# Pure competition

Vincenzo Butticè(vincenzo.buttice@polimi.it)

Textbook: Varian, Microeconomics a modern approach

# Pure competition

A market is purely (perfectly) competitive if each firm assumes that the market price is independent of its own level of output

Whatever the firm produces can only be sold at one price: the going market price (**firms are price takers**)

The conditions for perfect competition are met when **a large number of small firms** produce a **homogeneous** good or service in quantities small enough so that none of the firms may have an influence on the market price

An additional condition for perfect competition is that all **the actors must have perfect or full information on the going price** (the market is transparent)

# Pure competition

In pure competition the **maximization problem** is:

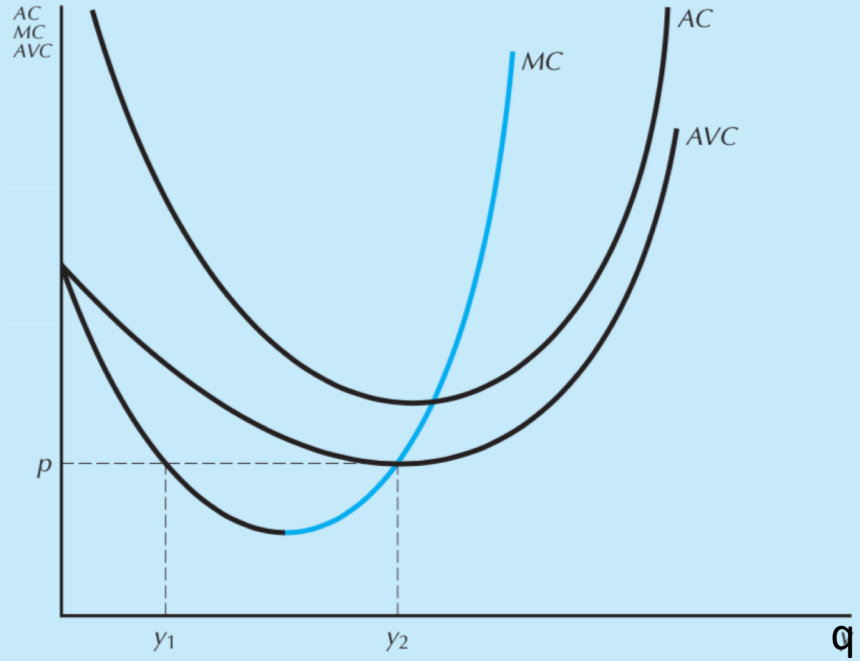
$$\max_q \pi = pq - c(q)$$

**Note that the price is given**

What level of output will a competitive firm choose to produce? Answer: it will operate where marginal revenue equals marginal cost

p=MC(q)

# Pure competition




**Marginal cost and supply**. Although there are two levels of output where price equals marginal cost, the profit-maximizing quantity supplied can lie only on the upward-sloping part of the marginal cost curve.

# Pure competition

Since it is always possible to produce a zero level of output, we have to compare our candidate for profit maximization **with the choice of doing nothing at all**

If a firm produces zero output it still has to pay its fixed costs, F. Thus the profits from producing zero units of output are just −F. The profits from producing a level of output x are

