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Index sets

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

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

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.:

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

1.2 Identities

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

$$K^{\langle h \rangle} = k s^{\text{data} \langle h \rangle} \tag{1.4}$$

$$L^{\langle h \rangle} = k^{\text{data}\langle h \rangle} \tag{1.5}$$

1.3 First order conditions

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

2 FIRM $s \in SEC$

2.1 Optimisation problem

$$\max_{Y^{\langle s\rangle}, K^{\langle s\rangle}, L^{\langle s\rangle}, Y^{\text{VA}\langle s\rangle}, Y^{\text{INT}\langle s\rangle}} \pi^{\langle s\rangle} = -L^{\langle s\rangle} - p^{k} K^{\langle s\rangle} + p^{\langle s\rangle} Y^{\langle s\rangle} - Y^{\text{INT}\langle s\rangle} \left(\sum_{si \in SEC} \beta^{x\langle si, s\rangle^{-1}} p^{\langle si\rangle} \right)$$
(2.1)

s.t.:

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

$$Y^{\langle s \rangle} = Y^{\text{INT}\langle s \rangle} \quad \left(\lambda^{\text{FIRM}^2\langle s \rangle}\right)$$
 (2.3)

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

2.2 Identities

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$$\vec{s} \in SEC: \quad X^{\langle \vec{s}, s \rangle} = \beta^{x \langle \vec{s}, s \rangle^{-1}} Y^{\text{INT} \langle s \rangle}$$
(2.5)

2.3 First order conditions

$$-\lambda^{\text{FIRM}^{1}\langle s\rangle} - \lambda^{\text{FIRM}^{2}\langle s\rangle} + p^{\langle s\rangle} = 0 \quad \left(Y^{\langle s\rangle}\right)$$
(2.6)

$$-p^{\mathbf{k}} + \beta^{\mathbf{k}\langle s\rangle} \gamma^{\mathbf{yva}\langle s\rangle} \lambda^{\mathbf{FIRM}^{3\langle s\rangle}} K^{\langle s\rangle^{-1+\beta^{\mathbf{k}\langle s\rangle}}} L^{\langle s\rangle\beta^{1\langle s\rangle}} = 0 \quad \left(K^{\langle s\rangle}\right)$$

$$(2.7)$$

$$-1 + \beta^{I^{\langle s \rangle}} \gamma^{\text{yva}\langle s \rangle} \lambda^{\text{FIRM}^{3\langle s \rangle}} K^{\langle s \rangle}^{\beta^{k\langle s \rangle}} L^{\langle s \rangle^{-1 + \beta^{1\langle s \rangle}}} = 0 \quad \left(L^{\langle s \rangle} \right)$$

$$(2.8)$$

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

$$\lambda^{\text{FIRM}^{2\langle s\rangle}} - \sum_{s \in SEC} \beta^{x\langle si, s\rangle} p^{\langle si\rangle} = 0 \quad \left(Y^{\text{INT}\langle s\rangle}\right)$$
(2.10)

2.4 First order conditions after reduction

$$-p^{k} + \beta^{k\langle s\rangle} \gamma^{\text{yva}\langle s\rangle} \left(p^{\langle s\rangle} - \sum_{\vec{s} \in SEC} \beta^{x\langle \vec{s}, s\rangle^{-1}} p^{\langle \vec{s} \rangle} \right) K^{\langle s\rangle^{-1 + \beta^{k\langle s\rangle}}} L^{\langle s\rangle}^{\beta^{1\langle s\rangle}} = 0 \quad \left(K^{\langle s\rangle} \right)$$

$$(2.11)$$

$$-1 + \beta^{1\langle s \rangle} \gamma^{\text{yva}\langle s \rangle} \left(p^{\langle s \rangle} - \sum_{\vec{s} \in SEC} \beta^{\text{x}\langle \vec{s}, s \rangle^{-1}} p^{\langle \vec{s} \rangle} \right) K^{\langle s \rangle} L^{\langle s \rangle^{-1 + \beta^{1\langle s \rangle}}} = 0 \quad \left(L^{\langle s \rangle} \right)$$

$$(2.12)$$

3 EQUILIBRIUM

3.1 Identities

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

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

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

4 Equilibrium relationships (before expansion and reduction)

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

$$h \in HH: ks^{\operatorname{data}\langle h \rangle} - K^{\langle h \rangle} = 0$$
 (4.2)

$$h \in HH: \quad k^{\operatorname{data}^{\langle h \rangle}} - L^{\langle h \rangle} = 0$$
 (4.3)

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

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

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

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

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

$$s \in SEC: -1 + \beta^{1\langle s \rangle} \gamma^{\text{yva}\langle s \rangle} \left(p^{\langle s \rangle} - \sum_{si \in SEC} \beta^{\text{x}\langle si, s \rangle^{-1}} p^{\langle si \rangle} \right) K^{\langle s \rangle} \beta^{\text{k}\langle s \rangle} L^{\langle s \rangle^{-1} + \beta^{1\langle s \rangle}} = 0$$

$$(4.9)$$

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

$$s \in SEC: \quad -p^{\mathbf{k}} + \beta^{\mathbf{k}^{\langle s \rangle}} \gamma^{\mathbf{y} \mathbf{v} \mathbf{a}^{\langle s \rangle}} \left(p^{\langle s \rangle} - \sum_{\mathbf{s} \in SEC} \beta^{\mathbf{x}^{\langle \mathbf{s} i, s \rangle} - 1} p^{\langle \mathbf{s} i \rangle} \right) K^{\langle s \rangle - 1 + \beta^{\mathbf{k}^{\langle s \rangle}}} L^{\langle s \rangle}^{\beta^{1 \langle s \rangle}} = 0$$

$$(4.11)$$

$$s \in SEC: -Y^{\langle s \rangle} + Y^{VA \langle s \rangle} = 0$$
 (4.12)

$$s \in SEC: -Y^{\langle s \rangle} + Y^{INT^{\langle s \rangle}} = 0$$
 (4.13)

$$s \in SEC: -Y^{VA \langle s \rangle} + \gamma^{yva \langle s \rangle} K^{\langle s \rangle} \beta^{k \langle s \rangle} L^{\langle s \rangle} \beta^{1 \langle s \rangle} = 0$$

$$(4.14)$$

$$s \in SEC: \quad \pi^{\langle s \rangle} + L^{\langle s \rangle} + p^{k} K^{\langle s \rangle} - p^{\langle s \rangle} Y^{\langle s \rangle} + Y^{INT}^{\langle s \rangle} \left(\sum_{\vec{s} \in SEC} \beta^{x \langle \vec{s}, s \rangle^{-1}} p^{\langle \vec{s} \rangle} \right) = 0$$

$$(4.15)$$

$$s \in SEC: \quad \dot{s} \in SEC: \quad -X^{\langle \dot{s}, s \rangle} + \beta^{x \langle \dot{s}, s \rangle^{-1}} Y^{\text{INT} \langle s \rangle} = 0$$
 (4.16)

