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Index sets

$$HH = \{1, 2\}$$
$$SEC = \{\mathrm{A}, \mathrm{B}, \mathrm{C}\}$$

1 CONSUMER $h \in HH$

1.1 Optimisation problem

$$\max_{\left(D^{\langle s,h\rangle}\right)_{s\in SEC}} U^{\langle h\rangle} = \left(\sum_{s\in SEC} \alpha^{\langle s,h\rangle} {D^{\langle s,h\rangle}}^{\omega^{-1}(-1+\omega)}\right)^{\omega(-1+\omega)^{-1}} \tag{1.1}$$

s.t. :

$$INC^{\langle h\rangle} + \Pi^{\langle h\rangle} = \sum_{s\in SEC} p^{\langle s\rangle} D^{\langle s,h\rangle} \quad \left(\lambda^{\mathrm{CONSUMER}^{1}\langle h\rangle}\right) \tag{1.2}$$

1.2 Identities

$$INC^{\langle h\rangle} = L^{\langle h\rangle} + p^{\mathrm{k}} K^{\langle h\rangle} \tag{1.3}$$

$$K^{\langle h\rangle} = ks^{\mathrm{data}\langle h\rangle} \tag{1.4}$$

$$L^{\langle h\rangle} = ls^{\mathrm{data}\langle h\rangle} \tag{1.5}$$

1.3 First order conditions

$$s \in SEC: \quad \lambda^{\mathrm{CONSUMER}^{1}\langle h\rangle}_{t} p_t^{\langle s\rangle} + \alpha^{\langle s,h\rangle} D_t^{\langle s,h\rangle\,-1+\omega^{-1}(-1+\omega)} \left(\sum_{s\in SEC} \alpha^{\langle s,h\rangle} D_t^{\langle s,h\rangle\,\omega^{-1}(-1+\omega)}\right)^{-1+\omega(-1+\omega)^{-1}} = 0 \quad \left(D_t^{\langle s,h\rangle}\right) \tag{1.6}$$

2 FIRM $s \in SEC$

2.1 Optimisation problem

$$\max_{Y^{\langle s\rangle},K^{\langle s\rangle},L^{\langle s\rangle},\left(X^{\langle si,s\rangle}\right)_{si\in SEC}} \pi^{\langle s\rangle} = -L^{\langle s\rangle} - p^{\mathrm{k}}K^{\langle s\rangle} + p^{\langle s\rangle}Y^{\langle s\rangle} - \sum_{si\in SEC} p^{\langle si\rangle}X^{\langle si,s\rangle} \tag{2.1}$$

s.t. :

$$Y^{\langle s\rangle} = \gamma^{\langle s\rangle}{K^{\langle s\rangle}}^{\beta^{\mathrm{k}\langle s\rangle}}{L^{\langle s\rangle}}^{\beta^{\mathrm{l}\langle s\rangle}}\left(\prod_{si\in SEC}{X^{\langle si,s\rangle}}^{\beta^{\mathrm{x}\langle si,s\rangle}}\right) \quad \left(\lambda^{\mathrm{FIRM}^{1}\langle s\rangle}\right) \tag{2.2}$$

2.2 First order conditions

$$-\lambda^{\mathrm{FIRM}^{1}\langle s\rangle} + p^{\langle s\rangle} = 0 \quad \left(Y^{\langle s\rangle}\right) \tag{2.3}$$

$$-p^{\mathrm{k}} + \beta^{\mathrm{k}\langle s\rangle}\gamma^{\langle s\rangle}\lambda^{\mathrm{FIRM}^{1}\langle s\rangle}{K^{\langle s\rangle}}^{-1+\beta^{\mathrm{k}\langle s\rangle}}{L^{\langle s\rangle}}^{\beta^{\mathrm{l}\langle s\rangle}}\left(\prod_{si\in SEC}{X^{\langle si,s\rangle}}^{\beta^{\mathrm{x}\langle si,s\rangle}}\right) = 0 \quad \left(K^{\langle s\rangle}\right) \tag{2.4}$$

$$-1 + \beta^{\mathrm{l}\langle s\rangle}\gamma^{\langle s\rangle}\lambda^{\mathrm{FIRM}^{1}\langle s\rangle}{K^{\langle s\rangle}}^{\beta^{\mathrm{k}\langle s\rangle}}{L^{\langle s\rangle}}^{-1+\beta^{\mathrm{l}\langle s\rangle}}\left(\prod_{si\in SEC}{X^{\langle si,s\rangle}}^{\beta^{\mathrm{x}\langle si,s\rangle}}\right) = 0 \quad \left(L^{\langle s\rangle}\right) \tag{2.5}$$

$$si \in SEC: \quad -p_t^{\langle si\rangle} + \beta^{\mathrm{x}\langle si,s\rangle}\gamma^{\langle s\rangle}\lambda^{\mathrm{FIRM}^{1}\langle s\rangle}_{t}{X_t^{\langle si,s\rangle}}^{-1}{K_t^{\langle s\rangle}}^{\beta^{\mathrm{k}\langle s\rangle}}{L_t^{\langle s\rangle}}^{\beta^{\mathrm{l}\langle s\rangle}}\left(\prod_{si'\in SEC}{X_t^{\langle si',s\rangle}}^{\beta^{\mathrm{x}\langle si',s\rangle}}\right) = 0 \quad \left(X_t^{\langle si,s\rangle}\right) \tag{2.6}$$

