} = 0 \quad (16.388)$$

$$-X^{(K,D)} + \beta^{x(K,D)} Y^{\text{INT}^{(D)}} = 0 \quad (16.389)$$

$$-X^{(K,E)} + \beta^{x(K,E)} Y^{\text{INT}^{(E)}} = 0 \quad (16.390)$$

$$-X^{(K,F)} + \beta^{x(K,F)} Y^{\text{INT}^{(F)}} = 0 \quad (16.391)$$

$$-X^{(K,G)} + \beta^{x(K,G)} Y^{\text{INT}^{(G)}} = 0 \quad (16.392)$$

$$-X^{(K,H)} + \beta^{x(K,H)} Y^{\text{INT}^{(H)}} = 0 \quad (16.393)$$

$$-X^{(K,I)} + \beta^{x(K,I)} Y^{\text{INT}^{(I)}} = 0 \quad (16.394)$$

$$-X^{(K,J)} + \beta^{x(K,J)} Y^{\text{INT}^{(J)}} = 0 \quad (16.395)$$

$$-X^{(K,K)} + \beta^{x(K,K)} Y^{\text{INT}^{(K)}} = 0 \quad (16.396)$$

$$-Y^{(A)} + Y^{\text{VA}^{(A)}} = 0 \quad (16.397)$$

$$-Y^{(A)} + \theta^{y(A)} \left(\alpha^{\text{prod}^h(A)} Y^{\text{HOME}^{(A)}} \sigma^{\text{fprod}^{(A)-1}} \left(1 + \sigma^{\text{fprod}^{(A)}} \right) + \alpha^{\text{prod}^e(A)} \text{EXPORT}^{(A)} \sigma^{\text{fprod}^{(A)-1}} \left(1 + \sigma^{\text{fprod}^{(A)}} \right) \right) \sigma^{\text{fprod}^{(A)}} \left(1 + \sigma^{\text{fprod}^{(A)}} \right)^{-1} = 0 \quad (16.398)$$

$$-Y^{(B)} + Y^{\text{VA}^{(B)}} = 0 \quad (16.399)$$

$$-Y^{(B)} + \theta^{y(B)} \left(\alpha^{\text{prod}^h(B)} Y^{\text{HOME}^{(B)}} \sigma^{\text{fprod}^{(B)-1}} \left(1 + \sigma^{\text{fprod}^{(B)}} \right) + \alpha^{\text{prod}^e(B)} \text{EXPORT}^{(B)} \sigma^{\text{fprod}^{(B)-1}} \left(1 + \sigma^{\text{fprod}^{(B)}} \right) \right) \sigma^{\text{fprod}^{(B)}} \left(1 + \sigma^{\text{fprod}^{(B)}} \right)^{-1} = 0 \quad (16.400)$$

$$-Y^{(C)} + Y^{\text{VA}^{(C)}} = 0 \quad (16.401)$$

$$-Y^{(C)} + \theta^{y^{(C)}} \left(\alpha^{\text{prodh}^{(C)}} Y^{\text{HOME}^{(C)}} \sigma^{\text{fProd}^{(C)-1}} \left(1 + \sigma^{\text{fProd}^{(C)}} \right) + \alpha^{\text{prod}^e^{(C)}} \text{EXPORT}^{(C)} \sigma^{\text{fProd}^{(C)-1}} \left(1 + \sigma^{\text{fProd}^{(C)}} \right) \right) \sigma^{\text{fProd}^{(C)}} \left(1 + \sigma^{\text{fProd}^{(C)}} \right)^{-1} = 0 \quad (16.402)$$

$$-Y^{(D)} + Y^{\text{VA}^{(D)}} = 0 \quad (16.403)$$

$$-Y^{(D)} + \theta^{y^{(D)}} \left(\alpha^{\text{prodh}^{(D)}} Y^{\text{HOME}^{(D)}} \sigma^{\text{fProd}^{(D)-1}} \left(1 + \sigma^{\text{fProd}^{(D)}} \right) + \alpha^{\text{prod}^e^{(D)}} \text{EXPORT}^{(D)} \sigma^{\text{fProd}^{(D)-1}} \left(1 + \sigma^{\text{fProd}^{(D)}} \right) \right) \sigma^{\text{fProd}^{(D)}} \left(1 + \sigma^{\text{fProd}^{(D)}} \right)^{-1} = 0 \quad (16.404)$$

$$-Y^{(E)} + Y^{\text{VA}^{(E)}} = 0 \quad (16.405)$$

$$-Y^{(E)} + \theta^{y^{(E)}} \left(\alpha^{\text{prodh}^{(E)}} Y^{\text{HOME}^{(E)}} \sigma^{\text{fProd}^{(E)-1}} \left(1 + \sigma^{\text{fProd}^{(E)}} \right) + \alpha^{\text{prod}^e^{(E)}} \text{EXPORT}^{(E)} \sigma^{\text{fProd}^{(E)-1}} \left(1 + \sigma^{\text{fProd}^{(E)}} \right) \right) \sigma^{\text{fProd}^{(E)}} \left(1 + \sigma^{\text{fProd}^{(E)}} \right)^{-1} = 0 \quad (16.406)$$

$$-Y^{(F)} + Y^{\text{VA}^{(F)}} = 0 \quad (16.407)$$

$$-Y^{(F)} + \theta^{y^{(F)}} \left(\alpha^{\text{prodh}^{(F)}} Y^{\text{HOME}^{(F)}} \sigma^{\text{fProd}^{(F)-1}} \left(1 + \sigma^{\text{fProd}^{(F)}} \right) + \alpha^{\text{prod}^e^{(F)}} \text{EXPORT}^{(F)} \sigma^{\text{fProd}^{(F)-1}} \left(1 + \sigma^{\text{fProd}^{(F)}} \right) \right) \sigma^{\text{fProd}^{(F)}} \left(1 + \sigma^{\text{fProd}^{(F)}} \right)^{-1} = 0 \quad (16.408)$$

$$-Y^{(G)} + Y^{\text{VA}^{(G)}} = 0 \quad (16.409)$$

$$-Y^{(G)} + \theta^{y^{(G)}} \left(\alpha^{\text{prodh}^{(G)}} Y^{\text{HOME}^{(G)}} \sigma^{\text{fProd}^{(G)-1}} \left(1 + \sigma^{\text{fProd}^{(G)}} \right) + \alpha^{\text{prod}^e^{(G)}} \text{EXPORT}^{(G)} \sigma^{\text{fProd}^{(G)-1}} \left(1 + \sigma^{\text{fProd}^{(G)}} \right) \right) \sigma^{\text{fProd}^{(G)}} \left(1 + \sigma^{\text{fProd}^{(G)}} \right)^{-1} = 0 \quad (16.410)$$

$$-Y^{(H)} + Y^{\text{VA}^{(H)}} = 0 \quad (16.411)$$

$$-Y^{(H)} + \theta^{y^{(H)}} \left(\alpha^{\text{prodh}^{(H)}} Y^{\text{HOME}^{(H)}} \sigma^{\text{fProd}^{(H)-1}} \left(1 + \sigma^{\text{fProd}^{(H)}} \right) + \alpha^{\text{prod}^e^{(H)}} \text{EXPORT}^{(H)} \sigma^{\text{fProd}^{(H)-1}} \left(1 + \sigma^{\text{fProd}^{(H)}} \right) \right) \sigma^{\text{fProd}^{(H)}} \left(1 + \sigma^{\text{fProd}^{(H)}} \right)^{-1} = 0 \quad (16.412)$$

$$-Y^{(I)} + Y^{\text{VA}^{(I)}} = 0 \quad (16.413)$$

$$-Y^{(I)} + \theta^{y(I)} \left(\alpha^{\text{Prod}^h(I)} Y^{\text{HOME}(I)} \sigma^{\text{fProd}(I)-1} \left(1 + \sigma^{\text{fProd}(I)} \right) + \alpha^{\text{Prod}^e(I)} \text{EXPORT}^{(I)} \sigma^{\text{fProd}(I)-1} \left(1 + \sigma^{\text{fProd}(I)} \right) \right) \sigma^{\text{fProd}(I)} \left(1 + \sigma^{\text{fProd}(I)} \right)^{-1} = 0 \quad (16.414)$$

$$-Y^{(J)} + Y^{\text{VA}(J)} = 0 \quad (16.415)$$

$$-Y^{(J)} + \theta^{y(J)} \left(\alpha^{\text{Prod}^h(J)} Y^{\text{HOME}(J)} \sigma^{\text{fProd}(J)-1} \left(1 + \sigma^{\text{fProd}(J)} \right) + \alpha^{\text{Prod}^e(J)} \text{EXPORT}^{(J)} \sigma^{\text{fProd}(J)-1} \left(1 + \sigma^{\text{fProd}(J)} \right) \right) \sigma^{\text{fProd}(J)} \left(1 + \sigma^{\text{fProd}(J)} \right)^{-1} = 0 \quad (16.416)$$

$$-Y^{(K)} + Y^{\text{VA}(K)} = 0 \quad (16.417)$$

$$-Y^{(K)} + \theta^{y(K)} \left(\alpha^{\text{Prod}^h(K)} Y^{\text{HOME}(K)} \sigma^{\text{fProd}(K)-1} \left(1 + \sigma^{\text{fProd}(K)} \right) + \alpha^{\text{Prod}^e(K)} \text{EXPORT}^{(K)} \sigma^{\text{fProd}(K)-1} \left(1 + \sigma^{\text{fProd}(K)} \right) \right) \sigma^{\text{fProd}(K)} \left(1 + \sigma^{\text{fProd}(K)} \right)^{-1} = 0 \quad (16.418)$$

$$-Y^{\text{VA}(A)} + Y^{\text{INT}(A)} = 0 \quad (16.419)$$

$$-Y^{\text{VA}(A)} + \gamma^{yva(A)} K^{(A)\beta^k(A)} L^{(A)\beta^1(A)} = 0 \quad (16.420)$$

$$-Y^{\text{VA}(B)} + Y^{\text{INT}(B)} = 0 \quad (16.421)$$

$$-Y^{\text{VA}(B)} + \gamma^{yva(B)} K^{(B)\beta^k(B)} L^{(B)\beta^1(B)} = 0 \quad (16.422)$$

$$-Y^{\text{VA}(C)} + Y^{\text{INT}(C)} = 0 \quad (16.423)$$

$$-Y^{\text{VA}(C)} + \gamma^{yva(C)} K^{(C)\beta^k(C)} L^{(C)\beta^1(C)} = 0 \quad (16.424)$$

$$-Y^{\text{VA}(D)} + Y^{\text{INT}(D)} = 0 \quad (16.425)$$

$$-Y^{\text{VA}(D)} + \gamma^{yva(D)} K^{(D)\beta^k(D)} L^{(D)\beta^1(D)} = 0 \quad (16.426)$$

$$-Y^{\text{VA}(E)} + Y^{\text{INT}(E)} = 0 \quad (16.427)$$

$$-Y^{VA\langle E \rangle} + \gamma^{yva\langle E \rangle} K^{(E)\beta^k\langle E \rangle} L^{(E)\beta^1\langle E \rangle} = 0 \quad (16.428)$$

$$-Y^{VA\langle F \rangle} + Y^{INT\langle F \rangle} = 0 \quad (16.429)$$

$$-Y^{VA\langle F \rangle} + \gamma^{yva\langle F \rangle} K^{(F)\beta^k\langle F \rangle} L^{(F)\beta^1\langle F \rangle} = 0 \quad (16.430)$$

$$-Y^{VA\langle G \rangle} + Y^{INT\langle G \rangle} = 0 \quad (16.431)$$

$$-Y^{VA\langle G \rangle} + \gamma^{yva\langle G \rangle} K^{(G)\beta^k\langle G \rangle} L^{(G)\beta^1\langle G \rangle} = 0 \quad (16.432)$$

$$-Y^{VA\langle H \rangle} + Y^{INT\langle H \rangle} = 0 \quad (16.433)$$

$$-Y^{VA\langle H \rangle} + \gamma^{yva\langle H \rangle} K^{(H)\beta^k\langle H \rangle} L^{(H)\beta^1\langle H \rangle} = 0 \quad (16.434)$$

$$-Y^{VA\langle I \rangle} + Y^{INT\langle I \rangle} = 0 \quad (16.435)$$

$$-Y^{VA\langle I \rangle} + \gamma^{yva\langle I \rangle} K^{(I)\beta^k\langle I \rangle} L^{(I)\beta^1\langle I \rangle} = 0 \quad (16.436)$$

$$-Y^{VA\langle J \rangle} + Y^{INT\langle J \rangle} = 0 \quad (16.437)$$

$$-Y^{VA\langle J \rangle} + \gamma^{yva\langle J \rangle} K^{(J)\beta^k\langle J \rangle} L^{(J)\beta^1\langle J \rangle} = 0 \quad (16.438)$$

$$-Y^{VA\langle K \rangle} + Y^{INT\langle K \rangle} = 0 \quad (16.439)$$

$$-Y^{VA\langle K \rangle} + \gamma^{yva\langle K \rangle} K^{(K)\beta^k\langle K \rangle} L^{(K)\beta^1\langle K \rangle} = 0 \quad (16.440)$$

$$k^{\text{total data}} \text{auc}^{(01)} - \text{scale}^{(01)} K^{(01)} = 0 \quad (16.441)$$

$$k^{\text{total data}} \text{auc}^{(02)} - \text{scale}^{(02)} K^{(02)} = 0 \quad (16.442)$$

$$k^{\text{total data}} \text{ow}^{(03)} - \text{scale}^{(03)} K^{(03)} = 0 \quad (16.443)$$

$$k^{\text{total data}} \text{ow}^{(04)} - \text{scale}^{(04)} K^{(04)} = 0 \quad (16.444)$$

$$k^{\text{total data}} \text{ow}^{(05)} - \text{scale}^{(05)} K^{(05)} = 0 \quad (16.445)$$

$$k^{\text{total data}} \text{ow}^{(06)} - \text{scale}^{(06)} K^{(06)} = 0 \quad (16.446)$$

$$k^{\text{total data}} \text{ow}^{(07)} - \text{scale}^{(07)} K^{(07)} = 0 \quad (16.447)$$

$$k^{\text{total data}} \text{ow}^{(08)} - \text{scale}^{(08)} K^{(08)} = 0 \quad (16.448)$$

$$k^{\text{total data}} \text{ow}^{(09)} - \text{scale}^{(09)} K^{(09)} = 0 \quad (16.449)$$

$$k^{\text{total data}} \text{ow}^{(10)} - \text{scale}^{(10)} K^{(10)} = 0 \quad (16.450)$$

$$\dot{w}^{(A)} \text{INV} - p^{\text{cons}(A)} \text{INV}^{(A)} = 0 \quad (16.451)$$

$$\dot{w}^{(B)} \text{INV} - p^{\text{cons}(B)} \text{INV}^{(B)} = 0 \quad (16.452)$$

$$\dot{w}^{(C)} \text{INV} - p^{\text{cons}(C)} \text{INV}^{(C)} = 0 \quad (16.453)$$

$$\dot{w}^{(D)} \text{INV} - p^{\text{cons}(D)} \text{INV}^{(D)} = 0 \quad (16.454)$$

$$\dot{w}^{(E)} \text{INV} - p^{\text{cons}(E)} \text{INV}^{(E)} = 0 \quad (16.455)$$

$$\dot{w}^{(F)} \text{INV} - p^{\text{cons}(F)} \text{INV}^{(F)} = 0 \quad (16.456)$$

$$\dot{w}^{(G)} \text{INV} - p^{\text{cons}(G)} \text{INV}^{(G)} = 0 \quad (16.457)$$

$$\dot{w}^{(H)} \text{INV} - p^{\text{cons}(H)} \text{INV}^{(H)} = 0 \quad (16.458)$$

$$iw^{(I)} INV - p^{\text{cons}(I)} INV^{(I)} = 0 \quad (16.459)$$

$$iw^{(J)} INV - p^{\text{cons}(J)} INV^{(J)} = 0 \quad (16.460)$$

$$iw^{(K)} INV - p^{\text{cons}(K)} INV^{(K)} = 0 \quad (16.461)$$

$$\omega f^{(01)} INC^{\text{FIRM}} - \text{scale}^{(01)} TFIRMH^{(01)} = 0 \quad (16.462)$$

