# Lesson 23

## PRICING

**Fixed Pricing**

Most firms use a fixed price policy. That is, they examine the situation, determine an ppropriate price, and leave the price fixed at that amount until the situation changes, at which point they go through the process again.

**Variable Pricing**

The alternative has been variable pricing, a form of first degree price discrimination, characterized by individual bargaining and negotiation, and typically used for highly differentiated high value items (like real estate).

Two variants of variable pricing are:

- Price **Shading** (in which sales people are given the authority to vary the price by a certain amount or percentage)
- and **Auctions** (in which potential buyers have the option of bidding on a product and thereby varying the price).

Consumers generally prefer fixed prices because they don't need to worry about being out-negotiated by a professional with expert knowledge and skills.

The exceptions are people that enjoy the social aspect of negotiating, and people that think they might have an advantage due to their product knowledge or negotiating skills.

**Profit Maximization**

In economics, Profit Maximization is the process by which a firm determines the price and output level that returns the greatest profit.

There are several approaches to this problem.

- The Total Revenue -- total cost method relies on the fact that profit equals revenue minus cost,
- and the Marginal Revenue -- marginal cost method is based on the fact that total profit in a perfectly competitive market reaches its maximum point where marginal revenue equals marginal cost.

**Basic Definitions**

Any costs incurred by a firm may be classed into two groups:

- Fixed Cost and
- Variable Cost.

**Fixed** costs are incurred by the business at any level of output. These may include

- equipment maintenance,
- rent,
- wages,
- and general upkeep.

**Variable** costs change with the level of output, increasing as more product is generated.

- Materials consumed during production
- Power
- Transport

**Fixed** cost and **variable** cost, combined, equal total cost.

**Revenue is the total amount of money that flows into the firm.**

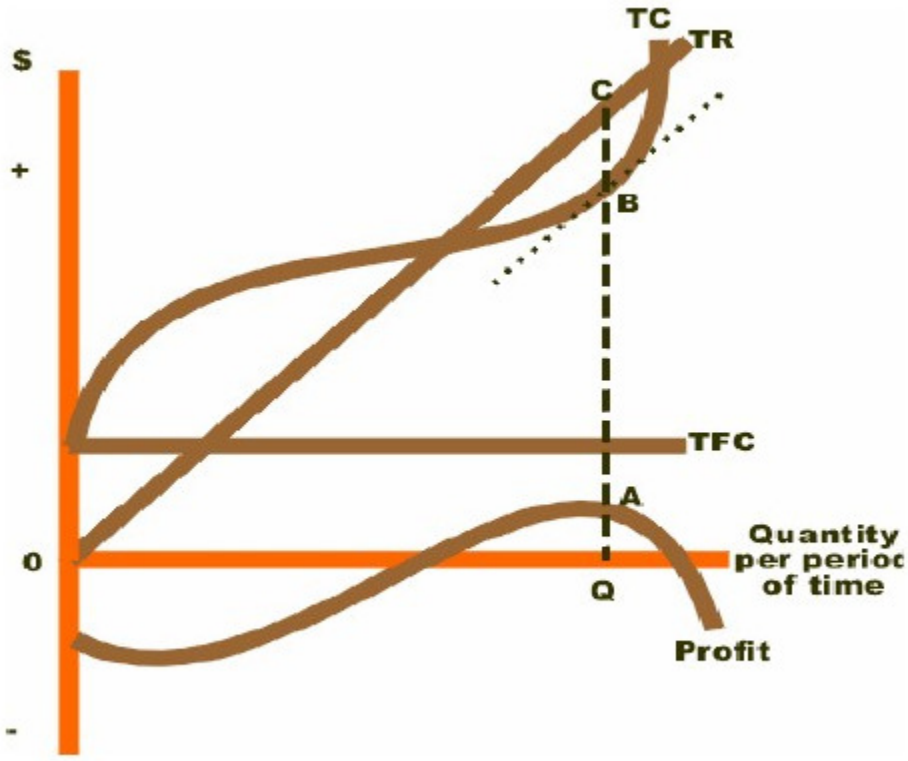
This can be from any source, including
- product sales,
- government subsidies,
- venture capital
- and personal funds.

**Average cost and revenue** are defined as the total cost or revenue divided by the amount of units output. For instance, if a firm produced 400 units at a cost of 20000 USD, the average cost would be 50 USD.

**Marginal cost**, depending on whether the calculus approach is taken or not, are defined as either the change in cost as each additional unit is produced. For instance, taking the first definition, if it costs a firm 400 USD to produce 5 units and 480 USD to produce 6, the marginal cost of the sixth unit is approximately 80 dollars.

