UNIT 2

MICROEONOMICS

Chapter 1: Demand and Consumer Behavior

1.1 CHOICE AND UTILITY THEORY

In explaining consumer behaviour, economics relies on the fundamental premise that people choose those goods and services they value most highly. To describe the way consumers, choose among different consumption possibilities, economists a century ago developed the notion of utility. From the notion of utility, they were able to derive the demand curve and explain its properties.

What do we mean by "utility"? **In a word, utility denotes satisfaction. More precisely, it refers to how consumers rank different goods and services. If basket A has higher utility than basket B for Smith, this ranking indicates that Smith prefers A over B.** Often, it is convenient to think of utility as the subjective pleasure or usefulness that a person derives from consuming a good or service.

Utility is a scientific construct that economists use to understand how rational consumers make decisions. We derive consumer demand functions from the assumption that people make decisions that give them the greatest satisfaction or utility.

In the theory of demand, we assume that people maximize their utility, which means that they choose the bundle of consumption goods that they most prefer.

1.2 MARGINAL UTILITY AND THE LAW OF DIMINISHING MARGINAL UTILITY

How does utility apply to the theory of demand? Say that consuming the fi rst unit of ice cream gives you a certain level of satisfaction or utility. Now imagine consuming a second unit. Your total utility goes up because the second unit of the good gives you some additional utility. What about adding a third and fourth unit of the same good?

This leads us to the fundamental economic concept of marginal utility. When you eat an additional unit of ice cream, you will get some additional satisfaction or utility. The increment to your utility is called marginal utility.

The expression "marginal" is a key term in economics and always means "additional" or "extra." Marginal utility denotes the additional utility you get from the consumption of an additional unit of a commodity.

One of the fundamental ideas behind demand theory is the law of diminishing marginal utility. This law states that the amount of extra or marginal utility declines as a person consumes more and more of a good.

To understand this law, first remember that utility tends to increase as you consume more of a good. However, as you consume more and more, your total utility will grow at a slower and slower rate. This is the same thing as saying that your marginal utility (the extra utility added by the last unit consumed of a good) diminishes as more of a good is consumed.

The law of diminishing marginal utility states that, as the amount of a good consumed increases, the marginal utility of that good tends to decline.

- **A Numerical Example**

We can illustrate utility numerically as in Table 5-1. The table shows in column (2) that total utility (U) enjoyed increases as consumption (Q) grows, but it increases at a decreasing rate. Column (3) measures marginal utility as the extra utility gained when 1 extra unit of the good is consumed. Thus, when the individual consumes 2 units, the marginal utility is 7 - 4 = 3 units of utility (call these units "utils")

Focus next on column (3). The fact that marginal utility declines with higher consumption illustrates the law of diminishing marginal utility.

(1) Quantity of a good consumed *Q*	(2) Total utility *U*	(3) Marginal utility *MU*
0	0	
		4
1	4	
		3
2	7	
		2
3	9	
		1
4	10	
		0
5	10	

TABLE 5-1. Utility Rises with Consumption

As we consume more of a good or service like pizza or concerts, total utility increases. The increment of utility from one unit to the next is the "marginal utility"—the extra utility added by the last extra unit consumed. By the law of diminishing marginal utility, the marginal utility falls with increasing levels of consumption.

- **Relationship of Total and Marginal Utility.**

Using Figure 5-1, we can easily see that the total utility of consuming a certain amount is equal to the sum of the marginal utilities up to that point. For example, assume that 3 units are consumed. Column (2) of Table 5-1 shows that the total utility is 9 units. In column (3) we see that the sum of the marginal utilities of the first 3 units is also 4 +3 +2 = 9 units.

➢ Total Utility and Marginal Utility Curve

Figure 5-1 shows graphically the data on total utility and marginal utility from Table 5-1. In part (a), the blue blocks add up to the total utility at each level of consumption. In addition, the smooth blue curve shows the smoothed utility level for fractional units of consumption. It shows utility increasing, but at a decreasing rate. Figure 5-1(b) depicts marginal utilities. Each of the blue blocks of marginal utility is the same size as the corresponding block of total utility in (a). The straight blue line in (b) is the smoothed curve of marginal utility.

The law of diminishing marginal utility implies that the marginal utility (MU) curve in Figure 5-1(b) must slope downward. This is exactly equivalent to saying that the total utility curve in Figure 5-1(a) must look concave, like a dome.

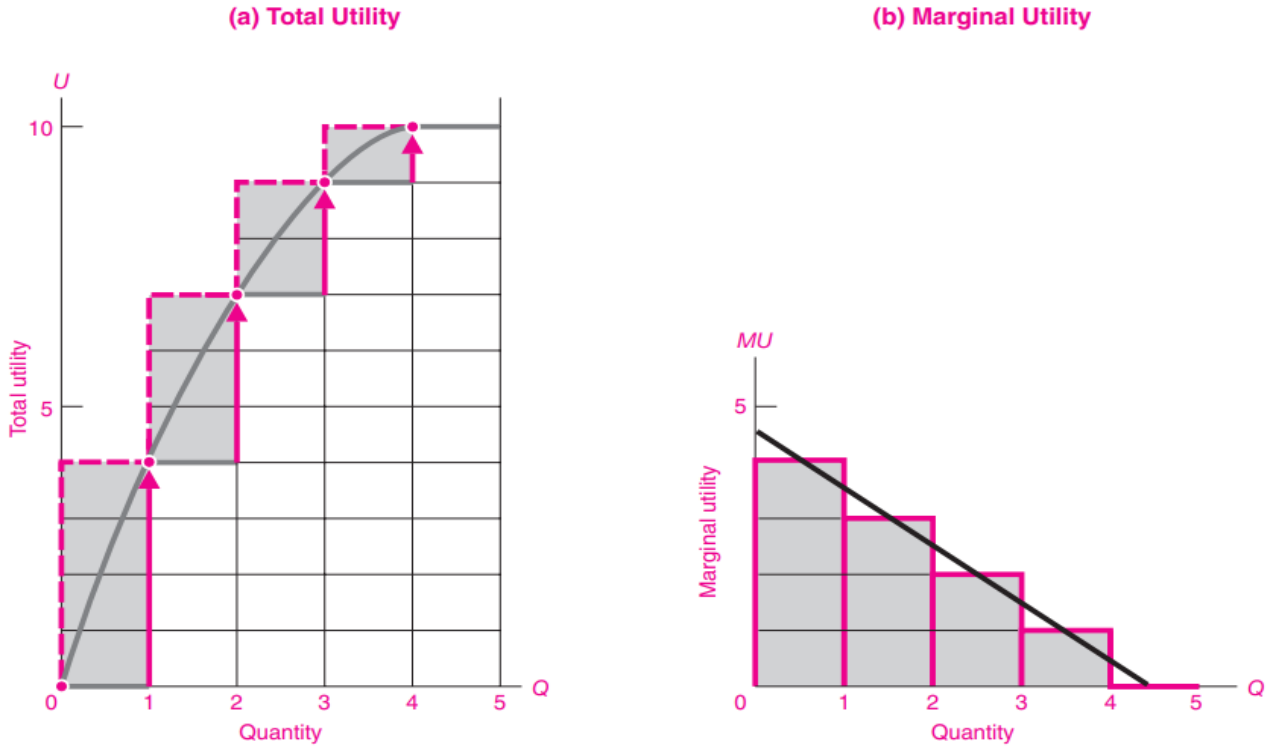


FIGURE 5-1. The Law of Diminishing Marginal Utility

Total utility in **(a)** rises with consumption, but it rises at a decreasing rate, showing diminishing marginal utility. This observation led early economists to formulate the law of downward-sloping demand.

The blue blocks show the extra utility added by each new unit. The fact that total utility increases at a decreasing rate is shown in **(b)** by the declining steps of marginal utility. If we make our units smaller, the steps in total utility are smoothed out and total utility becomes the smooth blue curve in **(a)**. Moreover, smoothed marginal utility, shown in **(b)** by the blue downward-sloping smooth curve, becomes indistinguishable from the slope of the smooth curve in **(a)**.

Examining Figure 5-1(b), we see that the total area under the marginal utility curve at a particular level of consumption—as measured either by blocks or by the area under the smooth MU curve—must equal the height of the total utility curve shown for the same number of units in Figure 5-1(a). Whether we examine this relationship using tables or graphs, we see that total utility is the sum of all the marginal utilities that were added from the beginning.

Chapter 2: Production and Business Organization

2.1. THEORY OF PRODUCTION AND MARGINAL PRODUCTS

➢ BASIC CONCEPTS

A modern economy has an enormously varied set of productive activities. A farm takes fertilizer, seed, land, and labor and turns them into wheat or corn. Modern factories take inputs such as energy, raw materials, computerized machinery, and labor and use them to produce tractors, DVDs, or tubes of toothpaste. An airline takes airplanes, fuel, labor, and computerized reservation systems and provides passengers with the ability to travel quickly through its network of routes.

