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Topic: Price discrimination

Necessary Conditions for Price Discrimination

Price discrimination implies charging different prices for identical goods.

It is possible under the following conditions:

i. Existence of Monopoly:

Implies that a supplier can discriminate prices only when there is monopoly. The degree of the price discrimination depends upon the degree of monopoly in the market.

ii. Separate Market:

Implies that there must be two or more markets that can be easily separated for discriminating prices. The buyer of one market cannot move to another market and goods sold in one market cannot be resold in another market.

iii. No Contact between Buyers:

Refers to one of the most important conditions for price discrimination. A supplier can discriminate prices if there is no contact between buyers of different markets. If buyers in one market come to know that prices charged in another market are lower, they will prefer to buy it in other market and sell in own market. The monopolists should be able to separate markets and avoid reselling in these markets.

iv. Different Elasticity of Demand:

Implies that the elasticity of demand in the markets should differ from each other. In markets with high elasticity of demand, low price will be charged, whereas in

markets with low elasticity of demand, high prices will be charged. Price discrimination fails in case of markets having same elasticity- of demand.

Advantages and Disadvantages of Price Discrimination

A monopolist practices price discrimination to gain profits. However, it acts as a loss for the consumers.

Following are some of the advantages of price discrimination:

i. Helps organizations to earn revenue and stabilize the business

ii. Facilitates the expansion plans of organizations as more revenue is generated

iii. Benefits customers, such as senior citizens and students, by providing them discounts

In spite of advantages, there are certain disadvantages of price discrimination.

Some of the disadvantages of price discrimination as follows:

i. Leads to losses as some consumers end up paying higher prices

ii. Involves administration costs for separating markets.

Equilibrium under Price Discrimination:

We are starting with the simple case of a monopolist who sells his commodity in two submarkets at two different prices. Each of the submarkets has demand curves with different price elasticity.

The price-discriminating monopolist has to decide:

- (i) how much total output he must produce.
- (ii) How should the total output be allocated between the submarkets so as to maximise the total revenue and profits?

Suppose initially the seller is selling 100 units in each market. We also assume that with this allocation, marginal revenue in market 1 denoted by MR1 is Rs 10, and marginal revenue in market 2 denoted by MR2 is Rs 8. In this case, reallocation of units from cheaper markets to dearer markets is possible, and the monopolist could increase its total revenue by increasing the number of units sold in market 1 and reducing the number of units sold in market 2. By selling one more unit in market 1, the total revenue increases by Rs 10 and by selling one

unit less in market 2, the total revenue reduces by Rs8. So by reallocating the monopolist is getting a net increase in total revenue of Rs 2 (Rs10-Rs 8). So:

1. The total output produced by the monopolist should be divided between the two sub-markets so that marginal revenue in each sub-market is equal i.e. MR1=MR2.
2. For a price-discriminating monopolist to be in equilibrium, the total output must be such that marginal revenue in each sub-market is equal to the marginal cost of production i.e. MR1=MR2=MC.

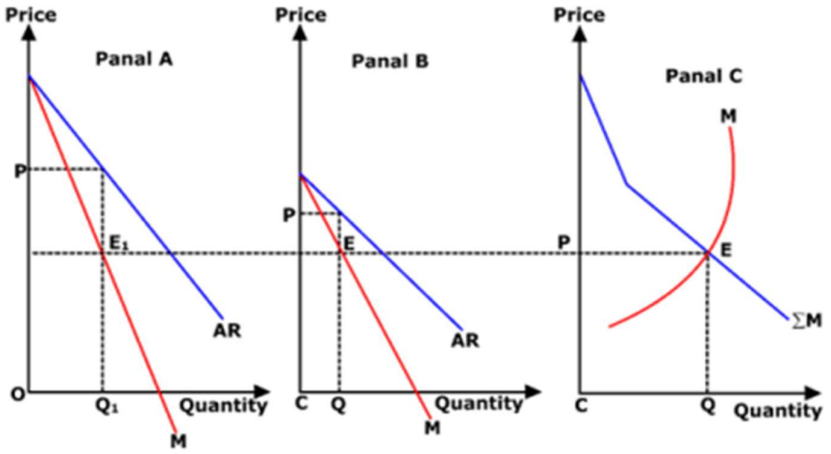


Fig2 Price Discrimination

In Fig, Panel A shows submarket 1 where AR1 and MR1 are the corresponding average revenue and marginal revenue curves. Panel 2 shows submarket 2, where AR2 and MR2 are the corresponding average revenue and marginal revenue curves. Panel C shows the aggregate marginal revenue curve, which is derived by the horizontal summation of marginal revenue curves of sub-markets 1 and 2. MC is the marginal cost of production.