2.3 First order conditions after reduction

$$-p^{\mathrm{k}} + \beta^{\mathrm{k}\langle s\rangle}\gamma^{\langle s\rangle}p^{\langle s\rangle}{K^{\langle s\rangle}}^{-1+\beta^{\mathrm{k}\langle s\rangle}}{L^{\langle s\rangle}}^{\beta^{\mathrm{l}\langle s\rangle}}\left(\prod_{si\in SEC}{X^{\langle si,s\rangle}}^{\beta^{\mathrm{x}\langle si,s\rangle}}\right) = 0 \quad \left(K^{\langle s\rangle}\right) \tag{2.7}$$

$$-1 + \beta^{\mathrm{l}\langle s\rangle}\gamma^{\langle s\rangle}p^{\langle s\rangle}{K^{\langle s\rangle}}^{\beta^{\mathrm{k}\langle s\rangle}}{L^{\langle s\rangle}}^{-1+\beta^{\mathrm{l}\langle s\rangle}}\left(\prod_{si\in SEC}{X^{\langle si,s\rangle}}^{\beta^{\mathrm{x}\langle si,s\rangle}}\right) = 0 \quad \left(L^{\langle s\rangle}\right) \tag{2.8}$$

$$si \in SEC: \quad -p_t^{\langle si\rangle} + \beta^{\mathrm{x}\langle si,s\rangle}\gamma^{\langle s\rangle}p_t^{\langle s\rangle}{X_t^{\langle si,s\rangle}}^{-1}{K_t^{\langle s\rangle}}^{\beta^{\mathrm{k}\langle s\rangle}}{L_t^{\langle s\rangle}}^{\beta^{\mathrm{l}\langle s\rangle}}\left(\prod_{si'\in SEC}{X_t^{\langle si',s\rangle}}^{\beta^{\mathrm{x}\langle si',s\rangle}}\right) = 0 \quad \left(\left(X^{\langle si,s\rangle}\right)_{si\in SEC}\right) \tag{2.9}$$

3 EQUILIBRIUM

3.1 Identities

$$\sum_{h \in HH} K^{\langle h \rangle} = \sum_{s \in SEC} K^{\langle s \rangle} \tag{3.1}$$

$$s \in SEC: \quad p_t^{\langle s \rangle} = 1 \tag{3.2}$$

$$h \in HH: \quad \Pi_t^{\langle h \rangle} = \sum_{s \in SEC} {\pi^{\mathrm{h}}}^{\langle h \rangle} \pi_t^{\langle s \rangle} \tag{3.3}$$

4 Equilibrium relationships (before expansion and reduction)

$$\sum_{h \in HH} K^{\langle h \rangle} - \sum_{s \in SEC} K^{\langle s \rangle} = 0 \tag{4.1}$$

$$h \in HH: \quad -ks^{\mathrm{data}\langle h \rangle} + K^{\langle h \rangle} = 0 \tag{4.2}$$

$$h \in HH: \quad -ls^{\mathrm{data}\langle h \rangle} + L^{\langle h \rangle} = 0 \tag{4.3}$$

$$h \in HH: \quad \Pi^{\langle h \rangle} - \sum_{s \in SEC} {\pi^{\mathrm{h}}}^{\langle h \rangle} \pi^{\langle s \rangle} = 0 \tag{4.4}$$

$$h \in HH: \quad U^{\langle h \rangle} - \left(\sum_{s \in SEC} \alpha^{\langle s,h \rangle} {D^{\langle s,h \rangle}}^{\omega^{-1}(-1+\omega)} \right)^{\omega(-1+\omega)^{-1}} = 0 \tag{4.5}$$

$$h \in HH: \quad -INC^{\langle h \rangle} - \Pi^{\langle h \rangle} + \sum_{s \in SEC} p^{\langle s \rangle} D^{\langle s,h \rangle} = 0 \tag{4.6}$$

$$h \in HH: \quad INC^{\langle h \rangle} - L^{\langle h \rangle} - p^{\mathrm{k}} K^{\langle h \rangle} = 0 \tag{4.7}$$

$$h \in HH: \quad s \in SEC: \quad {\lambda^{\mathrm{CONSUMER}^1}}^{\langle h \rangle} p^{\langle s \rangle} + \alpha^{\langle s,h \rangle} {D^{\langle s,h \rangle}}^{-1+\omega^{-1}(-1+\omega)} \left(\sum_{s \in SEC} \alpha^{\langle s,h \rangle} {D^{\langle s,h \rangle}}^{\omega^{-1}(-1+\omega)} \right)^{-1+\omega(-1+\omega)^{-1}} = 0 \tag{4.8}$$

$$s \in SEC: \quad -1 + p^{\langle s \rangle} = 0 \tag{4.9}$$

$$s \in SEC: \quad -1 + \beta^{\mathrm{l}\langle s\rangle}\gamma^{\langle s\rangle}p^{\langle s\rangle}K^{\langle s\rangle\beta^{\mathrm{k}\langle s\rangle}}L^{\langle s\rangle-1+\beta^{\mathrm{l}\langle s\rangle}}\left(\prod_{si\in SEC}X^{\langle si,s\rangle\beta^{\mathrm{x}\langle si,s\rangle}}\right)=0 \tag{4.10}$$

$$s \in SEC: \quad -p^{\mathrm{k}}+\beta^{\mathrm{k}\langle s\rangle}\gamma^{\langle s\rangle}p^{\langle s\rangle}K^{\langle s\rangle-1+\beta^{\mathrm{k}\langle s\rangle}}L^{\langle s\rangle\beta^{\mathrm{l}\langle s\rangle}}\left(\prod_{si\in SEC}X^{\langle si,s\rangle\beta^{\mathrm{x}\langle si,s\rangle}}\right)=0 \tag{4.11}$$

$$s \in SEC: \quad -Y^{\langle s\rangle}+\gamma^{\langle s\rangle}K^{\langle s\rangle\beta^{\mathrm{k}\langle s\rangle}}L^{\langle s\rangle\beta^{\mathrm{l}\langle s\rangle}}\left(\prod_{si\in SEC}X^{\langle si,s\rangle\beta^{\mathrm{x}\langle si,s\rangle}}\right)=0 \tag{4.12}$$

$$s \in SEC: \quad \pi^{\langle s\rangle}+L^{\langle s\rangle}+p^{\mathrm{k}}K^{\langle s\rangle}-p^{\langle s\rangle}Y^{\langle s\rangle}+\sum_{si\in SEC}p^{\langle si\rangle}X^{\langle si,s\rangle}=0 \tag{4.13}$$

$$s \in SEC: \quad si \in SEC: \quad -p^{\langle si\rangle}+\beta^{\mathrm{x}\langle si,s\rangle}\gamma^{\langle s\rangle}p^{\langle s\rangle}X^{\langle si,s\rangle-1}K^{\langle s\rangle\beta^{\mathrm{k}\langle s\rangle}}L^{\langle s\rangle\beta^{\mathrm{l}\langle s\rangle}}\left(\prod_{si'\in SEC}X^{\langle si',s\rangle\beta^{\mathrm{x}\langle si',s\rangle}}\right)=0 \tag{4.14}$$