5 Equilibrium relationships (after expansion and reduction)

$$-1 + \beta^{1\langle A \rangle} \gamma^{\text{yva}\langle A \rangle} \left(p^{\langle A \rangle} - \beta^{\text{x}\langle A, A \rangle^{-1}} p^{\langle A \rangle} - \beta^{\text{x}\langle B, A \rangle^{-1}} p^{\langle B \rangle} - \beta^{\text{x}\langle C, A \rangle^{-1}} p^{\langle C \rangle} \right) K^{\langle A \rangle} K^{\langle A \rangle} L^{\langle A \rangle^{-1 + \beta^{1\langle A \rangle}}} = 0$$

$$(5.1)$$

$$-1 + \beta^{|\langle B \rangle} \gamma^{\text{yva}\langle B \rangle} \left(p^{\langle B \rangle} - \beta^{\text{x}\langle A, B \rangle^{-1}} p^{\langle A \rangle} - \beta^{\text{x}\langle B, B \rangle^{-1}} p^{\langle B \rangle} - \beta^{\text{x}\langle C, B \rangle^{-1}} p^{\langle C \rangle} \right) K^{\langle B \rangle} K^{\langle B \rangle} L^{\langle B \rangle^{-1 + \beta^{1 \langle B \rangle}}} = 0$$

$$(5.2)$$

$$-1 + \beta^{|\langle C \rangle} \gamma^{\text{yva}\langle C \rangle} \left(p^{\langle C \rangle} - \beta^{\text{x}\langle A, C \rangle^{-1}} p^{\langle A \rangle} - \beta^{\text{x}\langle B, C \rangle^{-1}} p^{\langle B \rangle} - \beta^{\text{x}\langle C, C \rangle^{-1}} p^{\langle C \rangle} \right) K^{\langle C \rangle} \beta^{\text{k}\langle C \rangle} L^{\langle C \rangle^{-1 + \beta^{1}\langle C \rangle}} = 0$$

$$(5.3)$$

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

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

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

$$k s^{\text{data}\langle 1 \rangle} - K^{\langle 1 \rangle} = 0$$
 (5.7)

$$ks^{\text{data}\langle 2\rangle} - K^{\langle 2\rangle} = 0$$
 (5.8)

$$k^{\text{data}\langle 1\rangle} - L^{\langle 1\rangle} = 0 \tag{5.9}$$

$$k^{\text{data}\langle 2\rangle} - L^{\langle 2\rangle} = 0 \tag{5.10}$$

$$-p^{\mathbf{k}} + \beta^{\mathbf{k}^{\langle \mathbf{A} \rangle}} \gamma^{\mathbf{y}\mathbf{v}\mathbf{a}^{\langle \mathbf{A} \rangle}} \left(p^{\langle \mathbf{A} \rangle} - \beta^{\mathbf{x}^{\langle \mathbf{A}, \mathbf{A} \rangle} - 1} p^{\langle \mathbf{A} \rangle} - \beta^{\mathbf{x}^{\langle \mathbf{B}, \mathbf{A} \rangle} - 1} p^{\langle \mathbf{B} \rangle} - \beta^{\mathbf{x}^{\langle \mathbf{C}, \mathbf{A} \rangle} - 1} p^{\langle \mathbf{C} \rangle} \right) K^{\langle \mathbf{A} \rangle} L^{\langle \mathbf{A} \rangle} L^{\langle \mathbf{A} \rangle} = 0$$

$$(5.11)$$

$$-p^{\mathbf{k}} + \beta^{\mathbf{k}^{\langle \mathbf{B} \rangle}} \gamma^{\mathbf{y} \mathbf{v} \mathbf{a}^{\langle \mathbf{B} \rangle}} \left(p^{\langle \mathbf{B} \rangle} - \beta^{\mathbf{x}^{\langle \mathbf{A}, \mathbf{B} \rangle} - 1} p^{\langle \mathbf{A} \rangle} - \beta^{\mathbf{x}^{\langle \mathbf{B}, \mathbf{B} \rangle} - 1} p^{\langle \mathbf{B} \rangle} - \beta^{\mathbf{x}^{\langle \mathbf{C}, \mathbf{B} \rangle} - 1} p^{\langle \mathbf{C} \rangle} \right) K^{\langle \mathbf{B} \rangle} L^{\langle \mathbf{B} \rangle} L^{\langle \mathbf{B} \rangle} = 0$$

$$(5.12)$$

$$-p^{\mathbf{k}} + \beta^{\mathbf{k}^{\langle \mathbf{C} \rangle}} \gamma^{\mathbf{y} \mathbf{v} \mathbf{a}^{\langle \mathbf{C} \rangle}} \left(p^{\langle \mathbf{C} \rangle} - \beta^{\mathbf{x}^{\langle \mathbf{A}, \mathbf{C} \rangle} - 1} p^{\langle \mathbf{A} \rangle} - \beta^{\mathbf{x}^{\langle \mathbf{B}, \mathbf{C} \rangle} - 1} p^{\langle \mathbf{B} \rangle} - \beta^{\mathbf{x}^{\langle \mathbf{C}, \mathbf{C} \rangle} - 1} p^{\langle \mathbf{C} \rangle} \right) K^{\langle \mathbf{C} \rangle} L^{\langle \mathbf{C} \rangle} L^{\langle \mathbf{C} \rangle} = 0$$

