

Chap. 6

3) The case of two trading partners

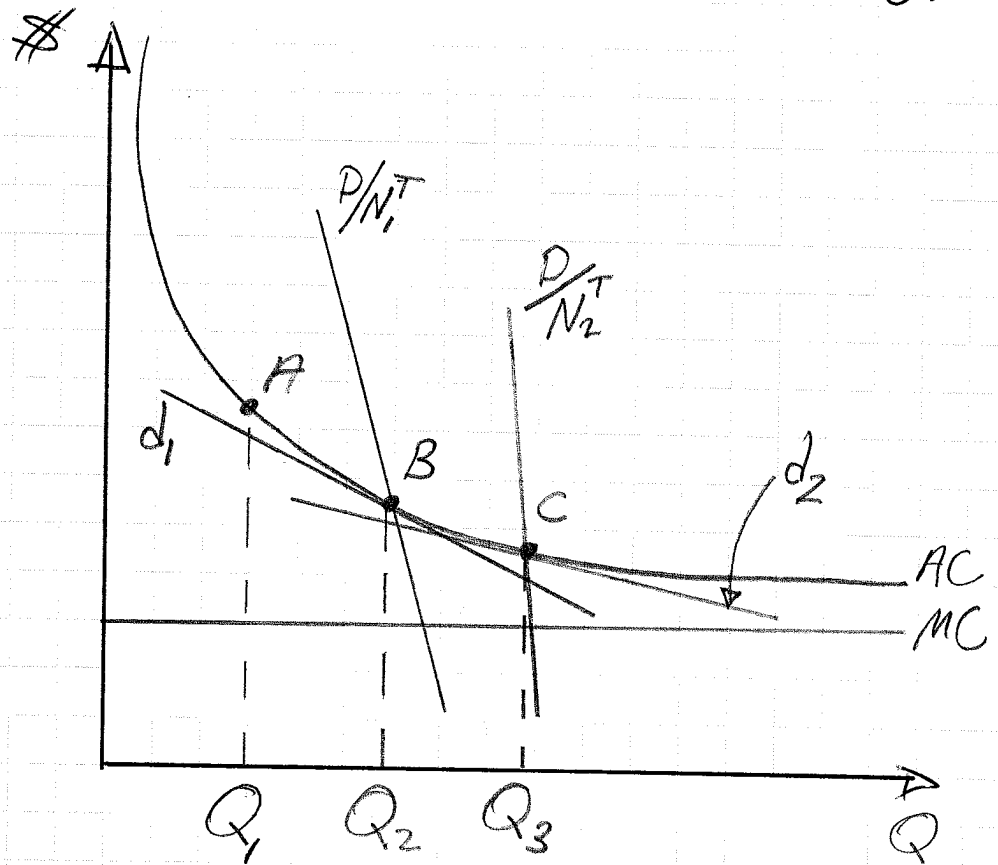
a) Industry demand is multiplied 3. But so does the number of firms (in the short run). As a result, the demand curve is unchanged in the short run, i.e.

$$\frac{3D}{3N^A} = \frac{D}{N^A}$$

b) The demand curve, D , will pivot and become flatter in the same manner as with the two-country case. Indeed, with a larger market size, one firm will capture more consumers when unilaterally reducing its price.

c) With three countries, D will become flatter than with two countries. This is because the addition of a country means that when one firm reduces its price, it can capture even more consumers.

d)



A: Autarky equil.

B: Trade equil. with 2 countries

d_1 : Individual demand with 2 countries

d_2 : Individual demand with 3 countries

→ d_2 must be flatter (more elastic) than d_1 , because the market is larger with 3 countries.

