

TRADE ECO 311

CHAP 2

FEENSTRA & TAYLOR (2012)

nos 1, 2, 3 & 7.

2.1) GIVEN DATA:

	England	Portugal
Cloth (1000 y.)	100 men-years	90 men-years
Wine (1000 b.)	120 men-years	80 men-years

a) Marginal productivities:

o Cloth in England:

$$\frac{1000 \text{ yards}}{100 \text{ men-years}} = 10 \text{ yards/man-year}$$

In England, each worker can produce 10 yards of cloth in one year.

Proceeding analogously for wine and for Portugal, we obtain the following table of MPL:

	England	Portugal
Cloth (yards/man-year)	10	11.1
Wine (bottles/man-year)	8.33	12.5

Portugal has an absolute advantage in the production of both goods as a worker can produce more of each good in a year.

b) In England, the autarky relative price of wine will be determined by the condition that equates the wage with marginal productivity values in each sector, i.e.:

$$p_{WE}^{AU} MPL_{WE} = w = p_{CE}^{AU} MPL_{CE}$$

$$\Rightarrow \frac{p_{WE}^{AU}}{p_{CE}^{AU}} = \frac{MPL_{CE}}{MPL_{WE}} = \frac{10 \text{ yards}}{8.33 \text{ bottles}} = 1.2 \text{ y./b.}$$

In England, in autarky, one can buy 1.2 yards of cloth in exchange for one bottle of wine.

In Portugal, in autarky, we have:

$$\frac{p_{WP}^{AU}}{p_{CP}^{AU}} = \frac{MPL_{CP}}{MPL_{WP}} = \frac{11.11 \text{ y.}}{12.5 \text{ b.}} = 0.88 \text{ y./b.}$$

In Portugal, in autarky, one can buy 0.88 yards of cloth in exchange for one bottle of wine.

We therefore conclude that in autarky, cloth is cheaper in England than in Portugal.

Conversely, wine is cheaper in Portugal than in England. This suggests that Portugal has a comparative advantage in the production of wine because the

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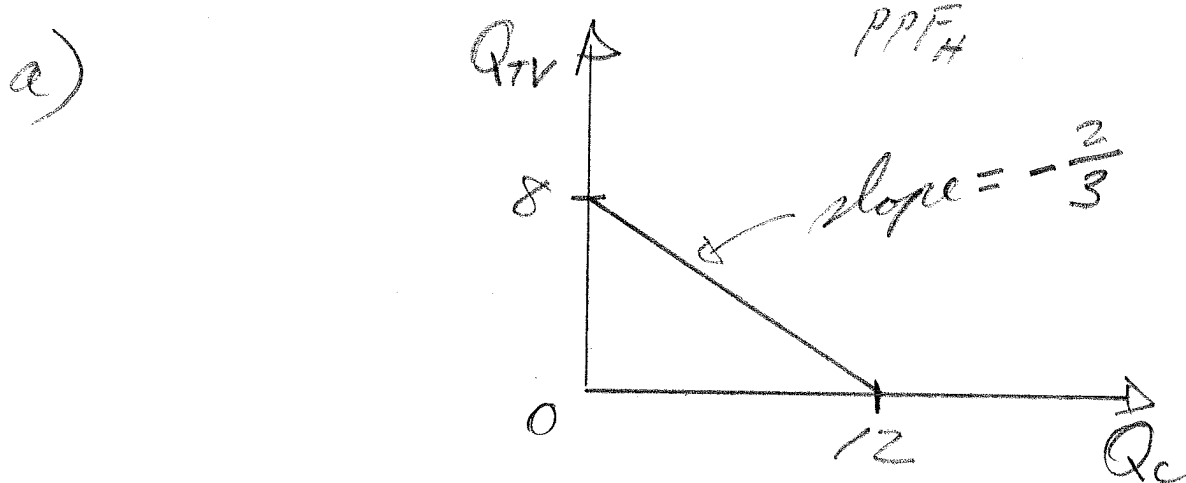
opportunity cost of one bottle of wine in Portugal is 0.88 yards of cloth, which is lower than England's opportunity cost of 1.2 yards of cloth.

2.2) GIVEN DATA:

$$MPL_C^H = 3 \quad (\text{C for case})$$

$$MPL_{TV}^H = 2$$

Home's factor endowment = 4 workers.



b) Assuming perfect competition in the labor market, all have, in autarky:

$$p_C^H MPL_C^H = w = p_{TV}^H MPL_{TV}^H$$

$$\Rightarrow \frac{p_C^H}{p_{TV}^H} = \frac{MPL_{TV}^H}{MPL_C^H} = \frac{2}{3} \text{ TV/case}$$

