

International Economics 2024

Home assignment 3: Answers

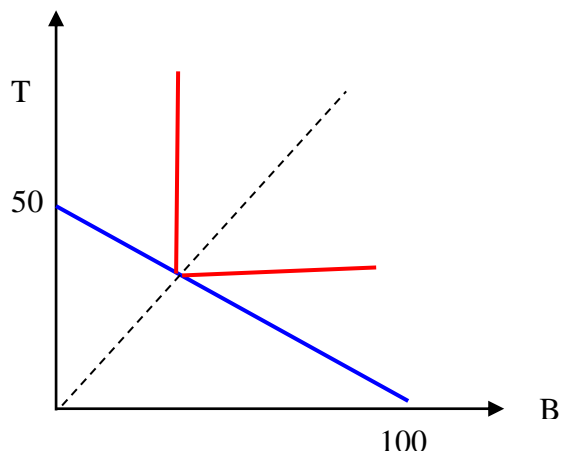
(a) Belgium has comparative advantage in beer and Holland has comparative advantage in tulips.

(b)

Belgium:

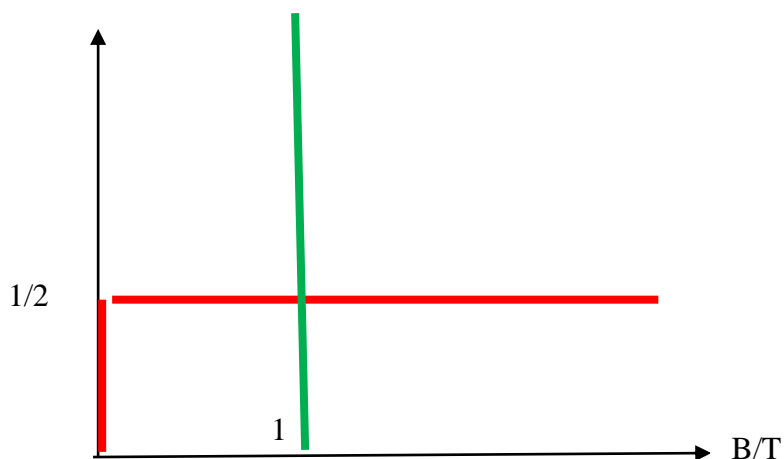
PPF: $B+2T=100$

$B=T$, hence $B=T=100/3$ is autarky consumption and production



The red curve is the relative supply curve.

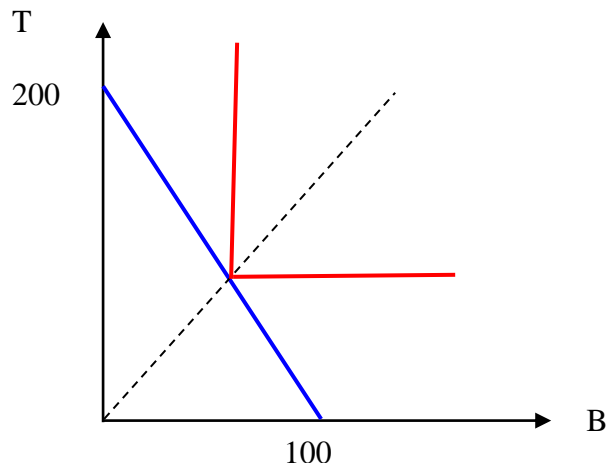
The green one is relative demand – it is vertical at 1 as $B=T$, hence $B/T=1$.



The autarky equilibrium relative price of beer is $1/2$, the same as the opportunity cost of producing beer.

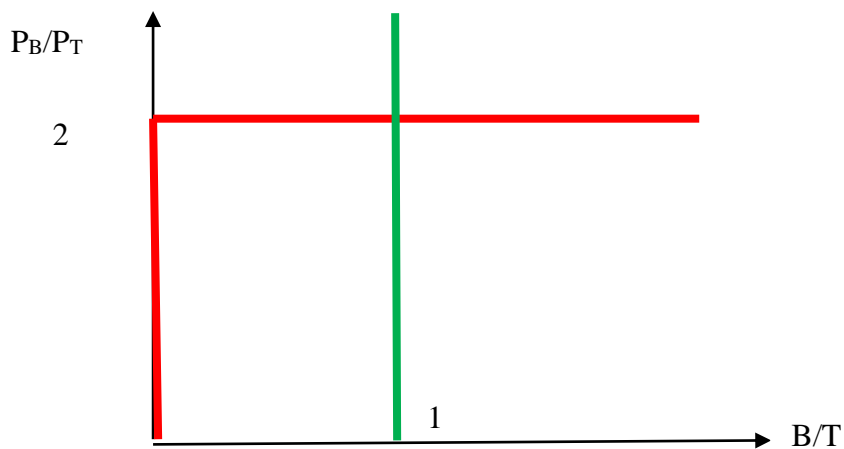
Holland:

