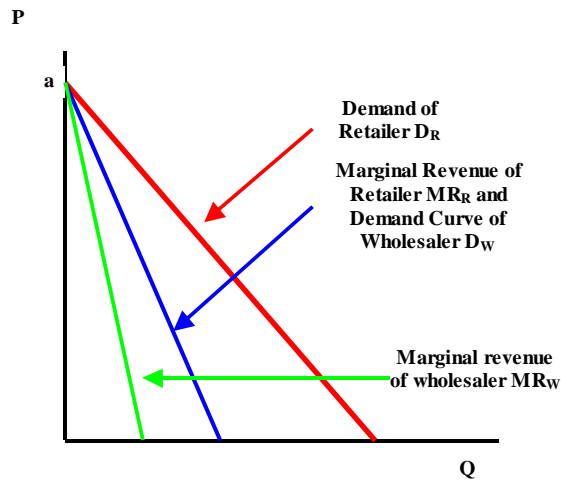


Double Marginalization

David Ong



Consumer demand for quantity Q of the completed good at the retail level.

$$P = a - bQ$$

Suppose that the retailer is a monopolist. Then, the marginal revenue for this demand is:

$$MR_R = a - 2bQ$$

The cost of the Retailer will be the price that the wholesaler. If the Retailer sets $MR = MC$, then in equilibrium,

$$MR_R(Q) = a - 2bQ = MC(Q) = r(Q)$$

Therefore, the demand that the wholesaler faces is:

$$r(Q) = a - 2bQ$$

Suppose that the wholesale market is **competitive** and charge $r(Q) = MC = c$. Then $Q = \frac{a-c}{2b}$. The price that the Retailer pays now is

$$r(Q) = a - 2b \frac{a-c}{2b} = c$$

Suppose that the wholesale market is **monopolistic**. Marginal revenue for the Wholesaler is then:

$$MR_W(Q) = a - 4bQ$$

$$MR_W(Q) = a - 4bQ = MC = c.$$

$$Q = \frac{a - c}{4b}$$

Notice that this is half the usual monopoly quantity $Q = \frac{1}{2} \left(\frac{a-c}{2b} \right)$. Then the whole sale price will be:

$$r(Q) = a - 2b \left(\frac{a - c}{4b} \right) = \frac{a + c}{2}$$

This is the same quantity for the Retailer because we already took the demand of the retailer into account when we calculated the demand of the Wholesaler.

The Retail price is going to be:

$$P = a - b \left(\frac{a - c}{4b} \right) = \frac{3a + c}{4}$$

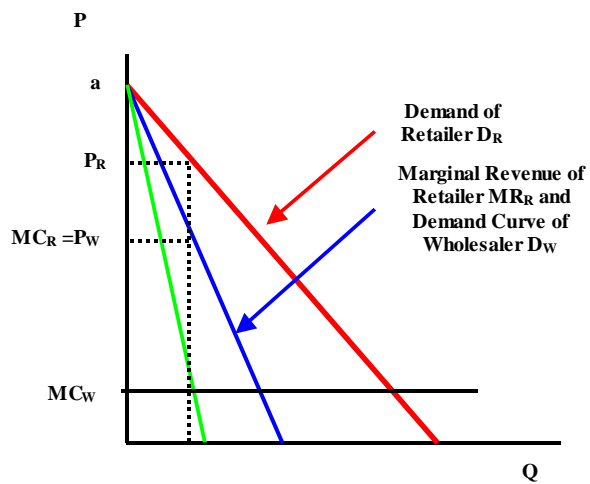
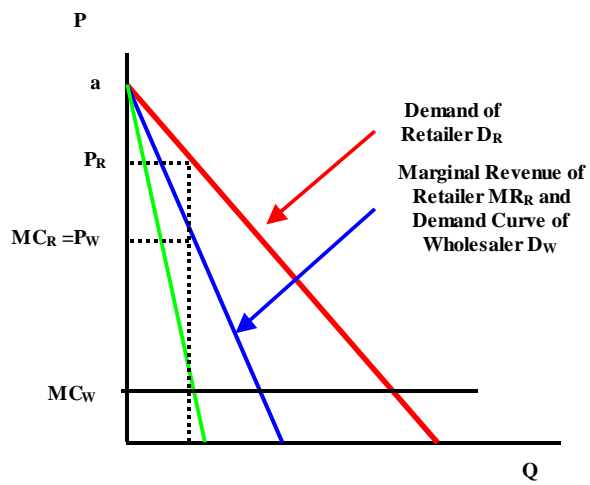
The Retail Profit is:

$$\left(\frac{3a + c}{4} - \frac{a + c}{2} \right) \cdot \frac{a - c}{4b}$$
$$\frac{1}{b} \left(\frac{a - c}{4} \right)^2$$

The Wholesale Profit is:

$$(r(Q) - c) \cdot Q$$

$$\left(\frac{a + c}{2} - c \right) \left(\frac{a - c}{4b} \right) = \frac{(a - c)^2}{8b}$$



Next: Monopoly and innovation.