➢ 2.1.1 The Production Function

We have spoken of inputs like land and labor and outputs like wheat and toothpaste. But if you have a fixed amount of inputs, how much output can you get? On any day, given the available technical knowledge, land, machinery, and so on, only a certain quantity of tractors or toothpaste can be obtained from a given amount of labor. ***The relationship between the amount of input required and the amount of output that can be obtained is called the production function.***

The production function specifies the maximum output that can be produced with a given quantity of inputs. It is defined for a given state of engineering and technical knowledge.

- ❑ The production function expresses a functional relationship between quantities of inputs and outputs.
- ❑ Definition : "A production function refers to the functional relationship , under the given technology, between physical rates of input and output of a firm , per unit of time."

It shows how and to what extent output changes with variations in inputs during a specified period of time.

In the words of Stigler, "The production function is the name given to the relationship between rates of input of productive services and the rate of output of product. It is the economist's summary of technical knowledge."

Basically, the production function is a technological or engineering concept which can be expressed in the form of a table, graph and equation showing the amount of output obtained from various combinations of inputs used in production, given the state of technology. The functional relationship between inputs and outputs is known as production function. Inputs refer to the factor services which are used in production i.e. land, labour, capital and enterprise. Output refers to the volume of goods produced.

Algebraically production function may be expressed in the form of an equation as:

$$Q = f(L,M,N,K,T)$$

Where,
Q = stands for the output of a good per unit of time,
L = for labour,
M = for management (or organization),
N = for land (or natural resources),
K = for capital and
T = for given technology,
f = refers to the functional relationship.
The production function explains how the output can be maximised with the help of given inputs.

The production function with many inputs cannot be depicted on a diagram. Moreover, given the specific values of the various inputs, it becomes difficult to solve such a production function mathematically. Economists, therefore, use a two-input production function. If we take two inputs, labour and capital, the production function assumes the form

$$Q = f(L, K)$$

Where,
Q = output
f = functional relationship between factors.
L = Labour
K = Capital

❑ SHORT RUN PRODUCTION FUNCTION:

Short run is defined as a period of time in which some factors are fixed and some are variable. In short run the output is produced with a given scale of production, i.e, the size of a plant or firm remaining unchanged.In short run production function output can be increased only by increasing the variable factors combined with given set of fixed factors.
Algebraically short run production function is stated as below:

$$Q = f\ (a / b^o , c^o , \ldots\ldots n^o , T\ )$$

Where,
Q = output (production)
Ƒ = functional relationship.
a = Variable factor
(/) = stroke divides between variable and fixed variables.
Subscript o = fixed factors
$b^o , c^o , \ldots\ldots n^o$ = fixed factors , T = technology which is constant.

❑ LONG RUN PRODUCTION FUNCTION:

The long period is such a time period over which all factors become variable. There is no distinction between fixed and variable factors in the long run, as all factors become variable factors. In the long run , the firm operates with the changing scale of output and its size as a whole is varied .Long – run production can be stated as under :

$$Q = f\ (a , b , c , \ldots\ldots n , T\ )$$

Q = output (production)

Ƒ = functional relationship.

a , b , c , n = all are variable factors.

T = technology which is constant.

In the long run it can be noted that there is no difference between fixed and variable factors. All factors are variable. Therefore in long run the firm operates with changing scale of output and its size as a whole is varied.

➢ 2.1.2 Total, Average, and Marginal Product

Starting with a firm's production function, we can calculate three important production concepts: total, average, and marginal product. We begin by computing the total physical product, or total product, which designates the total amount of output produced, in physical units such as bushels of wheat or number of units.

1) Total product (TP):

It is the total number of units of output produced per unit of time by all factor inputs. In the short run the total output increases with the increase in the variable factors. Thus,

$$TP = f\ (QVF)$$

TP = Total Product
QVF = Quantitiy of Variable Factor

2)Average product (AP):

It refers to total product per unit of a given variable factor. We get average product by dividing the total product by the quantity of variable factor.

$$AP = TP / QVF$$

AP = Average product
TP = Total Product
QVF = Quantity of Variable Factor.
Eg – 400 tables are made per day and 25 workers are employed, then
AP = 400 / 25 = 16 i.e Average product is 16 tables.

3) Marginal product (MP):

It is the addition made to the total product as a result of employing one more unit of a factor.
It is the change in the total product as a result of unit change in the use of variable factor.

$$MP = TPn – TPn\text{-}1$$

MP = Marginal Product
TPn = new level of total product
TPn – 1 = old level of total product.

Eg – labour	Total Product
25	400
26	440

MP = 440 – 400
= 40

The marginal product of 26th labour is 40 units.

Figure 6 -1 (a) and column (2) of Table 6 -1 on page 110 illustrate the concept of total product. For this example, they show how total product responds as the amount of labor applied is increased. The total product starts at zero for zero labor and then increases as additional units of labor are applied, reaching a maximum of 3900 units when 5 units of labor are used.

Once we know the total product, it is easy to derive an equally important concept, the marginal product. Recall that the term "marginal" means "extra." ***The marginal product of an input is the extra output produced by 1 additional unit of that input while other inputs are held constant.***

For example, assume that we are holding land, machinery, and all other inputs constant. Then labor's marginal product is the extra output obtained by adding 1 unit of labor.

The third column of Table 6-1 calculates the marginal product. The marginal product of labor starts at 2000 for the first unit of labor and then falls to only 100 units for the fifth unit.

Marginal product calculations such as this are crucial for understanding how wages and other factor prices are determined.

The final concept is the average product, which equals total output divided by total units of input.

The fourth column of Table 6-1 shows the average product of labor as 2000 units per worker with one worker, 1500 units per worker with two workers, and so forth. In this example, average product falls through the entire range of increasing labor input.

(1) Units of labor input	(2) Total product	(3) Marginal product	(4) Average product
0	0		
		2,000	
1	2,000		2,000
		1,000	
2	3,000		1,500
		500	
3	3,500		1,167
		300	
4	3,800		950
		100	
5	3,900		780

TABLE 6-1. Total, Marginal, and Average Product

The table shows the total product that can be produced for different inputs of labor when other inputs (capital, land, etc.) and the state of technical knowledge are unchanged. From total product, we can derive important concepts of marginal and average products.

- **Total Product and Marginal Product curve:**

Figure 6 -1 plots the total and marginal products from Table 6 -1. Study this figure to make sure you understand that the blocks of marginal products in (b) are related to the changes in the total product curve in (a).