For a price-discriminatory monopolist to be in equilibrium, the total output is such that MC is equal to the aggregate MR curve. The equilibrium point shows that ∑MR is equal to MC, i.e. the addition to total revenue arising from an additional unit of output when allocated to the submarkets optimally is equal to MC, i.e. addition to total cost arising from an additional unit of output. The equilibrium output is OC, as shown in Panel C.

Now draw a line from point C towards MR1 and MR2. The point where this line crosses the marginal revenue curves determines the output sold in the two submarkets. So OQ1 units of output are sold in market 1 at OP1 price, and OQ2 units of output are sold in market 2 at OP2 price and OQ1+OQ2=OQ.

The profit is maximised in each market by equating MC to the corresponding MR. So,

In Market 1: MR1=MC

In Market 2: MR2=MC

The total profit is maximised when MC is equal to individual marginal revenues.

$$MR_1 = MR_2 = MC$$

The monopolist can profitably practice price discrimination if the market can be divided into submarkets and each submarket has different price elasticity.

Price Discrimination and Elasticity of Demand

We have seen in Fig that demand is more elastic in market 2 than in market 1 at all the levels of output. And more (less) elastic the submarket demand, the lower (higher) the equilibrium price in the submarket. This can be shown with the help of the relationship between price and elasticity of demand. We have seen that

$$MR = P\ (1 - 1/e)$$

Where,

MR is Marginal Revenue

P is the Price, and

e is the elasticity of demand.

In the case of price discrimination in Submarket 1»

$$MR_1 = P_1\ (1 - 1/e_1)$$

Where

MR_1 is the Marginal Revenue in submarket 1

P_1 is the Price in submarket 1

e_1 is the Price Elasticity of Demand in submarket 1.

Similarly, in Submarket 2,

$$MR_2 = P_2\ (1 - 1/e_2)$$

Where,

MR_2 is the Marginal Revenue in submarket 2

P_2 is the Price in submarket 2

E_2 is the Price Elasticity of Demand in submarket 2.

And marginal revenue must be equal in both markets.

MR1= MR2, so we have

$$\boldsymbol{MR_1 = P_1\,(1 - 1/e_1) = MR_2 = P_2\,(1 - 1/e_2)}$$

Or

$$\boldsymbol{P_1/P_2 = (1 - 1/e_1)/(1 - 1/e_2)} \text{ …….. (1)}$$

(i) If e1=e2, i.e. the elasticity is the same in both submarkets, then price discrimination is not possible. If e1=e2, then equation (1) becomes

$$\boldsymbol{P_1/P_2 = 1 \text{ or } P_1 = P_2}$$

(ii) If price elasticity differs, i.e. $e_1 \neq e_2$, then the price will be lower (higher) in the market whose demand is more (less) elastic.

$$\boldsymbol{P_1\,(1 - 1/e_1) = P_2\,(1 - 1/e_2)}$$

If $e_1 > e_2$ then,

$$\boldsymbol{(1 - 1/e_1) > (1 - 1/e_2)}$$

Thus the condition of equality of the marginal revenues to be fulfilled P1<P2.

OR

If $e_1 < e_2$ then,

$$\boldsymbol{(1 - 1/e_1) < (1 - 1/e_2)}$$

And for the condition of equality of the marginal revenues to be fulfilled, P1>P2.

The market with high elasticity of demand will have a lower price, and the market with low elasticity of demand will have a higher price.

