

ECONOMICS 542  
INTERNATIONAL TRADE  
Fall 2010

**Solutions to Problem Set 1**  
(10 points in total)

1.

Foreign has absolute advantage in both cheese and wine ( $MPL_C^* > MPL_C$ ,  $MPL_W^* > MPL_W$ ). Home has comparative advantage in cheese and Foreign has comparative advantage in wine since

$$\frac{MPL_C}{MPL_W} = \frac{1/6}{1/4} = \frac{2}{3} > \frac{1}{2} = \frac{1/4}{1/2} = \frac{MPL_C^*}{MPL_W^*}$$

2.

$$P_C MPL_C = P_W MPL_W \Rightarrow P_C = P_W \frac{MPL_W}{MPL_C} = 2 \times \frac{1/4}{1/6} = 3,$$

$$w = P_C MPL_C = 3 \times \frac{1}{6} = \frac{1}{2}, \quad \text{or} \quad w = P_W MPL_W = 2 \times \frac{1}{4} = \frac{1}{2}$$

$$P_C^* MPL_C^* = P_W^* MPL_W^* \Rightarrow P_C^* = P_W^* \frac{MPL_W^*}{MPL_C^*} = 2 \times \frac{1/2}{1/4} = 4$$

$$w^* = P_C^* MPL_C^* = 4 \times \frac{1}{4} = 1, \quad \text{or} \quad w^* = P_W^* MPL_W^* = 2 \times \frac{1}{2} = 1$$

3.

$$(1) \quad P_C / P_W = 1.75 \quad \Rightarrow \quad P_C = 1.75 \times P_W = 1.75 \times 2 = 3.5$$

(2) With trade, Home specializes in producing cheese and exports cheese to Foreign.

$$\text{The quantity of cheese that Home produces is: } L \times MPL_C = 20 \times \frac{1}{6} = \frac{10}{3} = 3.33$$

Foreign specializes in producing wine and exports wine to Home.

$$\text{The quantity of wine that Foreign produces is: } L^* \times MPL_W^* = 20 \times \frac{1}{2} = 10$$

(3) According to the question, the total world exports of wine is 5. This is the quantity of wine exported by Foreign to Home. Thus

$$\text{Home's consumption of wine is: } Q_W = 5$$

$$\text{Foreign's consumption of wine is: } Q_W^* = 10 - 5 = 5$$

(4) Home exports cheese to Foreign in exchange for wine, and thus

$$P_C \times Q_C^* = P_W \times Q_W$$

From this we can get Foreign's consumption of cheese:

$$Q_C^* = \frac{P_W}{P_C} \times Q_W = \frac{1}{1.75} \times 5 = \frac{20}{7} = 2.86$$

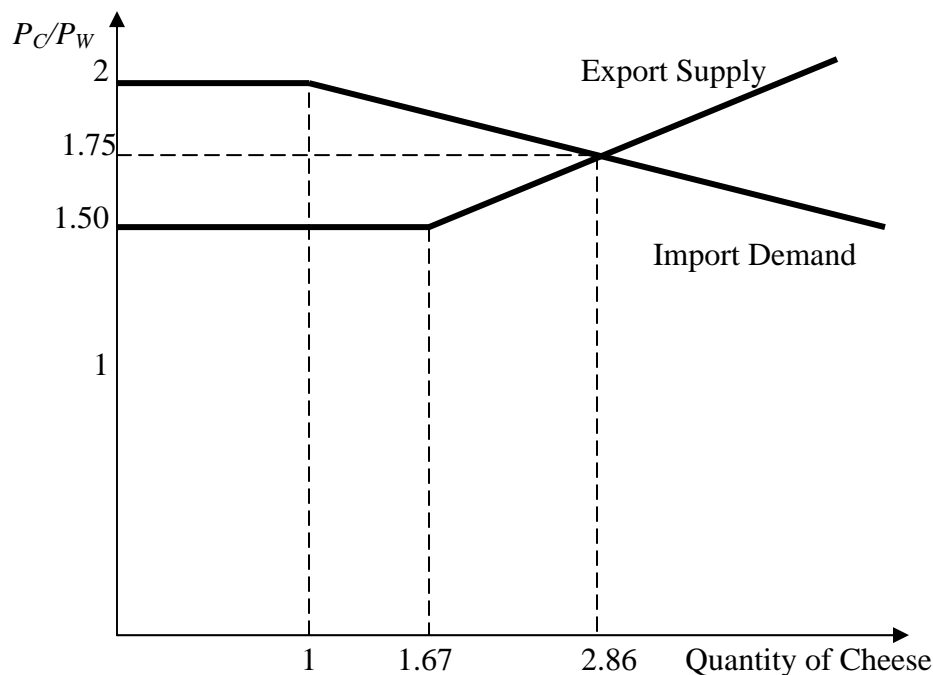
Then Home's consumption of cheese is

$$Q_C = 3.33 - 2.86 = 0.47$$

(5) Wages in the two countries are

$$w = P_C MPL_C = 3.5 \times \frac{1}{6} = 0.58 \quad w^* = P_W^* MPL_W^* = 2 \times \frac{1}{2} = 1$$

4.



Notes:

(1) In autarky, the relative price of cheese in Home is:  $\frac{P_C}{P_W} = \frac{MPL_W}{MPL_C} = \frac{1/4}{1/6} = 1.5$

In autarky Home consumes  $5/3$  unit of cheese, and thus its maximum export supply of cheese is:  $10/3 - 5/3 = 5/3 = 1.67$ . ( $10/3$  is its maximum output of cheese when it specializes in producing cheese)

(2) In autarky, the relative price of cheese in Foreign is:  $\frac{P_C^*}{P_W^*} = \frac{MPL_W^*}{MPL_C^*} = \frac{1/2}{1/4} = 2$

In autarky Foreign consumes 1 unit of cheese, and thus its maximum import demand of cheese is 1 (when it specializes in producing wine)

(3) With trade, the world export/import of cheese is Foreign's consumption of cheese, 2.86 (see part 3).