
**International Trade**
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# International Trade (8403-04)

## Spring 2010, Minis 1 and 2

### Problem set 4

### Due Friday, May 7, in class

Consider two Ayiagari economies ($i = 1, 2$). In each economy there is a measure 1 of agents with preferences given by

$$E \sum_{t=0}^{\infty} \beta^t \frac{c_t^{1-\sigma}}{1-\sigma}$$
$$\beta = 0.99, \sigma = 2$$

In each economy a representative firm produces output using a standard Cobb-Douglas production function with capital share equal to 0.3. A period is one year and capital depreciates at a rate of 10% per year. The log of idiosyncratic labor endowment ($y_{it}$) for agents can take only three values $\{-\varepsilon_i, 0, \varepsilon_i\}$, where $\varepsilon_i$ is country specific. The transition probability in both countries is given by

$$\Pi = \begin{bmatrix} 0.9 & 0.05 & 0.05 \\ 0.05 & 0.9 & 0.05 \\ 0.05 & 0.05 & 0.9 \end{bmatrix}$$

The budget and borrowing contraints by agents in both countries are given by

$$\begin{aligned} c_t + \frac{b_{t+1}}{1+r_t} &\leq w_{it} \exp(y_{it}) + b_t \\ b_{t+1} &\geq 0 \end{aligned}$$

- Calibrate $\varepsilon_i$ in each country so that in the stationary distribution when the two economies are closed the cross sectional variance of labor earnings in economy 1 is equal to 0.5 while in economy 2 the variance is equal to 0.4 (Hint: in order to solve for the cross sectional variance of the labor earnings distribution you do no need to solve for the entire economy)

- Solve for the stationary distribution in both economies (when they are closed) and for each economy report capital output ratios, wages and interest rates.
- Now assume that at time $t = t_0$ the economies become financially integrated. Define equilibrium and compute equilibrium stationary distributions in both economies. Report capital output ratios, wages, interest rates and net foreign asset positions under financial integration.
- (harder) Compute the path of interest rates in the transition from autarky to integration.
- Evaluate who are the gainers and the losers (in each country) from opening to international financial markets.