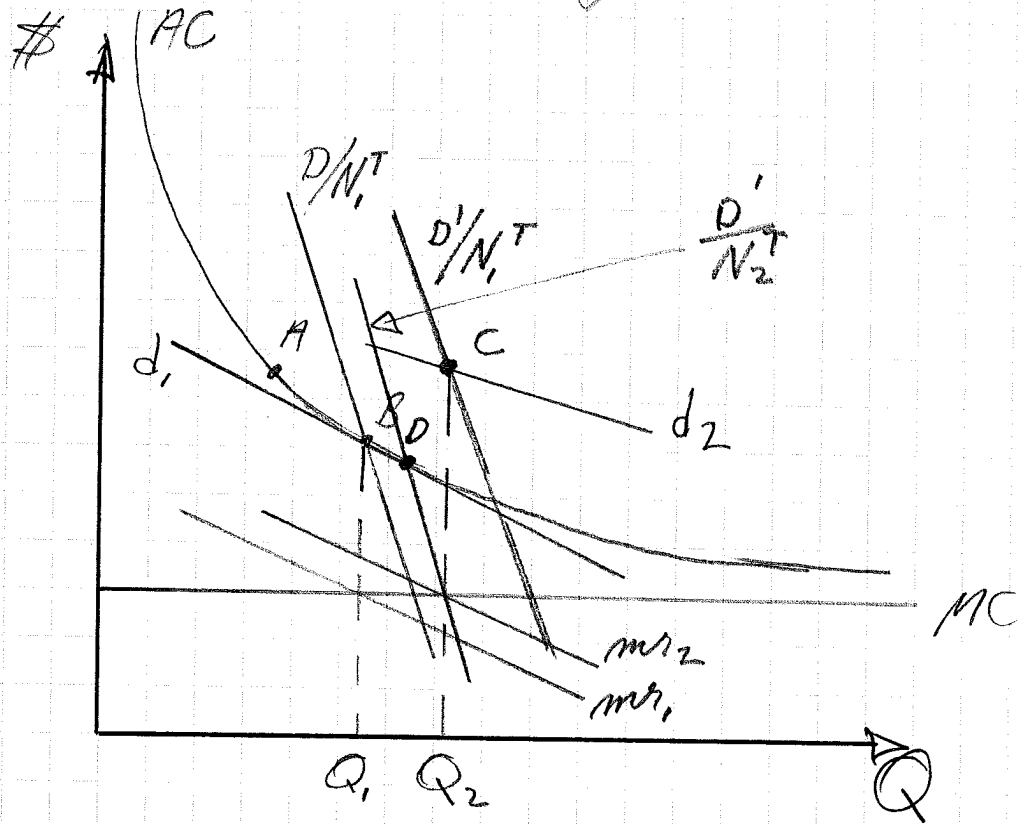
N_1^T : Long-run equilibrium number of firms with 2 countries.

N_2^T : Long-run equil. no. of firms with 3 countries.

→ $N_2^T < N_1^T$ since d_2 is flatter than d_1 .

We thus have that compared to the 2-country case, each firm produces more with 3 countries and production costs are lower.

4) decrease in industry demand D .



Suppose that the initial equilibrium is at point B.

Industry demand then jumps to $D' > D$.
By the short-run, for fixed N_1^T , we have

$$\frac{D'}{N_1^T} > \frac{D}{N_1^T}$$

Moreover, the individual demand curve will be flatter since with higher demand, a decrease in price

will draw more customers than before. This also shifts up the marginal revenue curve to $mr_2 > mr_1$.

The new short-run equilibrium will be at point C where each firm produces more output and makes positive profits as the price exceeds the average cost.

b) since profits are strictly positive, more firms will enter the market.

c) In the long-run, there will be more firms in the industry, say at $N_2^T > N_1^T$. We thus have a lower total demand per firm, i.e.

$$\frac{D_2'}{N_2^T} < \frac{D_1'}{N_1^T}$$

A larger number of firms will also bring down the individual demand, say at $d_3 < d_2$.

The new equilibrium will fall somewhere between quantities Q_1 and Q_2 , say at point D, where profits per firm are zero.

The new price will be lower than before the increase in demand occurred. This apparently paradoxical result is due to the fact that each firm can produce at a lower average cost while profits are zero.

b) The gravity trade model:

$$a) \text{ Trade} = B \cdot \frac{\text{GDP}_1 \cdot \text{GDP}_2}{d^m}, \quad B = 93$$

$$m = 1.25$$

The volume of trade between France and the USA is thus predicted to be

$$T_{FR}^{USA} = 93 \cdot \left(\frac{2635 \cdot 14270}{5544^{1.25}} \right)$$

$$= 93 \cdot 786 = 73\,098 \text{ billion } \$$$

And for Italy:

$$T_{IT}^{USA} = 93 \left(\frac{2090 \cdot 14270}{6229^{1.25}} \right) = 50\,122 \text{ billion } \$$$

NB These results are way off. Those countries cannot be exchanging such high multiples of their GDP. The parameter values estimated for Canada and the USA would not apply here.

9) a) Paintings should have a higher index of intra-industry trade than rice.

This is because paintings are much more differentiated.

b)	EXPORTS	IMPORTS	INDEX INTRA-IND. TRADE
RICE	2178	588	0.425
PAINTINGS	4944	3283	0.7981

$$INDEX = \frac{\min(\text{EX and IM})}{\frac{1}{2}(\text{EX} + \text{IM})}$$

As predicted, the index of intra-industry trade is much higher for paintings than rice.