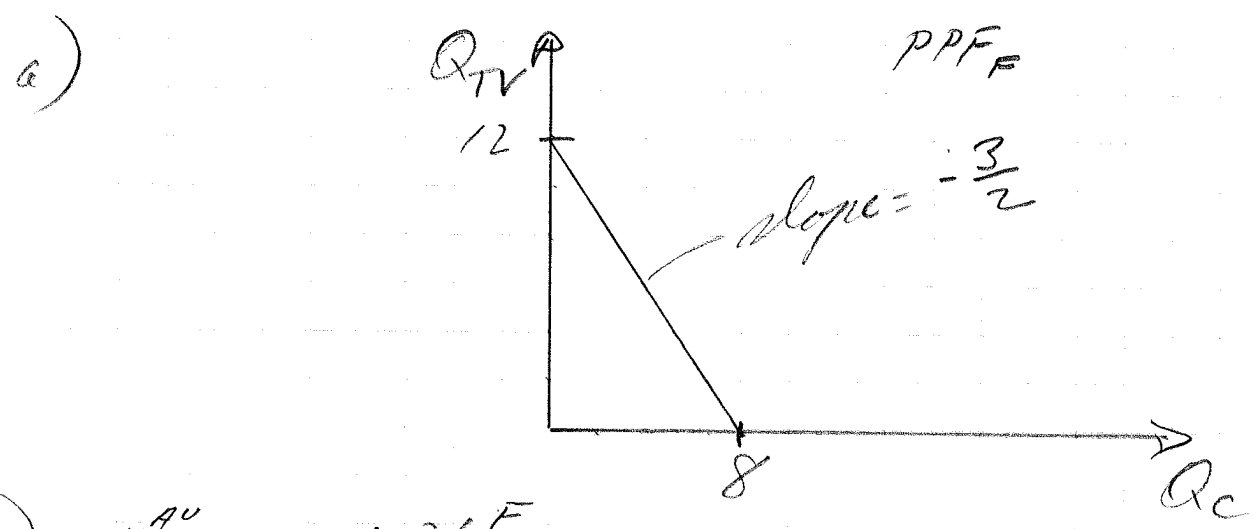
One case will buy $\frac{2}{3}$ of a TV.

2.3) GIVEN DATA:

$$MPL_C^F = 2$$

$$MPL_{TV}^F = 3$$

Endowment = 4 workers.



$$b) \frac{P_{CF}^{AU}}{P_{TVF}^{AU}} = \frac{MPL_{TV}^F}{MPL_C^F} = \frac{3}{2} \text{ TV/car}$$

In Foreign, one car will buy you $\frac{3}{2}$ TVs.
in autarky

c) Foreign has a comparative advantage in the production of TVs since the opportunity cost of a TV is $\frac{2}{3}$ car world at Home, the O.C. of a TV is $\frac{3}{2}$ cars.

2.7)

a) In a competitive labor market, the following condition must hold:

$$p_{TVH}^{AU} \cdot MPL_{TVH} = w_{TVH}^{AU}$$

$$\Rightarrow p_{TVH}^{AU} \cdot 2 = 12 \Rightarrow p_{TVH}^{AU} = 6$$

The relative price of TVs is then:

$$\frac{p_{TVH}^{AU}}{p_{CH}^{AU}} = \frac{6}{4} = \frac{3}{2} \text{ cars/TV}$$

The following condition must also hold:

$$w_{TVH}^{AU} = w_{CH}^{AU} = p_{CH}^{AU} \cdot MPL_{CH}$$

$$\Rightarrow 12 = 4 \cdot MPL_{CH} \Rightarrow MPL_{CH} = 3 \text{ cars/worker}$$

$$\text{and } p_{CH}^{AU} = 12$$

b) Similarly for the Foreign country:

$$p_{CF}^{AU} = p_{CF}^{AU} \cdot MPL_{CF}$$

$$\Rightarrow 6 = p_{CF}^{AU} \cdot 1 \Rightarrow p_{CF}^{AU} = 6$$

$$\Rightarrow \frac{p_{TVF}^{AU}}{p_{CF}^{AU}} = \frac{3}{6} = \frac{1}{2} \text{ car/TV}$$

$$w_{CF}^{AU} = w_{TVF}^{AU} = p_{TVF}^{AU} \cdot MPL_{TVF}$$

$$\Rightarrow 6 = 3 \cdot MPL_{TVF} \Rightarrow MPL_{TVF} = 2 \text{ TV/worker}$$

c) With trade, we have $\frac{p_{car}^T}{p_{TV}^T} = 1 \text{ car/TV}$.

The country will export the good with a lower autarkic relative price.

Foreign will export TVs, and Home will export cars. Indeed, in order to produce one more TV, Foreign only sacrifices $\frac{1}{2}$ car while it can get back 1 car by exporting a TV.

In order to produce an extra car, Home forgoes $\frac{2}{3}$ TV but can get back 1 TV by exporting the car.

d) Let W denote the real wage.

At Home and with trade, we have:

$W_{HC}^T = MPL_{HC} = 3 \text{ cars/worker}$ since workers produce only cars. Given the world price of cars, this gives $W_{HTV}^T = 3 \text{ cars} \cdot \frac{1 \text{ TV}}{\text{car}} = 3 \text{ TVs}$.

In autarky, we have

$W_{HTV}^{AU} = MPL_{HTV} = 2 \text{ TVs} < W_{HTV}^T$

$W_{HC}^{AU} = MPL_{HC} = 3 \text{ cars} = W_{HC}^T$

If workers consume both goods, we

some led that trade makes them strictly better off since their real wage has increased in terms of TVs while remaining unchanged in terms of cars.

e) since Foreign specializes fully in producing TVs under trade we have

$$W_{FTV}^T = MPL_{FTV} = 2 TVs$$

$$\Rightarrow W_{FC}^T = 2 TVs \cdot 1 car/TV = 2 cars.$$

In autarky, we had

$$W_{FTV}^{AU} = 2 TVs = W_{FTV}^T$$

$$W_{FC}^{AU} = 1 car < W_{FC}^T$$

Hence foreign workers are also strictly better off if they consume both goods.

f) Comparing workers real wages between countries, we have

$$W_{FTV}^T = 2 < W_{HTV}^T = 3$$

$$W_{FC}^T = 2 < W_{HC}^T = 3$$

Under trade, Foreign workers are poorer than Home workers. But this was already the case under autarky. Indeed:

$$W_{FTV}^{AU} = 2 = W_{HTV}^{AU} = 2$$

$$W_{FC}^{AU} = 1 < W_{HC}^{AU} = 3$$

(8)

The fact that under trade Foreign workers are poorer than Home workers is not due to a loss from trade. Indeed, trade does make foreign workers better off. Foreign workers are poorer simply because they are less productive to begin with.