$$\text{PPF } 2B + T = 200, B = T = 200/3$$



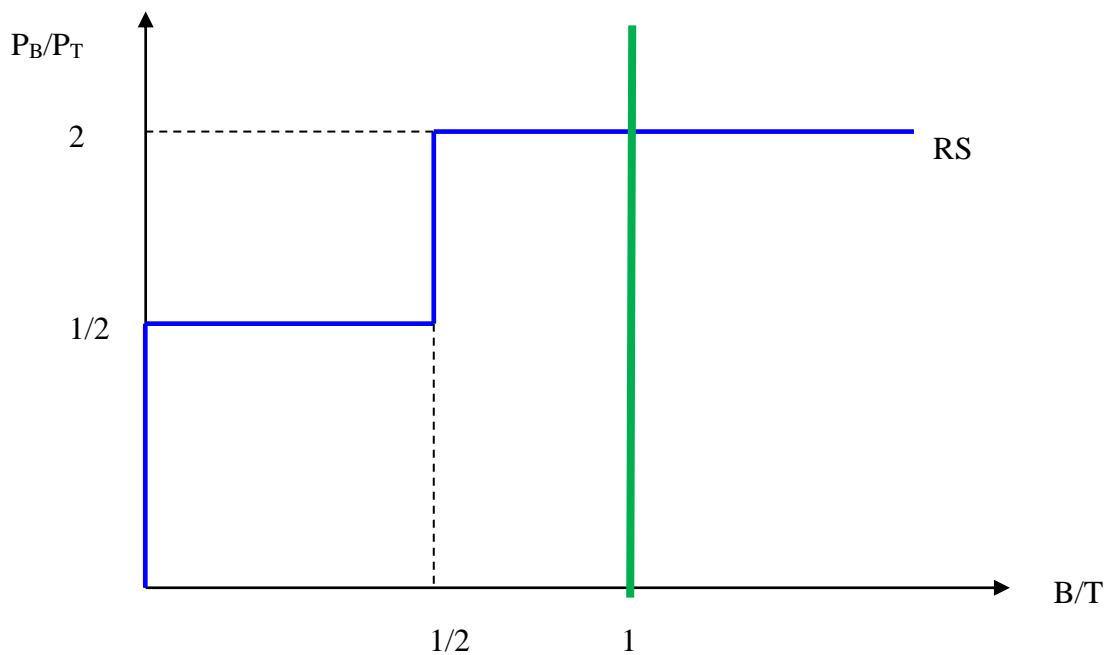
The red curve is the relative supply curve.

The green one is relative demand - it is vertical at 1 as $B=T$, hence $B/T=1$.



The autarky equilibrium relative price of beer is 2, the same as the opportunity cost of producing beer.

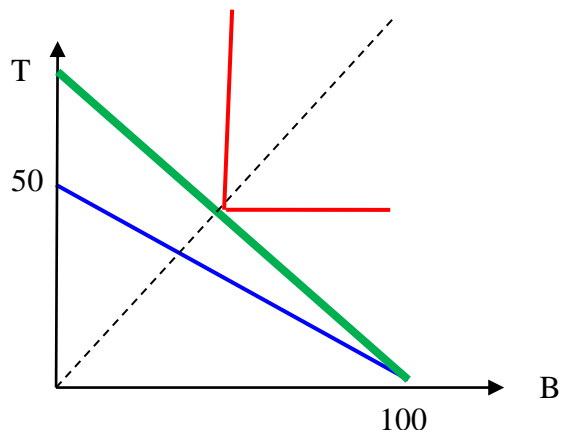
(c) Trade:



The horizontal intercept equals $LMPL_B / (L^* MPL_T^*) = 100 * 1 / (200 * 1) = 1/2$

The trade equilibrium relative price of beer is $P_B/P_T = 2$.

Belgium:



Production: $B=100$, $T=0$, complete specialization.