Dumping: Price Discrimination

Dumping is a special case of price discrimination where a firm is a monopolist in a domestic country but sells a commodity at a lower price in a foreign country. Dumping is possible because:

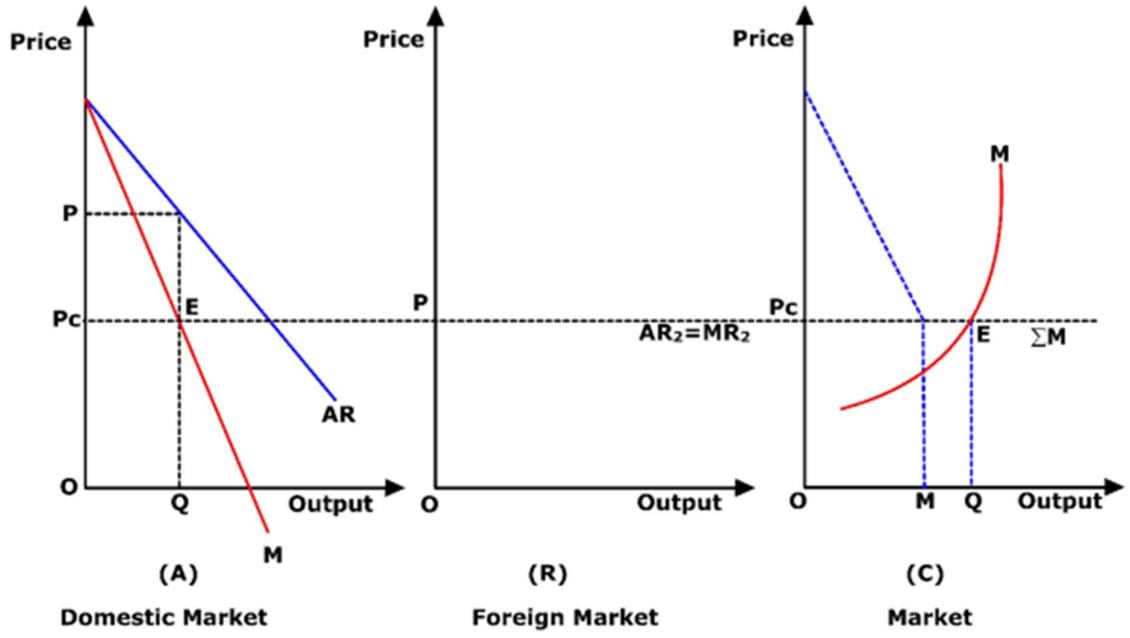
1. The firm is protected from foreign competition by tariffs and other import restrictions.
2. There are no export restrictions. So firm cal also sell the good in the foreign market.
3. There exists a difference in the price elasticity of demand among the markets.

Here we are studying a special case where a firm is a monopolist in the domestic market and faces international competition in the foreign market. It is graphically shown in Fig. Panel A shows the firm domestic monopoly, which faces a downward-sloping average revenue curve AR1 and marginal revenue curve MR2.

Panel B shows the case of a firm in a foreign market where it faces perfect competition and a perfectly elastic horizontal demand curve. MR2 and AR2 are the marginal revenue and average revenue curves faced by a firm in the foreign market.

Panel C shows the aggregate marginal revenue, which is the horizontal summation of MR1 and MR2. MC is the marginal cost of production.

The equilibrium output will occur where aggregate marginal revenue is equal to MC at point E, and the equilibrium output is OQ. The total output OQ is to be distributed in the foreign and domestic markets in such a way that marginal revenue in each market is equal to each other and to the marginal cost, i.e. MR1=MR2=MC.



Dumping- Price Discrimination

In fig, for any output OM or less than OM, all the output will be sold in the domestic market, and the firm has no leftover output to be sold in the foreign market. And for any output more than OM, the firm has output left over after completing domestic demand OM; it will sell in a foreign market at a perfectly competitive price Pc.

The equilibrium is determined at point E where aggregate MR is equal to MC and equilibrium output is OQ. The equilibrium output OQ is more than the output OM, i.e. seller is selling some output in the foreign market as well. Out of OQ units of output, OM is sold in the domestic market at a price PM, and MQ is sold in the foreign market at price Pc, i.e. OQ=OM+MQ.

If and price in the foreign market is less than the price in the domestic market, this is said to be dumping in the foreign market.