

# 1 Theory of the firm in a nutshell

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You need to read all of the chapters on the theory of the firm in your microeconomics book (introductory book such as KW, or your intermediate micro book)

Like the consumer, the firm wants to do the best it can subject to the constraints it faces.

- What does "best" mean?

We often assume that the firm wants to maximize its profits but other goals are possible

If profit maximization is the goal, in a one-period world the firm maximizes one-period profits

In a multiple-period world, maximizing profits generalizes to maximizing the present value of the firm's profit stream.

- All firms are constrained by the state of technical knowledge for producing the commodity(s) that they produce and sell

There are many ways to express this constraint mathematically. Two of the ways are production functions and cost functions.

A production function identifies the maximum output associated with any combination of inputs. E.g.  $x = f(l, k)$ .

A cost function,  $c = c(x)$ , identifies minimum cost as a function of the number of units of output produced.

- All firms are constrained in terms of what they can sell at what price.

For the competitive firm this constraint is represented by the exogenous  $p$ . The firm can sell as much as it wants at  $p$ .

For the monopolistic firm this constraint is represented by the market demand function  $x = x(p)$ .

For the oligopolist, things are more complicated.

- All firms are constrained by the supply of inputs.

The firm that is competitive in input markets can buy as many inputs as desired at their competitive market prices.

In contrast, a monopsonistic firm faces an upward sloping supply curve for inputs: it has to pay more per unit if it want to hire more.

- The solution to the firm's optimization problem can be expressed in numerous ways.

In terms of the best out quantity,  $x^*$  to produce.

In terms of the best price,  $p^*$  to charge (only for non-competitive firms)

How much of each input to hire,  $l^*$  and  $k^*$

What price to pay for inputs,  $w^*$  and  $r^*$  (only for firms that are not competitive in input markets, e.g. monopsonists)