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Index sets

$$HH = \{1, 2\}$$

$$\mathit{SEC} = \{\mathrm{A}, \mathrm{B}, \mathrm{C}\}$$

1 CONSUMER $h \in HH$

1.1 Optimisation problem

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

s.t. :

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

1.2 Identities

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

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

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

1.3 First order conditions

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

2 FIRM $s \in \mathit{SEC}$

2.1 Optimisation problem

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

s.t. :

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

2.2 First order conditions

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

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

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

$$\mathit{si} \in \mathit{SEC}: \quad -p^{\langle \mathit{si}\rangle} + \beta^{\mathrm{x}\langle \mathit{si},s\rangle} \gamma^{\langle s\rangle} \lambda^{\mathrm{FIRM}^1\langle s\rangle} {X^{\langle \mathit{si},s\rangle}}^{-1} {K^{\langle s\rangle}}^{\beta^{\mathrm{k}\langle s\rangle}} {L^{\langle s\rangle}}^{\beta^{\mathrm{l}\langle s\rangle}} \left(\prod_{\mathit{si}'\in \mathit{SEC}} {X^{\langle \mathit{si}',s\rangle}}^{\beta^{\mathrm{x}\langle \mathit{si}',s\rangle}}\right) = 0 \quad \left(X^{\langle \mathit{si},s\rangle}\right) \tag{2.6}$$

2.3 First order conditions after reduction

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

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

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

3 EQUILIBRIUM

3.1 Identities

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

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

$$h \in HH: \quad \Pi^{\langle h \rangle} = \pi^{\mathrm{h}\,\langle h \rangle} \left(\sum_{s \in SEC} \pi^{\langle s \rangle} \right) \tag{3.3}$$

4 Equilibrium relationships (before expansion and reduction)

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

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

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

$$h \in HH: \quad - \Pi^{\langle h \rangle} + \pi^{\mathrm{h}\,\langle h \rangle} \left(\sum_{s \in SEC} \pi^{\langle s \rangle} \right) = 0 \tag{4.4}$$

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

$$h \in HH: \quad - INC^{\langle h \rangle} + L^{\langle h \rangle} + p^{\mathrm{k}} K^{\langle h \rangle} = 0 \tag{4.6}$$

$$h \in HH: \quad - INC^{\langle h \rangle} - \Pi^{\langle h \rangle} + \sum_{s \in SEC} p^{\langle s \rangle} D^{\langle s,h \rangle} = 0 \tag{4.7}$$

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

$$s \in SEC: \quad -1 + \beta^{\mathrm{l}\,\langle s \rangle} \gamma^{\langle s \rangle} p^{\langle s \rangle} {K^{\langle s \rangle}}^{\beta^{\mathrm{k}\,\langle s \rangle}} {L^{\langle s \rangle}}^{-1+\beta^{\mathrm{l}\,\langle s \rangle}} \left(\prod_{si \in SEC} {X^{\langle si,s \rangle}}^{\beta^{\mathrm{x}\,\langle si,s \rangle}} \right) = 0 \tag{4.9}$$

$$s \in SEC: \quad 1 - p^{\langle s \rangle} = 0 \tag{4.10}$$

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

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

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

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

5 Equilibrium relationships (after expansion and reduction)

$$-1 + \beta^{\mathrm{l}\langle \mathrm{A}\rangle} \gamma^{\langle \mathrm{A}\rangle} p^{\langle \mathrm{A}\rangle} {K^{\langle \mathrm{A}\rangle}}^{\beta^{\mathrm{k}\langle \mathrm{A}\rangle}} {L^{\langle \mathrm{A}\rangle}}^{-1+\beta^{\mathrm{l}\langle \mathrm{A}\rangle}} {X^{\langle \mathrm{A},\mathrm{A}\rangle}}^{\beta^{\mathrm{x}\langle \mathrm{A},\mathrm{A}\rangle}} {X^{\langle \mathrm{B},\mathrm{A}\rangle}}^{\beta^{\mathrm{x}\langle \mathrm{B},\mathrm{A}\rangle}} {X^{\langle \mathrm{C},\mathrm{A}\rangle}}^{\beta^{\mathrm{x}\langle \mathrm{C},\mathrm{A}\rangle}} = 0 \tag{5.1}$$

$$-1 + \beta^{\mathrm{l}\langle \mathrm{B}\rangle} \gamma^{\langle \mathrm{B}\rangle} p^{\langle \mathrm{B}\rangle} {K^{\langle \mathrm{B}\rangle}}^{\beta^{\mathrm{k}\langle \mathrm{B}\rangle}} {L^{\langle \mathrm{B}\rangle}}^{-1+\beta^{\mathrm{l}\langle \mathrm{B}\rangle}} {X^{\langle \mathrm{A},\mathrm{B}\rangle}}^{\beta^{\mathrm{x}\langle \mathrm{A},\mathrm{B}\rangle}} {X^{\langle \mathrm{B},\mathrm{B}\rangle}}^{\beta^{\mathrm{x}\langle \mathrm{B},\mathrm{B}\rangle}} {X^{\langle \mathrm{C},\mathrm{B}\rangle}}^{\beta^{\mathrm{x}\langle \mathrm{C},\mathrm{B}\rangle}} = 0 \tag{5.2}$$