$$(5.13)$$

$$-\Pi^{\langle 1 \rangle} + \pi^{h^{\langle 1 \rangle}} \left(\pi^{\langle A \rangle} + \pi^{\langle B \rangle} + \pi^{\langle C \rangle} \right) = 0 \tag{5.14}$$

$$-\Pi^{\langle 2 \rangle} + \pi^{h^{\langle 2 \rangle}} \left(\pi^{\langle A \rangle} + \pi^{\langle B \rangle} + \pi^{\langle C \rangle} \right) = 0 \tag{5.15}$$

$$U^{\langle 1 \rangle} - \left(\alpha^{\langle A, 1 \rangle} D^{\langle A, 1 \rangle} \omega^{-1} (-1 + \omega) + \alpha^{\langle B, 1 \rangle} D^{\langle B, 1 \rangle} \omega^{-1} (-1 + \omega) + \alpha^{\langle C, 1 \rangle} D^{\langle C, 1 \rangle} \omega^{-1} (-1 + \omega) \right)^{\omega (-1 + \omega)^{-1}} = 0$$
 (5.16)

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

$$(5.17)$$

$$-X^{\langle A,A\rangle} + \beta^{x\langle A,A\rangle^{-1}} Y^{INT\langle A\rangle} = 0$$
(5.18)

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$$-X^{\langle A,B\rangle} + \beta^{x\langle A,B\rangle^{-1}} Y^{INT\langle B\rangle} = 0$$
 (5.19)

$$-X^{\langle A,C\rangle} + \beta^{x\langle A,C\rangle^{-1}} Y^{INT\langle C\rangle} = 0$$
(5.20)

$$-X^{\langle B,A\rangle} + \beta^{x\langle B,A\rangle^{-1}} Y^{INT\langle A\rangle} = 0$$
(5.21)

$$-X^{\langle \mathbf{B}, \mathbf{B} \rangle} + \beta^{\mathbf{x}\langle \mathbf{B}, \mathbf{B} \rangle^{-1}} Y^{\mathbf{INT}\langle \mathbf{B} \rangle} = 0 \tag{5.22}$$

$$-X^{\langle B,C\rangle} + \beta^{x\langle B,C\rangle^{-1}} Y^{INT\langle C\rangle} = 0$$
(5.23)

$$-X^{\langle C,A\rangle} + \beta^{x\langle C,A\rangle^{-1}} Y^{INT\langle A\rangle} = 0$$
 (5.24)

$$-X^{\langle C,B\rangle} + \beta^{x\langle C,B\rangle^{-1}} Y^{INT\langle B\rangle} = 0$$
 (5.25)

$$-X^{\langle C,C\rangle} + \beta^{x\langle C,C\rangle^{-1}} Y^{INT\langle C\rangle} = 0$$
 (5.26)

$$-Y^{\langle A \rangle} + Y^{VA \langle A \rangle} = 0 \tag{5.27}$$

$$-Y^{\langle A \rangle} + Y^{\text{INT}\langle A \rangle} = 0 \tag{5.28}$$

$$-Y^{\langle B \rangle} + Y^{VA \langle B \rangle} = 0 \tag{5.29}$$

$$-Y^{\langle B \rangle} + Y^{\text{INT}\langle B \rangle} = 0 \tag{5.30}$$

$$-Y^{\langle C \rangle} + Y^{VA \langle C \rangle} = 0 \tag{5.31}$$

$$-Y^{\langle C \rangle} + Y^{\text{INT}\langle C \rangle} = 0 \tag{5.32}$$

$$-Y^{\text{VA}\langle A\rangle} + \gamma^{\text{yva}\langle A\rangle} K^{\langle A\rangle}^{\beta^{\text{k}\langle A\rangle}} L^{\langle A\rangle}^{\beta^{\text{l}\langle A\rangle}} = 0$$
(5.33)

$$-Y^{\text{VA}\langle \text{B}\rangle} + \gamma^{\text{yva}\langle \text{B}\rangle} K^{\langle \text{B}\rangle}^{\beta^{\text{k}\langle \text{B}\rangle}} L^{\langle \text{B}\rangle}^{\beta^{1}\langle \text{B}\rangle} = 0$$
(5.34)

$$-Y^{\mathrm{VA}\langle \mathrm{C}\rangle} + \gamma^{\mathrm{yva}\langle \mathrm{C}\rangle} K^{\langle \mathrm{C}\rangle} \beta^{\mathrm{k}\langle \mathrm{C}\rangle} L^{\langle \mathrm{C}\rangle} \beta^{\mathrm{l}\langle \mathrm{C}\rangle} = 0$$
(5.35)

$$\lambda^{\text{CONSUMER}^{1}\langle 1 \rangle} p^{\langle A \rangle} + \alpha^{\langle A, 1 \rangle} D^{\langle A, 1 \rangle^{-1 + \omega^{-1}(-1 + \omega)}} \left(\alpha^{\langle A, 1 \rangle} D^{\langle A, 1 \rangle^{\omega^{-1}(-1 + \omega)}} + \alpha^{\langle B, 1 \rangle} D^{\langle B, 1 \rangle^{\omega^{-1}(-1 + \omega)}} + \alpha^{\langle C, 1 \rangle} D^{\langle C, 1 \rangle^{\omega^{-1}(-1 + \omega)}} \right)^{-1 + \omega(-1 + \omega)^{-1}} = 0$$
 (5.36)

$$\lambda^{\text{CONSUMER}^{1}\langle 1 \rangle} p^{\langle \mathbf{B} \rangle} + \alpha^{\langle \mathbf{B}, 1 \rangle} D^{\langle \mathbf{B}, 1 \rangle} D^{\langle \mathbf{B}, 1 \rangle} (\alpha^{\langle \mathbf{A}, 1 \rangle} D^{\langle \mathbf{A}, 1 \rangle} D^{\langle \mathbf{A}, 1 \rangle} D^{\langle \mathbf{B}, 1 \rangle} D^{\langle \mathbf{B}, 1 \rangle} D^{\langle \mathbf{B}, 1 \rangle} D^{\langle \mathbf{B}, 1 \rangle} D^{\langle \mathbf{C}, 1 \rangle} D^{$$