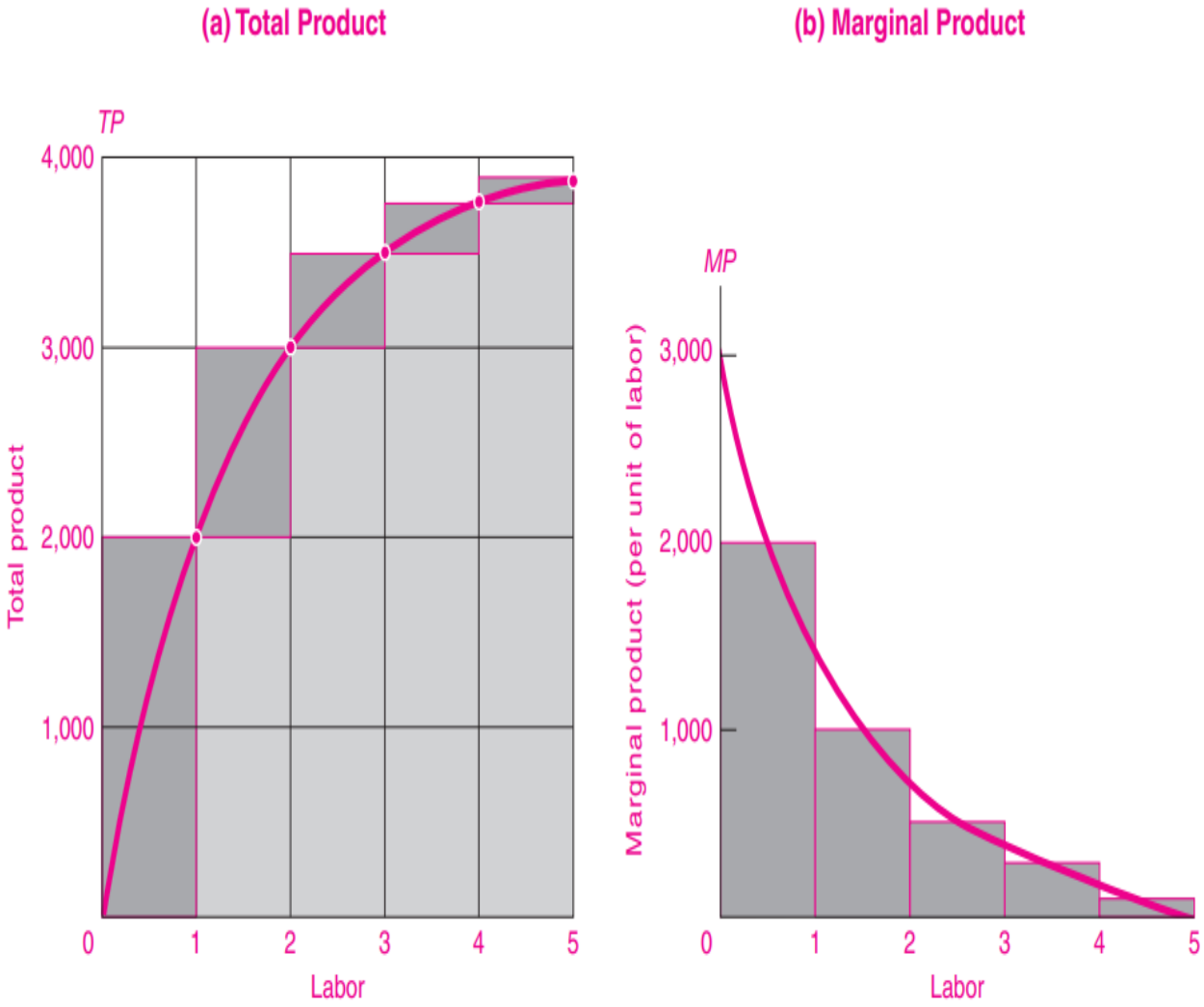


FIGURE 6-1. Marginal Product Is Derived from Total Product

Diagram **(a)** shows the total product curve rising as additional inputs of labor are added, holding other things constant. However, total product rises by smaller and smaller increments as additional units of labor are added (compare the increments of the first and the fifth worker). By smoothing between points, we get the green-colored total product curve.

Diagram **(b)** shows the declining steps of marginal product. Make sure you understand why each dark rectangle in **(b)** is equal to the equivalent dark rectangle in **(a)**. The area in **(b)** under the green-colored marginal product curve (or the sum of the dark rectangles) adds up to the total product in **(a)**.

➢ 2.1.3 Short run analysis (Law of Diminishing Marginal Returns / Law of Variable Proportions)

The law examines the relationship between one variable factor and output, keeping the quantities of other factors fixed.

Definition:

"As the proportion of one factor in a combination of fixed factors is increased, after a point, first the marginal and then the average product of that factor will diminish".

❑ ASSUMPTIONS OF THE LAW

The law is based on the following assumptions
(i) Only one factor is made variable and other factors are kept constant.
(ii) This law does not apply in case all factors are proportionately varied. i.e. where the factors must be used in rigidly fixed proportions to yield a product.
(iii) The variable factor units are homogenous i.e. all the units of variable factors are of equal efficiency.
(iv) Input prices remain unchanged.
(v) The state of technology does not change or remains the same at a given point of time.
(vi) The entire operation is only for short-run, as in the long-run all inputs are variable.

❑ THREE STAGES OF LAW

The behavior of the output when the varying quantity of one factor is combined with a fixed quantity of the other can be divided into three stages.
They are
(i) Increasing returns stage
(ii) Decreasing returns stage
(iii) Negative returns stage
The three stages could be better understood by the following Table:

Fixed factor Machine	Variable factor labour	Total product in units	Average product in units	Marginal product in units	Stages
1	1	10	10	10	Increasing returns
1	2	22	11	12	
1	3	36	12	14	
1	4	52	13	16	
1	5	66	13.2	14	
1	6	76	12.6	10	Decreasing returns
1	7	80	11.4	4	
1	8	82	10.2	2	
1	9	82	9.1	0	
1	10	78	7.8	-4	Negative returns

Explanation of table:

In the above table machine is the fixed factor which remain same i.e only 1 unit. But labour is the variable factor which is increasing at rate of 1 unit.

1) Stage I - Increasing returns stage: when we use quantities of labour from 1 to 5, Total Product (TP) increases at an increasing rate. Average Product (AP) also increases and Marginal product (MP) is also increasing. Here TP, AP, MP all three are increasing therefore the first stage is called increasing returns.

2) Stage II - Decreasing returns stage: when we use 6 to 9 units of labour , the Total Product (TP) increases but at decreasing rate, Average product (AP) decreases & finally Marginal Product (MP) also decreases drastically and MP becomes Zero. Therefore, second stage is called decreasing returns stage.

3) Stage III - Negative returns stage: When we use 10 units of labour, Total Product (TP) decreases, Average Product (AP) also decreases. But most significant point is in the last stage Marginal Product (MP) becomes negative number and because of this the third stage is called as Negative returns stage.

LAW OF VARIABLE PROPORTIONS GRAPHICAL PRESENTATION:

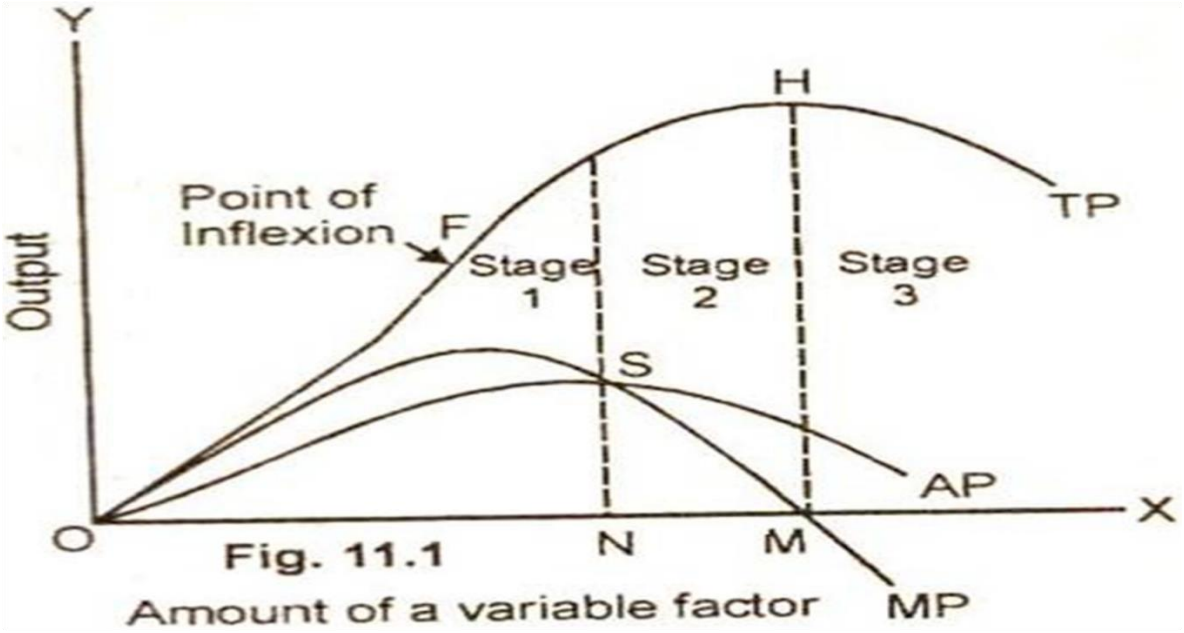


Fig. 11.1

- **Stage I: INCREASING RETURNS:**
- Stage I of increasing returns starts with origin from where the Total Product (TP) curve, the Average Product (AP) curve and the Marginal Product (MP) curve are increasing.
  - In the first stage Total Product (TP) curve Increases at increasing rate.
  - It is notable that the Marginal Product (MP) curve in this stage is also increases & reaches its maximum point but in a later part it starts declining. Though marginal product starts declining, it is greater than the average product.

- Stage of increasing returns ends at point N , where the Average Product (AP) reaches its highest (maximum) point and Marginal Product (MP) curve intersect AP curve and at this point MP = AP .

❑ **Stage II: DECREASING RETURNS**

- It is the most important stage of production. Stage II starts when at point where the MP curve intersects the AP curve which is at the maximum.
- In the above graph stage II operates between point N & M.
- Then both continue to decline with AP above MP and the TP curve begins to increase at a decreasing rate till it reaches its highest point.
- In the second stage, the total product continues to increase but at a diminishing rate.
- The marginal product and the average product are declining but are positive.
- At the end of the second stage, the total product reaches at its maximum point and at the same time marginal product intersect X axis and becomes zero.
- Stage of decreasing returns Stage II ends at the point where the marginal product is zero. And Total Product (TP) is maximum.

❑ **Stage III: NEGATIVE RETURNS**

- The Negative Returns stage starts from point M in the above graph. Where Marginal Product (MP) becomes Zero.
- In the third stage Total Product starts falling, Average Product also decreases but remain positive.
- Most important point of Stage III negative returns is that in this stage the Marginal Product (MP) becomes negative. therefore, the third stage is known as negative returns stage.
- No Producer will select the stage III for the production because the Marginal Product (MP) is negative.

