

Index sets

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

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

1 CONSUMER $h \in HH$

1.1 Optimisation problem

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

s.t. :

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

1.2 Identities

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

$$K^{(h)} = k^{\text{data}(h)} \quad (1.4)$$

$$L^{(h)} = l^{\text{data}(h)} \quad (1.5)$$

1.3 First order conditions

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

2 FIRM $s \in SEC$

2.1 Optimisation problem

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

s.t. :

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

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

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

2.2 Identities

$$\dot{s}i \in SEC: \quad X^{(\dot{s}i, s)} = \beta^{x(\dot{s}i, s)-1} Y^{INT(s)} \quad (2.5)$$

2.3 First order conditions

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

$$-p^k + \beta^k(s) \gamma^{yva(s)} \lambda^{FIRM^3(s)} K^{(s)-1+\beta^k(s)} L^{(s)\beta^l(s)} = 0 \quad (K^{(s)}) \quad (2.7)$$

$$-1 + \beta^l(s) \gamma^{yva(s)} \lambda^{FIRM^3(s)} K^{(s)\beta^k(s)} L^{(s)-1+\beta^l(s)} = 0 \quad (L^{(s)}) \quad (2.8)$$

$$\lambda^{FIRM^1(s)} - \lambda^{FIRM^3(s)} = 0 \quad (Y^{VA(s)}) \quad (2.9)$$

$$\lambda^{FIRM^2(s)} - \sum_{\dot{s}i \in SEC} \beta^{x(\dot{s}i, s)-1} p^{(\dot{s}i)} = 0 \quad (Y^{INT(s)}) \quad (2.10)$$

2.4 First order conditions after reduction

$$-p^k + \beta^{k\langle s \rangle} \gamma^{yva\langle s \rangle} \left(p^{\langle s \rangle} - \sum_{\bar{s} \in SEC} \beta^{x\langle \bar{s}, s \rangle - 1} p^{\langle \bar{s} \rangle} \right) K^{\langle s \rangle - 1 + \beta^{k\langle s \rangle}} L^{\langle s \rangle \beta^{1\langle s \rangle}} = 0 \quad (K^{\langle s \rangle}) \quad (2.11)$$

$$-1 + \beta^{1\langle s \rangle} \gamma^{yva\langle s \rangle} \left(p^{\langle s \rangle} - \sum_{\bar{s} \in SEC} \beta^{x\langle \bar{s}, s \rangle - 1} p^{\langle \bar{s} \rangle} \right) K^{\langle s \rangle \beta^{k\langle s \rangle}} L^{\langle s \rangle - 1 + \beta^{1\langle s \rangle}} = 0 \quad (L^{\langle s \rangle}) \quad (2.12)$$

3 EQUILIBRIUM

3.1 Identities

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

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

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

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4 Equilibrium relationships (before expansion and reduction)

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

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

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

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

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

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

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

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

$$s \in SEC: \quad -1 + \beta^{l(s)} \gamma^{yva(s)} \left(p^{(s)} - \sum_{\dot{s}i \in SEC} \beta^{x(\dot{s}i,s)^{-1}} p^{(\dot{s}i)} \right) K^{(s)\beta^{k(s)}} L^{(s)^{-1+\beta^{l(s)}}} = 0 \quad (4.9)$$

$$s \in SEC: \quad 1 - p^{(s)} = 0 \quad (4.10)$$

$$s \in SEC: \quad -p^k + \beta^{k(s)} \gamma^{yva(s)} \left(p^{(s)} - \sum_{\dot{s}i \in SEC} \beta^{x(\dot{s}i,s)^{-1}} p^{(\dot{s}i)} \right) K^{(s)^{-1+\beta^{k(s)}}} L^{(s)\beta^{l(s)}} = 0 \quad (4.11)$$

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

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

$$s \in SEC: \quad -Y^{VA(s)} + \gamma^{yva(s)} K^{(s)\beta^{k(s)}} L^{(s)\beta^{l(s)}} = 0 \quad (4.14)$$

$$s \in SEC: \quad \pi^{(s)} + L^{(s)} + p^k K^{(s)} - p^{(s)} Y^{(s)} + Y^{INT(s)} \left(\sum_{\dot{s}i \in SEC} \beta^{x(\dot{s}i,s)^{-1}} p^{(\dot{s}i)} \right) = 0 \quad (4.15)$$