$$\lambda^{\text{CONSUMER}^{1\langle 1\rangle}} p^{\langle C\rangle} + \alpha^{\langle C, 1\rangle} D^{\langle C, 1\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle A, 1\rangle} D^{\langle A, 1\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle B, 1\rangle} D^{\langle B, 1\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle C, 1\rangle} D^{\langle C, 1\rangle^{\omega^{-1}(-1+\omega)}} \right)^{-1+\omega(-1+\omega)^{-1}} = 0$$
 (5.38)

$$\lambda^{\text{CONSUMER}^{1\langle 2\rangle}} p^{\langle A\rangle} + \alpha^{\langle A,2\rangle} D^{\langle A,2\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle A,2\rangle} D^{\langle A,2\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle B,2\rangle} D^{\langle B,2\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle C,2\rangle} D^{\langle C,2\rangle^{\omega^{-1}(-1+\omega)}} \right)^{-1+\omega(-1+\omega)^{-1}} = 0$$
 (5.39)

$$\lambda^{\text{CONSUMER}^{1\langle 2\rangle}} p^{\langle \mathrm{B}\rangle} + \alpha^{\langle \mathrm{B}, 2\rangle} D^{\langle \mathrm{B}, 2\rangle} D^{\langle \mathrm{B}, 2\rangle} e^{-1+\omega^{-1}(-1+\omega)} \left(\alpha^{\langle \mathrm{A}, 2\rangle} D^{\langle \mathrm{A}, 2\rangle} e^{-1(-1+\omega)} + \alpha^{\langle \mathrm{B}, 2\rangle} D^{\langle \mathrm{B}, 2\rangle} e^{-1(-1+\omega)} + \alpha^{\langle \mathrm{C}, 2\rangle} D^{\langle \mathrm{C}, 2\rangle} e^{-1(-1+\omega)} \right)^{-1+\omega(-1+\omega)^{-1}} = 0$$
 (5.40)

$$\lambda^{\text{CONSUMER}^{1\langle 2\rangle}} p^{\langle \mathcal{C}\rangle} + \alpha^{\langle \mathcal{C}, 2\rangle} D^{\langle \mathcal{C}, 2\rangle^{-1+\omega^{-1}(-1+\omega)}} \left(\alpha^{\langle \mathcal{A}, 2\rangle} D^{\langle \mathcal{A}, 2\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathcal{B}, 2\rangle} D^{\langle \mathcal{B}, 2\rangle^{\omega^{-1}(-1+\omega)}} + \alpha^{\langle \mathcal{C}, 2\rangle} D^{\langle \mathcal{C}, 2\rangle^{\omega^{-1}(-1+\omega)}} \right)^{-1+\omega(-1+\omega)^{-1}} = 0$$
 (5.41)

$$-INC^{\langle 1 \rangle} + L^{\langle 1 \rangle} + p^{\mathbf{k}} K^{\langle 1 \rangle} = 0 \tag{5.42}$$

$$-INC^{\langle 2 \rangle} + L^{\langle 2 \rangle} + p^{\mathbf{k}} K^{\langle 2 \rangle} = 0 \tag{5.43}$$

$$\pi^{\langle \mathbf{A} \rangle} + L^{\langle \mathbf{A} \rangle} + p^{\mathbf{k}} K^{\langle \mathbf{A} \rangle} - p^{\langle \mathbf{A} \rangle} Y^{\langle \mathbf{A} \rangle} + Y^{\mathrm{INT}\langle \mathbf{A} \rangle} \left(\beta^{\mathbf{x}\langle \mathbf{A}, \mathbf{A} \rangle^{-1}} p^{\langle \mathbf{A} \rangle} + \beta^{\mathbf{x}\langle \mathbf{B}, \mathbf{A} \rangle^{-1}} p^{\langle \mathbf{B} \rangle} + \beta^{\mathbf{x}\langle \mathbf{C}, \mathbf{A} \rangle^{-1}} p^{\langle \mathbf{C} \rangle} \right) = 0 \tag{5.44}$$

$$\pi^{\langle \mathrm{B} \rangle} + L^{\langle \mathrm{B} \rangle} + p^{\mathrm{k}} K^{\langle \mathrm{B} \rangle} - p^{\langle \mathrm{B} \rangle} Y^{\langle \mathrm{B} \rangle} + Y^{\mathrm{INT}^{\langle \mathrm{B} \rangle}} \left(\beta^{\mathrm{x} \langle \mathrm{A}, \mathrm{B} \rangle^{-1}} p^{\langle \mathrm{A} \rangle} + \beta^{\mathrm{x} \langle \mathrm{B}, \mathrm{B} \rangle^{-1}} p^{\langle \mathrm{B} \rangle} + \beta^{\mathrm{x} \langle \mathrm{C}, \mathrm{B} \rangle^{-1}} p^{\langle \mathrm{C} \rangle} \right) = 0 \tag{5.45}$$

$$\pi^{\langle \mathcal{C} \rangle} + L^{\langle \mathcal{C} \rangle} + p^{\mathbf{k}} K^{\langle \mathcal{C} \rangle} - p^{\langle \mathcal{C} \rangle} Y^{\langle \mathcal{C} \rangle} + Y^{\mathrm{INT} \langle \mathcal{C} \rangle} \left(\beta^{\mathbf{x} \langle \mathcal{A}, \mathcal{C} \rangle^{-1}} p^{\langle \mathcal{A} \rangle} + \beta^{\mathbf{x} \langle \mathcal{B}, \mathcal{C} \rangle^{-1}} p^{\langle \mathcal{B} \rangle} + \beta^{\mathbf{x} \langle \mathcal{C}, \mathcal{C} \rangle^{-1}} p^{\langle \mathcal{C} \rangle} \right) = 0 \tag{5.46}$$

$$-INC^{\langle 1 \rangle} - \Pi^{\langle 1 \rangle} + p^{\langle A \rangle}D^{\langle A, 1 \rangle} + p^{\langle B \rangle}D^{\langle B, 1 \rangle} + p^{\langle C \rangle}D^{\langle C, 1 \rangle} = 0$$
 (5.47)

$$-INC^{\langle 2 \rangle} - \Pi^{\langle 2 \rangle} + p^{\langle A \rangle} D^{\langle A, 2 \rangle} + p^{\langle B \rangle} D^{\langle B, 2 \rangle} + p^{\langle C \rangle} D^{\langle C, 2 \rangle} = 0$$
 (5.48)

$$-K^{\langle 1 \rangle} - K^{\langle 2 \rangle} + K^{\langle A \rangle} + K^{\langle B \rangle} + K^{\langle C \rangle} = 0 \tag{5.49}$$