❑ **THE BEST STAGE :**

* No producers will be willing to produce in Stage I and Stage III.

* In stage I more variable factors are used as compared to fixed factor so in first stage variable factors are not used efficiently. Therefore, no producer will select stage I.

* In Stage III the Marginal Product (MP) becomes negative at the same time Total Product (TP) & Average Product (AP) decreases. And due to this no producer will select Stage III for production.

* Stage II is considered as best stage. So, production will always take place in the second stage in which total output of the firm increases at a diminishing rate and MP and AP are the maximum, then they start decreasing and production is optimum. Stage II is the optimum and best stage of production.

➢ 2.1.4 Long-run analysis –Law of Returns To Scale

In the long run, all factors can be changed. Law of Returns to scale studies the changes in output when all factors or inputs are changed. An increase in scale means that all inputs or factors are increased in the same proportion.

- **<u>Statement:</u> "As a firm in the long run increases the quantities of all factors employed, other things being equal, the output may rise initially at a more proportionate rate than the rate of increase in inputs, then output may increase in the same proportion of input, and ultimately, output increases less proportionately."**

- **Assumptions:**

This law assumes that
1) All factors (inputs) are variable but enterprise is fixed.
2) Technique of production is unchanged.
3) All units of factors are homogeneous.
4) There is perfect competition.
5) The product is measured in quantities.
6) Returns are measured in physical terms.

- **<u>Three phases of returns to scale</u>**

The changes in output as a result of changes in the scale can be studied in 3 phases.
They are
(i) Increasing returns to scale
(ii) Constant returns to scale
(iii) Decreasing returns to scale

- ***Stage I - Increasing returns to scale***

If the increase in all factors leads to a more than proportionate increase in output, it is called increasing returns to scale. For example, if all the inputs are increased by 5%, the output increases by more than 5% i.e. by 10%. In this case the marginal product curve will be Upward rising. Graphically it is shown by Upward rising Marginal Product (MP) curve.

- ***Stage II - Constant returns to scale***

If we increase all the factors (i.e. scale) in a given proportion, the output will increase in the same proportion i.e. a 5% increase in all the factors will result in an equal proportion of 5% increase in the output. Here the marginal product curve is constant. Graphically it is shown by a constant straight Marginal Product (MP) curve parallel to X axis.

- ***Stage III - Decreasing returns to scale***

If the increase in all factors leads to a less than proportionate increase in output, it is called decreasing returns to scale i.e. if all the factors are increased by 5%, the output will increase by less than 5% i.e. by 3%. In this phase marginal product will be decreasing.
Graphically it is shown by downward sloping Marginal Product (MP) curve.

RETURNS TO SCALE TABLE :

SR.NO	SCALE	TOTAL PRODUCT	MARGINAL PRODUCT	PHASES
1	1 machine + 1 labour	4	4	Increasing returns
2	2 machine + 2 labour	10	6	
3	3 machine + 3 labour	18	8	
4	4 machine + 4 labour	28	10	
5	5 machine + 5 labour	38	10	Constant returns
6	6 machine + 6 labour	48	10	
7	7 machine + 7 labour	52	8	Decreasing returns
8	8 machine + 8 labour	62	6	

Explanation of table:

From the above table we can examine three stages of returns to scale.

In the above table both the inputs i.e Machine & labour are increased in same proportion of 1units.

Stage I - Increasing returns to scale: When we use (1 machine + 1 labour) to (4 machine + 4 labour) we can see that Marginal product increases more than proportionate i.e from 4 to 10, therefore it is called increasing returns to scale.

Stage II- Constant returns to scale: when we use (5 machine + 5 labour) to (6 machine + 6 labour), the Marginal Product (MP) remain constant at 10 units, therefore it is called constant returns to stage.

Stage III – Decreasing returns to scale: when we use (7 machine + 7 labour) to (8 machine + 8 labour) The Marginal Product (MP) decreases from 8 to 6 units ,therefore it is called decreasing returns to scale.

Law of Returns to scale diagram:

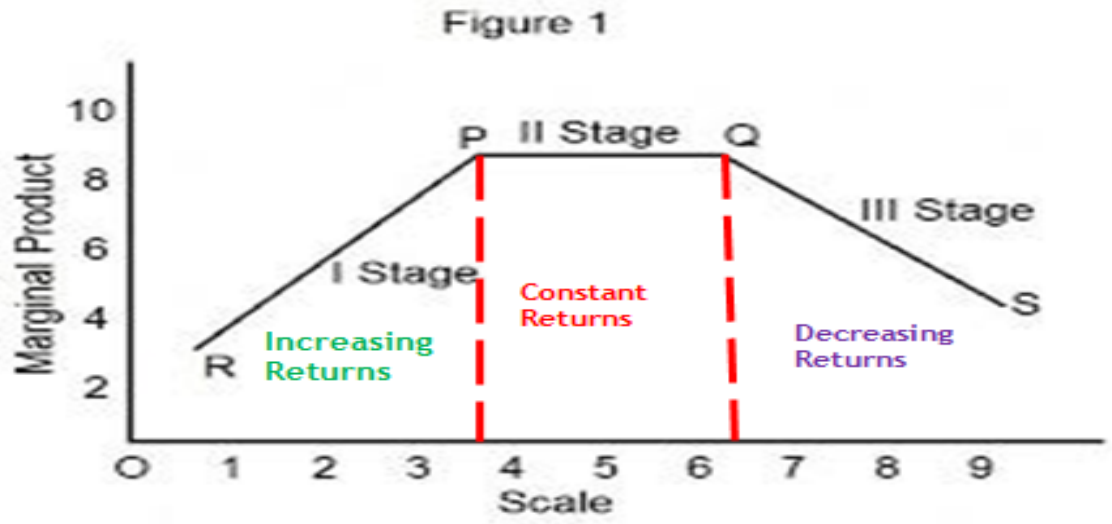


Figure explains the different phases of returns to scale.

- **Stage – I Increasing Returns:**
  Graphically increasing returns can be shown by upward rising Marginal Product curve. The segment (RP) indicates increasing returns to scale. When marginal product increases, total product increases at an increasing rate. So there is increasing returns to scale.
- **Stage – II Constant Returns:** Graphically constant returns to scale it is shown by a constant straight Marginal Product curve parallel to X axis. Segment (PQ) indicates constant eturns to scale, When Marginal product remains constant, total Product increases at a constant rate and this stage is called constant returns to scale.

- **Stage III - Decreasing Returns:** Graphically Decreasing returns to scale is shown by downward sloping Marginal Product curve. Segment (QS) indicate decreasing returns to scale. When Marginal Product decreases (QS), Total Product increases at a decreasing rate and it is called decreasing returns to scale.

Technology:

Technology refers not just to robots and computers but to the entire body of knowledge or science that informs or improves a production process. Technology refers to the knowledge that can be applied to the production of goods and services.

Technology can be of two types:
1). Capital intensive technology:
2). Labour intensive technology:

1). Capital Intensive technology:

- Capital intensive technology is a situation where in production process more capital capital per worker is used. This is also referred to as increase in the capital intensity.
- Capital intensity is often measured by the capital stock per labour hour.
- Capital intensive process are those that require a relatively high level of capital investment compared to labour cost. These processes are more likely to be highly automated and to be used to produce on a large scale.
- Eg. Aircrafts, Defense materials, Computer sectors etc.
- When we use capital intensive technology the overall, economy will expand, *and* productivity per worker will increase.

2). Labour intensive technology:

- Labor intensive technology is the process that requires a relatively high level of labour compared to capital investment.
- In the production process when more labour is used for per unit of capital it is called labour intensive technique.
- This technique is used to produce individual or personalised products, or to produce the product on a small scale.
- Eg. Agriculture, small handicrafts, textile industry, hotels & restaurants etc.

2.2 Business Organization

➢ 2.2.1 The Nature of The Firm

All production is done by specialized organizations—the small, medium, and large businesses that dominate the landscape of modern economies. Firms or business enterprises exist for many reasons, but the most important is that business firms are specialized organizations devoted to managing the process of production. Among their important functions are exploiting economies of mass production, raising funds, and organizing factors of production.

❑ Functions of Business Firms / Organizations:

***1. Economies of specialization*:**
In the first place, production is organized in fi rms because of economies of specialization. Efficient production requires specialized labor and machinery, coordinated production, and the division of production into many small operations. Consider a service such as a college education. This activity requires specialized personnel to teach economics and mathematics and Spanish, to produce the meals and housing services, to keep records, collect tuition, and pay the bills. We could hardly expect that a student could organize all these activities by herself. If there were no need for specialization and division of labor, we could each produce our own college education, surgical operations, electricity, and compact discs in our own backyard or buy them on the Internet. We obviously cannot perform such feats; efficiency generally requires large-scale production in businesses.