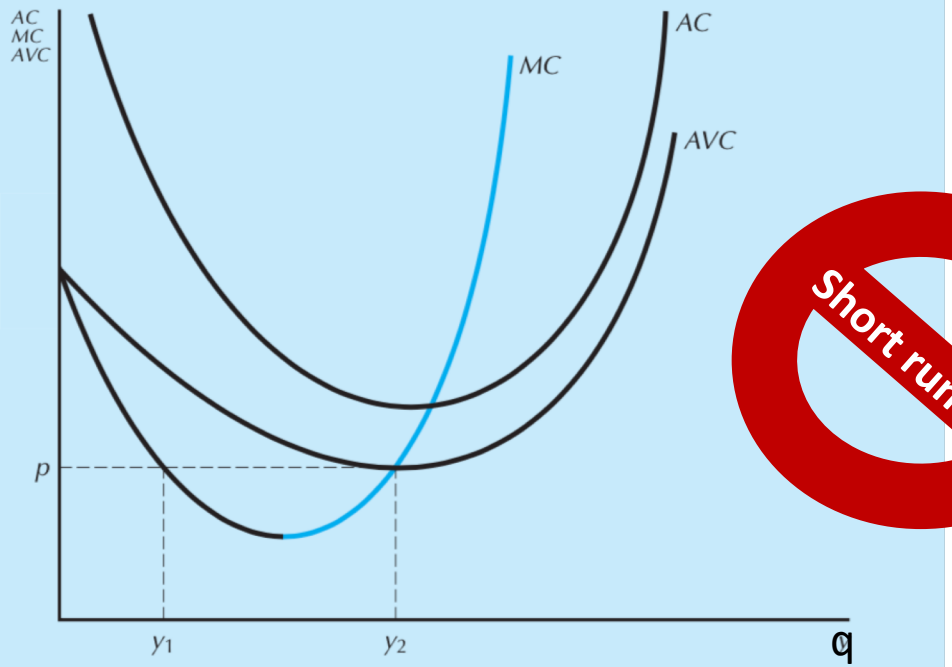
$$pq - CV(q) - F$$

The firm is better off going out of business when

$$-F > pq - CV(q) - F$$

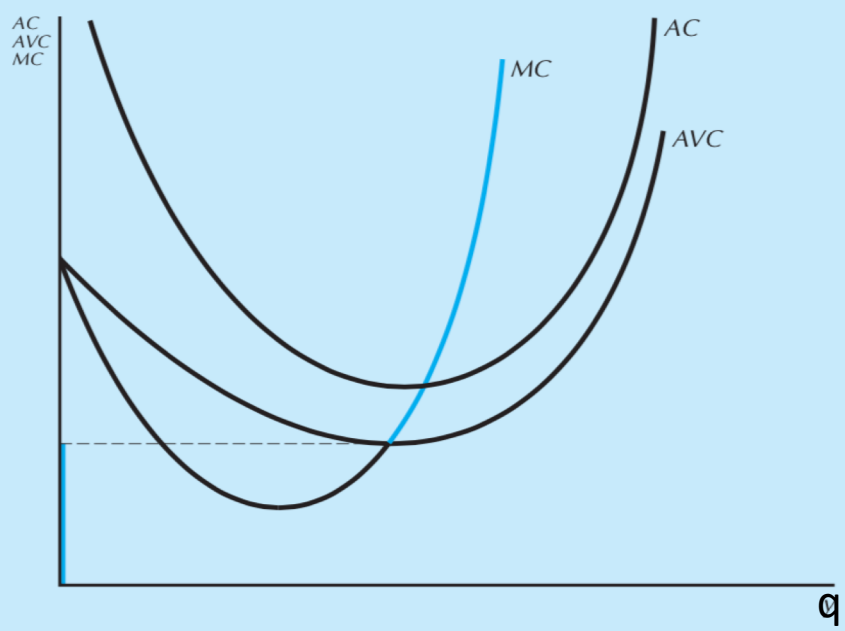
$$CV(q)/q > p \rightarrow AVC > P$$

# Pure competition




**Marginal cost and supply**. Although there are two levels of output where price equals marginal cost, the profit-maximizing quantity supplied can lie only on the upward-sloping part of the marginal cost curve.




**Average variable cost and supply**. The supply curve is the upward-sloping part of the marginal cost curve that lies above the average variable cost curve. The firm will not operate on those points on the marginal cost curve below the average cost curve since it could have greater profits (less losses) by shutting down.

# Pure competition

Suppose there is a perfectly competitive industry where all the firms are identical with identical cost curves. Furthermore, suppose that a representative firm's total cost is given by the equation TC = 100 + $q^2$ + 2q where q is the quantity of output produced by the firm You also know that p= 400. Determine the profit maximizing level of output and the revenues associated to this output level

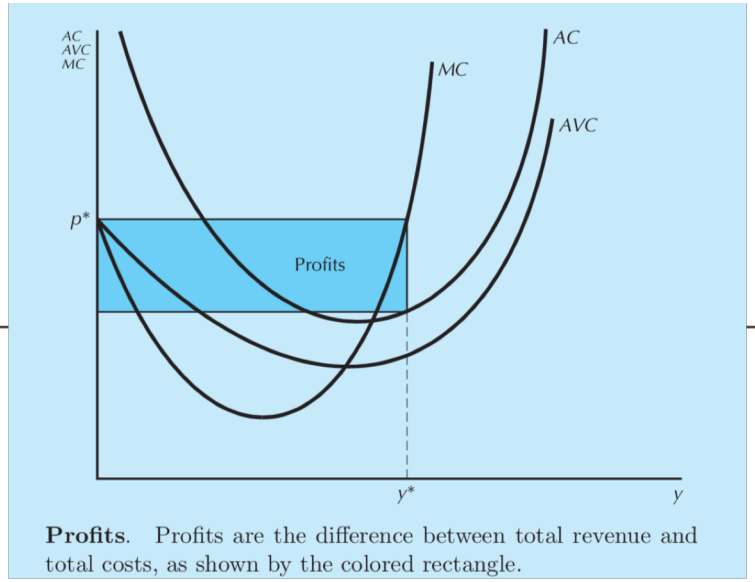
# Pure competition

Suppose there is a perfectly competitive industry where all the firms are identical with identical cost curves. Furthermore, suppose that a representative firm's total cost is given by the equation TC = 100 + $q^2$ + 2q where q is the quantity of output produced by the firm You also know that p= 400. Determine the profit maximizing level of output and the revenues associated to this output level.

Q=199

Revenues= 199*400=79.600

# Pure competition




**Profits.** Profits are the difference between total revenue and total costs, as shown by the colored rectangle.

What about the profit in the previous example?

$\pi$=Revenues-total costs=79.600-40.099>0

Since there is a positive economic profit in the short run, there should be entry of firms in the long-run resulting in an increase in the market quantity, a decrease in the market price, and firms in the industry earning zero economic profit

The long-run equilibrium price is that price that results in the representative firm earning zero economic profit. This will occur when MC = AC for the representative firm