5 Equilibrium relationships (after expansion and reduction)

$$-1+p^{\langle \mathrm{A}\rangle}=0 \tag{5.1}$$

$$-1+p^{\langle \mathrm{B}\rangle}=0 \tag{5.2}$$

$$-1+p^{\langle \mathrm{C}\rangle}=0 \tag{5.3}$$

$$-1+\beta^{\mathrm{l}\langle \mathrm{A}\rangle}\gamma^{\langle \mathrm{A}\rangle}p^{\langle \mathrm{A}\rangle}K^{\langle \mathrm{A}\rangle\beta^{\mathrm{k}\langle \mathrm{A}\rangle}}L^{\langle \mathrm{A}\rangle-1+\beta^{\mathrm{l}\langle \mathrm{A}\rangle}}X^{\langle \mathrm{B,A}\rangle\beta^{\mathrm{x}\langle \mathrm{B,A}\rangle}}X^{\langle \mathrm{C,A}\rangle\beta^{\mathrm{x}\langle \mathrm{C,A}\rangle}}X^{\langle \mathrm{A,A}\rangle\beta^{\mathrm{x}\langle \mathrm{A,A}\rangle}}=0 \tag{5.4}$$

$$-1+\beta^{\mathrm{l}\langle \mathrm{B}\rangle}\gamma^{\langle \mathrm{B}\rangle}p^{\langle \mathrm{B}\rangle}K^{\langle \mathrm{B}\rangle\beta^{\mathrm{k}\langle \mathrm{B}\rangle}}L^{\langle \mathrm{B}\rangle-1+\beta^{\mathrm{l}\langle \mathrm{B}\rangle}}X^{\langle \mathrm{B,B}\rangle\beta^{\mathrm{x}\langle \mathrm{B,B}\rangle}}X^{\langle \mathrm{C,B}\rangle\beta^{\mathrm{x}\langle \mathrm{C,B}\rangle}}X^{\langle \mathrm{A,B}\rangle\beta^{\mathrm{x}\langle \mathrm{A,B}\rangle}}=0 \tag{5.5}$$

$$-1+\beta^{\mathrm{l}\langle \mathrm{C}\rangle}\gamma^{\langle \mathrm{C}\rangle}p^{\langle \mathrm{C}\rangle}K^{\langle \mathrm{C}\rangle\beta^{\mathrm{k}\langle \mathrm{C}\rangle}}L^{\langle \mathrm{C}\rangle-1+\beta^{\mathrm{l}\langle \mathrm{C}\rangle}}X^{\langle \mathrm{B,C}\rangle\beta^{\mathrm{x}\langle \mathrm{B,C}\rangle}}X^{\langle \mathrm{C,C}\rangle\beta^{\mathrm{x}\langle \mathrm{C,C}\rangle}}X^{\langle \mathrm{A,C}\rangle\beta^{\mathrm{x}\langle \mathrm{A,C}\rangle}}=0 \tag{5.6}$$

$$-ks^{\mathrm{data}\langle 1\rangle}+K^{\langle 1\rangle}=0 \tag{5.7}$$

$$-ks^{\mathrm{data}\langle 2\rangle}+K^{\langle 2\rangle}=0 \tag{5.8}$$

$$-ls^{\mathrm{data}\langle 1\rangle} + L^{\langle 1\rangle} = 0 \tag{5.9}$$

$$-ls^{\mathrm{data}\langle 2\rangle} + L^{\langle 2\rangle} = 0 \tag{5.10}$$

$$-p^{\mathrm{k}} + \beta^{\mathrm{k}\langle \mathrm{A}\rangle}\gamma^{\langle \mathrm{A}\rangle}p^{\langle \mathrm{A}\rangle}K^{\langle \mathrm{A}\rangle -1+\beta^{\mathrm{k}\langle \mathrm{A}\rangle}}L^{\langle \mathrm{A}\rangle \beta^{\mathrm{l}\langle \mathrm{A}\rangle}}X^{\langle \mathrm{A,A}\rangle \beta^{\mathrm{x}\langle \mathrm{A,A}\rangle}}X^{\langle \mathrm{B,A}\rangle \beta^{\mathrm{x}\langle \mathrm{B,A}\rangle}}X^{\langle \mathrm{C,A}\rangle \beta^{\mathrm{x}\langle \mathrm{C,A}\rangle}} = 0 \tag{5.11}$$

$$-p^{\mathrm{k}} + \beta^{\mathrm{k}\langle \mathrm{B}\rangle}\gamma^{\langle \mathrm{B}\rangle}p^{\langle \mathrm{B}\rangle}K^{\langle \mathrm{B}\rangle -1+\beta^{\mathrm{k}\langle \mathrm{B}\rangle}}L^{\langle \mathrm{B}\rangle \beta^{\mathrm{l}\langle \mathrm{B}\rangle}}X^{\langle \mathrm{A,B}\rangle \beta^{\mathrm{x}\langle \mathrm{A,B}\rangle}}X^{\langle \mathrm{B,B}\rangle \beta^{\mathrm{x}\langle \mathrm{B,B}\rangle}}X^{\langle \mathrm{C,B}\rangle \beta^{\mathrm{x}\langle \mathrm{C,B}\rangle}} = 0 \tag{5.12}$$

$$-p^{\mathrm{k}} + \beta^{\mathrm{k}\langle \mathrm{C}\rangle}\gamma^{\langle \mathrm{C}\rangle}p^{\langle \mathrm{C}\rangle}K^{\langle \mathrm{C}\rangle -1+\beta^{\mathrm{k}\langle \mathrm{C}\rangle}}L^{\langle \mathrm{C}\rangle \beta^{\mathrm{l}\langle \mathrm{C}\rangle}}X^{\langle \mathrm{A,C}\rangle \beta^{\mathrm{x}\langle \mathrm{A,C}\rangle}}X^{\langle \mathrm{B,C}\rangle \beta^{\mathrm{x}\langle \mathrm{B,C}\rangle}}X^{\langle \mathrm{C,C}\rangle \beta^{\mathrm{x}\langle \mathrm{C,C}\rangle}} = 0 \tag{5.13}$$