6 Calibrating equations

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$-1 + \beta^{\mathbf{k}\langle \mathbf{A}\rangle} + \beta^{\mathbf{l}\langle \mathbf{A}\rangle} = 0 \tag{6.20}$$

$$-1 + \beta^{k\langle B \rangle} + \beta^{l\langle B \rangle} = 0 \tag{6.21}$$

$$-1 + \beta^{\mathbf{k}^{\langle \mathbf{C} \rangle}} + \beta^{\mathbf{l}^{\langle \mathbf{C} \rangle}} = 0 \tag{6.22}$$

$$-1 + \pi^{h\langle 1\rangle} + \pi^{h\langle 2\rangle} = 0 \tag{6.23}$$

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

$$(6.24)$$

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

$$(6.25)$$

7 Equilibrium values

$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		Equilibrium value
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		1
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		-1
$\begin{array}{c cccccc} p^{(A)} & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & $	$\lambda^{\text{CONSUMER}^{1\langle 2\rangle}}$	-1
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$p^{\langle { m A} angle}$	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$p^{\langle \mathrm{B} angle}$	1
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$p^{\langle \mathrm{C} angle}$	1
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\pi^{\langle { m A} angle}$	0
$\begin{array}{c cccccc} D^{(A,1)} & 52.94 \\ D^{(A,2)} & 64.45 \\ D^{(B,1)} & 11.7 \\ D^{(B,2)} & 30.79 \\ D^{(C,1)} & 18.6 \\ D^{(C,2)} & 43.6 \\ INC^{(1)} & 83.24 \\ INC^{(2)} & 138.84 \\ K^{(1)} & 65.07 \\ K^{(2)} & 68.77 \\ K^{(A)} & 38.1 \\ K^{(B)} & 35.01 \\ K^{(C)} & 60.73 \\ L^{(1)} & 18.17 \\ L^{(2)} & 70.07 \\ L^{(A)} & 9.44 \\ L^{(B)} & 31.6 \\ L^{(C)} & 47.2 \\ \Pi^{(1)} & 0 \\ \Pi^{(2)} & 0 \\ U^{(1)} & 83.24 \\ U^{(2)} & 138.84 \\ X^{(A,A)} & 68.4 \\ X^{(A,A)} & 68.4 \\ X^{(A,A)} & 68.4 \\ X^{(A,B)} & 131.01 \\ X^{(A,C)} & 28.28 \\ X^{(B,A)} & 111.91 \\ X^{(B,B)} & 92.3 \\ X^{(C,A)} & 117.23 \\ X^{(C,C)} & 111.65 \\ Y^{(A)} & 345.08 \\ Y^{(B)} & 333.62 \\ Y^{(C)} & 334.78 \\ Y^{(INT^{(A)})} & 345.08 \\ Y^{(INT^{(A)})} & 345.08 \\ Y^{(INT^{(B)})} & 333.62 \\ Y^{(C)} & 334.78 \\ Y^{(INT^{(B)})} & 333.62 \\ \end{array}$	$\pi^{ m \langle B angle}$	0
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\pi^{\langle \mathrm{C} \rangle}$	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$D^{\langle B,2\rangle}$	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$D^{(C,1)}$	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$D^{\langle \circlearrowleft,2\rangle}$	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$INC^{(2)}$	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	INC \=/	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$K^{\langle 2 \rangle}$	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$K \setminus K \setminus$	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$K^{\langle \mathrm{B} \rangle}$	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$K^{\langle \mathrm{C} \rangle}$	
$\begin{array}{c ccccc} L^{\langle 2 \rangle} & 70.07 \\ L^{\langle A \rangle} & 9.44 \\ L^{\langle B \rangle} & 31.6 \\ L^{\langle C \rangle} & 47.2 \\ \Pi^{\langle 1 \rangle} & 0 \\ \Pi^{\langle 2 \rangle} & 0 \\ U^{\langle 1 \rangle} & 83.24 \\ U^{\langle 2 \rangle} & 138.84 \\ X^{\langle A,A \rangle} & 68.4 \\ X^{\langle A,B \rangle} & 131.01 \\ X^{\langle A,C \rangle} & 28.28 \\ X^{\langle B,A \rangle} & 111.91 \\ X^{\langle B,B \rangle} & 92.3 \\ X^{\langle B,C \rangle} & 86.92 \\ X^{\langle C,A \rangle} & 117.23 \\ X^{\langle C,B \rangle} & 43.7 \\ X^{\langle C,C \rangle} & 111.65 \\ Y^{\langle A \rangle} & 345.08 \\ Y^{\langle B \rangle} & 333.62 \\ Y^{\langle A \rangle} & 345.08 \\ Y^{\langle$	$L^{\langle 1 \rangle}$	
$\begin{array}{c ccccc} L^{\langle A \rangle} & & 9.44 \\ L^{\langle B \rangle} & & 31.6 \\ L^{\langle C \rangle} & & 47.2 \\ \Pi^{\langle 1 \rangle} & & 0 \\ \Pi^{\langle 2 \rangle} & & 0 \\ U^{\langle 1 \rangle} & & 83.24 \\ U^{\langle 2 \rangle} & & 138.84 \\ X^{\langle A,A \rangle} & & 68.4 \\ X^{\langle A,B \rangle} & & 131.01 \\ X^{\langle A,C \rangle} & & 28.28 \\ X^{\langle B,A \rangle} & & 111.91 \\ X^{\langle B,B \rangle} & & 92.3 \\ X^{\langle B,C \rangle} & & 86.92 \\ X^{\langle C,A \rangle} & & 117.23 \\ X^{\langle C,B \rangle} & & 43.7 \\ X^{\langle C,C \rangle} & & 111.65 \\ Y^{\langle A \rangle} & & 345.08 \\ Y^{\langle B \rangle} & & 333.62 \\ Y^{\langle A \rangle} & & 345.08 \\ Y^{\langle A \rangle} & & 34$		
$\begin{array}{c ccccc} L^{(C)} & 47.2 \\ \Pi^{(1)} & 0 \\ \Pi^{(2)} & 0 \\ U^{(1)} & 83.24 \\ U^{(2)} & 138.84 \\ X^{\langle A,A\rangle} & 68.4 \\ X^{\langle A,B\rangle} & 131.01 \\ X^{\langle A,C\rangle} & 28.28 \\ X^{\langle B,A\rangle} & 111.91 \\ X^{\langle B,B\rangle} & 92.3 \\ X^{\langle B,C\rangle} & 86.92 \\ X^{\langle C,A\rangle} & 117.23 \\ X^{\langle C,B\rangle} & 43.7 \\ X^{\langle C,C\rangle} & 111.65 \\ Y^{\langle A\rangle} & 345.08 \\ Y^{\langle B\rangle} & 333.62 \\ Y^{\langle A\rangle} & 345.08 \\ Y^{\langle A\rangle} & 333.62 \\ Y$	$L^{\langle { m A} angle}$	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		31.6