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

5 Equilibrium relationships (after expansion and reduction)

$$-1 + \beta^{l(A)} \gamma^{yva(A)} \left(p^{(A)} - \beta^{x(A,A)^{-1}} p^{(A)} - \beta^{x(B,A)^{-1}} p^{(B)} - \beta^{x(C,A)^{-1}} p^{(C)} \right) K^{(A)\beta^{k(A)}} L^{(A)^{-1+\beta^{l(A)}}} = 0 \quad (5.1)$$

$$-1 + \beta^{l(B)} \gamma^{yva(B)} \left(p^{(B)} - \beta^{x(A,B)^{-1}} p^{(A)} - \beta^{x(B,B)^{-1}} p^{(B)} - \beta^{x(C,B)^{-1}} p^{(C)} \right) K^{(B)\beta^{k(B)}} L^{(B)^{-1+\beta^{l(B)}}} = 0 \quad (5.2)$$

$$-1 + \beta^{l(C)} \gamma^{yva(C)} \left(p^{(C)} - \beta^{x(A,C)^{-1}} p^{(A)} - \beta^{x(B,C)^{-1}} p^{(B)} - \beta^{x(C,C)^{-1}} p^{(C)} \right) K^{(C)\beta^{k(C)}} L^{(C)^{-1+\beta^{l(C)}}} = 0 \quad (5.3)$$

$$1 - p^{(A)} = 0 \quad (5.4)$$

$$1 - p^{(B)} = 0 \quad (5.5)$$

$$1 - p^{(C)} = 0 \quad (5.6)$$

$$ks^{\text{data}^{(1)}} - K^{(1)} = 0 \quad (5.7)$$

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

$$ls^{\text{data}^{(1)}} - L^{(1)} = 0 \quad (5.9)$$

$$ls^{\text{data}^{(2)}} - L^{(2)} = 0 \quad (5.10)$$

$$-p^k + \beta^{k(A)} \gamma^{\text{yva}(A)} \left(p^{(A)} - \beta^{x(A,A)^{-1}} p^{(A)} - \beta^{x(B,A)^{-1}} p^{(B)} - \beta^{x(C,A)^{-1}} p^{(C)} \right) K^{(A)^{-1+\beta^{k(A)}}} L^{(A)\beta^{1(A)}} = 0 \quad (5.11)$$

$$-p^k + \beta^{k(B)} \gamma^{\text{yva}(B)} \left(p^{(B)} - \beta^{x(A,B)^{-1}} p^{(A)} - \beta^{x(B,B)^{-1}} p^{(B)} - \beta^{x(C,B)^{-1}} p^{(C)} \right) K^{(B)^{-1+\beta^{k(B)}}} L^{(B)\beta^{1(B)}} = 0 \quad (5.12)$$

$$-p^k + \beta^{k(C)} \gamma^{\text{yva}(C)} \left(p^{(C)} - \beta^{x(A,C)^{-1}} p^{(A)} - \beta^{x(B,C)^{-1}} p^{(B)} - \beta^{x(C,C)^{-1}} p^{(C)} \right) K^{(C)^{-1+\beta^{k(C)}}} L^{(C)\beta^{1(C)}} = 0 \quad (5.13)$$

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

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

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

$$U^{(2)} - \left(\alpha^{(A,2)} D^{(A,2)\omega^{-1}(-1+\omega)} + \alpha^{(B,2)} D^{(B,2)\omega^{-1}(-1+\omega)} + \alpha^{(C,2)} D^{(C,2)\omega^{-1}(-1+\omega)} \right)^{\omega(-1+\omega)^{-1}} = 0 \quad (5.17)$$

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

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

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

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

$$-X^{(B,B)} + \beta^{x(B,B)^{-1}} Y^{\text{INT}(B)} = 0 \quad (5.22)$$

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

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

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

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

$$-Y^{(A)} + Y^{\text{VA}(A)} = 0 \quad (5.27)$$

$$-Y^{(A)} + Y^{\text{INT}(A)} = 0 \quad (5.28)$$

$$-Y^{(B)} + Y^{\text{VA}(B)} = 0 \quad (5.29)$$

$$-Y^{(B)} + Y^{\text{INT}(B)} = 0 \quad (5.30)$$

$$-Y^{(C)} + Y^{\text{VA}(C)} = 0 \quad (5.31)$$

$$-Y^{(C)} + Y^{\text{INT}(C)} = 0 \quad (5.32)$$

$$-Y^{\text{VA}(A)} + \gamma^{yva(A)} K^{(A)\beta^k(A)} L^{(A)\beta^1(A)} = 0 \quad (5.33)$$

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

$$-Y^{VA\langle C \rangle} + \gamma^{yva\langle C \rangle} K^{\langle C \rangle} \beta^{k\langle C \rangle} L^{\langle C \rangle} \beta^{1\langle C \rangle} = 0 \quad (5.35)$$

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

$$\lambda^{\text{CONSUMER}^1\langle 1 \rangle} p^{\langle B \rangle} + \alpha^{\langle B,1 \rangle} D^{\langle B,1 \rangle} \omega^{-1(-1+\omega)} \left(\alpha^{\langle A,1 \rangle} D^{\langle A,1 \rangle} \omega^{-1(-1+\omega)} + \alpha^{\langle B,1 \rangle} D^{\langle B,1 \rangle} \omega^{-1(-1+\omega)} + \alpha^{\langle C,1 \rangle} D^{\langle C,1 \rangle} \omega^{-1(-1+\omega)} \right)^{-1+\omega(-1+\omega)^{-1}} = 0 \quad (5.37)$$