$$\omega f^{(02)} INC^{\text{FIRM}} - \text{scale}^{(02)} TFIRMH^{(02)} = 0 \quad (16.463)$$

$$\omega f^{(03)} INC^{\text{FIRM}} - \text{scale}^{(03)} TFIRMH^{(03)} = 0 \quad (16.464)$$

$$\omega f^{(04)} INC^{\text{FIRM}} - \text{scale}^{(04)} TFIRMH^{(04)} = 0 \quad (16.465)$$

$$\omega f^{(05)} INC^{\text{FIRM}} - \text{scale}^{(05)} TFIRMH^{(05)} = 0 \quad (16.466)$$

$$\omega f^{(06)} INC^{\text{FIRM}} - \text{scale}^{(06)} TFIRMH^{(06)} = 0 \quad (16.467)$$

$$\omega f^{(07)} INC^{\text{FIRM}} - \text{scale}^{(07)} TFIRMH^{(07)} = 0 \quad (16.468)$$

$$\omega f^{(08)} INC^{\text{FIRM}} - \text{scale}^{(08)} TFIRMH^{(08)} = 0 \quad (16.469)$$

$$\omega f^{(09)} INC^{\text{FIRM}} - \text{scale}^{(09)} TFIRMH^{(09)} = 0 \quad (16.470)$$

$$\omega f^{(10)} INC^{\text{FIRM}} - \text{scale}^{(10)} TFIRMH^{(10)} = 0 \quad (16.471)$$

$$\omega f^{(\text{eu})} INC^{\text{FIRM}} - ex^{\text{rate}(\text{eu})} TFIRMROW^{(\text{eu})} = 0 \quad (16.472)$$

$$\omega f^{(\text{neu})} INC^{\text{FIRM}} - ex^{\text{rate}(\text{neu})} TFIRMROW^{(\text{neu})} = 0 \quad (16.473)$$

$$\omega h^{\text{r}(01,\text{eu})} INC^{(01)} - ex^{\text{rate}(\text{eu})} THROW^{(01,\text{eu})} = 0 \quad (16.474)$$

$$\alpha h^{r(01,neu)} INC^{(01)} - ex^{rate^{(neu)}} THROW^{(01,neu)} = 0 \quad (16.475)$$

$$\alpha h^{r(02,eu)} INC^{(02)} - ex^{rate^{(eu)}} THROW^{(02,eu)} = 0 \quad (16.476)$$

$$\alpha h^{r(02,neu)} INC^{(02)} - ex^{rate^{(neu)}} THROW^{(02,neu)} = 0 \quad (16.477)$$

$$\alpha h^{r(03,eu)} INC^{(03)} - ex^{rate^{(eu)}} THROW^{(03,eu)} = 0 \quad (16.478)$$

$$\alpha h^{r(03,neu)} INC^{(03)} - ex^{rate^{(neu)}} THROW^{(03,neu)} = 0 \quad (16.479)$$

$$\alpha h^{r(04,eu)} INC^{(04)} - ex^{rate^{(eu)}} THROW^{(04,eu)} = 0 \quad (16.480)$$

$$\alpha h^{r(04,neu)} INC^{(04)} - ex^{rate^{(neu)}} THROW^{(04,neu)} = 0 \quad (16.481)$$

$$\alpha h^{r(05,eu)} INC^{(05)} - ex^{rate^{(eu)}} THROW^{(05,eu)} = 0 \quad (16.482)$$

$$\alpha h^{r(05,neu)} INC^{(05)} - ex^{rate^{(neu)}} THROW^{(05,neu)} = 0 \quad (16.483)$$

$$\alpha h^{r(06,eu)} INC^{(06)} - ex^{rate^{(eu)}} THROW^{(06,eu)} = 0 \quad (16.484)$$

$$\alpha h^{r(06,neu)} INC^{(06)} - ex^{rate^{(neu)}} THROW^{(06,neu)} = 0 \quad (16.485)$$

$$\alpha h^{r(07,eu)} INC^{(07)} - ex^{rate^{(eu)}} THROW^{(07,eu)} = 0 \quad (16.486)$$

$$\alpha h^{r(07,neu)} INC^{(07)} - ex^{rate^{(neu)}} THROW^{(07,neu)} = 0 \quad (16.487)$$

$$\alpha h^{r(08,eu)} INC^{(08)} - ex^{rate^{(eu)}} THROW^{(08,eu)} = 0 \quad (16.488)$$

$$\alpha h^{r(08,neu)} INC^{(08)} - ex^{rate^{(neu)}} THROW^{(08,neu)} = 0 \quad (16.489)$$

$$\alpha h^{r(09,eu)} INC^{(09)} - ex^{rate^{(eu)}} THROW^{(09,eu)} = 0 \quad (16.490)$$

$$\alpha h^{r(09,neu)} INC^{(09)} - ex^{rate^{(neu)}} THROW^{(09,neu)} = 0 \quad (16.491)$$

$$\alpha h^{r(10,eu)} INC^{(10)} - ex^{rate^{(eu)}} THROW^{(10,eu)} = 0 \quad (16.492)$$

$$\alpha h^{r(10,neu)} INC^{(10)} - ex^{rate^{(neu)}} THROW^{(10,neu)} = 0 \quad (16.493)$$

$$\alpha b^{h(01)} INC^{BANK} - scale^{(01)} TBANKH^{(01)} = 0 \quad (16.494)$$

$$\alpha b^{h(02)} INC^{BANK} - scale^{(02)} TBANKH^{(02)} = 0 \quad (16.495)$$

$$\alpha b^{h(03)} INC^{BANK} - scale^{(03)} TBANKH^{(03)} = 0 \quad (16.496)$$

$$\alpha b^{h(04)} INC^{BANK} - scale^{(04)} TBANKH^{(04)} = 0 \quad (16.497)$$

$$\alpha b^{h(05)} INC^{BANK} - scale^{(05)} TBANKH^{(05)} = 0 \quad (16.498)$$

$$\alpha b^{h(06)} INC^{BANK} - scale^{(06)} TBANKH^{(06)} = 0 \quad (16.499)$$

$$\alpha b^{h(07)} INC^{BANK} - scale^{(07)} TBANKH^{(07)} = 0 \quad (16.500)$$

$$\alpha b^{h(08)} INC^{BANK} - scale^{(08)} TBANKH^{(08)} = 0 \quad (16.501)$$

$$\alpha b^{h(09)} INC^{BANK} - scale^{(09)} TBANKH^{(09)} = 0 \quad (16.502)$$

$$\alpha b^{h(10)} INC^{BANK} - scale^{(10)} TBANKH^{(10)} = 0 \quad (16.503)$$

$$\alpha b^{r(eu)} INC^{BANK} - ex^{rate^{(eu)}} TBANKROW^{(eu)} = 0 \quad (16.504)$$

$$\alpha b^{r(neu)} INC^{BANK} - ex^{rate^{(neu)}} TBANKROW^{(neu)} = 0 \quad (16.505)$$

$$-scale^{(01)} \lambda^{CONSUMER^1(01)} + (1 - \alpha^{u(01)}) LEIS^{(01)-1+\omega^{u(01)-1}(-1+\omega^{u(01)})} \left(\alpha^{u(01)} DEM^{(01)\omega^{u(01)-1}(-1+\omega^{u(01)})} + (1 - \alpha^{u(01)}) LEIS^{(01)\omega^{u(01)-1}(-1+\omega^{u(01)})} \right)^{-1+\omega^{u(01)}(-1+\omega^{u(01)})^{-1}} = 0 \quad (16.506)$$

$$-scale^{(02)} \lambda^{CONSUMER^1(02)} + (1 - \alpha^{u(02)}) LEIS^{(02)-1+\omega^{u(02)-1}(-1+\omega^{u(02)})} \left(\alpha^{u(02)} DEM^{(02)\omega^{u(02)-1}(-1+\omega^{u(02)})} + (1 - \alpha^{u(02)}) LEIS^{(02)\omega^{u(02)-1}(-1+\omega^{u(02)})} \right)^{-1+\omega^{u(02)}(-1+\omega^{u(02)})^{-1}} = 0 \quad (16.507)$$

$$-scale^{(03)} \lambda^{CONSUMER^1(03)} + (1 - \alpha^{u(03)}) LEIS^{(03)-1+\omega^{u(03)-1}(-1+\omega^{u(03)})} \left(\alpha^{u(03)} DEM^{(03)\omega^{u(03)-1}(-1+\omega^{u(03)})} + (1 - \alpha^{u(03)}) LEIS^{(03)\omega^{u(03)-1}(-1+\omega^{u(03)})} \right)^{-1+\omega^{u(03)}(-1+\omega^{u(03)})^{-1}} = 0 \quad (16.508)$$

$$-scale^{(04)} \lambda^{CONSUMER^1(04)} + (1 - \alpha^{u(04)}) LEIS^{(04)-1+\omega^{u(04)-1}(-1+\omega^{u(04)})} \left(\alpha^{u(04)} DEM^{(04)\omega^{u(04)-1}(-1+\omega^{u(04)})} + (1 - \alpha^{u(04)}) LEIS^{(04)\omega^{u(04)-1}(-1+\omega^{u(04)})} \right)^{-1+\omega^{u(04)}(-1+\omega^{u(04)})^{-1}} = 0 \quad (16.509)$$

$$-scale^{(05)} \lambda^{CONSUMER^1(05)} + (1 - \alpha^{u(05)}) LEIS^{(05)-1+\omega^{u(05)-1}(-1+\omega^{u(05)})} \left(\alpha^{u(05)} DEM^{(05)\omega^{u(05)-1}(-1+\omega^{u(05)})} + (1 - \alpha^{u(05)}) LEIS^{(05)\omega^{u(05)-1}(-1+\omega^{u(05)})} \right)^{-1+\omega^{u(05)}(-1+\omega^{u(05)})^{-1}} = 0 \quad (16.510)$$

$$-scale^{(06)} \lambda^{CONSUMER^1(06)} + (1 - \alpha^{u(06)}) LEIS^{(06)-1+\omega^{u(06)-1}(-1+\omega^{u(06)})} \left(\alpha^{u(06)} DEM^{(06)\omega^{u(06)-1}(-1+\omega^{u(06)})} + (1 - \alpha^{u(06)}) LEIS^{(06)\omega^{u(06)-1}(-1+\omega^{u(06)})} \right)^{-1+\omega^{u(06)}(-1+\omega^{u(06)})^{-1}} = 0 \quad (16.511)$$

$$-scale^{(07)} \lambda^{CONSUMER^1(07)} + (1 - \alpha^{u(07)}) LEIS^{(07)-1+\omega^{u(07)-1}(-1+\omega^{u(07)})} \left(\alpha^{u(07)} DEM^{(07)\omega^{u(07)-1}(-1+\omega^{u(07)})} + (1 - \alpha^{u(07)}) LEIS^{(07)\omega^{u(07)-1}(-1+\omega^{u(07)})} \right)^{-1+\omega^{u(07)}(-1+\omega^{u(07)})^{-1}} = 0 \quad (16.512)$$

$$-scale^{(08)} \lambda^{CONSUMER^1(08)} + (1 - \alpha^{u(08)}) LEIS^{(08)-1+\omega^{u(08)-1}(-1+\omega^{u(08)})} \left(\alpha^{u(08)} DEM^{(08)\omega^{u(08)-1}(-1+\omega^{u(08)})} + (1 - \alpha^{u(08)}) LEIS^{(08)\omega^{u(08)-1}(-1+\omega^{u(08)})} \right)^{-1+\omega^{u(08)}(-1+\omega^{u(08)})^{-1}} = 0 \quad (16.513)$$

$$-scale^{(09)} \lambda^{CONSUMER^1(09)} + (1 - \alpha^{u(09)}) LEIS^{(09) -1 + \omega^{u(09) -1} (-1 + \omega^{u(09)})} \left(\alpha^{u(09)} DEM^{(09) \omega^{u(09) -1} (-1 + \omega^{u(09)})} + (1 - \alpha^{u(09)}) LEIS^{(09) \omega^{u(09) -1} (-1 + \omega^{u(09)})} \right)^{-1 + \omega^{u(09)} (-1 + \omega^{u(09)})^{-1}} = 0 \quad (16.514)$$

$$-scale^{(10)} \lambda^{CONSUMER^1(10)} + (1 - \alpha^{u(10)}) LEIS^{(10) -1 + \omega^{u(10) -1} (-1 + \omega^{u(10)})} \left(\alpha^{u(10)} DEM^{(10) \omega^{u(10) -1} (-1 + \omega^{u(10)})} + (1 - \alpha^{u(10)}) LEIS^{(10) \omega^{u(10) -1} (-1 + \omega^{u(10)})} \right)^{-1 + \omega^{u(10)} (-1 + \omega^{u(10)})^{-1}} = 0 \quad (16.515)$$

$$t^{rh(eu,01)} EXP^{ROW(eu)} - scale^{(01)} TROWH^{(eu,01)} = 0 \quad (16.516)$$

$$t^{rh(eu,02)} EXP^{ROW(eu)} - scale^{(02)} TROWH^{(eu,02)} = 0 \quad (16.517)$$

$$t^{rh(eu,03)} EXP^{ROW(eu)} - scale^{(03)} TROWH^{(eu,03)} = 0 \quad (16.518)$$

$$t^{rh(eu,04)} EXP^{ROW(eu)} - scale^{(04)} TROWH^{(eu,04)} = 0 \quad (16.519)$$

$$t^{rh(eu,05)} EXP^{ROW(eu)} - scale^{(05)} TROWH^{(eu,05)} = 0 \quad (16.520)$$

$$t^{rh(eu,06)} EXP^{ROW(eu)} - scale^{(06)} TROWH^{(eu,06)} = 0 \quad (16.521)$$

$$t^{rh(eu,07)} EXP^{ROW(eu)} - scale^{(07)} TROWH^{(eu,07)} = 0 \quad (16.522)$$

$$t^{rh(eu,08)} EXP^{ROW(eu)} - scale^{(08)} TROWH^{(eu,08)} = 0 \quad (16.523)$$

$$t^{rh(eu,09)} EXP^{ROW(eu)} - scale^{(09)} TROWH^{(eu,09)} = 0 \quad (16.524)$$

$$t^{rh(eu,10)} EXP^{ROW(eu)} - scale^{(10)} TROWH^{(eu,10)} = 0 \quad (16.525)$$

$$t^{rh(neu,01)} EXP^{ROW(neu)} - scale^{(01)} TROWH^{(neu,01)} = 0 \quad (16.526)$$

$$t^{rh(neu,02)} EXP^{ROW(neu)} - scale^{(02)} TROWH^{(neu,02)} = 0 \quad (16.527)$$

$$t^{\text{rh}(\text{neu},03)} \text{EXP}^{\text{ROW}(\text{neu})} - \text{scale}^{(03)} \text{TROWH}^{(\text{neu},03)} = 0 \quad (16.528)$$

$$t^{\text{rh}(\text{neu},04)} \text{EXP}^{\text{ROW}(\text{neu})} - \text{scale}^{(04)} \text{TROWH}^{(\text{neu},04)} = 0 \quad (16.529)$$

$$t^{\text{rh}(\text{neu},05)} \text{EXP}^{\text{ROW}(\text{neu})} - \text{scale}^{(05)} \text{TROWH}^{(\text{neu},05)} = 0 \quad (16.530)$$

$$t^{\text{rh}(\text{neu},06)} \text{EXP}^{\text{ROW}(\text{neu})} - \text{scale}^{(06)} \text{TROWH}^{(\text{neu},06)} = 0 \quad (16.531)$$

$$t^{\text{rh}(\text{neu},07)} \text{EXP}^{\text{ROW}(\text{neu})} - \text{scale}^{(07)} \text{TROWH}^{(\text{neu},07)} = 0 \quad (16.532)$$

$$t^{\text{rh}(\text{neu},08)} \text{EXP}^{\text{ROW}(\text{neu})} - \text{scale}^{(08)} \text{TROWH}^{(\text{neu},08)} = 0 \quad (16.533)$$

$$t^{\text{rh}(\text{neu},09)} \text{EXP}^{\text{ROW}(\text{neu})} - \text{scale}^{(09)} \text{TROWH}^{(\text{neu},09)} = 0 \quad (16.534)$$