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		47.2
$\begin{array}{c ccccc} U^{\langle 1 \rangle} & & & & & & & & \\ U^{\langle 2 \rangle} & & & & & & & \\ U^{\langle 2 \rangle} & & & & & & & \\ 138.84 & & & & & \\ X^{\langle A,A \rangle} & & & & & & \\ X^{\langle A,A \rangle} & & & & & & \\ X^{\langle A,C \rangle} & & & & & & \\ X^{\langle B,A \rangle} & & & & & & \\ 131.01 & & & & & \\ X^{\langle B,A \rangle} & & & & & \\ X^{\langle B,A \rangle} & & & & & \\ 111.91 & & & & \\ X^{\langle B,B \rangle} & & & & \\ X^{\langle B,C \rangle} & & & & & \\ X^{\langle B,C \rangle} & & & & \\ X^{\langle C,A \rangle} & & & & \\ 117.23 & & & & \\ X^{\langle C,A \rangle} & & & & \\ 117.23 & & & & \\ X^{\langle C,A \rangle} & & & & \\ 117.23 & & & & \\ X^{\langle C,C \rangle} & & & & \\ 111.65 & & & & \\ Y^{\langle C,C \rangle} & & & & \\ 111.65 & & & & \\ Y^{\langle A,C \rangle} & & & \\ Y^{\langle A,C \rangle} & & & & \\ Y^{\langle A,C \rangle} & & & & \\ Y^{\langle A,C \rangle} & & & \\ Y^{\langle A,C \rangle} & & & & \\ Y^{\langle A,C \rangle} & & & & \\ Y^{\langle A,C \rangle} & & & \\ Y^{\langle A,C \rangle} & & & & \\ Y^{\langle A,C \rangle} & & \\ Y^{\langle A,C \rangle} & & \\ Y^{\langle A,C \rangle} & & & \\ Y^{\langle A,C \rangle} & & & \\ Y^{\langle A,C \rangle} & & \\ Y^{\langle A,C \rangle} & & & \\ Y^{\langle A,C \rangle} & & \\ Y^{\langle A,C $		0
$\begin{array}{c cccc} U^{\langle 2 \rangle} & & & & & & & \\ X^{\langle A,A \rangle} & & & & & & & \\ X^{\langle A,A \rangle} & & & & & & \\ X^{\langle A,B \rangle} & & & & & & \\ X^{\langle A,C \rangle} & & & & & & \\ X^{\langle B,A \rangle} & & & & & & \\ X^{\langle B,A \rangle} & & & & & \\ X^{\langle B,B \rangle} & & & & & \\ X^{\langle B,C \rangle} & & & & & \\ X^{\langle C,C \rangle} & & & & & \\ X^{\langle C,A \rangle} & & & & & \\ X^{\langle C,A \rangle} & & & & \\ X^{\langle C,B \rangle} & & & & \\ X^{\langle C,B \rangle} & & & & \\ X^{\langle C,C \rangle} & & & & \\ X^{\langle C,C \rangle} & & & & \\ X^{\langle C,C \rangle} & & & \\ Y^{\langle A \rangle} & & & \\ Y^{\langle A \rangle} & & & & \\ Y^{\langle A \rangle} & & \\ Y^{\langle A \rangle} & & & \\ Y^{\langle A \rangle} & & & \\ Y^{\langle A \rangle} $		· ·
$\begin{array}{c ccccc} X^{\langle A,A\rangle} & & 68.4 \\ X^{\langle A,B\rangle} & & 131.01 \\ X^{\langle A,C\rangle} & & 28.28 \\ X^{\langle B,A\rangle} & & 111.91 \\ X^{\langle B,B\rangle} & & 92.3 \\ X^{\langle C,A\rangle} & & 117.23 \\ X^{\langle C,A\rangle} & & 117.23 \\ X^{\langle C,B\rangle} & & 43.7 \\ X^{\langle C,C\rangle} & & 111.65 \\ Y^{\langle A\rangle} & & 345.08 \\ Y^{\langle B\rangle} & & 333.62 \\ Y^{\langle C\rangle} & & 344.78 \\ Y^{\langle C,C\rangle} & & 334.78 \\ Y^{\langle C,C\rangle} & & 333.62 \\ \end{array}$		
$\begin{array}{c ccccc} X^{\langle A,B \rangle} & 131.01 \\ X^{\langle A,C \rangle} & 28.28 \\ X^{\langle B,A \rangle} & 111.91 \\ X^{\langle B,B \rangle} & 92.3 \\ X^{\langle C,A \rangle} & 117.23 \\ X^{\langle C,A \rangle} & 117.23 \\ X^{\langle C,B \rangle} & 43.7 \\ X^{\langle C,C \rangle} & 111.65 \\ Y^{\langle A \rangle} & 345.08 \\ Y^{\langle B \rangle} & 333.62 \\ Y^{\langle C \rangle} & 344.78 \\ Y^{\langle C \rangle} & 334.78 \\ Y^{\langle C \rangle} & 333.62 \\ \end{array}$	$U^{(2)}$	
$\begin{array}{c ccccc} X^{\langle A,C\rangle} & 28.28 \\ X^{\langle B,A\rangle} & 111.91 \\ X^{\langle B,B\rangle} & 92.3 \\ X^{\langle B,C\rangle} & 86.92 \\ X^{\langle C,A\rangle} & 117.23 \\ X^{\langle C,B\rangle} & 43.7 \\ X^{\langle C,C\rangle} & 111.65 \\ Y^{\langle A\rangle} & 345.08 \\ Y^{\langle B\rangle} & 333.62 \\ Y^{\langle C\rangle} & 334.78 \\ Y^{VA}^{\langle A\rangle} & 345.08 \\ Y^{VA}^{\langle A\rangle} & 345.08 \\ Y^{VA}^{\langle A\rangle} & 345.08 \\ Y^{VA}^{\langle C\rangle} & 334.78 \\ Y^{INT}^{\langle A\rangle} & 345.08 \\ Y^{INT}^{\langle B\rangle} & 333.62 \\ \end{array}$		
$\begin{array}{c ccccc} X^{\langle {\rm B},{\rm A}\rangle} & & & 111.91 \\ X^{\langle {\rm B},{\rm B}\rangle} & & 92.3 \\ X^{\langle {\rm B},{\rm C}\rangle} & & 86.92 \\ X^{\langle {\rm C},{\rm A}\rangle} & & 117.23 \\ X^{\langle {\rm C},{\rm B}\rangle} & & 43.7 \\ X^{\langle {\rm C},{\rm C}\rangle} & & 111.65 \\ Y^{\langle {\rm A}\rangle} & & 345.08 \\ Y^{\langle {\rm B}\rangle} & & 333.62 \\ Y^{\langle {\rm C}\rangle} & & 334.78 \\ Y^{{\rm VA}}{}^{\langle {\rm A}\rangle} & & 345.08 \\ Y^{{\rm VA}}{}^{\langle {\rm B}\rangle} & & 333.62 \\ Y^{{\rm VA}}{}^{\langle {\rm C}\rangle} & & 334.78 \\ Y^{{\rm VA}}{}^{\langle {\rm C}\rangle} & & 334.78 \\ Y^{{\rm INT}}{}^{\langle {\rm A}\rangle} & & 345.08 \\ Y^{{\rm INT}}{}^{\langle {\rm B}\rangle} & & 333.62 \\ \end{array}$	$X^{\langle A, B \rangle}$	