$$-1 + \beta^{\mathrm{l}\langle \mathrm{C}\rangle} \gamma^{\langle \mathrm{C}\rangle} p^{\langle \mathrm{C}\rangle} {K^{\langle \mathrm{C}\rangle}}^{\beta^{\mathrm{k}\langle \mathrm{C}\rangle}} {L^{\langle \mathrm{C}\rangle}}^{-1+\beta^{\mathrm{l}\langle \mathrm{C}\rangle}} {X^{\langle \mathrm{A},\mathrm{C}\rangle}}^{\beta^{\mathrm{x}\langle \mathrm{A},\mathrm{C}\rangle}} {X^{\langle \mathrm{B},\mathrm{C}\rangle}}^{\beta^{\mathrm{x}\langle \mathrm{B},\mathrm{C}\rangle}} {X^{\langle \mathrm{C},\mathrm{C}\rangle}}^{\beta^{\mathrm{x}\langle \mathrm{C},\mathrm{C}\rangle}} = 0 \tag{5.3}$$

$$1 - p^{\langle \mathrm{A}\rangle} = 0 \tag{5.4}$$

$$1 - p^{\langle \mathrm{B}\rangle} = 0 \tag{5.5}$$

$$1 - p^{\langle \mathrm{C}\rangle} = 0 \tag{5.6}$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$-\Pi^{\langle 1\rangle}+\pi^{\mathrm{h}\langle 1\rangle}\left(\pi^{\langle \mathrm{A}\rangle}+\pi^{\langle \mathrm{B}\rangle}+\pi^{\langle \mathrm{C}\rangle}\right)=0 \tag{5.23}$$

$$-\Pi^{\langle 2\rangle}+\pi^{\mathrm{h}\langle 2\rangle}\left(\pi^{\langle \mathrm{A}\rangle}+\pi^{\langle \mathrm{B}\rangle}+\pi^{\langle \mathrm{C}\rangle}\right)=0 \tag{5.24}$$

$$U^{\langle 1\rangle}-\left(\alpha^{\langle \mathrm{A},1\rangle}{D^{\langle \mathrm{A},1\rangle}}^{\omega^{-1}(-1+\omega)}+\alpha^{\langle \mathrm{B},1\rangle}{D^{\langle \mathrm{B},1\rangle}}^{\omega^{-1}(-1+\omega)}+\alpha^{\langle \mathrm{C},1\rangle}{D^{\langle \mathrm{C},1\rangle}}^{\omega^{-1}(-1+\omega)}\right)^{\omega(-1+\omega)^{-1}}=0 \tag{5.25}$$

$$U^{\langle 2\rangle}-\left(\alpha^{\langle \mathrm{A},2\rangle}{D^{\langle \mathrm{A},2\rangle}}^{\omega^{-1}(-1+\omega)}+\alpha^{\langle \mathrm{B},2\rangle}{D^{\langle \mathrm{B},2\rangle}}^{\omega^{-1}(-1+\omega)}+\alpha^{\langle \mathrm{C},2\rangle}{D^{\langle \mathrm{C},2\rangle}}^{\omega^{-1}(-1+\omega)}\right)^{\omega(-1+\omega)^{-1}}=0 \tag{5.26}$$

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

$$-Y^{\langle \mathrm{B}\rangle}+\gamma^{\langle \mathrm{B}\rangle}{K^{\langle \mathrm{B}\rangle}}^{\beta^{\mathrm{k}\langle \mathrm{B}\rangle}}{L^{\langle \mathrm{B}\rangle}}^{\beta^{\mathrm{l}\langle \mathrm{B}\rangle}}{X^{\langle \mathrm{A},\mathrm{B}\rangle}}^{\beta^{\mathrm{x}\langle \mathrm{A},\mathrm{B}\rangle}}{X^{\langle \mathrm{B},\mathrm{B}\rangle}}^{\beta^{\mathrm{x}\langle \mathrm{B},\mathrm{B}\rangle}}{X^{\langle \mathrm{C},\mathrm{B}\rangle}}^{\beta^{\mathrm{x}\langle \mathrm{C},\mathrm{B}\rangle}}=0 \tag{5.28}$$

$$-Y^{\langle \mathrm{C}\rangle}+\gamma^{\langle \mathrm{C}\rangle}{K^{\langle \mathrm{C}\rangle}}^{\beta^{\mathrm{k}\langle \mathrm{C}\rangle}}{L^{\langle \mathrm{C}\rangle}}^{\beta^{\mathrm{l}\langle \mathrm{C}\rangle}}{X^{\langle \mathrm{A},\mathrm{C}\rangle}}^{\beta^{\mathrm{x}\langle \mathrm{A},\mathrm{C}\rangle}}{X^{\langle \mathrm{B},\mathrm{C}\rangle}}^{\beta^{\mathrm{x}\langle \mathrm{B},\mathrm{C}\rangle}}{X^{\langle \mathrm{C},\mathrm{C}\rangle}}^{\beta^{\mathrm{x}\langle \mathrm{C},\mathrm{C}\rangle}}=0 \tag{5.29}$$