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

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

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

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

$$-INC^{\langle 1 \rangle} + L^{\langle 1 \rangle} + p^k K^{\langle 1 \rangle} = 0 \quad (5.42)$$

$$-INC^{\langle 2 \rangle} + L^{\langle 2 \rangle} + p^k K^{\langle 2 \rangle} = 0 \quad (5.43)$$

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

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

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

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

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

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

6 Calibrating equations

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

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

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

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

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

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

$$-l^{\text{data}\langle C\rangle} + L^{\langle C\rangle} = 0 \quad (6.7)$$

$$-x^{\text{data}\langle A,A\rangle} + X^{\langle A,A\rangle} = 0 \quad (6.8)$$

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

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

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

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

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

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

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

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

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

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

$$-y^{\text{data}\langle C \rangle} + Y^{\text{VA}\langle C \rangle} = 0 \quad (6.19)$$

$$-1 + \beta^{\text{k}\langle A \rangle} + \beta^{\text{l}\langle A \rangle} = 0 \quad (6.20)$$

$$-1 + \beta^{\text{k}\langle B \rangle} + \beta^{\text{l}\langle B \rangle} = 0 \quad (6.21)$$

$$-1 + \beta^{\text{k}\langle C \rangle} + \beta^{\text{l}\langle C \rangle} = 0 \quad (6.22)$$

$$-1 + \pi^{\text{h}\langle 1 \rangle} + \pi^{\text{h}\langle 2 \rangle} = 0 \quad (6.23)$$

$$-1 + \alpha^{\langle A,1 \rangle \omega} + \alpha^{\langle B,1 \rangle \omega} + \alpha^{\langle C,1 \rangle \omega} = 0 \quad (6.24)$$

$$-1 + \alpha^{\langle A,2 \rangle \omega} + \alpha^{\langle B,2 \rangle \omega} + \alpha^{\langle C,2 \rangle \omega} = 0 \quad (6.25)$$

7 Equilibrium values

	Equilibrium value
p^k	1
$\lambda^{\text{CONSUMER}^{1(1)}}$	-1
$\lambda^{\text{CONSUMER}^{1(2)}}$	-1
$p^{(A)}$	1
$p^{(B)}$	1
$p^{(C)}$	1
$\pi^{(A)}$	0
$\pi^{(B)}$	0
$\pi^{(C)}$	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
$\Pi^{(1)}$	0
$\Pi^{(2)}$	0
$U^{(1)}$	83.24
$U^{(2)}$	138.84
$X^{(A,A)}$	68.4
$X^{(A,B)}$	131.01
$X^{(A,C)}$	28.28
$X^{(B,A)}$	111.91
$X^{(B,B)}$	92.3
$X^{(B,C)}$	86.92
$X^{(C,A)}$	117.23
$X^{(C,B)}$	43.7
$X^{(C,C)}$	111.65
$Y^{(A)}$	345.08
$Y^{(B)}$	333.62
$Y^{(C)}$	334.78
$Y^{VA(A)}$	345.08
$Y^{VA(B)}$	333.62
$Y^{VA(C)}$	334.78
$Y^{INT(A)}$	345.08
$Y^{INT(B)}$	333.62
$Y^{INT(C)}$	334.78

8 Model parameters

	Value
$\alpha^{(A,1)}$	0.7975
$\alpha^{(A,2)}$	0.6813
$\alpha^{(B,1)}$	0.3749
$\alpha^{(B,2)}$	0.4709
$\alpha^{(C,1)}$	0.4727
$\alpha^{(C,2)}$	0.5604
$\beta^k{}^{(A)}$	0.8014
$\beta^k{}^{(B)}$	0.5256
$\beta^k{}^{(C)}$	0.5627
$\beta^l{}^{(A)}$	0.1986
$\beta^l{}^{(B)}$	0.4744
$\beta^l{}^{(C)}$	0.4373
$\beta^x{}^{(A,A)}$	5.045
$\beta^x{}^{(A,B)}$	2.5465
$\beta^x{}^{(A,C)}$	11.838
$\beta^x{}^{(B,A)}$	3.0835
$\beta^x{}^{(B,B)}$	3.6145
$\beta^x{}^{(B,C)}$	3.8516
$\beta^x{}^{(C,A)}$	2.9436
$\beta^x{}^{(C,B)}$	7.6343
$\beta^x{}^{(C,C)}$	2.9985
$\gamma^{yva}{}^{(A)}$	11.9486
$\gamma^{yva}{}^{(B)}$	10.004
$\gamma^{yva}{}^{(C)}$	6.155
$\pi^h{}^{(1)}$	0.5