$\begin{array}{c ccccc} X^{\langle {\rm B}, {\rm B} \rangle} & 92.3 \\ X^{\langle {\rm B}, {\rm C} \rangle} & 86.92 \\ X^{\langle {\rm C}, {\rm A} \rangle} & 117.23 \\ X^{\langle {\rm C}, {\rm B} \rangle} & 43.7 \\ X^{\langle {\rm C}, {\rm C} \rangle} & 111.65 \\ Y^{\langle {\rm A} \rangle} & 345.08 \\ Y^{\langle {\rm B} \rangle} & 333.62 \\ Y^{\langle {\rm C} \rangle} & 334.78 \\ Y^{{\rm VA}}{}^{\langle {\rm A} \rangle} & 345.08 \\ Y^{{\rm VA}}{}^{\langle {\rm B} \rangle} & 333.62 \\ Y^{{\rm VA}}{}^{\langle {\rm C} \rangle} & 334.78 \\ Y^{{\rm VA}}{}^{\langle {\rm C} \rangle} & 334.78 \\ Y^{{\rm INT}}{}^{\langle {\rm A} \rangle} & 345.08 \\ Y^{{\rm INT}}{}^{\langle {\rm B} \rangle} & 333.62 \\ \end{array}$		
$\begin{array}{c cccc} X^{\langle {\rm B,C} \rangle} & 86.92 \\ X^{\langle {\rm C,A} \rangle} & 117.23 \\ X^{\langle {\rm C,B} \rangle} & 43.7 \\ X^{\langle {\rm C,C} \rangle} & 111.65 \\ Y^{\langle {\rm A} \rangle} & 345.08 \\ Y^{\langle {\rm B} \rangle} & 333.62 \\ Y^{\langle {\rm C} \rangle} & 344.78 \\ Y^{{\rm VA} \langle {\rm A} \rangle} & 345.08 \\ Y^{{\rm VA} \langle {\rm C} \rangle} & 334.78 \\ Y^{{\rm VA} \langle {\rm C} \rangle} & 334.78 \\ Y^{{\rm VA} \langle {\rm C} \rangle} & 334.78 \\ Y^{{\rm INT} \langle {\rm A} \rangle} & 345.08 \\ Y^{{\rm INT} \langle {\rm A} \rangle} & 345.08 \\ Y^{{\rm INT} \langle {\rm C} \rangle} & 333.62 \\ \end{array}$		
$\begin{array}{cccccc} X^{\langle {\rm C},{\rm A}\rangle} & & & & & & & \\ X^{\langle {\rm C},{\rm B}\rangle} & & & & & & & \\ X^{\langle {\rm C},{\rm B}\rangle} & & & & & & \\ X^{\langle {\rm C},{\rm C}\rangle} & & & & & & \\ 111.65 & & & & & \\ Y^{\langle {\rm A}\rangle} & & & & & & \\ Y^{\langle {\rm B}\rangle} & & & & & & \\ Y^{\langle {\rm B}\rangle} & & & & & & \\ Y^{\langle {\rm C}\rangle} & & & & & & \\ Y^{\langle {\rm C}\rangle} & & & & & & \\ Y^{\langle {\rm C}\rangle} & & & & & \\ Y^{\langle {\rm C}\rangle} & & & & & \\ Y^{\langle {\rm C}\rangle} & & & & & \\ Y^{\langle {\rm C}\rangle} & & & & & \\ Y^{\langle {\rm C}\rangle} & & & & & \\ Y^{\langle {\rm C}\rangle} & & & & & \\ Y^{\langle {\rm C}\rangle} & & & & & \\ Y^{\langle {\rm C}\rangle} & & & & & \\ Y^{\langle {\rm C}\rangle} & & & & & \\ Y^{\langle {\rm C}\rangle} & & & & & \\ Y^{\langle {\rm C}\rangle} & & & & \\ Y^{\langle {\rm C}\rangle} & & & & & \\ Y^{\langle {\rm C}\rangle} & & & \\ Y^{\langle {\rm C}\rangle} & & & \\ Y^{\langle {\rm C}\rangle} & & & & \\ Y^{\langle {\rm C}\rangle} & & & \\ Y^{\langle {\rm C}\rangle} & & & & \\ Y^{\langle {\rm C}\rangle} & & \\ Y^{\langle {\rm C}\rangle} & & & \\ Y^{\langle {\rm C}\rangle} & & \\ Y^{\langle {\rm C}\rangle} & & $		
$\begin{array}{c cccc} X^{({\rm C},{\rm B})} & 43.7 \\ X^{({\rm C},{\rm C})} & 111.65 \\ Y^{({\rm A})} & 345.08 \\ Y^{({\rm B})} & 333.62 \\ Y^{({\rm C})} & 334.78 \\ Y^{{\rm VA}}{}^{({\rm A})} & 345.08 \\ Y^{{\rm VA}}{}^{({\rm B})} & 333.62 \\ Y^{{\rm VA}}{}^{({\rm C})} & 334.78 \\ Y^{{\rm VA}}{}^{({\rm C})} & 334.78 \\ Y^{{\rm INT}}{}^{({\rm A})} & 345.08 \\ Y^{{\rm INT}}{}^{({\rm B})} & 333.62 \\ \end{array}$		
$\begin{array}{cccccc} Y^{\langle A \rangle} & 345.08 \\ Y^{\langle B \rangle} & 333.62 \\ Y^{\langle C \rangle} & 334.78 \\ Y^{VA \langle A \rangle} & 345.08 \\ Y^{VA \langle B \rangle} & 333.62 \\ Y^{VA \langle C \rangle} & 334.78 \\ Y^{INT \langle A \rangle} & 345.08 \\ Y^{INT \langle B \rangle} & 333.62 \\ \end{array}$		
$\begin{array}{cccc} Y^{\langle {\rm B} \rangle} & 333.62 \\ Y^{\langle {\rm C} \rangle} & 334.78 \\ Y^{{\rm VA}}{}^{\langle {\rm A} \rangle} & 345.08 \\ Y^{{\rm VA}}{}^{\langle {\rm B} \rangle} & 333.62 \\ Y^{{\rm VA}}{}^{\langle {\rm C} \rangle} & 334.78 \\ Y^{{\rm INT}}{}^{\langle {\rm A} \rangle} & 345.08 \\ Y^{{\rm INT}}{}^{\langle {\rm B} \rangle} & 333.62 \\ \end{array}$	$X^{\langle ext{C,C} angle}$	111.65
$Y^{\langle C \rangle}$ 334.78 $Y^{VA \langle A \rangle}$ 345.08 $Y^{VA \langle B \rangle}$ 333.62 $Y^{VA \langle C \rangle}$ 334.78 $Y^{INT \langle A \rangle}$ 345.08 $Y^{INT \langle B \rangle}$ 333.62		345.08
$Y^{\text{VA}\langle \text{A} \rangle}$ 345.08 $Y^{\text{VA}\langle \text{B} \rangle}$ 333.62 $Y^{\text{VA}\langle \text{C} \rangle}$ 334.78 $Y^{\text{INT}\langle \text{A} \rangle}$ 345.08 $Y^{\text{INT}\langle \text{B} \rangle}$ 333.62		333.62
$Y^{\text{VA}} \stackrel{\langle \text{B} \rangle}{}$ 333.62 $Y^{\text{VA}} \stackrel{\langle \text{C} \rangle}{}$ 334.78 $Y^{\text{INT}} \stackrel{\langle \text{A} \rangle}{}$ 345.08 $Y^{\text{INT}} \stackrel{\langle \text{B} \rangle}{}$ 333.62		334.78
$Y^{\text{VA}} \stackrel{\text{(C)}}{}$ 334.78 $Y^{\text{INT}} \stackrel{\text{(A)}}{}$ 345.08 $Y^{\text{INT}} \stackrel{\text{(B)}}{}$ 333.62	$Y^{\mathrm{VA} \langle \mathrm{A} angle}$	345.08
$Y^{\text{INT}\langle A \rangle}$ 345.08 $Y^{\text{INT}\langle B \rangle}$ 333.62	$Y^{\mathrm{VA} \langle \mathrm{B} angle}$	333.62
$Y^{\text{INT}\langle A \rangle}$ 345.08 $Y^{\text{INT}\langle B \rangle}$ 333.62	$Y^{\mathrm{VA} \langle \mathrm{C} angle}$	334.78
$Y^{\text{INT}\langle \text{B}\rangle}$ 333.62		
1 (C)		
	$Y^{ m INT}\langle { m C} angle$	334.78