$$-p^{\langle \mathrm{A}\rangle} + \beta^{\mathrm{x}\langle \mathrm{A,A}\rangle}\gamma^{\langle \mathrm{A}\rangle}p^{\langle \mathrm{A}\rangle}X^{\langle \mathrm{A,A}\rangle -1}K^{\langle \mathrm{A}\rangle \beta^{\mathrm{k}\langle \mathrm{A}\rangle}}L^{\langle \mathrm{A}\rangle \beta^{\mathrm{l}\langle \mathrm{A}\rangle}}X^{\langle \mathrm{A,A}\rangle \beta^{\mathrm{x}\langle \mathrm{A,A}\rangle}}X^{\langle \mathrm{B,A}\rangle \beta^{\mathrm{x}\langle \mathrm{B,A}\rangle}}X^{\langle \mathrm{C,A}\rangle \beta^{\mathrm{x}\langle \mathrm{C,A}\rangle}} = 0 \tag{5.14}$$

$$-p^{\langle \mathrm{A}\rangle} + \beta^{\mathrm{x}\langle \mathrm{A,B}\rangle}\gamma^{\langle \mathrm{B}\rangle}p^{\langle \mathrm{B}\rangle}X^{\langle \mathrm{A,B}\rangle -1}K^{\langle \mathrm{B}\rangle \beta^{\mathrm{k}\langle \mathrm{B}\rangle}}L^{\langle \mathrm{B}\rangle \beta^{\mathrm{l}\langle \mathrm{B}\rangle}}X^{\langle \mathrm{A,B}\rangle \beta^{\mathrm{x}\langle \mathrm{A,B}\rangle}}X^{\langle \mathrm{B,B}\rangle \beta^{\mathrm{x}\langle \mathrm{B,B}\rangle}}X^{\langle \mathrm{C,B}\rangle \beta^{\mathrm{x}\langle \mathrm{C,B}\rangle}} = 0 \tag{5.15}$$

$$-p^{\langle \mathrm{A}\rangle} + \beta^{\mathrm{x}\langle \mathrm{A,C}\rangle}\gamma^{\langle \mathrm{C}\rangle}p^{\langle \mathrm{C}\rangle}X^{\langle \mathrm{A,C}\rangle -1}K^{\langle \mathrm{C}\rangle \beta^{\mathrm{k}\langle \mathrm{C}\rangle}}L^{\langle \mathrm{C}\rangle \beta^{\mathrm{l}\langle \mathrm{C}\rangle}}X^{\langle \mathrm{A,C}\rangle \beta^{\mathrm{x}\langle \mathrm{A,C}\rangle}}X^{\langle \mathrm{B,C}\rangle \beta^{\mathrm{x}\langle \mathrm{B,C}\rangle}}X^{\langle \mathrm{C,C}\rangle \beta^{\mathrm{x}\langle \mathrm{C,C}\rangle}} = 0 \tag{5.16}$$

$$-p^{\langle \mathrm{B}\rangle} + \beta^{\mathrm{x}\langle \mathrm{B,A}\rangle}\gamma^{\langle \mathrm{A}\rangle}p^{\langle \mathrm{A}\rangle}X^{\langle \mathrm{B,A}\rangle -1}K^{\langle \mathrm{A}\rangle \beta^{\mathrm{k}\langle \mathrm{A}\rangle}}L^{\langle \mathrm{A}\rangle \beta^{\mathrm{l}\langle \mathrm{A}\rangle}}X^{\langle \mathrm{A,A}\rangle \beta^{\mathrm{x}\langle \mathrm{A,A}\rangle}}X^{\langle \mathrm{B,A}\rangle \beta^{\mathrm{x}\langle \mathrm{B,A}\rangle}}X^{\langle \mathrm{C,A}\rangle \beta^{\mathrm{x}\langle \mathrm{C,A}\rangle}} = 0 \tag{5.17}$$

$$-p^{\langle \mathrm{B}\rangle} + \beta^{\mathrm{x}\langle \mathrm{B,B}\rangle}\gamma^{\langle \mathrm{B}\rangle}p^{\langle \mathrm{B}\rangle}X^{\langle \mathrm{B,B}\rangle -1}K^{\langle \mathrm{B}\rangle \beta^{\mathrm{k}\langle \mathrm{B}\rangle}}L^{\langle \mathrm{B}\rangle \beta^{\mathrm{l}\langle \mathrm{B}\rangle}}X^{\langle \mathrm{A,B}\rangle \beta^{\mathrm{x}\langle \mathrm{A,B}\rangle}}X^{\langle \mathrm{B,B}\rangle \beta^{\mathrm{x}\langle \mathrm{B,B}\rangle}}X^{\langle \mathrm{C,B}\rangle \beta^{\mathrm{x}\langle \mathrm{C,B}\rangle}} = 0 \tag{5.18}$$

$$-p^{\langle \mathrm{B}\rangle} + \beta^{\mathrm{x}\langle \mathrm{B,C}\rangle}\gamma^{\langle \mathrm{C}\rangle}p^{\langle \mathrm{C}\rangle}X^{\langle \mathrm{B,C}\rangle -1}K^{\langle \mathrm{C}\rangle \beta^{\mathrm{k}\langle \mathrm{C}\rangle}}L^{\langle \mathrm{C}\rangle \beta^{\mathrm{l}\langle \mathrm{C}\rangle}}X^{\langle \mathrm{A,C}\rangle \beta^{\mathrm{x}\langle \mathrm{A,C}\rangle}}X^{\langle \mathrm{B,C}\rangle \beta^{\mathrm{x}\langle \mathrm{B,C}\rangle}}X^{\langle \mathrm{C,C}\rangle \beta^{\mathrm{x}\langle \mathrm{C,C}\rangle}} = 0 \tag{5.19}$$