$$t^{\text{rh}(\text{neu},10)} \text{EXP}^{\text{ROW}(\text{neu})} - \text{scale}^{(10)} \text{TROWH}^{(\text{neu},10)} = 0 \quad (16.535)$$

$$\text{ex}^{\text{rate}(\text{eu})} \lambda^{\text{CONSUMER}^{12(01)}} - \text{ex}^{\text{rate}(\text{eu})} \lambda^{\text{CONSUMER}^{11(01,\text{eu})}} = 0 \quad (16.536)$$

$$\text{ex}^{\text{rate}(\text{eu})} \lambda^{\text{CONSUMER}^{12(02)}} - \text{ex}^{\text{rate}(\text{eu})} \lambda^{\text{CONSUMER}^{11(02,\text{eu})}} = 0 \quad (16.537)$$

$$\text{ex}^{\text{rate}(\text{eu})} \lambda^{\text{CONSUMER}^{12(03)}} - \text{ex}^{\text{rate}(\text{eu})} \lambda^{\text{CONSUMER}^{11(03,\text{eu})}} = 0 \quad (16.538)$$

$$\text{ex}^{\text{rate}(\text{eu})} \lambda^{\text{CONSUMER}^{12(04)}} - \text{ex}^{\text{rate}(\text{eu})} \lambda^{\text{CONSUMER}^{11(04,\text{eu})}} = 0 \quad (16.539)$$

$$\text{ex}^{\text{rate}(\text{eu})} \lambda^{\text{CONSUMER}^{12(05)}} - \text{ex}^{\text{rate}(\text{eu})} \lambda^{\text{CONSUMER}^{11(05,\text{eu})}} = 0 \quad (16.540)$$

$$\text{ex}^{\text{rate}(\text{eu})} \lambda^{\text{CONSUMER}^{12(06)}} - \text{ex}^{\text{rate}(\text{eu})} \lambda^{\text{CONSUMER}^{11(06,\text{eu})}} = 0 \quad (16.541)$$

$$\text{ex}^{\text{rate}(\text{eu})} \lambda^{\text{CONSUMER}^{12(07)}} - \text{ex}^{\text{rate}(\text{eu})} \lambda^{\text{CONSUMER}^{11(07,\text{eu})}} = 0 \quad (16.542)$$

$$\text{ex}^{\text{rate}(\text{eu})} \lambda^{\text{CONSUMER}^{12(08)}} - \text{ex}^{\text{rate}(\text{eu})} \lambda^{\text{CONSUMER}^{11(08,\text{eu})}} = 0 \quad (16.543)$$

$$ex^{rate\langle eu \rangle} \lambda^{CONSUMER^{12\langle 09 \rangle}} - ex^{rate\langle eu \rangle} \lambda^{CONSUMER^{11\langle 09,eu \rangle}} = 0 \quad (16.544)$$

$$ex^{rate\langle eu \rangle} \lambda^{CONSUMER^{12\langle 10 \rangle}} - ex^{rate\langle eu \rangle} \lambda^{CONSUMER^{11\langle 10,eu \rangle}} = 0 \quad (16.545)$$

$$ex^{rate\langle neu \rangle} \lambda^{CONSUMER^{12\langle 01 \rangle}} - ex^{rate\langle neu \rangle} \lambda^{CONSUMER^{11\langle 01,neu \rangle}} = 0 \quad (16.546)$$

$$ex^{rate\langle neu \rangle} \lambda^{CONSUMER^{12\langle 02 \rangle}} - ex^{rate\langle neu \rangle} \lambda^{CONSUMER^{11\langle 02,neu \rangle}} = 0 \quad (16.547)$$

$$ex^{rate\langle neu \rangle} \lambda^{CONSUMER^{12\langle 03 \rangle}} - ex^{rate\langle neu \rangle} \lambda^{CONSUMER^{11\langle 03,neu \rangle}} = 0 \quad (16.548)$$

$$ex^{rate\langle neu \rangle} \lambda^{CONSUMER^{12\langle 04 \rangle}} - ex^{rate\langle neu \rangle} \lambda^{CONSUMER^{11\langle 04,neu \rangle}} = 0 \quad (16.549)$$

$$ex^{rate\langle neu \rangle} \lambda^{CONSUMER^{12\langle 05 \rangle}} - ex^{rate\langle neu \rangle} \lambda^{CONSUMER^{11\langle 05,neu \rangle}} = 0 \quad (16.550)$$

$$ex^{rate\langle neu \rangle} \lambda^{CONSUMER^{12\langle 06 \rangle}} - ex^{rate\langle neu \rangle} \lambda^{CONSUMER^{11\langle 06,neu \rangle}} = 0 \quad (16.551)$$

$$ex^{rate\langle neu \rangle} \lambda^{CONSUMER^{12\langle 07 \rangle}} - ex^{rate\langle neu \rangle} \lambda^{CONSUMER^{11\langle 07,neu \rangle}} = 0 \quad (16.552)$$

$$ex^{rate\langle neu \rangle} \lambda^{CONSUMER^{12\langle 08 \rangle}} - ex^{rate\langle neu \rangle} \lambda^{CONSUMER^{11\langle 08,neu \rangle}} = 0 \quad (16.553)$$

$$ex^{rate\langle neu \rangle} \lambda^{CONSUMER^{12\langle 09 \rangle}} - ex^{rate\langle neu \rangle} \lambda^{CONSUMER^{11\langle 09,neu \rangle}} = 0 \quad (16.554)$$

$$ex^{rate\langle neu \rangle} \lambda^{CONSUMER^{12\langle 10 \rangle}} - ex^{rate\langle neu \rangle} \lambda^{CONSUMER^{11\langle 10,neu \rangle}} = 0 \quad (16.555)$$

$$\lambda^{CONSUMER^{12\langle 01 \rangle}} p^{cons\langle A \rangle} + \alpha^{A,01} \alpha^{u\langle 01 \rangle} \theta^{dem\langle 01 \rangle} D^{A,01}{}^{-1+\omega^{-1}(-1+\omega)} DEM^{01}{}^{-1+\omega^{u\langle 01 \rangle}-1(-1+\omega^{u\langle 01 \rangle})} \left(\alpha^{u\langle 01 \rangle} DEM^{01}{}^{\omega^{u\langle 01 \rangle}-1(-1+\omega^{u\langle 01 \rangle})} + (1 - \alpha^{u\langle 01 \rangle}) LEIS^{01}{}^{\omega^{u\langle 01 \rangle}-1(-1+\omega^{u\langle 01 \rangle})} \right) \quad (16.556)$$

$$\lambda^{CONSUMER^{12\langle 01 \rangle}} p^{cons\langle B \rangle} + \alpha^{B,01} \alpha^{u\langle 01 \rangle} \theta^{dem\langle 01 \rangle} D^{B,01}{}^{-1+\omega^{-1}(-1+\omega)} DEM^{01}{}^{-1+\omega^{u\langle 01 \rangle}-1(-1+\omega^{u\langle 01 \rangle})} \left(\alpha^{u\langle 01 \rangle} DEM^{01}{}^{\omega^{u\langle 01 \rangle}-1(-1+\omega^{u\langle 01 \rangle})} + (1 - \alpha^{u\langle 01 \rangle}) LEIS^{01}{}^{\omega^{u\langle 01 \rangle}-1(-1+\omega^{u\langle 01 \rangle})} \right) \quad (16.557)$$

$$\lambda^{\text{CONSUMER}^{12(03)}} p^{\text{cons}(E)} + \alpha^{\langle E,03 \rangle} \alpha^{u(03)} \theta^{\text{dem}(03)} D^{\langle E,03 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 03 \rangle -1+\omega^{u(03)-1}(-1+\omega^{u(03)})} \left(\alpha^{u(03)} DEM^{\langle 03 \rangle \omega^{u(03)-1}(-1+\omega^{u(03)})} + (1 - \alpha^{u(03)}) LEIS^{\langle 03 \rangle \omega^{u(03)-1}(-1+\omega^{u(03)})} \right) \quad (16.582)$$

$$\lambda^{\text{CONSUMER}^{12(03)}} p^{\text{cons}(F)} + \alpha^{\langle F,03 \rangle} \alpha^{u(03)} \theta^{\text{dem}(03)} D^{\langle F,03 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 03 \rangle -1+\omega^{u(03)-1}(-1+\omega^{u(03)})} \left(\alpha^{u(03)} DEM^{\langle 03 \rangle \omega^{u(03)-1}(-1+\omega^{u(03)})} + (1 - \alpha^{u(03)}) LEIS^{\langle 03 \rangle \omega^{u(03)-1}(-1+\omega^{u(03)})} \right) \quad (16.583)$$

$$\lambda^{\text{CONSUMER}^{12(03)}} p^{\text{cons}(G)} + \alpha^{\langle G,03 \rangle} \alpha^{u(03)} \theta^{\text{dem}(03)} D^{\langle G,03 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 03 \rangle -1+\omega^{u(03)-1}(-1+\omega^{u(03)})} \left(\alpha^{u(03)} DEM^{\langle 03 \rangle \omega^{u(03)-1}(-1+\omega^{u(03)})} + (1 - \alpha^{u(03)}) LEIS^{\langle 03 \rangle \omega^{u(03)-1}(-1+\omega^{u(03)})} \right) \quad (16.584)$$

$$\lambda^{\text{CONSUMER}^{12(03)}} p^{\text{cons}(H)} + \alpha^{\langle H,03 \rangle} \alpha^{u(03)} \theta^{\text{dem}(03)} D^{\langle H,03 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 03 \rangle -1+\omega^{u(03)-1}(-1+\omega^{u(03)})} \left(\alpha^{u(03)} DEM^{\langle 03 \rangle \omega^{u(03)-1}(-1+\omega^{u(03)})} + (1 - \alpha^{u(03)}) LEIS^{\langle 03 \rangle \omega^{u(03)-1}(-1+\omega^{u(03)})} \right) \quad (16.585)$$

$$\lambda^{\text{CONSUMER}^{12(03)}} p^{\text{cons}(I)} + \alpha^{\langle I,03 \rangle} \alpha^{u(03)} \theta^{\text{dem}(03)} D^{\langle I,03 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 03 \rangle -1+\omega^{u(03)-1}(-1+\omega^{u(03)})} \left(\alpha^{u(03)} DEM^{\langle 03 \rangle \omega^{u(03)-1}(-1+\omega^{u(03)})} + (1 - \alpha^{u(03)}) LEIS^{\langle 03 \rangle \omega^{u(03)-1}(-1+\omega^{u(03)})} \right) \quad (16.586)$$

$$\lambda^{\text{CONSUMER}^{12(03)}} p^{\text{cons}(J)} + \alpha^{\langle J,03 \rangle} \alpha^{u(03)} \theta^{\text{dem}(03)} D^{\langle J,03 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 03 \rangle -1+\omega^{u(03)-1}(-1+\omega^{u(03)})} \left(\alpha^{u(03)} DEM^{\langle 03 \rangle \omega^{u(03)-1}(-1+\omega^{u(03)})} + (1 - \alpha^{u(03)}) LEIS^{\langle 03 \rangle \omega^{u(03)-1}(-1+\omega^{u(03)})} \right) \quad (16.587)$$

$$\lambda^{\text{CONSUMER}^{12(03)}} p^{\text{cons}(K)} + \alpha^{\langle K,03 \rangle} \alpha^{u(03)} \theta^{\text{dem}(03)} D^{\langle K,03 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 03 \rangle -1+\omega^{u(03)-1}(-1+\omega^{u(03)})} \left(\alpha^{u(03)} DEM^{\langle 03 \rangle \omega^{u(03)-1}(-1+\omega^{u(03)})} + (1 - \alpha^{u(03)}) LEIS^{\langle 03 \rangle \omega^{u(03)-1}(-1+\omega^{u(03)})} \right) \quad (16.588)$$

$$\lambda^{\text{CONSUMER}^{12(04)}} p^{\text{cons}(A)} + \alpha^{\langle A,04 \rangle} \alpha^{u(04)} \theta^{\text{dem}(04)} D^{\langle A,04 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 04 \rangle -1+\omega^{u(04)-1}(-1+\omega^{u(04)})} \left(\alpha^{u(04)} DEM^{\langle 04 \rangle \omega^{u(04)-1}(-1+\omega^{u(04)})} + (1 - \alpha^{u(04)}) LEIS^{\langle 04 \rangle \omega^{u(04)-1}(-1+\omega^{u(04)})} \right) \quad (16.589)$$

$$\lambda^{\text{CONSUMER}^{12(05)}} p^{\text{cons}(G)} + \alpha^{\langle G,05 \rangle} \alpha^{u(05)} \theta^{\text{dem}(05)} D^{\langle G,05 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 05 \rangle -1+\omega^{u(05)-1}(-1+\omega^{u(05)})} \left(\alpha^{u(05)} DEM^{\langle 05 \rangle \omega^{u(05)-1}(-1+\omega^{u(05)})} + (1 - \alpha^{u(05)}) LEIS^{\langle 05 \rangle \omega^{u(05)-1}(-1+\omega^{u(05)})} \right) \quad (16.606)$$

$$\lambda^{\text{CONSUMER}^{12(05)}} p^{\text{cons}(H)} + \alpha^{\langle H,05 \rangle} \alpha^{u(05)} \theta^{\text{dem}(05)} D^{\langle H,05 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 05 \rangle -1+\omega^{u(05)-1}(-1+\omega^{u(05)})} \left(\alpha^{u(05)} DEM^{\langle 05 \rangle \omega^{u(05)-1}(-1+\omega^{u(05)})} + (1 - \alpha^{u(05)}) LEIS^{\langle 05 \rangle \omega^{u(05)-1}(-1+\omega^{u(05)})} \right) \quad (16.607)$$

$$\lambda^{\text{CONSUMER}^{12(05)}} p^{\text{cons}(I)} + \alpha^{\langle I,05 \rangle} \alpha^{u(05)} \theta^{\text{dem}(05)} D^{\langle I,05 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 05 \rangle -1+\omega^{u(05)-1}(-1+\omega^{u(05)})} \left(\alpha^{u(05)} DEM^{\langle 05 \rangle \omega^{u(05)-1}(-1+\omega^{u(05)})} + (1 - \alpha^{u(05)}) LEIS^{\langle 05 \rangle \omega^{u(05)-1}(-1+\omega^{u(05)})} \right) \quad (16.608)$$

$$\lambda^{\text{CONSUMER}^{12(05)}} p^{\text{cons}(J)} + \alpha^{\langle J,05 \rangle} \alpha^{u(05)} \theta^{\text{dem}(05)} D^{\langle J,05 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 05 \rangle -1+\omega^{u(05)-1}(-1+\omega^{u(05)})} \left(\alpha^{u(05)} DEM^{\langle 05 \rangle \omega^{u(05)-1}(-1+\omega^{u(05)})} + (1 - \alpha^{u(05)}) LEIS^{\langle 05 \rangle \omega^{u(05)-1}(-1+\omega^{u(05)})} \right) \quad (16.609)$$

$$\lambda^{\text{CONSUMER}^{12(05)}} p^{\text{cons}(K)} + \alpha^{\langle K,05 \rangle} \alpha^{u(05)} \theta^{\text{dem}(05)} D^{\langle K,05 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 05 \rangle -1+\omega^{u(05)-1}(-1+\omega^{u(05)})} \left(\alpha^{u(05)} DEM^{\langle 05 \rangle \omega^{u(05)-1}(-1+\omega^{u(05)})} + (1 - \alpha^{u(05)}) LEIS^{\langle 05 \rangle \omega^{u(05)-1}(-1+\omega^{u(05)})} \right) \quad (16.610)$$

$$\lambda^{\text{CONSUMER}^{12(06)}} p^{\text{cons}(A)} + \alpha^{\langle A,06 \rangle} \alpha^{u(06)} \theta^{\text{dem}(06)} D^{\langle A,06 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 06 \rangle -1+\omega^{u(06)-1}(-1+\omega^{u(06)})} \left(\alpha^{u(06)} DEM^{\langle 06 \rangle \omega^{u(06)-1}(-1+\omega^{u(06)})} + (1 - \alpha^{u(06)}) LEIS^{\langle 06 \rangle \omega^{u(06)-1}(-1+\omega^{u(06)})} \right) \quad (16.611)$$