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

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

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

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

$$\lambda^{\mathrm{CONSUMER}^{1}\,\langle 2\rangle} p^{\langle \mathrm{B}\rangle} + \alpha^{\langle \mathrm{B},2\rangle} {D^{\langle \mathrm{B},2\rangle}}^{-1+\omega^{-1}(-1+\omega)} \left(\alpha^{\langle \mathrm{A},2\rangle} {D^{\langle \mathrm{A},2\rangle}}^{\omega^{-1}(-1+\omega)} + \alpha^{\langle \mathrm{B},2\rangle} {D^{\langle \mathrm{B},2\rangle}}^{\omega^{-1}(-1+\omega)} + \alpha^{\langle \mathrm{C},2\rangle} {D^{\langle \mathrm{C},2\rangle}}^{\omega^{-1}(-1+\omega)}\right)^{-1+\omega(-1+\omega)^{-1}} = 0 \tag{5.34}$$

$$\lambda^{\mathrm{CONSUMER}^{1}\,\langle 2\rangle} p^{\langle \mathrm{C}\rangle} + \alpha^{\langle \mathrm{C},2\rangle} {D^{\langle \mathrm{C},2\rangle}}^{-1+\omega^{-1}(-1+\omega)} \left(\alpha^{\langle \mathrm{A},2\rangle} {D^{\langle \mathrm{A},2\rangle}}^{\omega^{-1}(-1+\omega)} + \alpha^{\langle \mathrm{B},2\rangle} {D^{\langle \mathrm{B},2\rangle}}^{\omega^{-1}(-1+\omega)} + \alpha^{\langle \mathrm{C},2\rangle} {D^{\langle \mathrm{C},2\rangle}}^{\omega^{-1}(-1+\omega)}\right)^{-1+\omega(-1+\omega)^{-1}} = 0 \tag{5.35}$$

$$-INC^{\langle 1\rangle} + L^{\langle 1\rangle} + p^{\mathrm{k}} K^{\langle 1\rangle} = 0 \tag{5.36}$$

$$-INC^{\langle 2\rangle} + L^{\langle 2\rangle} + p^{\mathrm{k}} K^{\langle 2\rangle} = 0 \tag{5.37}$$

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

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

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

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

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

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

6 Calibrating equations

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

7 Equilibrium values

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

8 Model parameters

	Value
$\alpha^{\langle \mathrm{A},1 \rangle}$	0.7975
$\alpha^{\langle \mathrm{A},2 \rangle}$	0.6813
$\alpha^{\langle \mathrm{B},1 \rangle}$	0.3749
$\alpha^{\langle \mathrm{B},2 \rangle}$	0.4709
$\alpha^{\langle \mathrm{C},1 \rangle}$	0.4727
$\alpha^{\langle \mathrm{C},2 \rangle}$	0.5604
$\beta^{\mathrm{k}\,\langle \mathrm{A} \rangle}$	0.1104
$\beta^{\mathrm{k}\,\langle \mathrm{B} \rangle}$	0.1049
$\beta^{\mathrm{k}\,\langle \mathrm{C} \rangle}$	0.1814
$\beta^{\mathrm{l}\,\langle \mathrm{A} \rangle}$	0.0274
$\beta^{\mathrm{l}\,\langle \mathrm{B} \rangle}$	0.0947
$\beta^{\mathrm{l}\,\langle \mathrm{C} \rangle}$	0.141
$\beta^{\mathrm{x}\,\langle \mathrm{A},\mathrm{A} \rangle}$	0.1982
$\beta^{\mathrm{x}\,\langle \mathrm{A},\mathrm{B} \rangle}$	0.3927
$\beta^{\mathrm{x}\,\langle \mathrm{A},\mathrm{C} \rangle}$	0.0845
$\beta^{\mathrm{x}\,\langle \mathrm{B},\mathrm{A} \rangle}$	0.3243
$\beta^{\mathrm{x}\,\langle \mathrm{B},\mathrm{B} \rangle}$	0.2767
$\beta^{\mathrm{x}\,\langle \mathrm{B},\mathrm{C} \rangle}$	0.2596
$\beta^{\mathrm{x}\,\langle \mathrm{C},\mathrm{A} \rangle}$	0.3397
$\beta^{\mathrm{x}\,\langle \mathrm{C},\mathrm{B} \rangle}$	0.131
$\beta^{\mathrm{x}\,\langle \mathrm{C},\mathrm{C} \rangle}$	0.3335
$\gamma^{\langle \mathrm{A} \rangle}$	4.0329
$\gamma^{\langle \mathrm{B} \rangle}$	4.2572
$\gamma^{\langle \mathrm{C} \rangle}$	4.5311
$\pi^{\mathrm{h}\,\langle 1 \rangle}$	0.5