2. Raising Resources and Funds for large-scale production:
A second function of fi rms is raising resources for large-scale production. Developing a new commercial aircraft costs billions of dollars or Euros; the research and development expenses for a new computer microprocessor are just as high. Where are such funds to come from? In the nineteenth century, businesses could often be financed by wealthy, risk-taking individuals. Today, in a private-enterprise economy, most funds for production must come from company profits or from money borrowed in financial markets. Indeed, efficient production by private enterprise would be virtually unthinkable if corporations could not raise billions of dollars each year for new projects.

3. Manage and Coordinate the Factors of Production:
Third reason for the existence of fi rms is to manage and coordinate the production process. Once all the factors of production are engaged, someone has to monitor their daily activities to ensure that the job is being done effectively and honestly. The manager is the person who organizes production, introduces new ideas, products, or processes, makes the business decisions, and is held accountable for success or failure. Production cannot, after all, organize itself. Someone has to supervise the construction of a new factory, negotiate with labor unions, and purchase materials and supplies.

"Business firms are specialized organizations devoted to managing the process of production. Production is organized in firms because efficiency generally requires large-scale production, the raising of significant financial resources, and careful management and coordination of ongoing activities."

➢ 2.2.2 Big, Small, and Infinitesimal Businesses

Production in a market economy takes place in a wide variety of business organizations—from the tiniest individual proprietorships to the giant corporations that dominate economic life in a capitalist economy.

There are currently around 30 million different businesses in America. The majority of these are tiny units owned by a single person—the individual proprietorship. Others are partnerships, owned by two or perhaps two hundred partners.

The largest businesses tend to be corporations. Tiny businesses predominate in numbers. But in sales and assets, in political and economic power, and in size of payroll and employment, the few hundred largest corporations dominate the economy.

Figure 6-6 shows the number and total revenue of the three major forms of economic organization in the United States.

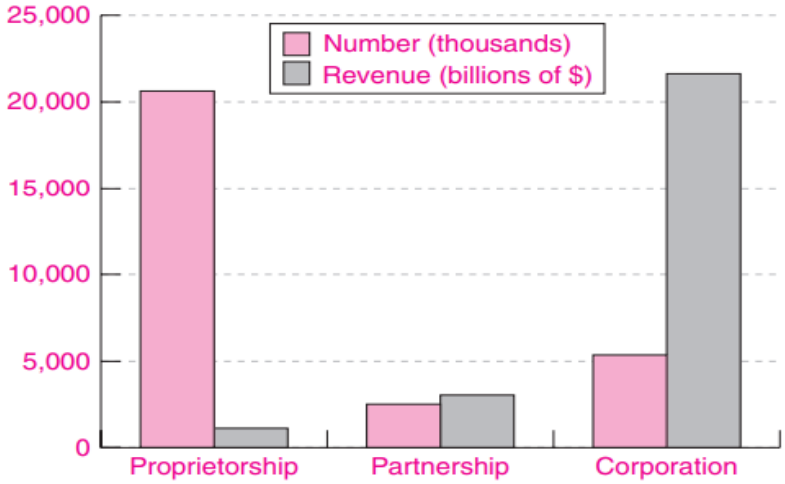


FIGURE 6-6. Number and Size of Different Business Forms, 2004

Corporations are fewer in number but dominate the economy.

Source: Internal Revenue Service.

1. Sole/Individual Proprietorship:

A sole proprietorship firm is a business owned by a single person. This is the simplest form of business, subject to minimal regulation. You can set up a sole proprietorship firm by obtaining a license, if the same is required for the business you want to engage in, and throwing open your doors. Thanks to its simplicity, most businesses begin as sole proprietorship firms. No wonder there are more sole proprietorships than any other form of organisation.

From a legal and tax point of view, a sole proprietorship firm has no separate status apart from its owner. The owner realises all the profits and bears all the losses. The owner indeed has unlimited personal liability for the debts of the business. By the same token, there is no distinction between business and personal income and all business income is taxed as personal income.

The equity capital of a sole proprietorship is limited to the personal wealth of the owner. Hence such firms often cannot grow beyond a point for want of capital. It may be somewhat difficult to transfer the ownership of a sole proprietorship firm as it involves sale of the entire business to the buyer.

2. Partnership:

A partnership firm is a business owned by two or more persons. It may be viewed as an extension of sole proprietorship. The partners bear the risks and reap the rewards of the business.

Generally, a partnership comes into being with the execution of a partnership deed that specifies, *inter alia*, the capital contributions, shares, rights, duties, and obligations of the partners. In India, partnerships are governed by the Indian Partnership Act, 1932. This legislation regulates the relationship between the partners *inter se* as well as between the partners and the parties dealing with the partnership firm.

A partnership firm is a distinct legal and tax entity. It can pay interest and remuneration to the partners and claim the same as tax-deductible expenses. Of course, these incomes are taxable in the hands of the partners. The tax rate applicable to the net profit of the partnership firm is 30 percent.

While a partnership firm can benefit from the varied experience and expertise of the partners and draw on their combined capital resources, its advantages and disadvantages are more or less similar to that of a sole proprietorship firm.

3. Limited liability Partnership:

Limited Liability Partnership Recently a new form of business organisation called Limited Liability Partnership (LLP) was introduced in India. Its distinctive feature is that it is a partnership firm wherein the liability of the partners is limited. An LLP must have a minimum of two partners and at least one of them should be an Indian resident. The partners are accountable for regulatory and legal compliance. The rights and duties of the partners are governed by the agreement between the partners or between the LLP and the partners.

Since the LLP is treated as a firm, it does not have to pay the minimum alternative tax of 18.5 percent of book profits and the dividend distribution tax. The interest that an LLP can pay on the investments made by the partners is limited to 12 percent of the total income of the LLP.

The remuneration can be paid to the partners as per the slabs fixed under the law. The net profit of the LLP would be taxed at 30 percent. The partners, of course, have to pay taxes for their interest and remuneration received from the LLP.

4.Cooperative Society:

A cooperative society may be defined as 'a society which has as its objective the promotion of economic interests of its members in accordance with cooperative principles.'

The key features of a cooperative organisation are as follows: (a) While there is no maximum limit for membership, a minimum of ten members are required to form a cooperative society. The members of a cooperative society are its owners. (b) The management of a cooperative society is vested in the hands of the managing committee elected by members on the principle of 'one member, one vote'. (c) The dividend payable on the capital contributed by members is subject to a ceiling of 9 percent. The surplus left after the dividend payment is distributed in the form of bonus which is linked to the volume of business done by members with the society.

The advantages of a cooperative organisation are as follows: (a) It can be formed easily. (b) The liability of the members is limited. (c) Grants and financial assistance are provided by the government to cooperative organisations.

The disadvantages of a cooperative organisation are as follows: (a) Cooperatives cannot ordinarily employ outside talent. (b) Members do not have an incentive to provide capital because the dividend rate is low and the principle of 'one member, one vote' is followed. (c) Often, influential members exploit the cooperative society for personal gains.

4.Corporation / Company:

The corporation / Company has a separate legal identity, and indeed is a legal "person" that may on its own behalf buy, sell, borrow money, produce goods and services, and enter into contracts. In addition, the corporation enjoys the right of limited liability, whereby each owner's investment and financial exposure in the corporation is strictly limited to a specified amount.

A company is collectively owned by the shareholders who entrust the task of management to their elected representatives called the directors. The salient features of a company are as follows:

- The company is a distinct legal 'person,' separate from its owners, the shareholders. It can own assets, incur liabilities, enter into contracts, sue and be sued in its name.
- The liability of the shareholders of a company is limited to the share capital subscribed to by them. Once this amount is fully paid up, they have no further obligation.
- A company must pay taxes on its profits. Moreover, shareholders of the company are liable to pay taxes on the dividend received by them.[1] So, in effect, there is double taxation.
- Setting up and managing a company is more complicated than setting up and managing other forms of organisation because companies are governed by the Indian Companies Act, a very elaborate and comprehensive piece of legislation.

- The ownership of a corporation is determined by the ownership of the company's common stock. If you own 10 percent of a corporation's shares, you have 10 percent of the ownership. Publicly owned corporations are valued on stock exchanges, like the New York Stock Exchange. It is in such stock markets that the titles to the largest corporations are traded and that much of the nation's risk capital is raised and invested.
- Shareholders control the companies they own. They collect dividends in proportion to the fraction of the shares they own, and they elect directors and vote on many important issues. But don't think that the shareholders have a significant role in running giant corporations. In practice, shareholders of giant corporations exercise virtually no control because they are too dispersed to overrule the entrenched managers.
- The corporation's managers and directors have the legal power to make decisions for the corporation. They decide what to produce and how to produce it. They negotiate with labor unions and decide whether to sell the fi rm if another fi rm wishes to take it over. When the newspaper announces that a fi rm has laid off 20,000 workers, this decision was made by the managers. The shareholders own the corporation, but the managers run it.