$$-p^{\langle \mathrm{C}\rangle} + \beta^{\mathrm{x}\langle \mathrm{C,A}\rangle}\gamma^{\langle \mathrm{A}\rangle}p^{\langle \mathrm{A}\rangle}X^{\langle \mathrm{C,A}\rangle -1}K^{\langle \mathrm{A}\rangle \beta^{\mathrm{k}\langle \mathrm{A}\rangle}}L^{\langle \mathrm{A}\rangle \beta^{\mathrm{l}\langle \mathrm{A}\rangle}}X^{\langle \mathrm{A,A}\rangle \beta^{\mathrm{x}\langle \mathrm{A,A}\rangle}}X^{\langle \mathrm{B,A}\rangle \beta^{\mathrm{x}\langle \mathrm{B,A}\rangle}}X^{\langle \mathrm{C,A}\rangle \beta^{\mathrm{x}\langle \mathrm{C,A}\rangle}} = 0 \tag{5.20}$$

$$-p^{\langle \mathrm{C}\rangle} + \beta^{\mathrm{x}\langle \mathrm{C,B}\rangle}\gamma^{\langle \mathrm{B}\rangle}p^{\langle \mathrm{B}\rangle}X^{\langle \mathrm{C,B}\rangle -1}K^{\langle \mathrm{B}\rangle \beta^{\mathrm{k}\langle \mathrm{B}\rangle}}L^{\langle \mathrm{B}\rangle \beta^{\mathrm{l}\langle \mathrm{B}\rangle}}X^{\langle \mathrm{A,B}\rangle \beta^{\mathrm{x}\langle \mathrm{A,B}\rangle}}X^{\langle \mathrm{B,B}\rangle \beta^{\mathrm{x}\langle \mathrm{B,B}\rangle}}X^{\langle \mathrm{C,B}\rangle \beta^{\mathrm{x}\langle \mathrm{C,B}\rangle}} = 0 \tag{5.21}$$

$$-p^{\langle \mathrm{C}\rangle} + \beta^{\mathrm{x}\langle \mathrm{C,C}\rangle}\gamma^{\langle \mathrm{C}\rangle}p^{\langle \mathrm{C}\rangle}X^{\langle \mathrm{C,C}\rangle -1}K^{\langle \mathrm{C}\rangle \beta^{\mathrm{k}\langle \mathrm{C}\rangle}}L^{\langle \mathrm{C}\rangle \beta^{\mathrm{l}\langle \mathrm{C}\rangle}}X^{\langle \mathrm{A,C}\rangle \beta^{\mathrm{x}\langle \mathrm{A,C}\rangle}}X^{\langle \mathrm{B,C}\rangle \beta^{\mathrm{x}\langle \mathrm{B,C}\rangle}}X^{\langle \mathrm{C,C}\rangle \beta^{\mathrm{x}\langle \mathrm{C,C}\rangle}} = 0 \tag{5.22}$$

$$U^{\langle 1\rangle} - \left(\alpha^{\langle \mathrm{A},1\rangle} D^{\langle \mathrm{A},1\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{B},1\rangle} D^{\langle \mathrm{B},1\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{C},1\rangle} D^{\langle \mathrm{C},1\rangle^{\omega^{-1}(-1+\omega)}}\right)^{\omega(-1+\omega)^{-1}} = 0 \tag{5.23}$$

$$U^{\langle 2\rangle} - \left(\alpha^{\langle \mathrm{A},2\rangle} D^{\langle \mathrm{A},2\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{B},2\rangle} D^{\langle \mathrm{B},2\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{C},2\rangle} D^{\langle \mathrm{C},2\rangle^{\omega^{-1}(-1+\omega)}}\right)^{\omega(-1+\omega)^{-1}} = 0 \tag{5.24}$$

$$-Y^{\langle \mathrm{A}\rangle} + \gamma^{\langle \mathrm{A}\rangle} K^{\langle \mathrm{A}\rangle^{\beta^{\mathrm{k}\langle \mathrm{A}\rangle}}} L^{\langle \mathrm{A}\rangle^{\beta^{\mathrm{l}\langle \mathrm{A}\rangle}}} X^{\langle \mathrm{A,A}\rangle^{\beta^{\mathrm{x}\langle \mathrm{A,A}\rangle}}} X^{\langle \mathrm{B,A}\rangle^{\beta^{\mathrm{x}\langle \mathrm{B,A}\rangle}}} X^{\langle \mathrm{C,A}\rangle^{\beta^{\mathrm{x}\langle \mathrm{C,A}\rangle}}} = 0 \tag{5.25}$$

$$-Y^{\langle \mathrm{B}\rangle} + \gamma^{\langle \mathrm{B}\rangle} K^{\langle \mathrm{B}\rangle^{\beta^{\mathrm{k}\langle \mathrm{B}\rangle}}} L^{\langle \mathrm{B}\rangle^{\beta^{\mathrm{l}\langle \mathrm{B}\rangle}}} X^{\langle \mathrm{A,B}\rangle^{\beta^{\mathrm{x}\langle \mathrm{A,B}\rangle}}} X^{\langle \mathrm{B,B}\rangle^{\beta^{\mathrm{x}\langle \mathrm{B,B}\rangle}}} X^{\langle \mathrm{C,B}\rangle^{\beta^{\mathrm{x}\langle \mathrm{C,B}\rangle}}} = 0 \tag{5.26}$$

$$-Y^{\langle \mathrm{C}\rangle} + \gamma^{\langle \mathrm{C}\rangle} K^{\langle \mathrm{C}\rangle^{\beta^{\mathrm{k}\langle \mathrm{C}\rangle}}} L^{\langle \mathrm{C}\rangle^{\beta^{\mathrm{l}\langle \mathrm{C}\rangle}}} X^{\langle \mathrm{A,C}\rangle^{\beta^{\mathrm{x}\langle \mathrm{A,C}\rangle}}} X^{\langle \mathrm{B,C}\rangle^{\beta^{\mathrm{x}\langle \mathrm{B,C}\rangle}}} X^{\langle \mathrm{C,C}\rangle^{\beta^{\mathrm{x}\langle \mathrm{C,C}\rangle}}} = 0 \tag{5.27}$$