$$\lambda^{\text{CONSUMER}^{12(06)}} p^{\text{cons}(B)} + \alpha^{\langle B,06 \rangle} \alpha^{u(06)} \theta^{\text{dem}(06)} D^{\langle B,06 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 06 \rangle -1+\omega^{u(06)-1}(-1+\omega^{u(06)})} \left(\alpha^{u(06)} DEM^{\langle 06 \rangle \omega^{u(06)-1}(-1+\omega^{u(06)})} + (1 - \alpha^{u(06)}) LEIS^{\langle 06 \rangle \omega^{u(06)-1}(-1+\omega^{u(06)})} \right) \quad (16.612)$$

$$\lambda^{\text{CONSUMER}^{12(06)}} p^{\text{cons}(C)} + \alpha^{\langle C,06 \rangle} \alpha^{u(06)} \theta^{\text{dem}(06)} D^{\langle C,06 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 06 \rangle -1+\omega^{u(06)-1}(-1+\omega^{u(06)})} \left(\alpha^{u(06)} DEM^{\langle 06 \rangle \omega^{u(06)-1}(-1+\omega^{u(06)})} + (1 - \alpha^{u(06)}) LEIS^{\langle 06 \rangle \omega^{u(06)-1}(-1+\omega^{u(06)})} \right) \quad (16.613)$$

$$\lambda^{\text{CONSUMER}^{12(08)}} p^{\text{cons}(F)} + \alpha^{\langle F,08 \rangle} \alpha^{u(08)} \theta^{\text{dem}(08)} D^{\langle F,08 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 08 \rangle -1+\omega^{u(08)-1}(-1+\omega^{u(08)})} \left(\alpha^{u(08)} DEM^{\langle 08 \rangle \omega^{u(08)-1}(-1+\omega^{u(08)})} + (1 - \alpha^{u(08)}) LEIS^{\langle 08 \rangle \omega^{u(08)-1}(-1+\omega^{u(08)})} \right) \quad (16.638)$$

$$\lambda^{\text{CONSUMER}^{12(08)}} p^{\text{cons}(G)} + \alpha^{\langle G,08 \rangle} \alpha^{u(08)} \theta^{\text{dem}(08)} D^{\langle G,08 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 08 \rangle -1+\omega^{u(08)-1}(-1+\omega^{u(08)})} \left(\alpha^{u(08)} DEM^{\langle 08 \rangle \omega^{u(08)-1}(-1+\omega^{u(08)})} + (1 - \alpha^{u(08)}) LEIS^{\langle 08 \rangle \omega^{u(08)-1}(-1+\omega^{u(08)})} \right) \quad (16.639)$$

$$\lambda^{\text{CONSUMER}^{12(08)}} p^{\text{cons}(H)} + \alpha^{\langle H,08 \rangle} \alpha^{u(08)} \theta^{\text{dem}(08)} D^{\langle H,08 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 08 \rangle -1+\omega^{u(08)-1}(-1+\omega^{u(08)})} \left(\alpha^{u(08)} DEM^{\langle 08 \rangle \omega^{u(08)-1}(-1+\omega^{u(08)})} + (1 - \alpha^{u(08)}) LEIS^{\langle 08 \rangle \omega^{u(08)-1}(-1+\omega^{u(08)})} \right) \quad (16.640)$$

$$\lambda^{\text{CONSUMER}^{12(08)}} p^{\text{cons}(I)} + \alpha^{\langle I,08 \rangle} \alpha^{u(08)} \theta^{\text{dem}(08)} D^{\langle I,08 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 08 \rangle -1+\omega^{u(08)-1}(-1+\omega^{u(08)})} \left(\alpha^{u(08)} DEM^{\langle 08 \rangle \omega^{u(08)-1}(-1+\omega^{u(08)})} + (1 - \alpha^{u(08)}) LEIS^{\langle 08 \rangle \omega^{u(08)-1}(-1+\omega^{u(08)})} \right) \quad (16.641)$$

$$\lambda^{\text{CONSUMER}^{12(08)}} p^{\text{cons}(J)} + \alpha^{\langle J,08 \rangle} \alpha^{u(08)} \theta^{\text{dem}(08)} D^{\langle J,08 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 08 \rangle -1+\omega^{u(08)-1}(-1+\omega^{u(08)})} \left(\alpha^{u(08)} DEM^{\langle 08 \rangle \omega^{u(08)-1}(-1+\omega^{u(08)})} + (1 - \alpha^{u(08)}) LEIS^{\langle 08 \rangle \omega^{u(08)-1}(-1+\omega^{u(08)})} \right) \quad (16.642)$$

$$\lambda^{\text{CONSUMER}^{12(08)}} p^{\text{cons}(K)} + \alpha^{\langle K,08 \rangle} \alpha^{u(08)} \theta^{\text{dem}(08)} D^{\langle K,08 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 08 \rangle -1+\omega^{u(08)-1}(-1+\omega^{u(08)})} \left(\alpha^{u(08)} DEM^{\langle 08 \rangle \omega^{u(08)-1}(-1+\omega^{u(08)})} + (1 - \alpha^{u(08)}) LEIS^{\langle 08 \rangle \omega^{u(08)-1}(-1+\omega^{u(08)})} \right) \quad (16.643)$$

$$\lambda^{\text{CONSUMER}^{12(09)}} p^{\text{cons}(A)} + \alpha^{\langle A,09 \rangle} \alpha^{u(09)} \theta^{\text{dem}(09)} D^{\langle A,09 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 09 \rangle -1+\omega^{u(09)-1}(-1+\omega^{u(09)})} \left(\alpha^{u(09)} DEM^{\langle 09 \rangle \omega^{u(09)-1}(-1+\omega^{u(09)})} + (1 - \alpha^{u(09)}) LEIS^{\langle 09 \rangle \omega^{u(09)-1}(-1+\omega^{u(09)})} \right) \quad (16.644)$$

$$\lambda^{\text{CONSUMER}^{12(09)}} p^{\text{cons}(B)} + \alpha^{\langle B,09 \rangle} \alpha^{u(09)} \theta^{\text{dem}(09)} D^{\langle B,09 \rangle -1+\omega^{-1}(-1+\omega)} DEM^{\langle 09 \rangle -1+\omega^{u(09)-1}(-1+\omega^{u(09)})} \left(\alpha^{u(09)} DEM^{\langle 09 \rangle \omega^{u(09)-1}(-1+\omega^{u(09)})} + (1 - \alpha^{u(09)}) LEIS^{\langle 09 \rangle \omega^{u(09)-1}(-1+\omega^{u(09)})} \right) \quad (16.645)$$

$$\lambda^{\text{CONSUMER}^{12(09)}} p^{\text{cons}(C)} + \alpha^{(C,09)} \alpha^{u(09)} \theta^{\text{dem}(09)} D^{(C,09)-1+\omega^{-1}(-1+\omega)} DEM^{(09)-1+\omega^{u(09)-1}(-1+\omega^{u(09)})} \left(\alpha^{u(09)} DEM^{(09)\omega^{u(09)-1}(-1+\omega^{u(09)})} + (1 - \alpha^{u(09)}) LEIS^{(09)\omega^{u(09)-1}(-1+\omega^{u(09)})} \right) \quad (16.646)$$

$$\lambda^{\text{CONSUMER}^{12(09)}} p^{\text{cons}(D)} + \alpha^{(D,09)} \alpha^{u(09)} \theta^{\text{dem}(09)} D^{(D,09)-1+\omega^{-1}(-1+\omega)} DEM^{(09)-1+\omega^{u(09)-1}(-1+\omega^{u(09)})} \left(\alpha^{u(09)} DEM^{(09)\omega^{u(09)-1}(-1+\omega^{u(09)})} + (1 - \alpha^{u(09)}) LEIS^{(09)\omega^{u(09)-1}(-1+\omega^{u(09)})} \right) \quad (16.647)$$

$$\lambda^{\text{CONSUMER}^{12(09)}} p^{\text{cons}(E)} + \alpha^{(E,09)} \alpha^{u(09)} \theta^{\text{dem}(09)} D^{(E,09)-1+\omega^{-1}(-1+\omega)} DEM^{(09)-1+\omega^{u(09)-1}(-1+\omega^{u(09)})} \left(\alpha^{u(09)} DEM^{(09)\omega^{u(09)-1}(-1+\omega^{u(09)})} + (1 - \alpha^{u(09)}) LEIS^{(09)\omega^{u(09)-1}(-1+\omega^{u(09)})} \right) \quad (16.648)$$

$$\lambda^{\text{CONSUMER}^{12(09)}} p^{\text{cons}(F)} + \alpha^{(F,09)} \alpha^{u(09)} \theta^{\text{dem}(09)} D^{(F,09)-1+\omega^{-1}(-1+\omega)} DEM^{(09)-1+\omega^{u(09)-1}(-1+\omega^{u(09)})} \left(\alpha^{u(09)} DEM^{(09)\omega^{u(09)-1}(-1+\omega^{u(09)})} + (1 - \alpha^{u(09)}) LEIS^{(09)\omega^{u(09)-1}(-1+\omega^{u(09)})} \right) \quad (16.649)$$

$$\lambda^{\text{CONSUMER}^{12(09)}} p^{\text{cons}(G)} + \alpha^{(G,09)} \alpha^{u(09)} \theta^{\text{dem}(09)} D^{(G,09)-1+\omega^{-1}(-1+\omega)} DEM^{(09)-1+\omega^{u(09)-1}(-1+\omega^{u(09)})} \left(\alpha^{u(09)} DEM^{(09)\omega^{u(09)-1}(-1+\omega^{u(09)})} + (1 - \alpha^{u(09)}) LEIS^{(09)\omega^{u(09)-1}(-1+\omega^{u(09)})} \right) \quad (16.650)$$

$$\lambda^{\text{CONSUMER}^{12(09)}} p^{\text{cons}(H)} + \alpha^{(H,09)} \alpha^{u(09)} \theta^{\text{dem}(09)} D^{(H,09)-1+\omega^{-1}(-1+\omega)} DEM^{(09)-1+\omega^{u(09)-1}(-1+\omega^{u(09)})} \left(\alpha^{u(09)} DEM^{(09)\omega^{u(09)-1}(-1+\omega^{u(09)})} + (1 - \alpha^{u(09)}) LEIS^{(09)\omega^{u(09)-1}(-1+\omega^{u(09)})} \right) \quad (16.651)$$

$$\lambda^{\text{CONSUMER}^{12(09)}} p^{\text{cons}(I)} + \alpha^{(I,09)} \alpha^{u(09)} \theta^{\text{dem}(09)} D^{(I,09)-1+\omega^{-1}(-1+\omega)} DEM^{(09)-1+\omega^{u(09)-1}(-1+\omega^{u(09)})} \left(\alpha^{u(09)} DEM^{(09)\omega^{u(09)-1}(-1+\omega^{u(09)})} + (1 - \alpha^{u(09)}) LEIS^{(09)\omega^{u(09)-1}(-1+\omega^{u(09)})} \right) \quad (16.652)$$

$$\lambda^{\text{CONSUMER}^{12(09)}} p^{\text{cons}(J)} + \alpha^{(J,09)} \alpha^{u(09)} \theta^{\text{dem}(09)} D^{(J,09)-1+\omega^{-1}(-1+\omega)} DEM^{(09)-1+\omega^{u(09)-1}(-1+\omega^{u(09)})} \left(\alpha^{u(09)} DEM^{(09)\omega^{u(09)-1}(-1+\omega^{u(09)})} + (1 - \alpha^{u(09)}) LEIS^{(09)\omega^{u(09)-1}(-1+\omega^{u(09)})} \right) \quad (16.653)$$

$$\lambda^{\text{CONSUMER}^{12(10)}} p^{\text{cons}(H)} + \alpha^{\langle H,10 \rangle} \alpha^{\text{u}(10)} \theta^{\text{dem}(10)} D^{\langle H,10 \rangle -1 + \omega^{-1}(-1 + \omega)} DEM^{\langle 10 \rangle -1 + \omega^{\text{u}(10)} -1(-1 + \omega^{\text{u}(10)})} \left(\alpha^{\text{u}(10)} DEM^{\langle 10 \rangle \omega^{\text{u}(10)} -1(-1 + \omega^{\text{u}(10)})} + (1 - \alpha^{\text{u}(10)}) LEIS^{\langle 10 \rangle \omega^{\text{u}(10)} -1(-1 + \omega^{\text{u}(10)})} \right) \quad (16.662)$$

$$\lambda^{\text{CONSUMER}^{12(10)}} p^{\text{cons}(I)} + \alpha^{\langle I,10 \rangle} \alpha^{\text{u}(10)} \theta^{\text{dem}(10)} D^{\langle I,10 \rangle -1 + \omega^{-1}(-1 + \omega)} DEM^{\langle 10 \rangle -1 + \omega^{\text{u}(10)} -1(-1 + \omega^{\text{u}(10)})} \left(\alpha^{\text{u}(10)} DEM^{\langle 10 \rangle \omega^{\text{u}(10)} -1(-1 + \omega^{\text{u}(10)})} + (1 - \alpha^{\text{u}(10)}) LEIS^{\langle 10 \rangle \omega^{\text{u}(10)} -1(-1 + \omega^{\text{u}(10)})} \right) \quad (16.663)$$

$$\lambda^{\text{CONSUMER}^{12(10)}} p^{\text{cons}(J)} + \alpha^{\langle J,10 \rangle} \alpha^{\text{u}(10)} \theta^{\text{dem}(10)} D^{\langle J,10 \rangle -1 + \omega^{-1}(-1 + \omega)} DEM^{\langle 10 \rangle -1 + \omega^{\text{u}(10)} -1(-1 + \omega^{\text{u}(10)})} \left(\alpha^{\text{u}(10)} DEM^{\langle 10 \rangle \omega^{\text{u}(10)} -1(-1 + \omega^{\text{u}(10)})} + (1 - \alpha^{\text{u}(10)}) LEIS^{\langle 10 \rangle \omega^{\text{u}(10)} -1(-1 + \omega^{\text{u}(10)})} \right) \quad (16.664)$$

$$\lambda^{\text{CONSUMER}^{12(10)}} p^{\text{cons}(K)} + \alpha^{\langle K,10 \rangle} \alpha^{\text{u}(10)} \theta^{\text{dem}(10)} D^{\langle K,10 \rangle -1 + \omega^{-1}(-1 + \omega)} DEM^{\langle 10 \rangle -1 + \omega^{\text{u}(10)} -1(-1 + \omega^{\text{u}(10)})} \left(\alpha^{\text{u}(10)} DEM^{\langle 10 \rangle \omega^{\text{u}(10)} -1(-1 + \omega^{\text{u}(10)})} + (1 - \alpha^{\text{u}(10)}) LEIS^{\langle 10 \rangle \omega^{\text{u}(10)} -1(-1 + \omega^{\text{u}(10)})} \right) \quad (16.665)$$

