

Chapter 7: Terms and Concepts

Economic Cost: the payment that must be made to obtain and retain the services of a resource

- The income the firm must provide to resource suppliers to attract resources away from alternative uses
- Explicit costs + implicit costs

Explicit Costs: money given to the people by the firm it buys resources from

Implicit Costs: opportunity costs of using the resources a firm already owns to make the firm's own product

Table-making firm

- Pays workers \$5000 → explicit costs
- Choosing to use oak wood to make a table rather than selling the oak → implicit costs
 - Oak has a market value of \$1500
 - Choosing to make a table → giving up the best alternatives the firm could've purchased with \$1500

College

- Tuition, cost of books, travel costs, housing → explicit costs
- Wear of studying, time → implicit costs

Accounting Profit: profit number showing total explicit costs from total sales revenue

Normal Profit: amount of accounting profit that you would've earned in another venture, implicit costs of entrepreneurship

Economic Profit: revenue – explicit costs – implicit costs

Short Run: a firm's plant capacity is fixed

- Harley-Davidson Corporation hires 200 more production workers
 - New laborers can work immediately
- A farmer increases the amount of fertilizer used on his corn crop
 - Although takes time via growing process, this effects the growth of current crops immediately
- An Alcoa aluminum plant adds a third shift of workers
 - New laborers can work immediately

Long Run: a firm can vary its plant size and firms can enter or leave the industry

- Wendy's builds a new restaurant → capital investment, takes time to become productive

Calculate Marginal Product, Average Product

Total Product = total quantity of a good produced

Marginal Product = change in total product / change in labor input

Average Product = total product / units of labor

Explanation of Graphs:

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MP is the slope—the rate of change—of the TP curve. When TP is rising at an increasing rate, MP is positive and rising. When TP is rising at a diminishing rate, MP is positive but falling. When TP is falling, MP is negative and falling. AP rises when MP is above it; AP falls when MP is below it.

MP first rises because the fixed capital gets used more productively as added workers are employed. Each added worker contributes more to output than the previous worker because the firm is better able to use its fixed plant and equipment. As still more labor is added, the law of diminishing returns takes hold. Labor becomes so abundant relative to the fixed capital that congestion occurs and marginal product falls. At the extreme, the addition of labor so overcrowds the plant that the marginal product of still more labor is negative—total output falls.

Because labor is the only variable input and its price (its wage rate) is constant, MC is found by dividing the wage rate by MP. When MP is rising, MC is falling; when MP reaches its maximum, MC is at its minimum; when MP is falling, MC is rising.

Law of Diminishing Returns: What does it mean? Give an example.

Definition: this law assumes that **technology is fixed** and thus the **techniques of production do not change**

- As successive units of a variable resource (labor) are added to a fixed resource (capital, land) → marginal product of each addition until of variable resource (labor) will decline
- Ex: additional workers are hired → output will eventually rise by smaller and smaller amounts

Corn Farmer

- Cultivating land once → 40 bushels per acre
- Cultivating land twice → 50 bushels per acre
- Cultivating land thrice → 57 bushels per acre
- Succeeding cultivations will add less and less to the land's yield

Wood Shop

- Has a specific amount of equipment
- One/two workers → total output and productivity would be very low
 - Plant: understaffed, production is inefficient, too much capital relative to labor
- Increase workers → production becomes more efficient
 - Marginal product of each succeeding worker is rising
- At a certain point → more workers would cause overcrowding
 - Total output would increase at a diminishing rate
 - Each worker has less capital equipment to work with given fixed size of plant
 - Marginal product of additional workers would decline
 - More labor in proportion to fixed amount of capital
 - Eventually, marginal product would become negative & total product would decline
 - Firm is using more workers relative to the amount of plant and equipment available

Fixed, Variable, and Total Costs

Fixed Costs: costs that do not vary with changes in output

- Interest on company issued bonds
- Real estate taxes
- Insurance premiums
- Executive salaries
- Depreciation and obsolescence charges

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- Rental payments on leased office machinery

Variable Costs: costs that change with the level of output

- Fuel
- Shipping charges
- Payments for raw materials
- Wage payments
- Sales tax

Why can the distinction between fixed costs and variable costs be made in the short run?

The distinction can be made because there are some costs that do not vary with total output. These are the fixed costs that, fundamentally, are related to the scale or size of the plant. In the short run, by definition, the scale of the plant cannot change: The firm cannot bring in more machinery or move to a larger building. All costs that are related to the scale of the plant—costs that continue to be incurred even though the firm's output may be zero—are fixed costs. On the other hand, the firm can increase its output by using its plant—its fixed capital—more intensively, that is, by hiring more labor, or by using more materials. But by doing so, it will increase its operating costs, its variable costs.

"There are no fixed costs in the long run; all costs are variable." Explain.

In the long run, the firm can, by definition, get out of paying all of its short-run fixed costs; its lease is up, it can fire its executives without penalty, the insurance has run out, and so on. All of its costs at this moment, then, are variable. It can decide to continue producing at the same scale and thus reassume all its previous fixed costs for the next short-run period; or it can decide to increase its scale and thus increase its fixed costs; or it can decide to go out of business and thus have no costs at all.

Marginal Cost = change in total cost / change in quantity

Average Fixed Cost = total fixed cost / quantity

Average Variable Cost = total variable cost / quantity

Average Total Cost = total cost / quantity

Total Fixed/Variable Cost = usually given

Total Cost = total fixed cost + total variable cost

Economies of Scale: What does it mean? Give an example

Definition: reductions in the average total cost of producing a product as the firm expands the size of plant (its output) in the long run; economies of mass production

Labor Specialization