$$\lambda^{\mathrm{CONSUMER}^{1}\langle 1\rangle} p^{\langle \mathrm{A}\rangle} + \alpha^{\langle \mathrm{A},1\rangle} D^{\langle \mathrm{A},1\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle \mathrm{A},1\rangle} D^{\langle \mathrm{A},1\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{B},1\rangle} D^{\langle \mathrm{B},1\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{C},1\rangle} D^{\langle \mathrm{C},1\rangle^{\omega^{-1}(-1+\omega)}}\right)^{-1+\omega(-1+\omega)^{-1}} = 0 \tag{5.28}$$

$$\lambda^{\mathrm{CONSUMER}^{1}\langle 1\rangle} p^{\langle \mathrm{B}\rangle} + \alpha^{\langle \mathrm{B},1\rangle} D^{\langle \mathrm{B},1\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle \mathrm{A},1\rangle} D^{\langle \mathrm{A},1\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{B},1\rangle} D^{\langle \mathrm{B},1\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{C},1\rangle} D^{\langle \mathrm{C},1\rangle^{\omega^{-1}(-1+\omega)}}\right)^{-1+\omega(-1+\omega)^{-1}} = 0 \tag{5.29}$$

$$\lambda^{\mathrm{CONSUMER}^{1}\langle 1\rangle} p^{\langle \mathrm{C}\rangle} + \alpha^{\langle \mathrm{C},1\rangle} D^{\langle \mathrm{C},1\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle \mathrm{A},1\rangle} D^{\langle \mathrm{A},1\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{B},1\rangle} D^{\langle \mathrm{B},1\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{C},1\rangle} D^{\langle \mathrm{C},1\rangle^{\omega^{-1}(-1+\omega)}}\right)^{-1+\omega(-1+\omega)^{-1}} = 0 \tag{5.30}$$

$$\lambda^{\mathrm{CONSUMER}^{1}\langle 2\rangle} p^{\langle \mathrm{A}\rangle} + \alpha^{\langle \mathrm{A},2\rangle} D^{\langle \mathrm{A},2\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle \mathrm{A},2\rangle} D^{\langle \mathrm{A},2\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{B},2\rangle} D^{\langle \mathrm{B},2\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{C},2\rangle} D^{\langle \mathrm{C},2\rangle^{\omega^{-1}(-1+\omega)}}\right)^{-1+\omega(-1+\omega)^{-1}} = 0 \tag{5.31}$$

$$\lambda^{\mathrm{CONSUMER}^{1}\langle 2\rangle} p^{\langle \mathrm{B}\rangle} + \alpha^{\langle \mathrm{B},2\rangle} D^{\langle \mathrm{B},2\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle \mathrm{A},2\rangle} D^{\langle \mathrm{A},2\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{B},2\rangle} D^{\langle \mathrm{B},2\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{C},2\rangle} D^{\langle \mathrm{C},2\rangle^{\omega^{-1}(-1+\omega)}}\right)^{-1+\omega(-1+\omega)^{-1}} = 0 \tag{5.32}$$

$$\lambda^{\mathrm{CONSUMER}^{1}\langle 2\rangle} p^{\langle \mathrm{C}\rangle} + \alpha^{\langle \mathrm{C},2\rangle} D^{\langle \mathrm{C},2\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle \mathrm{A},2\rangle} D^{\langle \mathrm{A},2\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{B},2\rangle} D^{\langle \mathrm{B},2\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathrm{C},2\rangle} D^{\langle \mathrm{C},2\rangle^{\omega^{-1}(-1+\omega)}}\right)^{-1+\omega(-1+\omega)^{-1}} = 0 \tag{5.33}$$

$$INC^{\langle 1\rangle} - L^{\langle 1\rangle} - p^{\mathrm{k}} K^{\langle 1\rangle} = 0 \tag{5.34}$$

$$INC^{\langle 2\rangle} - L^{\langle 2\rangle} - p^{\mathrm{k}} K^{\langle 2\rangle} = 0 \tag{5.35}$$

$$\Pi^{\langle 1\rangle} - \pi^{\mathrm{h}\langle 1\rangle} \pi^{\langle \mathrm{A}\rangle} - \pi^{\mathrm{h}\langle 1\rangle} \pi^{\langle \mathrm{B}\rangle} - \pi^{\mathrm{h}\langle 1\rangle} \pi^{\langle \mathrm{C}\rangle} = 0 \tag{5.36}$$

$$\Pi^{\langle 2\rangle} - \pi^{\mathrm{h}\langle 2\rangle}\pi^{\langle \mathrm{A}\rangle} - \pi^{\mathrm{h}\langle 2\rangle}\pi^{\langle \mathrm{B}\rangle} - \pi^{\mathrm{h}\langle 2\rangle}\pi^{\langle \mathrm{C}\rangle} = 0 \tag{5.37}$$

$$-INC^{\langle 1\rangle} - \Pi^{\langle 1\rangle} + p^{\langle \mathrm{A}\rangle}D^{\langle \mathrm{A},1\rangle} + p^{\langle \mathrm{B}\rangle}D^{\langle \mathrm{B},1\rangle} + p^{\langle \mathrm{C}\rangle}D^{\langle \mathrm{C},1\rangle} = 0 \tag{5.38}$$

$$-INC^{\langle 2\rangle} - \Pi^{\langle 2\rangle} + p^{\langle \mathrm{A}\rangle}D^{\langle \mathrm{A},2\rangle} + p^{\langle \mathrm{B}\rangle}D^{\langle \mathrm{B},2\rangle} + p^{\langle \mathrm{C}\rangle}D^{\langle \mathrm{C},2\rangle} = 0 \tag{5.39}$$

$$K^{\langle 1\rangle} + K^{\langle 2\rangle} - K^{\langle \mathrm{A}\rangle} - K^{\langle \mathrm{B}\rangle} - K^{\langle \mathrm{C}\rangle} = 0 \tag{5.40}$$

$$\pi^{\langle \mathrm{A}\rangle} + L^{\langle \mathrm{A}\rangle} + p^{\mathrm{k}}K^{\langle \mathrm{A}\rangle} + p^{\langle \mathrm{A}\rangle}X^{\langle \mathrm{A},\mathrm{A}\rangle} - p^{\langle \mathrm{A}\rangle}Y^{\langle \mathrm{A}\rangle} + p^{\langle \mathrm{B}\rangle}X^{\langle \mathrm{B},\mathrm{A}\rangle} + p^{\langle \mathrm{C}\rangle}X^{\langle \mathrm{C},\mathrm{A}\rangle} = 0 \tag{5.41}$$