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$$-p^{\text{for}(eu)} ex^{\text{rate}(eu)} \left(1 + im^{\text{tax}(eu,A)} \right) + \alpha^{\text{imp}(eu,A)} am^{\text{imp}(eu)} \theta^{\text{imp}(A)} p^{\text{imp}(A)} \left(\alpha^{\text{imp}(eu,A)} \left(am^{\text{imp}(eu)} IMP^{\langle eu,A \rangle} \right)^{\sigma^{\text{imp}(A)} -1(-1 + \sigma^{\text{imp}(A)})} + \alpha^{\text{imp}(neu,A)} \left(am^{\text{imp}(neu)} IMP^{\langle neu,A \rangle} \right)^{\sigma^{\text{imp}(A)} -1(-1 + \sigma^{\text{imp}(A)})} \right) \quad (16.666)$$

$$-p^{\text{for}(eu)} ex^{\text{rate}(eu)} \left(1 + im^{\text{tax}(eu,B)} \right) + \alpha^{\text{imp}(eu,B)} am^{\text{imp}(eu)} \theta^{\text{imp}(B)} p^{\text{imp}(B)} \left(\alpha^{\text{imp}(eu,B)} \left(am^{\text{imp}(eu)} IMP^{\langle eu,B \rangle} \right)^{\sigma^{\text{imp}(B)} -1(-1 + \sigma^{\text{imp}(B)})} + \alpha^{\text{imp}(neu,B)} \left(am^{\text{imp}(neu)} IMP^{\langle neu,B \rangle} \right)^{\sigma^{\text{imp}(B)} -1(-1 + \sigma^{\text{imp}(B)})} \right) \quad (16.667)$$

$$-p^{\text{for}(eu)} ex^{\text{rate}(eu)} \left(1 + im^{\text{tax}(eu,C)} \right) + \alpha^{\text{imp}(eu,C)} am^{\text{imp}(eu)} \theta^{\text{imp}(C)} p^{\text{imp}(C)} \left(\alpha^{\text{imp}(eu,C)} \left(am^{\text{imp}(eu)} IMP^{\langle eu,C \rangle} \right)^{\sigma^{\text{imp}(C)} -1(-1 + \sigma^{\text{imp}(C)})} + \alpha^{\text{imp}(neu,C)} \left(am^{\text{imp}(neu)} IMP^{\langle neu,C \rangle} \right)^{\sigma^{\text{imp}(C)} -1(-1 + \sigma^{\text{imp}(C)})} \right) \quad (16.668)$$

$$-p^{\text{for}(eu)} ex^{\text{rate}(eu)} \left(1 + im^{\text{tax}(eu,D)} \right) + \alpha^{\text{imp}(eu,D)} am^{\text{imp}(eu)} \theta^{\text{imp}(D)} p^{\text{imp}(D)} \left(\alpha^{\text{imp}(eu,D)} \left(am^{\text{imp}(eu)} IMP^{\langle eu,D \rangle} \right)^{\sigma^{\text{imp}(D)} -1(-1 + \sigma^{\text{imp}(D)})} + \alpha^{\text{imp}(neu,D)} \left(am^{\text{imp}(neu)} IMP^{\langle neu,D \rangle} \right)^{\sigma^{\text{imp}(D)} -1(-1 + \sigma^{\text{imp}(D)})} \right) \quad (16.669)$$

$$-sub^{P\langle B \rangle} + p^{arm\langle B \rangle} - p^{market\langle B \rangle} = 0 \quad (16.711)$$

$$-sub^{P\langle C \rangle} + p^{arm\langle C \rangle} - p^{market\langle C \rangle} = 0 \quad (16.712)$$

$$-sub^{P\langle D \rangle} + p^{arm\langle D \rangle} - p^{market\langle D \rangle} = 0 \quad (16.713)$$

$$-sub^{P\langle E \rangle} + p^{arm\langle E \rangle} - p^{market\langle E \rangle} = 0 \quad (16.714)$$

$$-sub^{P\langle F \rangle} + p^{arm\langle F \rangle} - p^{market\langle F \rangle} = 0 \quad (16.715)$$

$$-sub^{P\langle G \rangle} + p^{arm\langle G \rangle} - p^{market\langle G \rangle} = 0 \quad (16.716)$$

$$-sub^{P\langle H \rangle} + p^{arm\langle H \rangle} - p^{market\langle H \rangle} = 0 \quad (16.717)$$

$$-sub^{P\langle I \rangle} + p^{arm\langle I \rangle} - p^{market\langle I \rangle} = 0 \quad (16.718)$$

$$-sub^{P\langle J \rangle} + p^{arm\langle J \rangle} - p^{market\langle J \rangle} = 0 \quad (16.719)$$

$$-sub^{P\langle K \rangle} + p^{arm\langle K \rangle} - p^{market\langle K \rangle} = 0 \quad (16.720)$$

$$tgoh^{data\langle 01 \rangle} + tgoh^{data^{extra}\langle 01 \rangle} - scale^{(01)}TGOVH^{(01)} = 0 \quad (16.721)$$

$$tgoh^{data\langle 02 \rangle} + tgoh^{data^{extra}\langle 02 \rangle} - scale^{(02)}TGOVH^{(02)} = 0 \quad (16.722)$$

$$tgoh^{data\langle 03 \rangle} + tgoh^{data^{extra}\langle 03 \rangle} - scale^{(03)}TGOVH^{(03)} = 0 \quad (16.723)$$

$$tgoh^{data\langle 04 \rangle} + tgoh^{data^{extra}\langle 04 \rangle} - scale^{(04)}TGOVH^{(04)} = 0 \quad (16.724)$$

$$tgoh^{data\langle 05 \rangle} + tgoh^{data^{extra}\langle 05 \rangle} - scale^{(05)}TGOVH^{(05)} = 0 \quad (16.725)$$

$$tgoh^{data\langle 06 \rangle} + tgoh^{data^{extra}\langle 06 \rangle} - scale^{(06)}TGOVH^{(06)} = 0 \quad (16.726)$$

$$tgoh^{data(07)} + tgoh^{data^{extra}(07)} - scale^{(07)} TGOVH^{(07)} = 0 \quad (16.727)$$

$$tgoh^{data(08)} + tgoh^{data^{extra}(08)} - scale^{(08)} TGOVH^{(08)} = 0 \quad (16.728)$$

$$tgoh^{data(09)} + tgoh^{data^{extra}(09)} - scale^{(09)} TGOVH^{(09)} = 0 \quad (16.729)$$

$$tgoh^{data(10)} + tgoh^{data^{extra}(10)} - scale^{(10)} TGOVH^{(10)} = 0 \quad (16.730)$$

$$BANKTAX - CIT + FIRMTAX = 0 \quad (16.731)$$

$$EXP^{GOV} - INC^{GOV} + SAV^{GOV} = 0 \quad (16.732)$$

$$INC^{FIRM} - SAV^{FIRM} - TRAN^{FIRM} = 0 \quad (16.733)$$

$$INC^{BANK} - SAV^{BANK} - TRAN^{BANK} = 0 \quad (16.734)$$

$$K^{TAX} + L^{TAX} - SOCTAX = 0 \quad (16.735)$$

$$-TROWGOV + TROWGOV^{(eu)} + TROWGOV^{(neu)} = 0 \quad (16.736)$$

$$\pi^{(A)} - p^{(A)} Y^{(A)} + \left(1 - sb^{rate(A)} + tax^{rate(A)}\right) \left(p^{int(A)} X^{(A,A)} + p^{int(B)} X^{(B,A)} + p^{int(C)} X^{(C,A)} + p^{int(D)} X^{(D,A)} + p^{int(E)} X^{(E,A)} + p^{int(F)} X^{(F,A)} + p^{int(G)} X^{(G,A)} + p^{int(H)} X^{(H,A)} + p^{int(I)} X^{(I,A)}\right) \quad (16.737)$$

$$\pi^{(B)} - p^{(B)} Y^{(B)} + \left(1 - sb^{rate(B)} + tax^{rate(B)}\right) \left(p^{int(A)} X^{(A,B)} + p^{int(B)} X^{(B,B)} + p^{int(C)} X^{(C,B)} + p^{int(D)} X^{(D,B)} + p^{int(E)} X^{(E,B)} + p^{int(F)} X^{(F,B)} + p^{int(G)} X^{(G,B)} + p^{int(H)} X^{(H,B)} + p^{int(I)} X^{(I,B)}\right) \quad (16.738)$$

$$\pi^{(C)} - p^{(C)} Y^{(C)} + \left(1 - sb^{rate(C)} + tax^{rate(C)}\right) \left(p^{int(A)} X^{(A,C)} + p^{int(B)} X^{(B,C)} + p^{int(C)} X^{(C,C)} + p^{int(D)} X^{(D,C)} + p^{int(E)} X^{(E,C)} + p^{int(F)} X^{(F,C)} + p^{int(G)} X^{(G,C)} + p^{int(H)} X^{(H,C)} + p^{int(I)} X^{(I,C)}\right) \quad (16.739)$$

$$\pi^{(D)} - p^{(D)} Y^{(D)} + \left(1 - sb^{rate(D)} + tax^{rate(D)}\right) \left(p^{int(A)} X^{(A,D)} + p^{int(B)} X^{(B,D)} + p^{int(C)} X^{(C,D)} + p^{int(D)} X^{(D,D)} + p^{int(E)} X^{(E,D)} + p^{int(F)} X^{(F,D)} + p^{int(G)} X^{(G,D)} + p^{int(H)} X^{(H,D)} + p^{int(I)} X^{(I,D)}\right) \quad (16.740)$$

$$\pi^{(E)} - p^{(E)} Y^{(E)} + \left(1 - \mathit{sub}^{\text{rate}(E)} + \mathit{tax}^{\text{rate}(E)}\right) \left(p^{\text{int}(A)} X^{(A,E)} + p^{\text{int}(B)} X^{(B,E)} + p^{\text{int}(C)} X^{(C,E)} + p^{\text{int}(D)} X^{(D,E)} + p^{\text{int}(E)} X^{(E,E)} + p^{\text{int}(F)} X^{(F,E)} + p^{\text{int}(G)} X^{(G,E)} + p^{\text{int}(H)} X^{(H,E)} + p^{\text{int}(I)} X^{(I,E)}\right) \quad (16.741)$$

$$\pi^{(F)} - p^{(F)} Y^{(F)} + \left(1 - \mathit{sub}^{\text{rate}(F)} + \mathit{tax}^{\text{rate}(F)}\right) \left(p^{\text{int}(A)} X^{(A,F)} + p^{\text{int}(B)} X^{(B,F)} + p^{\text{int}(C)} X^{(C,F)} + p^{\text{int}(D)} X^{(D,F)} + p^{\text{int}(E)} X^{(E,F)} + p^{\text{int}(F)} X^{(F,F)} + p^{\text{int}(G)} X^{(G,F)} + p^{\text{int}(H)} X^{(H,F)} + p^{\text{int}(I)} X^{(I,F)}\right) \quad (16.742)$$

$$\pi^{(G)} - p^{(G)} Y^{(G)} + \left(1 - \mathit{sub}^{\text{rate}(G)} + \mathit{tax}^{\text{rate}(G)}\right) \left(p^{\text{int}(A)} X^{(A,G)} + p^{\text{int}(B)} X^{(B,G)} + p^{\text{int}(C)} X^{(C,G)} + p^{\text{int}(D)} X^{(D,G)} + p^{\text{int}(E)} X^{(E,G)} + p^{\text{int}(F)} X^{(F,G)} + p^{\text{int}(G)} X^{(G,G)} + p^{\text{int}(H)} X^{(H,G)} + p^{\text{int}(I)} X^{(I,G)}\right) \quad (16.743)$$

$$\pi^{(H)} - p^{(H)} Y^{(H)} + \left(1 - \mathit{sub}^{\text{rate}(H)} + \mathit{tax}^{\text{rate}(H)}\right) \left(p^{\text{int}(A)} X^{(A,H)} + p^{\text{int}(B)} X^{(B,H)} + p^{\text{int}(C)} X^{(C,H)} + p^{\text{int}(D)} X^{(D,H)} + p^{\text{int}(E)} X^{(E,H)} + p^{\text{int}(F)} X^{(F,H)} + p^{\text{int}(G)} X^{(G,H)} + p^{\text{int}(H)} X^{(H,H)} + p^{\text{int}(I)} X^{(I,H)}\right) \quad (16.744)$$

$$\pi^{(I)} - p^{(I)} Y^{(I)} + \left(1 - \mathit{sub}^{\text{rate}(I)} + \mathit{tax}^{\text{rate}(I)}\right) \left(p^{\text{int}(A)} X^{(A,I)} + p^{\text{int}(B)} X^{(B,I)} + p^{\text{int}(C)} X^{(C,I)} + p^{\text{int}(D)} X^{(D,I)} + p^{\text{int}(E)} X^{(E,I)} + p^{\text{int}(F)} X^{(F,I)} + p^{\text{int}(G)} X^{(G,I)} + p^{\text{int}(H)} X^{(H,I)} + p^{\text{int}(I)} X^{(I,I)}\right) \quad (16.745)$$

$$\pi^{(J)} - p^{(J)} Y^{(J)} + \left(1 - \mathit{sub}^{\text{rate}(J)} + \mathit{tax}^{\text{rate}(J)}\right) \left(p^{\text{int}(A)} X^{(A,J)} + p^{\text{int}(B)} X^{(B,J)} + p^{\text{int}(C)} X^{(C,J)} + p^{\text{int}(D)} X^{(D,J)} + p^{\text{int}(E)} X^{(E,J)} + p^{\text{int}(F)} X^{(F,J)} + p^{\text{int}(G)} X^{(G,J)} + p^{\text{int}(H)} X^{(H,J)} + p^{\text{int}(I)} X^{(I,J)} + p^{\text{int}(J)} X^{(J,J)}\right) \quad (16.746)$$

$$\pi^{(K)} - p^{(K)} Y^{(K)} + \left(1 - \mathit{sub}^{\text{rate}(K)} + \mathit{tax}^{\text{rate}(K)}\right) \left(p^{\text{int}(A)} X^{(A,K)} + p^{\text{int}(B)} X^{(B,K)} + p^{\text{int}(C)} X^{(C,K)} + p^{\text{int}(D)} X^{(D,K)} + p^{\text{int}(E)} X^{(E,K)} + p^{\text{int}(F)} X^{(F,K)} + p^{\text{int}(G)} X^{(G,K)} + p^{\text{int}(H)} X^{(H,K)} + p^{\text{int}(I)} X^{(I,K)} + p^{\text{int}(J)} X^{(J,K)} + p^{\text{int}(K)} X^{(K,K)}\right) \quad (16.747)$$

$$BTINC^{(01)} - INC^{(01)} - \mathit{pit}^{\text{tax}(01)} PIT^{\text{base}(01)} = 0 \quad (16.748)$$

$$BTINC^{(02)} - INC^{(02)} - \mathit{pit}^{\text{tax}(02)} PIT^{\text{base}(02)} = 0 \quad (16.749)$$

$$BTINC^{(03)} - INC^{(03)} - \mathit{pit}^{\text{tax}(03)} PIT^{\text{base}(03)} = 0 \quad (16.750)$$

$$BTINC^{(04)} - INC^{(04)} - \mathit{pit}^{\text{tax}(04)} PIT^{\text{base}(04)} = 0 \quad (16.751)$$

$$BTINC^{(05)} - INC^{(05)} - \mathit{pit}^{\text{tax}(05)} PIT^{\text{base}(05)} = 0 \quad (16.752)$$

$$BTINC^{(06)} - INC^{(06)} - pt^{tax(06)} PIT^{base(06)} = 0 \quad (16.753)$$

$$BTINC^{(07)} - INC^{(07)} - pt^{tax(07)} PIT^{base(07)} = 0 \quad (16.754)$$

$$BTINC^{(08)} - INC^{(08)} - pt^{tax(08)} PIT^{base(08)} = 0 \quad (16.755)$$

$$BTINC^{(09)} - INC^{(09)} - pt^{tax(09)} PIT^{base(09)} = 0 \quad (16.756)$$

$$BTINC^{(10)} - INC^{(10)} - pt^{tax(10)} PIT^{base(10)} = 0 \quad (16.757)$$

$$EXCISE^{(A)} - TAX^P^{(A)} + VAT^{(A)} = 0 \quad (16.758)$$

$$EXCISE^{(B)} - TAX^P^{(B)} + VAT^{(B)} = 0 \quad (16.759)$$

$$EXCISE^{(C)} - TAX^P^{(C)} + VAT^{(C)} = 0 \quad (16.760)$$

$$EXCISE^{(D)} - TAX^P^{(D)} + VAT^{(D)} = 0 \quad (16.761)$$

$$EXCISE^{(E)} - TAX^P^{(E)} + VAT^{(E)} = 0 \quad (16.762)$$

$$EXCISE^{(F)} - TAX^P^{(F)} + VAT^{(F)} = 0 \quad (16.763)$$

$$EXCISE^{(G)} - TAX^P^{(G)} + VAT^{(G)} = 0 \quad (16.764)$$

$$EXCISE^{(H)} - TAX^P^{(H)} + VAT^{(H)} = 0 \quad (16.765)$$

$$EXCISE^{(I)} - TAX^P^{(I)} + VAT^{(I)} = 0 \quad (16.766)$$

$$EXCISE^{(J)} - TAX^P^{(J)} + VAT^{(J)} = 0 \quad (16.767)$$

$$EXCISE^{(K)} - TAX^P^{(K)} + VAT^{(K)} = 0 \quad (16.768)$$

$$-EXP^{ROW^{(eu)}} + EXPORT^{ROW^{(eu)}} + TRAN^{(eu)} = 0 \quad (16.769)$$

$$EXP^{ROW^{(eu)}} - INC^{ROW^{(eu)}} + SAV^{(eu)} = 0 \quad (16.770)$$

$$-EXP^{ROW^{(neu)}} + EXPORT^{ROW^{(neu)}} + TRAN^{(neu)} = 0 \quad (16.771)$$

$$EXP^{ROW^{(neu)}} - INC^{ROW^{(neu)}} + SAV^{(neu)} = 0 \quad (16.772)$$

$$IMPORT^{ROW^{(eu)}} - INC^{ROW^{(eu)}} + ex^{rate^{(eu)}} \left(TBANKROW^{(eu)} + TFIRMROW^{(eu)} + TGOVROW^{(eu)} + scale^{(01)} THROW^{(01,eu)} + scale^{(02)} THROW^{(02,eu)} + scale^{(03)} THROW^{(03,eu)} + scale^{(04)} THROW^{(04,eu)} \right) \quad (16.773)$$