8 Model parameters

	Value
$\alpha^{\langle A,1\rangle}$	0.7975
$\alpha^{\langle A,2\rangle}$	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
$\beta^{\mathbf{k}^{\langle \mathbf{A} \rangle}}$	0.8014
$\beta^{\mathbf{k}^{\langle \mathbf{B} \rangle}}$	0.5256
$\beta^{\mathrm{k}\langle\mathrm{C}\rangle}$	0.5627
$\beta^{\mathrm{l}\langle\mathrm{A} angle}$	0.1986
$\beta^{\mathrm{l}\langle\mathrm{B} angle}$	0.4744
$\beta^{\mathrm{l}\langle\mathrm{C} angle}$	0.4373
$\beta^{x\langle A,A\rangle}$	5.045
$\beta^{x(A,B)}$	2.5465
$\beta^{x(A,C)}$	11.838
$\beta^{x\langle B,A\rangle}$	3.0835
$\beta^{x\langle B,B\rangle}$	3.6145
$\beta^{x\langle B,C\rangle}$	3.8516
$\beta^{x\langle C,A\rangle}$	2.9436
$\beta^{x\langle C,B\rangle}$	7.6343
$\beta^{x\langle C,C\rangle}$	2.9985
$\gamma^{\mathrm{yva}\langle\mathrm{A} angle}$	11.9486
$\gamma^{\mathrm{yva}\langle\mathrm{B}\rangle}$	10.004
$\gamma^{\mathrm{yva}\langle\mathrm{C}\rangle}$	6.155
$\pi^{\mathrm{h}^{\langle 1 \rangle}}$	0.155
71	0.5