A company may be a private limited company or a public limited company. The key differences between them are as follows:

- A private limited company must have at least two shareholders (members) whereas a public limited company must have at least seven shareholders. While there is no limit on the number of shareholders of a public limited company, the number of shareholders of a private company cannot exceed two hundred.
- A public limited company invites members of the public to subscribe to its shares, whereas a private limited company cannot do so.
- A public limited company permits free transfer of shares whereas a private limited company usually imposes restrictions on such transfers.

On the whole, the public limited company is the most appropriate form of business organisation, except, of course, when the business is small. The reasons are: (a) The risk to investors is limited. (b) The potential for growth is immense because of access to substantial funds. (c) Investors enjoy liquidity because of free transferability. Thanks to these advantages, large and medium-sized businesses are generally organised as public limited companies. Reliance Industries, State Bank of India, Ranbaxy Laboratories, and Infosys Technologies, for example, are public limited companies. So are overseas businesses such as General Electric, Intel, British Petroleum, Sony, and Asea Brown Boveri.

Chapter 3: Economic Analysis of Costs

➢ 3.1 Total Cost: Fixed and Variable

The term 'cost of production' means expenses incurred in the production of a commodity.
This refers to the total amount of money spent on the production of a commodity. The determinants of cost of production are: the size of plant, the level of production, the nature of technology used, the quantity of inputs used, managerial and labour efficiency.
Thus, the cost of production of a commodity is the aggregate of prices paid for the factors of production used in producing a commodity.

▪ 1. Total cost

Total cost is the sum of total fixed cost and total variable cost.

TC = TFC + TVC

where TC = Total cost
TFC = Total Fixed cost
TVC = Total variable cost

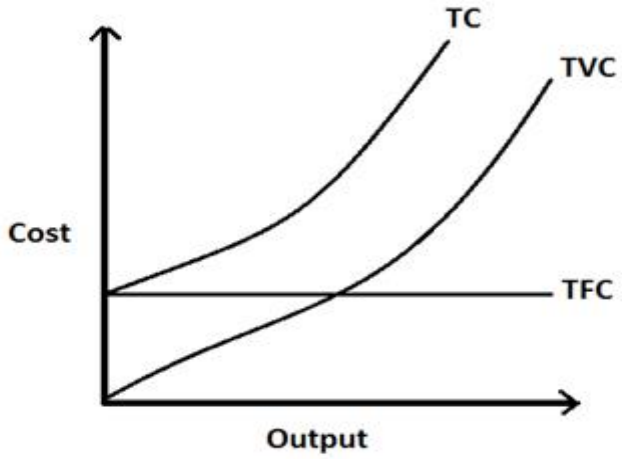
It should be noted that total fixed cost is the same irrespective of the level of output.
Therefore, a change in total cost is influenced by the change in variable cost only.

▪ Fixed cost and variable cost

Total Fixed Cost (TFC):
is helpful in understanding the behaviour of costs over different levels of output. Short run is a period of time over which certain factors of production cannot be changed, and such factors are called fixed factors.
The costs incurred on fixed factors are called fixed costs. Fixed costs are those which are independent of output, that is, they do not change with changes in output. These costs are a 'fixed' amount, which must be incurred by a firm in the short run whether the output is small or large.
E.g. contractual rent, interest on capital invested, salaries to the permanent staff, insurance premia and certain taxes.

Total Variable Cost (TVC):
The factors whose quantity can be changed in the short run are variable factors, and the costs incurred on variable factors are called variable costs.
Variable costs are those costs, which are incurred on the employment of variable factors of production whose amount can be altered in the short run.
Thus, the total variable costs change with the level of output. It rises when output expands and falls when output contracts.
When output is nil, variable cost becomes zero. These costs include payments such as wages of labour employed, prices of raw materials, fuel and power used and the transport costs.

The relationship between total fixed cost, total variable cost and total cost will be clear from the Figure



- **2. Average Total Cost or Average Cost**

Average total cost is simply called average cost which is the total cost divided by the number of units of output produced.

AC = TC / Q where

AC = Average Cost

TC = Total Cost

Q = number of units of output produced

Average cost is the sum of average fixed cost and average variable cost. i.e. AC = AFC+AVC

The average cost is also known as the unit cost since it is the cost per unit of output produced.

- **Average Fixed Cost (AFC)**

The average fixed cost is the fixed cost per unit of output. It is obtained by dividing the total fixed cost by the number of units of the commodity produced.

Symbolically AFC = TFC / Q

Where AFC = Average fixed Cost

TFC = Total Fixed cost

Q = number of units of output produced

Suppose for a firm the total fixed cost is Rs 2000 when output is 100 units, AFC will be Rs 2000/100 = Rs 20

when output is 200 units, AFC will be Rs 2000/200 = Rs10/-

Since total fixed cost is a constant quantity, average fixed cost will steadily fall as output increases; when output becomes very large, average fixed cost approaches zero.

- **Average variable cost**

Average variable cost is the variable cost per unit of output. It is the total variable cost divided by the number of units of output produced.

AVC = TVC / Q

Where AVC = Average Variable Cost

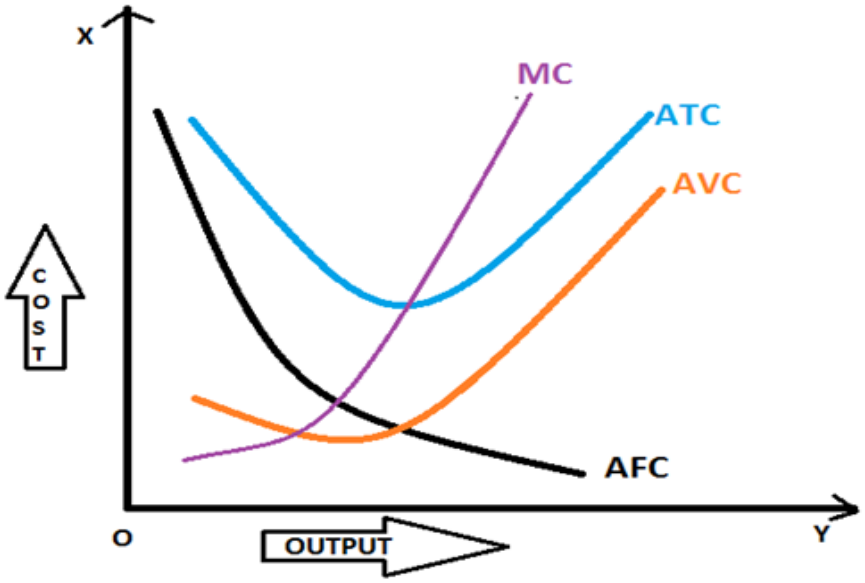
TVC = Total Variable Cost

Q = number of units of output produced

Average variable cost curve is 'U' Shaped.

As the output increases, the AVC will fall up to normal capacity output due to the operation of increasing returns. But beyond the normal capacity output, the AVC will rise due to the operation of diminishing returns.

The following figure shows the shape of AFC, AVC and ATC Curves in the short run:



- **Reasons Why Average Total Cost (Atc) Curve / Average Cost (Ac) Curve Is U - Shape**

ATC = AFC + AVC

It can be understood that the behaviour of the average total cost curve depends on the behaviour of AFC and AVC curves' curve is rectangular hyperbola, which implies that the average fixed cost diminishes continuously as output expands in the beginning, both AFC and AVC fall. So, ATC curve falls.

When AVC curve begins rising, AFC curve falls steeply ie fall in AFC is more than the rise in AVC. So ATC curve continues to fall.

But as output increases further, there is a sharp increase in AVC, which is more than the fall in AFC. Hence ATC curve rises after a point.

The ATC curve like AVC curve falls first, reaches the minimum value and then rises.

Therefore, the ATC curve becomes a U – shape curve.

The falling part of ATC is largely due to the falling AFC curve, while its rising part is largely influenced by the rising AVC curve.

- **3 Marginal Cost**

Marginal cost is defined as the addition made to the total cost by the production of one additional unit of output.

For example, when a firm produces 100 units of output, the marginal cost would be equal to the total cost of producing 100 units minus the total cost of producing 99 units.

Suppose the total cost of producing 99 units is Rs 9000 and the total cost of producing 100 units is Rs 10,000 then the marginal cost will be Rs10, 000 – Rs 9,000 = Rs 1,000.

The firm has incurred a sum of Rs 1,000 in the production of one more unit of the commodity.

