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Model name: pure_exchange

1 AGENT A

1.1 Optimisation problem

$$\max_{C^{A1},C^{A2}} U^{A} = \log C^{A1} + \psi^{A} \log C^{A2} \tag{1.1}$$

s.t. :

$$p^{1}C^{A1} + p^{2}C^{A2} = e^{A1}p^{1} + e^{A2}p^{2} \quad \left(\lambda^{\mathrm{AGENT^{A}}^{1}}\right) \tag{1.2}$$

1.2 Identities

$$e^{A1} = e^{A1^{\mathrm{calibr}}} \tag{1.3}$$

$$e^{A2} = e^{A2^{\mathrm{calibr}}} \tag{1.4}$$

1.3 First order conditions

$$C^{A1^{-1}} - \lambda^{\mathrm{AGENT^{A}}^{1}}p^{1} = 0 \quad \left(C^{A1}\right) \tag{1.5}$$

$$\psi^{A}C^{A2^{-1}} - \lambda^{\mathrm{AGENT^{A}}^{1}}p^{2} = 0 \quad \left(C^{A2}\right) \tag{1.6}$$

2 AGENT B

2.1 Optimisation problem

$$\max_{C^{B1},C^{B2}} U^{B} = \log C^{B1} + \psi^{B} \log C^{B2} \tag{2.1}$$

s.t. :

$$p^{1}C^{B1} + p^{2}C^{B2} = e^{B1}p^{1} + e^{B2}p^{2} \quad \left(\lambda^{\mathrm{AGENT^{B}}^{1}}\right) \tag{2.2}$$

2.2 Identities

$$e^{B1} = e^{B1^{\mathrm{calibr}}} \tag{2.3}$$

$$e^{B2} = e^{B2^{\mathrm{calibr}}} \tag{2.4}$$

2.3 First order conditions

$$C^{B1^{-1}} - \lambda^{\mathrm{AGENT^{B}}^{1}}p^{1} = 0 \quad \left(C^{B1}\right) \tag{2.5}$$

$$\psi^{B}C^{B2^{-1}} - \lambda^{\mathrm{AGENT^{B}}^{1}}p^{2} = 0 \quad \left(C^{B2}\right) \tag{2.6}$$

3 EQUILIBRIUM

3.1 Identities

$$p^{1} = 1 \tag{3.1}$$

$$C^{A1} + C^{B1} = e^{B1} + e^{A1} \tag{3.2}$$

4 Equilibrium relationships (after reduction)

$$\psi^{\mathrm{A}}C^{\mathrm{A2}\,-1} - p^2\left(e^{\mathrm{A1}^{\mathrm{calibr}}} + e^{\mathrm{B1}^{\mathrm{calibr}}} - C^{\mathrm{B1}}\right)^{-1} = 0 \tag{4.1}$$

$$\psi^{\mathrm{B}}C^{\mathrm{B2}\,-1} - p^2 C^{\mathrm{B1}\,-1} = 0 \tag{4.2}$$

$$U^{\mathrm{A}} - \log\left(e^{\mathrm{A1}^{\mathrm{calibr}}} + e^{\mathrm{B1}^{\mathrm{calibr}}} - C^{\mathrm{B1}}\right) - \psi^{\mathrm{A}}\log C^{\mathrm{A2}} = 0 \tag{4.3}$$

$$U^{\mathrm{B}} - \log C^{\mathrm{B1}} - \psi^{\mathrm{B}}\log C^{\mathrm{B2}} = 0 \tag{4.4}$$

$$-e^{\mathrm{B1}^{\mathrm{calibr}}} + C^{\mathrm{B1}} + e^{\mathrm{A2}^{\mathrm{calibr}}}p^2 - p^2 C^{\mathrm{A2}} = 0 \tag{4.5}$$

$$e^{\mathrm{B1}^{\mathrm{calibr}}} - C^{\mathrm{B1}} + e^{\mathrm{B2}^{\mathrm{calibr}}}p^2 - p^2 C^{\mathrm{B2}} = 0 \tag{4.6}$$

5 Parameter settings

$$\psi^{\mathrm{A}} = 1.72 \tag{5.1}$$

$$\psi^{\mathrm{B}} = 2.22 \tag{5.2}$$

6 Equilibrium values

	Equilibrium value
p^2	2.0362
C^{A2}	0.6211
C^{B1}	1.2647
C^{B2}	1.3789
U^{A}	-1.1266
U^{B}	0.9481