Consumption:

$$BP_B + TP_T = 100P_B$$

$$B \frac{P_B}{P_T} + T = 100 \frac{P_B}{P_T}$$

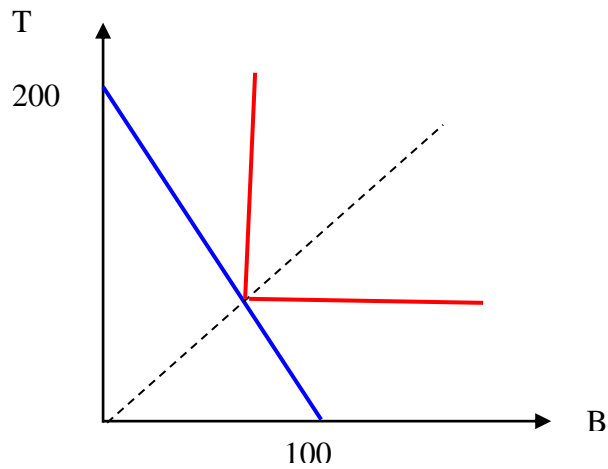
$$2B + T = 200$$

$B=T=200/3$ is consumption with trade.

Belgium exports $B=100-200/3=100/3$ and imports $T=200/3$.

Belgium does gain from trade as its citizens consume more.

Holland:



In Holland the relative price does not change with trade – the same consumption as in autarky $B=T=200/3$. Hence, Holland does not benefit and does not lose from trade – the same welfare!

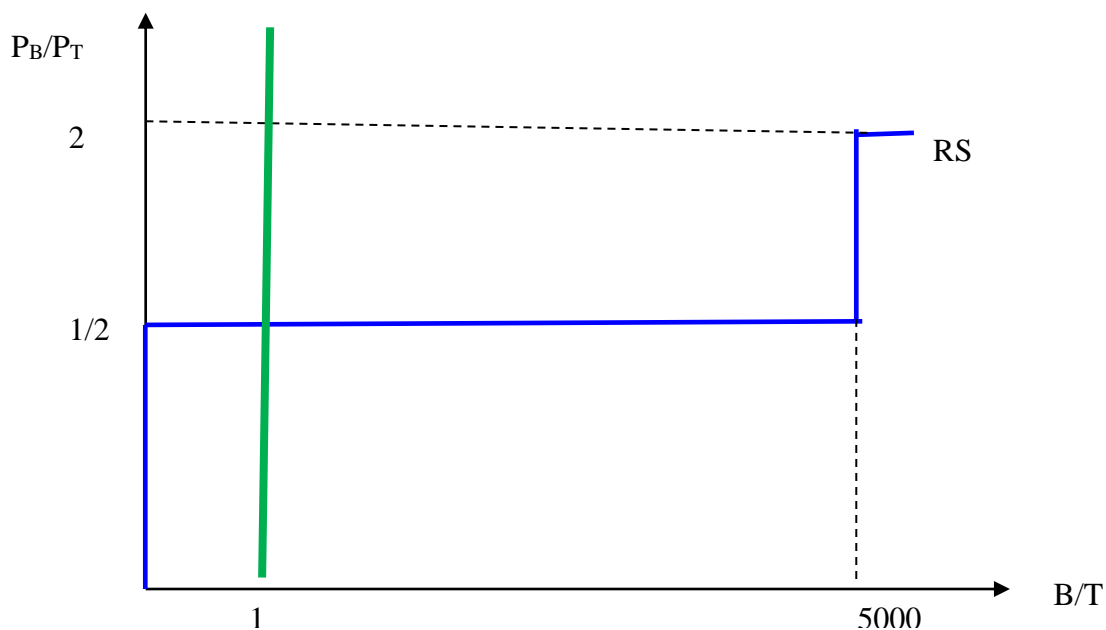
Production can be calculated as world consumption of each good minus production in Belgium.

$$B=200/3+200/3-100=100/3 \text{ and } T=200/3+200/3-0=400/3.$$

There is incomplete specialization.

Holland exports $T=400/3-200/3=200/3$ and imports $B=200/3-100/3=100/3$.

(d)



Now, the trade price is equal to $1/2$, which is Belgium's autarky price. This is not surprising as Belgium is now a very large country and now dominates the world market!

Now Holland produces only T, while Belgium makes both goods.

Holland now gains from trade, as the trade price is different from its autarky price; hence the consumption opportunity set expands.

Belgium now does not gain or lose from trade as the relative price of beer does not change with trade; hence in Belgium consumption is the same as in autarky.