**Total Cost ----Total Revenue Method**

To obtain the profit maximizing output quantity, we start by recognizing that profit is equal to total revenue minus total cost. Given a table of costs and revenues at each quantity, we can either compute equations or plot the data directly on a graph. Finding the profit-maximizing output is as simple as finding the output at which profit reaches its maximum. That is represented by output Q in the diagram



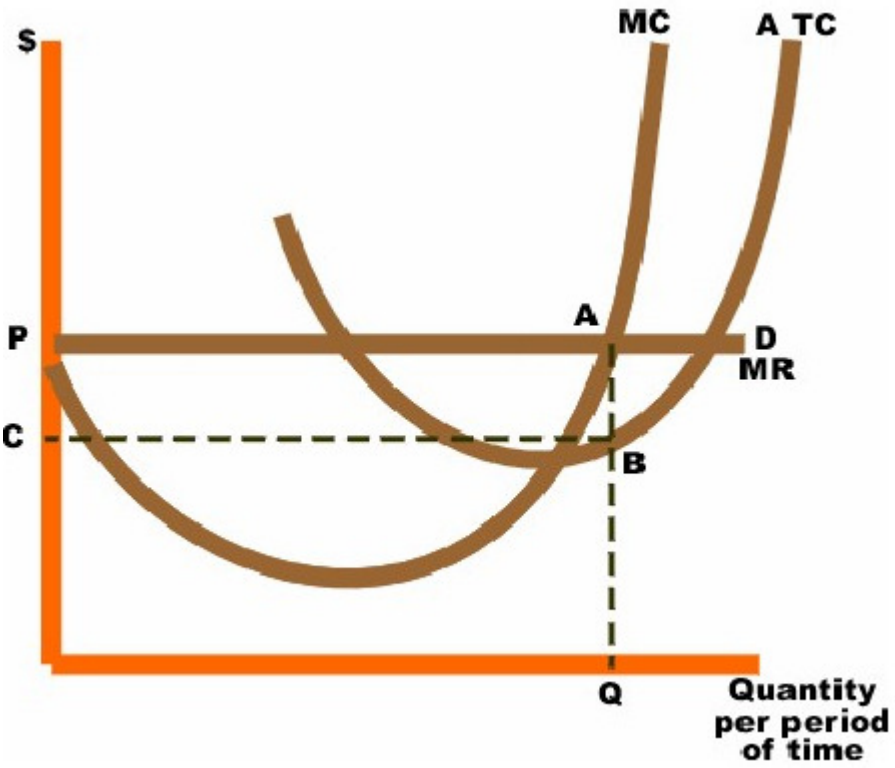

**Profit Maximization – The Totals Approach**

There are two graphical ways of determining that Q is optimal. Firstly, we see that the profit curve is at its maximum at this point (A).

Secondly, we see that at the point (B) that the tangent on the total cost curve (TC) is parallel to the total revenue curve (TR), the surplus of revenue net of costs (B,C) is the greatest. Because total revenue minus total costs is equal to profit, the line segment C,B is equal in length to the line segment A,Q. Computing the price at which to sell the product requires knowledge of the firm's demand curve. The price at which quantity demanded equals profit-maximizing output is the optimum price to sell the product.

**Marginal Cost-Marginal Revenue Method**

If total revenue and total cost figures are difficult to procure, this method may also be used. For each unit sold, marginal profit equals marginal revenue minus marginal cost. Then, if marginal revenue is greater than marginal cost, marginal profit is positive, and if marginal revenue is less than marginal cost, marginal profit is negative. When marginal revenue equals marginal cost, marginal profit is zero. Since total profit increases when marginal profit is positive and total profit decreases when marginal profit is negative, it must reach a maximum where marginal profit is zero - or where marginal cost equals marginal revenue. This intersection of marginal revenue (MR) with marginal costs (MC) is shown in the next diagram as point A. If the industry is competitive (as is assumed in the diagram), the firm faces a demand curve (D) that is identical to its Marginal revenue curve (MR), and this is a horizontal line at a price determined by industry supply and demand. Average total costs are represented by curve ATC. Total economic profits are represented by area P,A,B,C. The optimum quantity (Q) is the same as the optimum quantity (Q) in the first diagram.




**Profit Maximization - The Marginal Approach**

Modes of Operation

It is assumed that all firms are following rational decision-making, and will produce at the

profit-maximizing output. Given this assumption, there are four categories in which a firm's profit may be considered.

A firm is said to be making an economic profit when its average total cost is less than the price of the product at the profit-maximizing output. The economic profit is equal to the quantity output multiplied by the difference between the average total cost and the price.

A firm is said to be making a normal profit when its economic profit equals zero. This occurs where average total cost equals price at the profit-maximizing output.

If the price is between average total cost and average variable cost at the profit-maximizing output, then the firm is said to be in a loss-minimizing condition. The firm should still continue to produce, however, since its loss would be larger if it was to stop producing. By continuing production, the firm can offset its variable cost and at least part of its fixed cost, but by stopping completely it would lose equivalent of its entire fixed cost.

If the price is below average variable cost at the profit-maximizing output, the firm is said to be in shutdown. Losses are minimized by not producing at all, since any production would not generate returns significant enough to offset any fixed cost and part of the variable cost. By not producing, the firm loses only its fixed cost.