$$\pi^{\langle \mathrm{B}\rangle} + L^{\langle \mathrm{B}\rangle} + p^{\mathrm{k}}K^{\langle \mathrm{B}\rangle} + p^{\langle \mathrm{A}\rangle}X^{\langle \mathrm{A},\mathrm{B}\rangle} + p^{\langle \mathrm{B}\rangle}X^{\langle \mathrm{B},\mathrm{B}\rangle} - p^{\langle \mathrm{B}\rangle}Y^{\langle \mathrm{B}\rangle} + p^{\langle \mathrm{C}\rangle}X^{\langle \mathrm{C},\mathrm{B}\rangle} = 0 \tag{5.42}$$

$$\pi^{\langle \mathrm{C}\rangle} + L^{\langle \mathrm{C}\rangle} + p^{\mathrm{k}}K^{\langle \mathrm{C}\rangle} + p^{\langle \mathrm{A}\rangle}X^{\langle \mathrm{A},\mathrm{C}\rangle} + p^{\langle \mathrm{B}\rangle}X^{\langle \mathrm{B},\mathrm{C}\rangle} + p^{\langle \mathrm{C}\rangle}X^{\langle \mathrm{C},\mathrm{C}\rangle} - p^{\langle \mathrm{C}\rangle}Y^{\langle \mathrm{C}\rangle} = 0 \tag{5.43}$$

6 Calibrating equations

$$-d^{\mathrm{data}\langle \mathrm{B},1\rangle} + D^{\langle \mathrm{B},1\rangle} = 0 \tag{6.1}$$

$$-d^{\mathrm{data}\langle \mathrm{B},2\rangle} + D^{\langle \mathrm{B},2\rangle} = 0 \tag{6.2}$$

$$-d^{\mathrm{data}\langle \mathrm{C},1\rangle} + D^{\langle \mathrm{C},1\rangle} = 0 \tag{6.3}$$

$$-d^{\mathrm{data}\langle \mathrm{C},2\rangle} + D^{\langle \mathrm{C},2\rangle} = 0 \tag{6.4}$$

$$-l^{\mathrm{data}\langle \mathrm{A}\rangle} + L^{\langle \mathrm{A}\rangle} = 0 \tag{6.5}$$

$$-l^{\mathrm{data}\langle \mathrm{B}\rangle} + L^{\langle \mathrm{B}\rangle} = 0 \tag{6.6}$$

$$-l^{\mathrm{data}\langle \mathrm{C}\rangle} + L^{\langle \mathrm{C}\rangle} = 0 \tag{6.7}$$

$$-x^{\mathrm{data}\langle \mathrm{A},\mathrm{A}\rangle} + X^{\langle \mathrm{A},\mathrm{A}\rangle} = 0 \tag{6.8}$$

$$-x^{\mathrm{data}\langle \mathrm{A,B}\rangle} + X^{\langle \mathrm{A,B}\rangle} = 0 \tag{6.9}$$

$$-x^{\mathrm{data}\langle \mathrm{A,C}\rangle} + X^{\langle \mathrm{A,C}\rangle} = 0 \tag{6.10}$$

$$-x^{\mathrm{data}\langle \mathrm{B,A}\rangle} + X^{\langle \mathrm{B,A}\rangle} = 0 \tag{6.11}$$

$$-x^{\mathrm{data}\langle \mathrm{B,B}\rangle} + X^{\langle \mathrm{B,B}\rangle} = 0 \tag{6.12}$$

$$-x^{\mathrm{data}\langle \mathrm{B,C}\rangle} + X^{\langle \mathrm{B,C}\rangle} = 0 \tag{6.13}$$

$$-x^{\mathrm{data}\langle \mathrm{C,A}\rangle} + X^{\langle \mathrm{C,A}\rangle} = 0 \tag{6.14}$$

$$-x^{\mathrm{data}\langle \mathrm{C,B}\rangle} + X^{\langle \mathrm{C,B}\rangle} = 0 \tag{6.15}$$

$$-x^{\mathrm{data}\langle \mathrm{C,C}\rangle} + X^{\langle \mathrm{C,C}\rangle} = 0 \tag{6.16}$$

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$$-y^{\mathrm{data}\langle \mathrm{A}\rangle} + Y^{\langle \mathrm{A}\rangle} = 0 \tag{6.17}$$

$$-y^{\mathrm{data}\langle \mathrm{B}\rangle} + Y^{\langle \mathrm{B}\rangle} = 0 \tag{6.18}$$

$$-y^{\mathrm{data}\langle \mathrm{C}\rangle} + Y^{\langle \mathrm{C}\rangle} = 0 \tag{6.19}$$

$$-1 + \pi^{\mathrm{h}\langle 1\rangle} + \pi^{\mathrm{h}\langle 2\rangle} = 0 \tag{6.20}$$

$$-1 + \alpha^{\langle \mathrm{A},1\rangle^{\omega}} + \alpha^{\langle \mathrm{B},1\rangle^{\omega}} + \alpha^{\langle \mathrm{C},1\rangle^{\omega}} = 0 \tag{6.21}$$

$$-1 + \alpha^{\langle \mathrm{A},2\rangle^{\omega}} + \alpha^{\langle \mathrm{B},2\rangle^{\omega}} + \alpha^{\langle \mathrm{C},2\rangle^{\omega}} = 0 \tag{6.22}$$

$$-1 + \beta^{\mathrm{k}\langle \mathrm{A}\rangle} + \beta^{\mathrm{l}\langle \mathrm{A}\rangle} + \beta^{\mathrm{x}\langle \mathrm{A,A}\rangle} + \beta^{\mathrm{x}\langle \mathrm{B,A}\rangle} + \beta^{\mathrm{x}\langle \mathrm{C,A}\rangle} = 0 \tag{6.23}$$

$$-1 + \beta^{\mathrm{k}\langle \mathrm{B}\rangle} + \beta^{\mathrm{l}\langle \mathrm{B}\rangle} + \beta^{\mathrm{x}\langle \mathrm{A,B}\rangle} + \beta^{\mathrm{x}\langle \mathrm{B,B}\rangle} + \beta^{\mathrm{x}\langle \mathrm{C,B}\rangle} = 0 \tag{6.24}$$

$$-1 + \beta^{\mathrm{k}\langle \mathrm{C}\rangle} + \beta^{\mathrm{l}\langle \mathrm{C}\rangle} + \beta^{\mathrm{x}\langle \mathrm{A,C}\rangle} + \beta^{\mathrm{x}\langle \mathrm{B,C}\rangle} + \beta^{\mathrm{x}\langle \mathrm{C,C}\rangle} = 0 \tag{6.25}$$

