

Production

6-1. Definition: It is an economic process that uses resources to create a commodity that is suitable for use by consumers.

This process can include manufacturing, storing, shipping, and packaging.

Because it is a flow concept, production is measured as a “rate of output per period of time”.

6-2. Factors of production: Factors of production are the resources used in the production of goods and services in economics. There are four factors of production:

- Land or natural resources, the payment for land is rent.
- Labor – human effort used in production, the payment for labor is a wage.
- Capital the payment for capital is called interest.
- entrepreneurs the payment for entrepreneurs called profit.

6-3. Production Function

There are several ways of specifying the production function.

In a general mathematical form, a production function can be expressed as:

$$Q = f(X_1, X_2, X_3, \dots, X_n)$$

where:

Q = quantity of output

$X_1, X_2, X_3, \dots, X_n$ = factor inputs (such as capital, labour, land or raw materials).

One formulation is as a linear function:

$$Q = a + bX_1 + cX_2 + dX_3, \dots$$

where a, b, c, and d are parameters that are determined empirically.

Another is as a Cobb-Douglas production function (multiplicative):

$$Q = aX_1^b X_2^c$$

6-4. The production function as a graph

Any of these equations can be designed on a graph. A typical production function is shown in the following diagram.