Symbolically; MCn = TCn – TCn-1

where, MCn = Marginal cost

TC n = Total cost of producing n units

TC n-1 = Total cost of producing n-1 units

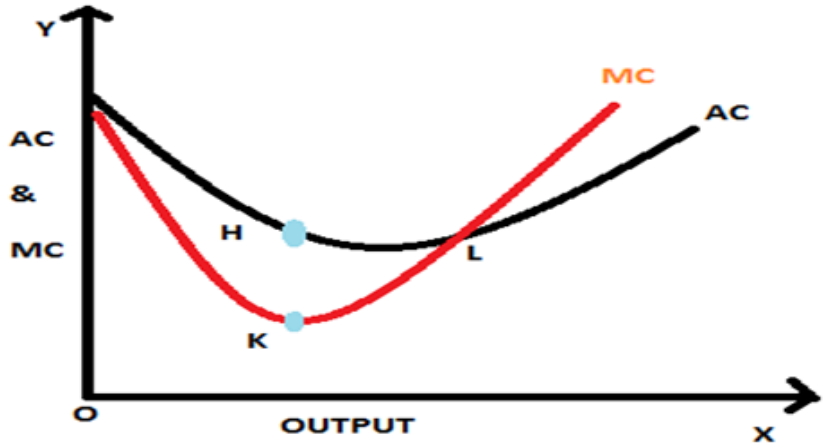
- **Computation of marginal cost:**

Output (units)	Total cost (Rs)	Marginal Cost (Rs)
0	200	-
1	300	100
2	390	90
3	470	80
4	570	100
5	690	120
6	820	130
7	955	135
8	1100	145

- **Marginal Cost Curve**

The marginal cost curve is 'U' shaped. The shape of the cost curve is determined by the law of variable proportions. If increasing returns (economies of scale) is in operation, the marginal cost curve will be declining, as the cost will be decreasing with the increase in output.
When the diminishing returns (diseconomies of scale) are in operation, the MC curve will be increasing as it is the situation of increasing cost.

Relationship between short-run average and short-run marginal cost curves



The relationship can be given as follows

1) When marginal cost is less than average cost, average cost is falling
2) When marginal cost is greater than the average cost, average cost is rising
3) The marginal cost curve must cut the average cost curve at AC's minimum point from below. Thus, at the minimum point of AC, MC is equal to AC.

➢ Calculation of TC, TVC, AFC, AVC, AC & MC

Units of output 1	TFC 2	TVC 3	TC (2+3) 4	AFC (2÷1) 5	AVC (3÷1) 6	AC (5+6) 7	MC
0	120	0	120	-	0	-	-
1	120	100	220	120	100	220	100
2	120	160	280	60	80	140	60
3	120	210	330	40	70	110	50
4	120	240	360	30	60	90	30
5	120	400	520	24	80	104	160
6	120	540	660	20	90	110	140
7	120	700	820	17.14	100	117.14	160
8	120	880	1000	15	110	125	180

Chapter 4: Production, Cost Theory, and Decisions of the Firm

The production theory described in Chapter 6 and the cost analysis of this chapter are among the fundamental building blocks of microeconomics. A thorough understanding of production and cost is necessary for an appreciation of how economic scarcity gets translated into prices in the marketplace. This appendix develops these concepts further and introduces the concept of an equal-product curve, or isoquant.

A NUMERICAL PRODUCTION FUNCTION

Production theory and cost analysis have their roots in the concept of a production function, which shows the maximum amount of output that can be produced with various combinations of inputs. Table 7A-1 starts with a numerical example of a constant-returns-to-scale production function, showing the amount of inputs along the axes and the amount of output at the grid points of the table.

Along the left-hand side are listed the varying amounts of land, going from 1 unit to 6 units. Along the bottom are listed amounts of labor, which also go from 1 to 6. Output corresponding to each land row and labor column is listed inside the table.

If we are interested in knowing exactly how much output there will be when 3 units of land and 2 units of labor are available, we count up 3 units of land and then go over 2 units of labor. The answer is seen to be 346 units of product. (Can you identify some other input combinations that will produce $q = 346$?) Similarly, we find that 3 units of land and 6 of labor produce 600 units of q. Remember that the production function shows the maximum output available given engineering skills and technical knowledge available at a particular time.

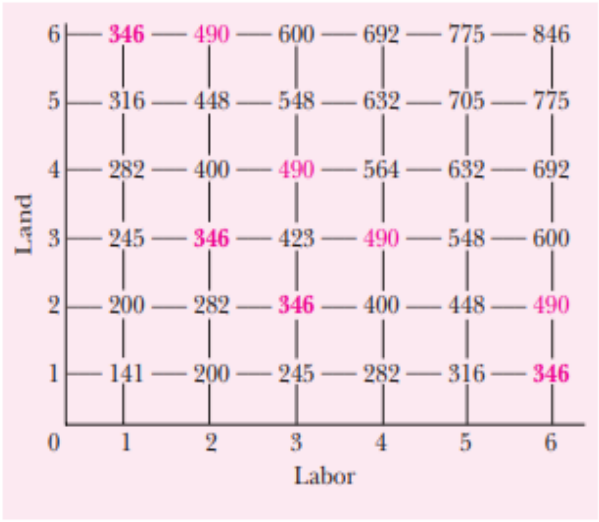


TABLE 7A-1. A Tabular Picture of a Production Function Relating Amount of Output to Varying Combinations of Labor and Land Inputs

When you have 3 land units and 2 labor units available, the engineer tells you the maximum obtainable output is 346 units. Note the different ways to produce 346. Do the same for 490. (The production function shown in the table is a special case of the Cobb-Douglas production function, one given by the formula $Q = 100\sqrt{2LA}$.)

THE LAW OF DIMINISHING MARGINAL PRODUCT

Table 7A-1 can nicely illustrate the law of diminishing returns. First, recall that the marginal product of labor is the extra production resulting from 1 additional unit of labor when land and other inputs are held constant. At any point in Table 7A-1, we can find the marginal product of labor by subtracting the output from the number on its right in the same row. Thus, when there are 2 units of land and 4 units of labor, the marginal product of an additional laborer would be 48, or 448 minus 400 in the second row.

By the "marginal product of land" we mean, of course, the extra product resulting from 1 additional unit of land when labor is held constant. It is calculated by comparing adjacent items in a given column. Thus, when there are 2 units of land and 4 units of labor, the marginal product of land is shown in the fourth column as 490 – 400, or 90.

We can easily find the marginal product of each of our two factors by comparing adjacent entries in the vertical columns or horizontal rows of Table 7A-1.

Having defined the concept of marginal product of an input, we now can easily define the law of diminishing returns: *The law of diminishing returns*

states that as we increase one input and hold other inputs constant, the marginal product of the varying input will, at least after some point, decline.

To illustrate this, hold land constant in Table 7A-1 by sticking to a given row—say, the row corresponding to land equal to 2 units. Now let labor increase from 1 to 2 units, from 2 to 3 units, and so forth. What happens to q at each step?

As labor goes from 1 to 2 units, the level of output increases from 200 to 282 units, or by 82 units. But the next dose of labor adds only 64 units, or 346 − 282. Diminishing returns have set in. Still further additions of a single unit of labor give us, respectively, only 54 extra units of output, 48 units, and finally 42 units. You can easily verify that the law holds for other rows and that the law holds when land is varied and labor held constant.

We can use this example to verify our intuitive justification of the law of diminishing returns—the assertion that the law holds because the fixed factor decreases relative to the variable factor. According to this explanation, each unit of the variable factor has less and less of the fixed factor to work with. So it is natural that extra product should drop off.

If this explanation is to hold water, output should increase proportionately when both factors are increased together. When labor increases from 1 to 2 and land simultaneously increases from 1 to 2, we should get the same increase in product as when both increase *simultaneously* from 2 to 3. This can be verified in Table 7A-1. In the first move we go from 141 to 282, and in the second move the product increases from 282 to 423, an equal jump of 141 units.

LEAST-COST FACTOR COMBINATION FOR A GIVEN OUTPUT

The numerical production function shows us the different ways to produce a given level of output. But which of the many possibilities should the firm use? If the desired level of output is $q = 346$, there are no less than four different combinations of land and labor, shown as A, B, C, and D in Table 7A-2.

As far as the engineer is concerned, each of these combinations is equally good at producing an output of 346 units. But the manager, interested in minimizing cost, wants to find the combination that costs the least.

	(1)	(2)	(3)	(4)
	Input Combinations		Total cost when P_L = \$2 P_A = \$3 (\$)	Total cost when P_L = \$2 P_A = \$1 (\$)
	Labor L	Land A		
A	1	6	20	____
B	2	3	13	7
C	3	2	12	____
D	6	1	15	____

TABLE 7A-2. Inputs and Costs of Producing a Given Level of Output

Assume that the firm has chosen 346 units of output. Then it can use any of the four choices of input combinations shown as A, B, C, and D. As the firm moves down the list, production becomes more labor-intensive and less land-intensive. Fill in the missing numbers.

The firm's choice among the different techniques will depend on input prices. When P_L = \$2 and P_A = \$3, verify that the cost-minimizing combination is C. Show that lowering the price of land from \$3 to \$1 leads the firm to choose a more land-intensive combination at B.

