Model Layout

Model layout

- i and n denote countries $i, n \in \mathcal{I}$
- 1 sector
- Endowment: N_n workers
- Trade elasticity θ
- Trade cost are iceberg d_{in}
- w_i are wages

Solving in Levels

Income

$$E_n = w_n N_n$$

Labor market clearing

$$w_n N_n = \sum_{i \in \mathcal{I}} X_{in}$$

Expenditure

$$X_{in} = \frac{T_i \left(w_i d_{in}\right)^{-\theta}}{\Phi_n} E_n$$

Multilateral resistance term

$$\Phi_n = \sum_{i \in \mathcal{I}} T_i \left(w_i d_{in}\right)^{-\theta}$$

Recover residuals and trade cost

Run gravity

$$\log X_{ni} = FE_i + FE_n + \epsilon_{ni}$$

Get trade cost

$$\tilde{d}_{ni} = exp\left(\widehat{e}_{ni}\right)^{-\frac{1}{\theta}}$$

Normalize according to own trade cost

$$\widehat{d}_{ni} = \frac{\tilde{d}_{ni}}{\tilde{d}_{ii}}$$

Solving in Changes

Income

$$\widehat{E}_n = \widehat{w}_n$$

Labor market clearing

$$E_i^0 \widehat{w}_i = \sum_{i \in \mathcal{I}} \pi_{in}^0 E_n^0 \widehat{X}_{in}$$

Expenditure

$$\widehat{X}_{in} = \widehat{T}_i \left(\widehat{w}_i \widehat{d}_{in}\right)^{-\theta} \widehat{\Phi}_n^{-1} \widehat{E}_n$$

Multilateral resistance term

$$\widehat{\Phi}_n = \sum_{i \in \mathcal{I}} \pi_{in}^0 \widehat{T}_i \left(\widehat{w}_i \widehat{d}_{in}\right)^{-\theta}$$

- Change in price index $P_n = \Phi_n^{-1/\theta}$