$$IMPORT^{ROW^{(neu)}} - INC^{ROW^{(neu)}} + ex^{rate^{(neu)}} \left(TBANKROW^{(neu)} + TFIRMROW^{(neu)} + TGOVROW^{(neu)} + scale^{(01)} THROW^{(01,neu)} + scale^{(02)} THROW^{(02,neu)} + scale^{(03)} THROW^{(03,neu)} + scale^{(04)} THROW^{(04,neu)} \right) \quad (16.774)$$

$$L^{(01)} - LL^{(01)} + UNEMP^{(01)} = 0 \quad (16.775)$$

$$L^{(02)} - LL^{(02)} + UNEMP^{(02)} = 0 \quad (16.776)$$

$$L^{(03)} - LL^{(03)} + UNEMP^{(03)} = 0 \quad (16.777)$$

$$L^{(04)} - LL^{(04)} + UNEMP^{(04)} = 0 \quad (16.778)$$

$$L^{(05)} - LL^{(05)} + UNEMP^{(05)} = 0 \quad (16.779)$$

$$L^{(06)} - LL^{(06)} + UNEMP^{(06)} = 0 \quad (16.780)$$

$$L^{(07)} - LL^{(07)} + UNEMP^{(07)} = 0 \quad (16.781)$$

$$L^{(08)} - LL^{(08)} + UNEMP^{(08)} = 0 \quad (16.782)$$

$$L^{(09)} - LL^{(09)} + UNEMP^{(09)} = 0 \quad (16.783)$$

$$L^{(10)} - LL^{(10)} + UNEMP^{(10)} = 0 \quad (16.784)$$

$$-scale^{(01)} \lambda^{CONSUMER^1(01)} + p^1 \left(-\lambda^{CONSUMER^{12}(01)} + \alpha h^{b(01)} \lambda^{CONSUMER^{12}(01)} + \alpha h^{r(01,eu)} \lambda^{CONSUMER^{11}(01,eu)} + \alpha h^{r(01,neu)} \lambda^{CONSUMER^{11}(01,neu)} - \pi^{tax(01)} \left(-\lambda^{CONSUMER^{12}(01)} \right) \right) \quad (16.785)$$

$$-scale^{(02)} \lambda^{CONSUMER^1(02)} + p^1 \left(-\lambda^{CONSUMER^{12}(02)} + \alpha h^{b(02)} \lambda^{CONSUMER^{12}(02)} + \alpha h^{r(02,eu)} \lambda^{CONSUMER^{11}(02,eu)} + \alpha h^{r(02,neu)} \lambda^{CONSUMER^{11}(02,neu)} - \pi^{tax(02)} \left(-\lambda^{CONSUMER^{12}(02)} \right) \right) \quad (16.786)$$

$$-scale^{(03)} \lambda^{CONSUMER^1(03)} + p^1 \left(-\lambda^{CONSUMER^{12}(03)} + \alpha h^{b(03)} \lambda^{CONSUMER^{12}(03)} + \alpha h^{r(03,eu)} \lambda^{CONSUMER^{11}(03,eu)} + \alpha h^{r(03,neu)} \lambda^{CONSUMER^{11}(03,neu)} - \pi^{tax(03)} \left(-\lambda^{CONSUMER^{12}(03)} \right) \right) \quad (16.787)$$

$$-scale^{(04)} \lambda^{CONSUMER^1(04)} + p^1 \left(-\lambda^{CONSUMER^{12}(04)} + \alpha h^{b(04)} \lambda^{CONSUMER^{12}(04)} + \alpha h^{r(04,eu)} \lambda^{CONSUMER^{11}(04,eu)} + \alpha h^{r(04,neu)} \lambda^{CONSUMER^{11}(04,neu)} - \pi^{tax(04)} \left(-\lambda^{CONSUMER^{12}(04)} \right) \right) \quad (16.788)$$

$$-scale^{(05)} \lambda^{CONSUMER^1(05)} + p^1 \left(-\lambda^{CONSUMER^{12}(05)} + \alpha h^{b(05)} \lambda^{CONSUMER^{12}(05)} + \alpha h^{r(05,eu)} \lambda^{CONSUMER^{11}(05,eu)} + \alpha h^{r(05,neu)} \lambda^{CONSUMER^{11}(05,neu)} - \pi^{tax(05)} \left(-\lambda^{CONSUMER^{12}(05)} \right) \right) \quad (16.789)$$

$$-scale^{(06)} \lambda^{CONSUMER^1(06)} + p^1 \left(-\lambda^{CONSUMER^{12}(06)} + \alpha h^{b(06)} \lambda^{CONSUMER^{12}(06)} + \alpha h^{r(06,eu)} \lambda^{CONSUMER^{11}(06,eu)} + \alpha h^{r(06,neu)} \lambda^{CONSUMER^{11}(06,neu)} - \pi^{tax(06)} \left(-\lambda^{CONSUMER^{12}(06)} \right) \right) \quad (16.790)$$

$$-scale^{(07)} \lambda^{CONSUMER^1(07)} + p^1 \left(-\lambda^{CONSUMER^{12}(07)} + \alpha h^{b(07)} \lambda^{CONSUMER^{12}(07)} + \alpha h^{r(07,eu)} \lambda^{CONSUMER^{11}(07,eu)} + \alpha h^{r(07,neu)} \lambda^{CONSUMER^{11}(07,neu)} - \pi^{tax(07)} \left(-\lambda^{CONSUMER^{12}(07)} \right) \right) \quad (16.791)$$

$$-scale^{(08)} \lambda^{CONSUMER^1(08)} + p^1 \left(-\lambda^{CONSUMER^{12}(08)} + \alpha h^{b(08)} \lambda^{CONSUMER^{12}(08)} + \alpha h^{r(08,eu)} \lambda^{CONSUMER^{11}(08,eu)} + \alpha h^{r(08,neu)} \lambda^{CONSUMER^{11}(08,neu)} - \pi^{tax(08)} \left(-\lambda^{CONSUMER^{12}(08)} \right) \right) \quad (16.792)$$

$$-scale^{(09)} \lambda^{CONSUMER1^{(09)}} + p^1 \left(-\lambda^{CONSUMER12^{(09)}} + \alpha h^b{}^{(09)} \lambda^{CONSUMER12^{(09)}} + \alpha h^r{}^{(09,eu)} \lambda^{CONSUMER11^{(09,eu)}} + \alpha h^r{}^{(09,neu)} \lambda^{CONSUMER11^{(09,neu)}} - \pi^{tax(09)} \left(-\lambda^{CONSUMER12^{(09)}} \right) \right) \quad (16.793)$$

$$-scale^{(10)} \lambda^{CONSUMER1^{(10)}} + p^1 \left(-\lambda^{CONSUMER12^{(10)}} + \alpha h^b{}^{(10)} \lambda^{CONSUMER12^{(10)}} + \alpha h^r{}^{(10,eu)} \lambda^{CONSUMER11^{(10,eu)}} + \alpha h^r{}^{(10,neu)} \lambda^{CONSUMER11^{(10,neu)}} - \pi^{tax(10)} \left(-\lambda^{CONSUMER12^{(10)}} \right) \right) \quad (16.794)$$

$$-\pi^{free} + BTINC^{(01)} - PII^{base(01)} - \alpha ip^1 L^{(01)} = 0 \quad (16.795)$$

$$-\pi^{free} + BTINC^{(02)} - PII^{base(02)} - \alpha ip^1 L^{(02)} = 0 \quad (16.796)$$

$$-\pi^{free} + BTINC^{(03)} - PII^{base(03)} - \alpha ip^1 L^{(03)} = 0 \quad (16.797)$$

$$-\pi^{free} + BTINC^{(04)} - PII^{base(04)} - \alpha ip^1 L^{(04)} = 0 \quad (16.798)$$

$$-\pi^{free} + BTINC^{(05)} - PII^{base(05)} - \alpha ip^1 L^{(05)} = 0 \quad (16.799)$$

$$-\pi^{free} + BTINC^{(06)} - PII^{base(06)} - \alpha ip^1 L^{(06)} = 0 \quad (16.800)$$

$$-\pi^{free} + BTINC^{(07)} - PII^{base(07)} - \alpha ip^1 L^{(07)} = 0 \quad (16.801)$$

$$-\pi^{free} + BTINC^{(08)} - PII^{base(08)} - \alpha ip^1 L^{(08)} = 0 \quad (16.802)$$

$$-\pi^{free} + BTINC^{(09)} - PII^{base(09)} - \alpha ip^1 L^{(09)} = 0 \quad (16.803)$$

$$-\pi^{free} + BTINC^{(10)} - PII^{base(10)} - \alpha ip^1 L^{(10)} = 0 \quad (16.804)$$

$$DEM^{GOV} - EXP^{GOV} + SUB + TRAN^{GOV} = 0 \quad (16.805)$$

$$-BTINC^{(01)} + TINSTH^{(01)} + p^k K^{(01)} + p^1 L^{(01)} = 0 \quad (16.806)$$

$$-BTINC^{(02)} + TINSTH^{(02)} + p^k K^{(02)} + p^l L^{(02)} = 0 \quad (16.807)$$

$$-BTINC^{(03)} + TINSTH^{(03)} + p^k K^{(03)} + p^l L^{(03)} = 0 \quad (16.808)$$

$$-BTINC^{(04)} + TINSTH^{(04)} + p^k K^{(04)} + p^l L^{(04)} = 0 \quad (16.809)$$

$$-BTINC^{(05)} + TINSTH^{(05)} + p^k K^{(05)} + p^l L^{(05)} = 0 \quad (16.810)$$

$$-BTINC^{(06)} + TINSTH^{(06)} + p^k K^{(06)} + p^l L^{(06)} = 0 \quad (16.811)$$

$$-BTINC^{(07)} + TINSTH^{(07)} + p^k K^{(07)} + p^l L^{(07)} = 0 \quad (16.812)$$

$$-BTINC^{(08)} + TINSTH^{(08)} + p^k K^{(08)} + p^l L^{(08)} = 0 \quad (16.813)$$

$$-BTINC^{(09)} + TINSTH^{(09)} + p^k K^{(09)} + p^l L^{(09)} = 0 \quad (16.814)$$

$$-BTINC^{(10)} + TINSTH^{(10)} + p^k K^{(10)} + p^l L^{(10)} = 0 \quad (16.815)$$

$$\Pi^{\text{EXP} \langle A \rangle} + p^{\text{for} \langle \text{eu} \rangle} \text{EXP}^{\langle \text{eu}, A \rangle} + p^{\text{for} \langle \text{neu} \rangle} \text{EXP}^{\langle \text{neu}, A \rangle} - p^{\text{exp} \langle A \rangle} \text{EXPORI}^{\langle A \rangle} = 0 \quad (16.816)$$

$$\Pi^{\text{EXP} \langle B \rangle} + p^{\text{for} \langle \text{eu} \rangle} \text{EXP}^{\langle \text{eu}, B \rangle} + p^{\text{for} \langle \text{neu} \rangle} \text{EXP}^{\langle \text{neu}, B \rangle} - p^{\text{exp} \langle B \rangle} \text{EXPORI}^{\langle B \rangle} = 0 \quad (16.817)$$

$$\Pi^{\text{EXP} \langle C \rangle} + p^{\text{for} \langle \text{eu} \rangle} \text{EXP}^{\langle \text{eu}, C \rangle} + p^{\text{for} \langle \text{neu} \rangle} \text{EXP}^{\langle \text{neu}, C \rangle} - p^{\text{exp} \langle C \rangle} \text{EXPORI}^{\langle C \rangle} = 0 \quad (16.818)$$

$$\Pi^{\text{EXP} \langle D \rangle} + p^{\text{for} \langle \text{eu} \rangle} \text{EXP}^{\langle \text{eu}, D \rangle} + p^{\text{for} \langle \text{neu} \rangle} \text{EXP}^{\langle \text{neu}, D \rangle} - p^{\text{exp} \langle D \rangle} \text{EXPORI}^{\langle D \rangle} = 0 \quad (16.819)$$

$$\Pi^{\text{EXP} \langle E \rangle} + p^{\text{for} \langle \text{eu} \rangle} \text{EXP}^{\langle \text{eu}, E \rangle} + p^{\text{for} \langle \text{neu} \rangle} \text{EXP}^{\langle \text{neu}, E \rangle} - p^{\text{exp} \langle E \rangle} \text{EXPORI}^{\langle E \rangle} = 0 \quad (16.820)$$

$$\Pi^{\text{EXP} \langle F \rangle} + p^{\text{for} \langle \text{eu} \rangle} \text{EXP}^{\langle \text{eu}, F \rangle} + p^{\text{for} \langle \text{neu} \rangle} \text{EXP}^{\langle \text{neu}, F \rangle} - p^{\text{exp} \langle F \rangle} \text{EXPORI}^{\langle F \rangle} = 0 \quad (16.821)$$

$$\Pi^{\text{EXP} \langle G \rangle} + p^{\text{for} \langle \text{eu} \rangle} \text{EXP}^{\langle \text{eu}, G \rangle} + p^{\text{for} \langle \text{neu} \rangle} \text{EXP}^{\langle \text{neu}, G \rangle} - p^{\text{exp} \langle G \rangle} \text{EXPORI}^{\langle G \rangle} = 0 \quad (16.822)$$

$$\Pi^{\text{EXP}\langle\text{H}\rangle} + p^{\text{for}\langle\text{eu}\rangle} \text{EXP}\langle\text{eu,H}\rangle + p^{\text{for}\langle\text{neu}\rangle} \text{EXP}\langle\text{neu,H}\rangle - p^{\text{exp}\langle\text{H}\rangle} \text{EXPORT}\langle\text{H}\rangle = 0 \quad (16.823)$$

$$\Pi^{\text{EXP}\langle\text{I}\rangle} + p^{\text{for}\langle\text{eu}\rangle} \text{EXP}\langle\text{eu,I}\rangle + p^{\text{for}\langle\text{neu}\rangle} \text{EXP}\langle\text{neu,I}\rangle - p^{\text{exp}\langle\text{I}\rangle} \text{EXPORT}\langle\text{I}\rangle = 0 \quad (16.824)$$

$$\Pi^{\text{EXP}\langle\text{J}\rangle} + p^{\text{for}\langle\text{eu}\rangle} \text{EXP}\langle\text{eu,J}\rangle + p^{\text{for}\langle\text{neu}\rangle} \text{EXP}\langle\text{neu,J}\rangle - p^{\text{exp}\langle\text{J}\rangle} \text{EXPORT}\langle\text{J}\rangle = 0 \quad (16.825)$$

$$\Pi^{\text{EXP}\langle\text{K}\rangle} + p^{\text{for}\langle\text{eu}\rangle} \text{EXP}\langle\text{eu,K}\rangle + p^{\text{for}\langle\text{neu}\rangle} \text{EXP}\langle\text{neu,K}\rangle - p^{\text{exp}\langle\text{K}\rangle} \text{EXPORT}\langle\text{K}\rangle = 0 \quad (16.826)$$

$$\Pi^{Y\langle\text{A}\rangle} - p^{\langle\text{A}\rangle} Y^{\langle\text{A}\rangle} + p^{\text{exp}\langle\text{A}\rangle} \text{EXPORT}\langle\text{A}\rangle + p^{\text{home}\langle\text{A}\rangle} Y^{\text{HOME}\langle\text{A}\rangle} = 0 \quad (16.827)$$

