ECON 442 Practice Test Solutions

Suppose we have the basic two country, two good Ricardian model we started with in class.

Consumer preferences are the same across countries and equal to

$$U^i(c_1^i, c_2^i) = \theta_1 \log c_1^i + \theta_2 \log c_2^i, \qquad i = H, F$$

Where $\theta_1, \theta_2 > 0$. Labor is the only factor of production and is supplied inelasticly by consumers in each country, with total labor supply L^i in country $i = H, F$. Firms in country i have constant unit labor costs equal to a_m^i for producing good m; $m = 1,2$; $i = H, F$. Assume there is free trade and no trade costs.

What are the exogenous variables for this model?

Preference parameters: θ_1, θ_2 Labor supply: L^H, L^S Unit labor costs: $a_1^H, a_2^H, a_1^F, a_2^F$

What are the endogeneous variables for this model?

Wages: w^H, w^F Prices: p_1, p_2 Labor Allocations: $l_1^H, l_2^H, l_1^F, l_2^F$

Consumption Allocations: $c_1^H, c_2^H, c_1^F, c_2^F$ Output Allocations: $y_1^H, y_2^H, y_1^F, y_2^F$

Carefully define an equilibrium for this country.

An Equilibrium is prices $\{p_1, p_2\}$, wages $\{w^i\}_{i=H,F}$, and allocations $\{l_m^i, y_m^i, c_m^i\}_{\substack{m=1,2 \\ i=H,F}}$ such that

1) Given prices, consumers in country $i = H, F$ choose consumption allocations to maximize their utility

$$\max_{\{c_1^i, c_2^i\}} \theta_1 \log c_1^i + \theta_2 \log c_2^i$$

Subject to their budget constraint

$$p_1 c_1^i + p_2 c_2^i = w^i L^i$$

2) Given prices, firm producing good $m = 1,2$ in country $i = H, F$ maximizes profits

$$\max p_m y_m^i - w l_m^i$$

Subject to its production technology

$$y_m^i = \frac{1}{a_m^i} l_m^i$$

3) Markets Clear

The goods market clears for each good

$$c_1^H + c_1^H = y_1^H + y_1^F$$
$$c_2^H + c_2^H = y_2^H + y_2^F$$

The labor market clears for each country

$$l_1^H + l_2^H = L^H$$
$$l_1^F + l_2^F = L^F$$