7 Equilibrium values

	Equilibrium values
p^{k}	1
$\lambda^{\mathrm{CONSUMER}^{1^1}}$	-1
$\lambda^{\mathrm{CONSUMER}^{1^2}}$	-1
p^{A}	1
p^{B}	1
p^{C}	1
π^{A}	0
π^{B}	0
π^{C}	0
D^{A^1}	52.94
D^{A^2}	64.45
D^{B^1}	11.7
D^{B^2}	30.79
D^{C^1}	18.6
D^{C^2}	43.6
INC^1	83.24
INC^2	138.84
K^1	65.07
K^2	68.77
K^{A}	38.1
K^{B}	35.01
K^{C}	60.73
L^1	18.17
L^2	70.07
L^{A}	9.44
L^{B}	31.6
L^{C}	47.2
Π^1	0
Π^2	0
U^1	83.24
U^2	138.84
$X^{\mathrm{A}^{\mathrm{A}}}$	68.4
$X^{\mathrm{A}^{\mathrm{B}}}$	131.01
$X^{\mathrm{A}^{\mathrm{C}}}$	28.28
$X^{\mathrm{B}^{\mathrm{A}}}$	111.91
$X^{\mathrm{B}^{\mathrm{B}}}$	92.3
$X^{\mathrm{B}^{\mathrm{C}}}$	86.92
$X^{\mathrm{C}^{\mathrm{A}}}$	117.23
$X^{\mathrm{C}^{\mathrm{B}}}$	43.7
$X^{\mathrm{C}^{\mathrm{C}}}$	111.65
Y^{A}	345.08
Y^{B}	333.62
Y^{C}	334.78

8 Parameters of the model

	Parameters
ω	2
α^{A^1}	0.7975
α^{A^2}	0.6813
α^{B^1}	0.3749
α^{B^2}	0.4709
α^{C^1}	0.4727
α^{C^2}	0.5604
$\beta^{\mathrm{k}^{\mathrm{A}}}$	0.1104
$\beta^{\mathrm{k}^{\mathrm{B}}}$	0.1049
$\beta^{\mathrm{k}^{\mathrm{C}}}$	0.1814
$\beta^{\mathrm{l}^{\mathrm{A}}}$	0.0274
$\beta^{\mathrm{l}^{\mathrm{B}}}$	0.0947
$\beta^{\mathrm{l}^{\mathrm{C}}}$	0.141
$\beta^{\mathrm{x}^{\mathrm{A}^{\mathrm{A}}}}$	0.1982
$\beta^{\mathrm{x}^{\mathrm{A}^{\mathrm{B}}}}$	0.3927
$\beta^{\mathrm{x}^{\mathrm{A}^{\mathrm{C}}}}$	0.0845
$\beta^{\mathrm{x}^{\mathrm{B}^{\mathrm{A}}}}$	0.3243
$\beta^{\mathrm{x}^{\mathrm{B}^{\mathrm{B}}}}$	0.2767
$\beta^{\mathrm{x}^{\mathrm{B}^{\mathrm{C}}}}$	0.2596
$\beta^{\mathrm{x}^{\mathrm{C}^{\mathrm{A}}}}$	0.3397
$\beta^{\mathrm{x}^{\mathrm{C}^{\mathrm{B}}}}$	0.131
$\beta^{\mathrm{x}^{\mathrm{C}^{\mathrm{C}}}}$	0.3335
$d^{\mathrm{data}^{\mathrm{B}^1}}$	11.7
$d^{\mathrm{data}^{\mathrm{B}^2}}$	30.79
$d^{\mathrm{data}^{\mathrm{C}^1}}$	18.6
$d^{\mathrm{data}^{\mathrm{C}^2}}$	43.6
γ^{A}	4.0329
γ^{B}	4.2572
γ^{C}	4.5311
ks^{data^1}	65.07
ks^{data^2}	68.77
$l^{\mathrm{data}^{\mathrm{A}}}$	9.44
$l^{\mathrm{data}^{\mathrm{B}}}$	31.6
$l^{\mathrm{data}^{\mathrm{C}}}$	47.2
ls^{data^1}	18.17
ls^{data^2}	70.07
π^{h^1}	0.5
π^{h^2}	0.5
$x^{\mathrm{data}^{\mathrm{A}^{\mathrm{A}}}}$	68.4
$x^{\mathrm{data}^{\mathrm{A}^{\mathrm{B}}}}$	131.01
$x^{\mathrm{data}^{\mathrm{A}^{\mathrm{C}}}}$	28.28
$x^{\mathrm{data}^{\mathrm{B}^{\mathrm{A}}}}$	111.91
$x^{\mathrm{data}^{\mathrm{B}^{\mathrm{B}}}}$	92.3
$x^{\mathrm{data}^{\mathrm{B}^{\mathrm{C}}}}$	86.92
$x^{\mathrm{data}^{\mathrm{C}^{\mathrm{A}}}}$	117.23
$x^{\mathrm{data}^{\mathrm{C}^{\mathrm{B}}}}$	43.7
$x^{\mathrm{data}^{\mathrm{C}^{\mathrm{C}}}}$	111.65
$y^{\mathrm{data}^{\mathrm{A}}}$	345.08
$y^{\mathrm{data}^{\mathrm{B}}}$	333.62
$y^{\mathrm{data}^{\mathrm{C}}}$	334.78