$$\Pi^{Y\langle\text{B}\rangle} - p^{\langle\text{B}\rangle} Y^{\langle\text{B}\rangle} + p^{\text{exp}\langle\text{B}\rangle} \text{EXPORT}\langle\text{B}\rangle + p^{\text{home}\langle\text{B}\rangle} Y^{\text{HOME}\langle\text{B}\rangle} = 0 \quad (16.828)$$

$$\Pi^{Y\langle\text{C}\rangle} - p^{\langle\text{C}\rangle} Y^{\langle\text{C}\rangle} + p^{\text{exp}\langle\text{C}\rangle} \text{EXPORT}\langle\text{C}\rangle + p^{\text{home}\langle\text{C}\rangle} Y^{\text{HOME}\langle\text{C}\rangle} = 0 \quad (16.829)$$

$$\Pi^{Y\langle\text{D}\rangle} - p^{\langle\text{D}\rangle} Y^{\langle\text{D}\rangle} + p^{\text{exp}\langle\text{D}\rangle} \text{EXPORT}\langle\text{D}\rangle + p^{\text{home}\langle\text{D}\rangle} Y^{\text{HOME}\langle\text{D}\rangle} = 0 \quad (16.830)$$

$$\Pi^{Y\langle\text{E}\rangle} - p^{\langle\text{E}\rangle} Y^{\langle\text{E}\rangle} + p^{\text{exp}\langle\text{E}\rangle} \text{EXPORT}\langle\text{E}\rangle + p^{\text{home}\langle\text{E}\rangle} Y^{\text{HOME}\langle\text{E}\rangle} = 0 \quad (16.831)$$

$$\Pi^{Y\langle\text{F}\rangle} - p^{\langle\text{F}\rangle} Y^{\langle\text{F}\rangle} + p^{\text{exp}\langle\text{F}\rangle} \text{EXPORT}\langle\text{F}\rangle + p^{\text{home}\langle\text{F}\rangle} Y^{\text{HOME}\langle\text{F}\rangle} = 0 \quad (16.832)$$

$$\Pi^{Y\langle\text{G}\rangle} - p^{\langle\text{G}\rangle} Y^{\langle\text{G}\rangle} + p^{\text{exp}\langle\text{G}\rangle} \text{EXPORT}\langle\text{G}\rangle + p^{\text{home}\langle\text{G}\rangle} Y^{\text{HOME}\langle\text{G}\rangle} = 0 \quad (16.833)$$

$$\Pi^{Y\langle\text{H}\rangle} - p^{\langle\text{H}\rangle} Y^{\langle\text{H}\rangle} + p^{\text{exp}\langle\text{H}\rangle} \text{EXPORT}\langle\text{H}\rangle + p^{\text{home}\langle\text{H}\rangle} Y^{\text{HOME}\langle\text{H}\rangle} = 0 \quad (16.834)$$

$$\Pi^{Y\langle\text{I}\rangle} - p^{\langle\text{I}\rangle} Y^{\langle\text{I}\rangle} + p^{\text{exp}\langle\text{I}\rangle} \text{EXPORT}\langle\text{I}\rangle + p^{\text{home}\langle\text{I}\rangle} Y^{\text{HOME}\langle\text{I}\rangle} = 0 \quad (16.835)$$

$$\Pi^{Y\langle\text{J}\rangle} - p^{\langle\text{J}\rangle} Y^{\langle\text{J}\rangle} + p^{\text{exp}\langle\text{J}\rangle} \text{EXPORT}\langle\text{J}\rangle + p^{\text{home}\langle\text{J}\rangle} Y^{\text{HOME}\langle\text{J}\rangle} = 0 \quad (16.836)$$

$$\Pi^{Y\langle\text{K}\rangle} - p^{\langle\text{K}\rangle} Y^{\langle\text{K}\rangle} + p^{\text{exp}\langle\text{K}\rangle} \text{EXPORT}\langle\text{K}\rangle + p^{\text{home}\langle\text{K}\rangle} Y^{\text{HOME}\langle\text{K}\rangle} = 0 \quad (16.837)$$

$$\Pi^{\text{IMP}\langle\text{A}\rangle} - p^{\text{imp}\langle\text{A}\rangle} \text{IMPORT}\langle\text{A}\rangle + p^{\text{for}\langle\text{eu}\rangle} \text{ex}^{\text{rate}\langle\text{eu}\rangle} \text{IMP}\langle\text{eu,A}\rangle \left(1 + im^{\text{tax}\langle\text{eu,A}\rangle}\right) + p^{\text{for}\langle\text{neu}\rangle} \text{ex}^{\text{rate}\langle\text{neu}\rangle} \text{IMP}\langle\text{neu,A}\rangle \left(1 + im^{\text{tax}\langle\text{neu,A}\rangle}\right) = 0 \quad (16.838)$$

$$\Pi^{\text{IMP}^{(B)}} - p^{\text{imp}^{(B)}} \text{IMPORT}^{(B)} + p^{\text{for}^{(eu)}} \text{ex}^{\text{rate}^{(eu)}} \text{IMP}^{(eu,B)} \left(1 + \dot{m}^{\text{tax}^{(eu,B)}}\right) + p^{\text{for}^{(neu)}} \text{ex}^{\text{rate}^{(neu)}} \text{IMP}^{(neu,B)} \left(1 + \dot{m}^{\text{tax}^{(neu,B)}}\right) = 0 \quad (16.839)$$

$$\Pi^{\text{IMP}^{(C)}} - p^{\text{imp}^{(C)}} \text{IMPORT}^{(C)} + p^{\text{for}^{(eu)}} \text{ex}^{\text{rate}^{(eu)}} \text{IMP}^{(eu,C)} \left(1 + \dot{m}^{\text{tax}^{(eu,C)}}\right) + p^{\text{for}^{(neu)}} \text{ex}^{\text{rate}^{(neu)}} \text{IMP}^{(neu,C)} \left(1 + \dot{m}^{\text{tax}^{(neu,C)}}\right) = 0 \quad (16.840)$$

$$\Pi^{\text{IMP}^{(D)}} - p^{\text{imp}^{(D)}} \text{IMPORT}^{(D)} + p^{\text{for}^{(eu)}} \text{ex}^{\text{rate}^{(eu)}} \text{IMP}^{(eu,D)} \left(1 + \dot{m}^{\text{tax}^{(eu,D)}}\right) + p^{\text{for}^{(neu)}} \text{ex}^{\text{rate}^{(neu)}} \text{IMP}^{(neu,D)} \left(1 + \dot{m}^{\text{tax}^{(neu,D)}}\right) = 0 \quad (16.841)$$

$$\Pi^{\text{IMP}^{(E)}} - p^{\text{imp}^{(E)}} \text{IMPORT}^{(E)} + p^{\text{for}^{(eu)}} \text{ex}^{\text{rate}^{(eu)}} \text{IMP}^{(eu,E)} \left(1 + \dot{m}^{\text{tax}^{(eu,E)}}\right) + p^{\text{for}^{(neu)}} \text{ex}^{\text{rate}^{(neu)}} \text{IMP}^{(neu,E)} \left(1 + \dot{m}^{\text{tax}^{(neu,E)}}\right) = 0 \quad (16.842)$$

$$\Pi^{\text{IMP}^{(F)}} - p^{\text{imp}^{(F)}} \text{IMPORT}^{(F)} + p^{\text{for}^{(eu)}} \text{ex}^{\text{rate}^{(eu)}} \text{IMP}^{(eu,F)} \left(1 + \dot{m}^{\text{tax}^{(eu,F)}}\right) + p^{\text{for}^{(neu)}} \text{ex}^{\text{rate}^{(neu)}} \text{IMP}^{(neu,F)} \left(1 + \dot{m}^{\text{tax}^{(neu,F)}}\right) = 0 \quad (16.843)$$

$$\Pi^{\text{IMP}^{(G)}} - p^{\text{imp}^{(G)}} \text{IMPORT}^{(G)} + p^{\text{for}^{(eu)}} \text{ex}^{\text{rate}^{(eu)}} \text{IMP}^{(eu,G)} \left(1 + \dot{m}^{\text{tax}^{(eu,G)}}\right) + p^{\text{for}^{(neu)}} \text{ex}^{\text{rate}^{(neu)}} \text{IMP}^{(neu,G)} \left(1 + \dot{m}^{\text{tax}^{(neu,G)}}\right) = 0 \quad (16.844)$$

$$\Pi^{\text{IMP}^{(H)}} - p^{\text{imp}^{(H)}} \text{IMPORT}^{(H)} + p^{\text{for}^{(eu)}} \text{ex}^{\text{rate}^{(eu)}} \text{IMP}^{(eu,H)} \left(1 + \dot{m}^{\text{tax}^{(eu,H)}}\right) + p^{\text{for}^{(neu)}} \text{ex}^{\text{rate}^{(neu)}} \text{IMP}^{(neu,H)} \left(1 + \dot{m}^{\text{tax}^{(neu,H)}}\right) = 0 \quad (16.845)$$

$$\Pi^{\text{IMP}^{(I)}} - p^{\text{imp}^{(I)}} \text{IMPORT}^{(I)} + p^{\text{for}^{(eu)}} \text{ex}^{\text{rate}^{(eu)}} \text{IMP}^{(eu,I)} \left(1 + \dot{m}^{\text{tax}^{(eu,I)}}\right) + p^{\text{for}^{(neu)}} \text{ex}^{\text{rate}^{(neu)}} \text{IMP}^{(neu,I)} \left(1 + \dot{m}^{\text{tax}^{(neu,I)}}\right) = 0 \quad (16.846)$$

$$\Pi^{\text{IMP}^{(J)}} - p^{\text{imp}^{(J)}} \text{IMPORT}^{(J)} + p^{\text{for}^{(eu)}} \text{ex}^{\text{rate}^{(eu)}} \text{IMP}^{(eu,J)} \left(1 + \dot{m}^{\text{tax}^{(eu,J)}}\right) + p^{\text{for}^{(neu)}} \text{ex}^{\text{rate}^{(neu)}} \text{IMP}^{(neu,J)} \left(1 + \dot{m}^{\text{tax}^{(neu,J)}}\right) = 0 \quad (16.847)$$

$$\Pi^{\text{IMP}^{(K)}} - p^{\text{imp}^{(K)}} \text{IMPORT}^{(K)} + p^{\text{for}^{(eu)}} \text{ex}^{\text{rate}^{(eu)}} \text{IMP}^{(eu,K)} \left(1 + \dot{m}^{\text{tax}^{(eu,K)}}\right) + p^{\text{for}^{(neu)}} \text{ex}^{\text{rate}^{(neu)}} \text{IMP}^{(neu,K)} \left(1 + \dot{m}^{\text{tax}^{(neu,K)}}\right) = 0 \quad (16.848)$$

$$\Pi^{\text{ARM}^{(A)}} + p^{\text{home}^{(A)}} Y^{\text{HOME}^{(A)}} + p^{\text{imp}^{(A)}} \text{IMPORT}^{(A)} - p^{\text{arm}^{(A)}} \text{ARM}^{(A)} = 0 \quad (16.849)$$

$$\Pi^{\text{ARM}^{(B)}} + p^{\text{home}^{(B)}} Y^{\text{HOME}^{(B)}} + p^{\text{imp}^{(B)}} \text{IMPORT}^{(B)} - p^{\text{arm}^{(B)}} \text{ARM}^{(B)} = 0 \quad (16.850)$$

$$\Pi^{\text{ARM}^{(C)}} + p^{\text{home}^{(C)}} Y^{\text{HOME}^{(C)}} + p^{\text{imp}^{(C)}} \text{IMPORT}^{(C)} - p^{\text{arm}^{(C)}} \text{ARM}^{(C)} = 0 \quad (16.851)$$

$$\Pi^{\text{ARM}^{(D)}} + p^{\text{home}^{(D)}} Y^{\text{HOME}^{(D)}} + p^{\text{imp}^{(D)}} \text{IMPORT}^{(D)} - p^{\text{arm}^{(D)}} \text{ARM}^{(D)} = 0 \quad (16.852)$$

$$\Pi^{\text{ARM}^{(E)}} + p^{\text{home}^{(E)}} Y^{\text{HOME}^{(E)}} + p^{\text{imp}^{(E)}} \text{IMPORT}^{(E)} - p^{\text{arm}^{(E)}} \text{ARM}^{(E)} = 0 \quad (16.853)$$

$$\Pi^{\text{ARM}^{(F)}} + p^{\text{home}^{(F)}} Y^{\text{HOME}^{(F)}} + p^{\text{imp}^{(F)}} \text{IMPORT}^{(F)} - p^{\text{arm}^{(F)}} \text{ARM}^{(F)} = 0 \quad (16.854)$$

$$\Pi^{\text{ARM}^{(G)}} + p^{\text{home}^{(G)}} Y^{\text{HOME}^{(G)}} + p^{\text{imp}^{(G)}} \text{IMPORT}^{(G)} - p^{\text{arm}^{(G)}} \text{ARM}^{(G)} = 0 \quad (16.855)$$

$$\Pi^{\text{ARM}^{(H)}} + p^{\text{home}^{(H)}} Y^{\text{HOME}^{(H)}} + p^{\text{imp}^{(H)}} \text{IMPORT}^{(H)} - p^{\text{arm}^{(H)}} \text{ARM}^{(H)} = 0 \quad (16.856)$$

$$\Pi^{\text{ARM}^{(I)}} + p^{\text{home}^{(I)}} Y^{\text{HOME}^{(I)}} + p^{\text{imp}^{(I)}} \text{IMPORT}^{(I)} - p^{\text{arm}^{(I)}} \text{ARM}^{(I)} = 0 \quad (16.857)$$

$$\Pi^{\text{ARM}^{(J)}} + p^{\text{home}^{(J)}} Y^{\text{HOME}^{(J)}} + p^{\text{imp}^{(J)}} \text{IMPORT}^{(J)} - p^{\text{arm}^{(J)}} \text{ARM}^{(J)} = 0 \quad (16.858)$$

$$\Pi^{\text{ARM}^{(K)}} + p^{\text{home}^{(K)}} Y^{\text{HOME}^{(K)}} + p^{\text{imp}^{(K)}} \text{IMPORT}^{(K)} - p^{\text{arm}^{(K)}} \text{ARM}^{(K)} = 0 \quad (16.859)$$

$$\text{THBANK}^{(01)} - \text{TRAN}^{(01)} + ex^{\text{rate}^{(eu)}} \text{THROW}^{(01,eu)} + ex^{\text{rate}^{(neu)}} \text{THROW}^{(01,neu)} = 0 \quad (16.860)$$

$$\text{THBANK}^{(02)} - \text{TRAN}^{(02)} + ex^{\text{rate}^{(eu)}} \text{THROW}^{(02,eu)} + ex^{\text{rate}^{(neu)}} \text{THROW}^{(02,neu)} = 0 \quad (16.861)$$

$$\text{THBANK}^{(03)} - \text{TRAN}^{(03)} + ex^{\text{rate}^{(eu)}} \text{THROW}^{(03,eu)} + ex^{\text{rate}^{(neu)}} \text{THROW}^{(03,neu)} = 0 \quad (16.862)$$

$$\text{THBANK}^{(04)} - \text{TRAN}^{(04)} + ex^{\text{rate}^{(eu)}} \text{THROW}^{(04,eu)} + ex^{\text{rate}^{(neu)}} \text{THROW}^{(04,neu)} = 0 \quad (16.863)$$

$$\text{THBANK}^{(05)} - \text{TRAN}^{(05)} + ex^{\text{rate}^{(eu)}} \text{THROW}^{(05,eu)} + ex^{\text{rate}^{(neu)}} \text{THROW}^{(05,neu)} = 0 \quad (16.864)$$

$$\text{THBANK}^{(06)} - \text{TRAN}^{(06)} + ex^{\text{rate}^{(eu)}} \text{THROW}^{(06,eu)} + ex^{\text{rate}^{(neu)}} \text{THROW}^{(06,neu)} = 0 \quad (16.865)$$

$$\text{THBANK}^{(07)} - \text{TRAN}^{(07)} + ex^{\text{rate}^{(eu)}} \text{THROW}^{(07,eu)} + ex^{\text{rate}^{(neu)}} \text{THROW}^{(07,neu)} = 0 \quad (16.866)$$

