· Two countries & Three regions

Region $i \in \{A, B, M\}$

$\underbrace{A, B}_{\text{in US}}$

W_{US}, W_M

Prices: $\{ \overset{?}{W_i}, P_i, mc_i, mc_{od}^i, P_{od}^T, P_{od} \}$

Quantities: $\{ C_{ij}, L_i, L_i^T, T_{od}^i \}$

1. $P_i = \dfrac{W_i}{z_i}$ $\quad$ * $\quad W_A = W_B = W_{US}$

2. $mc_i = \dfrac{W_i}{z_i^T}$

⭐ 3. $mc_{od}^i = d_{od}^{A_1} \tau_{od}^i \tilde{z}_{od}^i mc_i$ $\quad$ * $\tau_{od}^i = \max\{ d_{io}^{B_1}, d_{id}^{B_2} \}$

4. $C_{ji} = \dfrac{\dfrac{\mu_j}{\mu_i}\left(\dfrac{P_{ii}}{P_{ji}}\right)^\sigma}{\sum\limits_{j \in R} \dfrac{\mu_j}{\mu_i}\left(\dfrac{P_{ii}}{P_{ji}}\right)^\sigma P_{ji}}$ $\quad W_i \tilde{L}_i$ $\quad$ * $\mu_i = \mu$ & $\mu_j = \dfrac{1-\mu}{2}$

5. $T_{od}^j = \lambda_j \left(\dfrac{mc_{od}^j}{P_{od}^T}\right)^{-\kappa} t_o C_{od}$

⭐ 6. $P_{od}^T = \left(\sum\limits_{j \in R} \lambda_j (mc_{od}^j)^\kappa \right)^{\frac{1}{\kappa}}$ $\quad$ * $\lambda_i = 1 - \lambda_o - \lambda_d$

7. $P_{od} = P_o + t_o P_{od}^T$

8. $\sum\limits_{j \in R} C_{ij} = z_i L_i$

$\quad$ ⭐ $T_{AB}^i + T_{BA}^i + T_{AM}^i + T_{MA}^i + T_{BM}^i + T_{MB}^i = z_i L_i^T$

$\quad$ $L_i + L_i^T = \tilde{L}_i$ $\quad$ * $\tilde{L}_A + \tilde{L}_B = \tilde{L}_{US}$

parameters: $\{ z_i, z_i^T, d_{od}, A_1, \tau_{od}^i, A_2, \tilde{z}_{od}^i, \sigma, \mu, \kappa, \lambda_o, \lambda_d, t_o, \tilde{L}_{US}, \tilde{L}_M \}$