$$\text{THBANK}^{(08)} - \text{TRAN}^{(08)} + ex^{\text{rate}^{(eu)}} \text{THROW}^{(08,eu)} + ex^{\text{rate}^{(neu)}} \text{THROW}^{(08,neu)} = 0 \quad (16.867)$$

$$\text{THBANK}^{(09)} - \text{TRAN}^{(09)} + ex^{\text{rate}^{(eu)}} \text{THROW}^{(09,eu)} + ex^{\text{rate}^{(neu)}} \text{THROW}^{(09,neu)} = 0 \quad (16.868)$$

$$\text{THBANK}^{(10)} - \text{TRAN}^{(10)} + ex^{\text{rate}^{(eu)}} \text{THROW}^{(10,eu)} + ex^{\text{rate}^{(neu)}} \text{THROW}^{(10,neu)} = 0 \quad (16.869)$$

$$\text{TBANKH}^{(01)} + \text{TFIRMH}^{(01)} + \text{TGOVH}^{(01)} - \text{TINSTH}^{(01)} + \text{TROWH}^{(eu,01)} + \text{TROWH}^{(neu,01)} = 0 \quad (16.870)$$

$$TBANKH^{(02)} + TFIRMH^{(02)} + TGOVH^{(02)} - TINSTH^{(02)} + TROWH^{(eu,02)} + TROWH^{(neu,02)} = 0 \quad (16.871)$$

$$TBANKH^{(03)} + TFIRMH^{(03)} + TGOVH^{(03)} - TINSTH^{(03)} + TROWH^{(eu,03)} + TROWH^{(neu,03)} = 0 \quad (16.872)$$

$$TBANKH^{(04)} + TFIRMH^{(04)} + TGOVH^{(04)} - TINSTH^{(04)} + TROWH^{(eu,04)} + TROWH^{(neu,04)} = 0 \quad (16.873)$$

$$TBANKH^{(05)} + TFIRMH^{(05)} + TGOVH^{(05)} - TINSTH^{(05)} + TROWH^{(eu,05)} + TROWH^{(neu,05)} = 0 \quad (16.874)$$

$$TBANKH^{(06)} + TFIRMH^{(06)} + TGOVH^{(06)} - TINSTH^{(06)} + TROWH^{(eu,06)} + TROWH^{(neu,06)} = 0 \quad (16.875)$$

$$TBANKH^{(07)} + TFIRMH^{(07)} + TGOVH^{(07)} - TINSTH^{(07)} + TROWH^{(eu,07)} + TROWH^{(neu,07)} = 0 \quad (16.876)$$

$$TBANKH^{(08)} + TFIRMH^{(08)} + TGOVH^{(08)} - TINSTH^{(08)} + TROWH^{(eu,08)} + TROWH^{(neu,08)} = 0 \quad (16.877)$$

$$TBANKH^{(09)} + TFIRMH^{(09)} + TGOVH^{(09)} - TINSTH^{(09)} + TROWH^{(eu,09)} + TROWH^{(neu,09)} = 0 \quad (16.878)$$

$$TBANKH^{(10)} + TFIRMH^{(10)} + TGOVH^{(10)} - TINSTH^{(10)} + TROWH^{(eu,10)} + TROWH^{(neu,10)} = 0 \quad (16.879)$$

$$-BTINC^{FIRM} + PROFIT + TBANKFIRM + TGOVFIRM + TROWFIRM^{(eu)} + TROWFIRM^{(neu)} + p^k K^{FIRM} = 0 \quad (16.880)$$

$$CIT + EXCISE + IMTAX - INC^{GOV} + PIT + SOCTAX + STAX + TROWGOV + VAT = 0 \quad (16.881)$$

$$-LS + scale^{(01)} L^{(01)} + scale^{(02)} L^{(02)} + scale^{(03)} L^{(03)} + scale^{(04)} L^{(04)} + scale^{(05)} L^{(05)} + scale^{(06)} L^{(06)} + scale^{(07)} L^{(07)} + scale^{(08)} L^{(08)} + scale^{(09)} L^{(09)} + scale^{(10)} L^{(10)} = 0 \quad (16.882)$$

$$-PIT + pit^{tax(01)} scale^{(01)} PII^{base(01)} + pit^{tax(02)} scale^{(02)} PII^{base(02)} + pit^{tax(03)} scale^{(03)} PII^{base(03)} + pit^{tax(04)} scale^{(04)} PII^{base(04)} + pit^{tax(05)} scale^{(05)} PII^{base(05)} + pit^{tax(06)} scale^{(06)} PII^{base(06)} + pit^{tax(07)} scale^{(07)} PII^{base(07)} + pit^{tax(08)} scale^{(08)} PII^{base(08)} + pit^{tax(09)} scale^{(09)} PII^{base(09)} + pit^{tax(10)} scale^{(10)} PII^{base(10)} = 0 \quad (16.883)$$

$$-DEM^{GOV} + p^{cons(A)} D^{GOV(A)} + p^{cons(B)} D^{GOV(B)} + p^{cons(C)} D^{GOV(C)} + p^{cons(D)} D^{GOV(D)} + p^{cons(E)} D^{GOV(E)} + p^{cons(F)} D^{GOV(F)} + p^{cons(G)} D^{GOV(G)} + p^{cons(H)} D^{GOV(H)} + p^{cons(I)} D^{GOV(I)} + p^{cons(J)} D^{GOV(J)} = 0 \quad (16.884)$$

$$-EXCISE + EXCISE^{(A)} + EXCISE^{(B)} + EXCISE^{(C)} + EXCISE^{(D)} + EXCISE^{(E)} + EXCISE^{(F)} + EXCISE^{(G)} + EXCISE^{(H)} + EXCISE^{(I)} + EXCISE^{(J)} + EXCISE^{(K)} = 0 \quad (16.885)$$

$$-KS + K^{(A)} + K^{(B)} + K^{(C)} + K^{(D)} + K^{(E)} + K^{(F)} + K^{(G)} + K^{(H)} + K^{(I)} + K^{(J)} + K^{(K)} = 0 \quad (16.886)$$

$$-PROFIT + \pi^{(A)} + \pi^{(B)} + \pi^{(C)} + \pi^{(D)} + \pi^{(E)} + \pi^{(F)} + \pi^{(G)} + \pi^{(H)} + \pi^{(I)} + \pi^{(J)} + \pi^{(K)} = 0 \quad (16.887)$$

$$-STAX + TAX^s(A) + TAX^s(B) + TAX^s(C) + TAX^s(D) + TAX^s(E) + TAX^s(F) + TAX^s(G) + TAX^s(H) + TAX^s(I) + TAX^s(J) + TAX^s(K) = 0 \quad (16.888)$$

$$-VAT + VAT^{(A)} + VAT^{(B)} + VAT^{(C)} + VAT^{(D)} + VAT^{(E)} + VAT^{(F)} + VAT^{(G)} + VAT^{(H)} + VAT^{(I)} + VAT^{(J)} + VAT^{(K)} = 0 \quad (16.889)$$

$$TBANKFIRM - TRAN^{BANK} + scale^{(01)} TBANKH^{(01)} + scale^{(02)} TBANKH^{(02)} + scale^{(03)} TBANKH^{(03)} + scale^{(04)} TBANKH^{(04)} + scale^{(05)} TBANKH^{(05)} + scale^{(06)} TBANKH^{(06)} + scale^{(07)} TBANKH^{(07)} = 0 \quad (16.890)$$

$$TFIRMBANK - TRAN^{FIRM} + scale^{(01)} TFIRMH^{(01)} + scale^{(02)} TFIRMH^{(02)} + scale^{(03)} TFIRMH^{(03)} + scale^{(04)} TFIRMH^{(04)} + scale^{(05)} TFIRMH^{(05)} + scale^{(06)} TFIRMH^{(06)} + scale^{(07)} TFIRMH^{(07)} = 0 \quad (16.891)$$

$$-INC^{(01)} + SAV^{(01)} + TRAN^{(01)} + p^{cons(A)} D^{(A,01)} + p^{cons(B)} D^{(B,01)} + p^{cons(C)} D^{(C,01)} + p^{cons(D)} D^{(D,01)} + p^{cons(E)} D^{(E,01)} + p^{cons(F)} D^{(F,01)} + p^{cons(G)} D^{(G,01)} + p^{cons(H)} D^{(H,01)} + p^{cons(I)} D^{(I,01)} = 0 \quad (16.892)$$

$$-INC^{(02)} + SAV^{(02)} + TRAN^{(02)} + p^{cons(A)} D^{(A,02)} + p^{cons(B)} D^{(B,02)} + p^{cons(C)} D^{(C,02)} + p^{cons(D)} D^{(D,02)} + p^{cons(E)} D^{(E,02)} + p^{cons(F)} D^{(F,02)} + p^{cons(G)} D^{(G,02)} + p^{cons(H)} D^{(H,02)} + p^{cons(I)} D^{(I,02)} = 0 \quad (16.893)$$

$$-INC^{(03)} + SAV^{(03)} + TRAN^{(03)} + p^{cons(A)} D^{(A,03)} + p^{cons(B)} D^{(B,03)} + p^{cons(C)} D^{(C,03)} + p^{cons(D)} D^{(D,03)} + p^{cons(E)} D^{(E,03)} + p^{cons(F)} D^{(F,03)} + p^{cons(G)} D^{(G,03)} + p^{cons(H)} D^{(H,03)} + p^{cons(I)} D^{(I,03)} = 0 \quad (16.894)$$

$$-INC^{(04)} + SAV^{(04)} + TRAN^{(04)} + p^{cons(A)} D^{(A,04)} + p^{cons(B)} D^{(B,04)} + p^{cons(C)} D^{(C,04)} + p^{cons(D)} D^{(D,04)} + p^{cons(E)} D^{(E,04)} + p^{cons(F)} D^{(F,04)} + p^{cons(G)} D^{(G,04)} + p^{cons(H)} D^{(H,04)} + p^{cons(I)} D^{(I,04)} = 0 \quad (16.895)$$

$$-INC^{(05)} + SAV^{(05)} + TRAN^{(05)} + p^{cons(A)} D^{(A,05)} + p^{cons(B)} D^{(B,05)} + p^{cons(C)} D^{(C,05)} + p^{cons(D)} D^{(D,05)} + p^{cons(E)} D^{(E,05)} + p^{cons(F)} D^{(F,05)} + p^{cons(G)} D^{(G,05)} + p^{cons(H)} D^{(H,05)} + p^{cons(I)} D^{(I,05)} = 0 \quad (16.896)$$

$$-INC^{(06)} + SAV^{(06)} + TRAN^{(06)} + p^{\text{cons(A)}} D^{(A,06)} + p^{\text{cons(B)}} D^{(B,06)} + p^{\text{cons(C)}} D^{(C,06)} + p^{\text{cons(D)}} D^{(D,06)} + p^{\text{cons(E)}} D^{(E,06)} + p^{\text{cons(F)}} D^{(F,06)} + p^{\text{cons(G)}} D^{(G,06)} + p^{\text{cons(H)}} D^{(H,06)} + p^{\text{cons(I)}} D^{(I,06)} \quad (16.897)$$

$$-INC^{(07)} + SAV^{(07)} + TRAN^{(07)} + p^{\text{cons(A)}} D^{(A,07)} + p^{\text{cons(B)}} D^{(B,07)} + p^{\text{cons(C)}} D^{(C,07)} + p^{\text{cons(D)}} D^{(D,07)} + p^{\text{cons(E)}} D^{(E,07)} + p^{\text{cons(F)}} D^{(F,07)} + p^{\text{cons(G)}} D^{(G,07)} + p^{\text{cons(H)}} D^{(H,07)} + p^{\text{cons(I)}} D^{(I,07)} \quad (16.898)$$

$$-INC^{(08)} + SAV^{(08)} + TRAN^{(08)} + p^{\text{cons(A)}} D^{(A,08)} + p^{\text{cons(B)}} D^{(B,08)} + p^{\text{cons(C)}} D^{(C,08)} + p^{\text{cons(D)}} D^{(D,08)} + p^{\text{cons(E)}} D^{(E,08)} + p^{\text{cons(F)}} D^{(F,08)} + p^{\text{cons(G)}} D^{(G,08)} + p^{\text{cons(H)}} D^{(H,08)} + p^{\text{cons(I)}} D^{(I,08)} \quad (16.899)$$

$$-INC^{(09)} + SAV^{(09)} + TRAN^{(09)} + p^{\text{cons(A)}} D^{(A,09)} + p^{\text{cons(B)}} D^{(B,09)} + p^{\text{cons(C)}} D^{(C,09)} + p^{\text{cons(D)}} D^{(D,09)} + p^{\text{cons(E)}} D^{(E,09)} + p^{\text{cons(F)}} D^{(F,09)} + p^{\text{cons(G)}} D^{(G,09)} + p^{\text{cons(H)}} D^{(H,09)} + p^{\text{cons(I)}} D^{(I,09)} \quad (16.900)$$

$$-INC^{(10)} + SAV^{(10)} + TRAN^{(10)} + p^{\text{cons(A)}} D^{(A,10)} + p^{\text{cons(B)}} D^{(B,10)} + p^{\text{cons(C)}} D^{(C,10)} + p^{\text{cons(D)}} D^{(D,10)} + p^{\text{cons(E)}} D^{(E,10)} + p^{\text{cons(F)}} D^{(F,10)} + p^{\text{cons(G)}} D^{(G,10)} + p^{\text{cons(H)}} D^{(H,10)} + p^{\text{cons(I)}} D^{(I,10)} \quad (16.901)$$

$$-TRAN^{(eu)} + TROWFIRM^{(eu)} + TROWBANK^{(eu)} + TROWGOV^{(eu)} + scale^{(01)} TROWH^{(eu,01)} + scale^{(02)} TROWH^{(eu,02)} + scale^{(03)} TROWH^{(eu,03)} + scale^{(04)} TROWH^{(eu,04)} + scale^{(05)} TROWH^{(eu,05)} \quad (16.902)$$

$$-TRAN^{(neu)} + TROWFIRM^{(neu)} + TROWBANK^{(neu)} + TROWGOV^{(neu)} + scale^{(01)} TROWH^{(neu,01)} + scale^{(02)} TROWH^{(neu,02)} + scale^{(03)} TROWH^{(neu,03)} + scale^{(04)} TROWH^{(neu,04)} + scale^{(05)} TROWH^{(neu,05)} \quad (16.903)$$

$$TGOVFIRM + TGOVBANK - TRAN^{GOV} + scale^{(01)} TGOVH^{(01)} + scale^{(02)} TGOVH^{(02)} + scale^{(03)} TGOVH^{(03)} + scale^{(04)} TGOVH^{(04)} + scale^{(05)} TGOVH^{(05)} + scale^{(06)} TGOVH^{(06)} + scale^{(07)} TGOVH^{(07)} \quad (16.904)$$

$$-BTINC^{BANK} + TFIRMBANK + TGOVBANK + TROWBANK^{(eu)} + TROWBANK^{(neu)} + scale^{(01)} THBANK^{(01)} + scale^{(02)} THBANK^{(02)} + scale^{(03)} THBANK^{(03)} + scale^{(04)} THBANK^{(04)} + scale^{(05)} THBANK^{(05)} \quad (16.905)$$

$$-SAV + SAV^{FIRM} + SAV^{BANK} + SAV^{GOV} + SAV^{(eu)} + SAV^{(neu)} + scale^{(01)} SAV^{(01)} + scale^{(02)} SAV^{(02)} + scale^{(03)} SAV^{(03)} + scale^{(04)} SAV^{(04)} + scale^{(05)} SAV^{(05)} + scale^{(06)} SAV^{(06)} + scale^{(07)} SAV^{(07)} \quad (16.906)$$

$$-L^{(A)} - L^{(B)} - L^{(C)} - L^{(D)} - L^{(E)} - L^{(F)} - L^{(G)} - L^{(H)} - L^{(I)} - L^{(J)} - L^{(K)} + scale^{(01)} L^{(01)} + scale^{(02)} L^{(02)} + scale^{(03)} L^{(03)} + scale^{(04)} L^{(04)} + scale^{(05)} L^{(05)} + scale^{(06)} L^{(06)} + scale^{(07)} L^{(07)} + scale^{(08)} L^{(08)} \quad (16.907)$$