Let us suppose that the price of labor is \$2 and the price of land \$3. The total costs when input prices are at this level are shown in the third column of Table 7A-2. For combination A, the total labor and land cost will be \$20, equal to $(1 \times \$2) + (6 \times \$3)$. Costs at B, C, and D will be, respectively, \$13, \$12, and \$15. At the assumed input prices, C is the least costly way to produce the given output.

If either of the input prices changes, the equilibrium proportion of the inputs will also change so as to use less of the input that has gone up most in price. (This is just like the substitution effect in Chapter 5's discussion of consumer demand.) As soon as input prices are known, the least-cost method of production can be found by calculating the costs of different input combinations.

Equal-Product Curves

The commonsense numerical analysis of the way in which a firm will combine inputs to minimize costs can be made more vivid by the use of diagrams. We will take the diagrammatic approach by putting together two new curves, the equal-product curve and the equal-cost line.

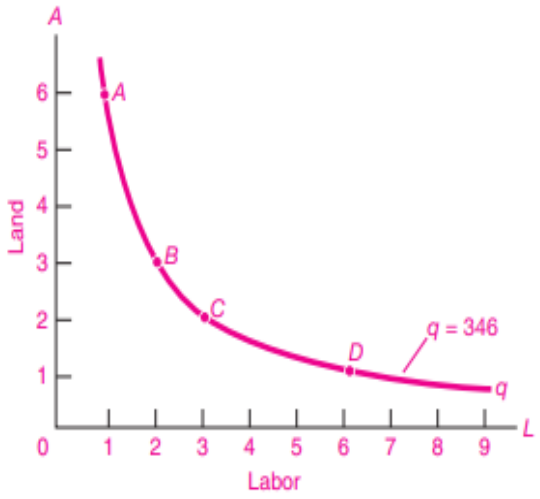


FIGURE 7A-1. Equal-Product Curve

All the points on the equal-product curve represent the different combinations of land and labor that can be used to produce the same 346 units of output.

Let's turn Table 7A-1 into a continuous curve by drawing a smooth curve through all the points that yield $q = 346$. This smooth curve, shown in Figure 7A-1, indicates all the different combinations of labor and land that yield an output of 346 units. This is called an **equal-product curve** or **isoquant** and is analogous to the consumer's indifference curve discussed in the appendix to Chapter 5. You should be able to draw on Figure 7A-1 the corresponding equal-product curve for output equal to 490 by getting the data from Table 7A-1. Indeed, an infinite number of such equal-product contour lines could be drawn in.

Equal-Cost Lines

Given the price of labor and land, the firm can evaluate the total cost for points *A*, *B*, *C*, and *D* or for any other point on the equal-product curve. The firm will minimize its costs when it selects that point on its equal-product curve that has the lowest total cost.

An easy technique for finding the least-cost method of production is to construct **equal-cost lines.** This is done in Figure 7A-2, where the family of parallel straight lines represents a number of equal-cost curves when the price of labor is \$2 and the price of land \$3.

To find the total cost for any point, we simply read off the number appended to the equal-cost line going through that point. The lines are all straight and parallel because the firm is assumed to be able to buy all it wishes of either input at constant prices. The lines are somewhat flatter than 45° because the price of labor P_L is somewhat less than the price of land P_A. More precisely, we can always say that the arithmetic value of the slope of each equal-cost line must equal the ratio of the price of labor to that of land—in this case $P_L/P_A = \frac{2}{3}$.

Equal-Product and Equal-Cost Contours: Least-Cost Tangency

Combining the equal-product and equal-cost lines, we can determine the optimal, or cost-minimizing, position of the firm. Recall that the optimal input combination comes at that point where the given output of $q = 346$ can be produced at least cost. To find such a point, simply superimpose the single green equal-product curve upon the family of blue equal-cost lines, as shown in Figure 7A-3. The firm will always keep moving along the green convex curve of Figure 7A-3 as long as it is able to cross over to lower cost lines. Its equilibrium will therefore be at *C*, where the equal-product curve touches (but does not cross) the lowest equal-cost line. This is a point of tangency, where the slope of the equal-product curve just matches the slope of an equal-cost line and the curves are just kissing.

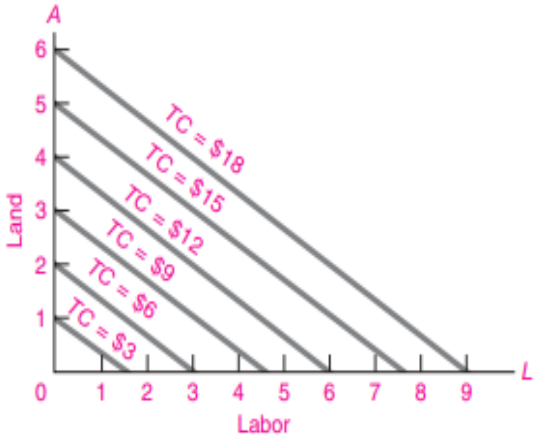


FIGURE 7A-2. Equal-Cost Lines

Every point on a given equal-cost line represents the same total cost. The lines are straight because factor prices are constant, and they all have a negative slope equal to the ratio of labor price to land price, \$2/\$3, and hence are parallel.

Substituting Inputs to Minimize Cost of Production

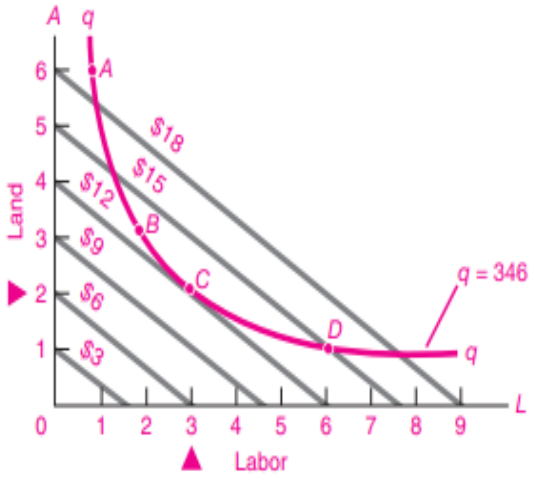


FIGURE 7A-3. Least-Cost Input Combination Comes at *C*

The firm desires to minimize its costs of producing a given output of 346. It thus seeks out the least expensive input combination along its green equal-product curve. It looks for the input combination that is on the lowest of the equal-cost lines. Where the equal-product curve touches (but does not cross) the lowest equal-cost line is the least-cost position. This tangency means that factor prices and marginal products are proportional, with equalized marginal products per dollar.

We already know that the slope of the equal-cost curves is P_L/P_A. But what is the slope of the equal-product curve? Recall from Chapter 1's appendix that the slope at a point of a curved line is the slope of the straight line tangent to the curve at the point in question. For the equal-product curve, this slope is a "substitution ratio" between the two factors. It depends upon the relative marginal products of the two factors of production, namely, MP_L/MP_A—just as the rate of substitution between two goods along a consumer's indifference curve was earlier shown to equal the ratio of the marginal utilities of the two goods (see the appendix to Chapter 5).

Least-Cost Conditions

Using our graphical apparatus, we have therefore derived the conditions under which a firm will minimize its costs of production:

1. The ratio of marginal products of any two inputs must equal the ratio of their factor prices:

$$\text{Substitution ratio} = \frac{\text{marginal product of labor}}{\text{marginal product of land}}$$

$$= \begin{matrix}\text{slope of} \\ \text{equal-product} \\ \text{curve}\end{matrix} = \frac{\text{price of labor}}{\text{price of land}}$$

2. We can also rewrite condition 1 in a different and illuminating way. From the last equation it follows that the marginal product per dollar received from the (last) dollar of expenditure must be the same for every productive input:

$$\frac{\text{Marginal product of } L}{\text{Price of } L} =$$

$$\frac{\text{marginal product of } A}{\text{price of } A} = \cdots$$

But you should not be satisfied with abstract explanations. Always remember the commonsense economic explanation which shows how a firm will distribute its expenditure among inputs to equalize the marginal product per dollar of spending.

Chapter 5: Market Structures – Perfect and Imperfect Competition, Oligopoly, Monopoly

➢ 5.1 Perfect Competition

Like any other market structure, Perfect Competition is defined on the basis of its features. Perfect Competition is a market structure in which there is a large number of buyers and sellers who transact homogeneous or similar goods at a price fixed by the market or industry. Here, industry is a group of firms producing similar goods.

- ***Features of Perfect Competition:***

1. Very Large number of buyers and sellers: In a perfectly competitive market, there is a very large number of buyers and sellers. For instance, if a single seller tries to raise the price, there is a large number of other sellers selling identical product at a lower price. Therefore, the demand for this particular firm decreases forcing it to come in line again with the industry determined price.

2. Homogeneous Product: The products offered by different firms are homogeneous in every respect so that the buyer does not have any basis to prefer the goods of one seller over the goods of another seller. The goods are identical in terms of quality, size, packing, and other terms of deal etc. This feature ensures the uniformity of the price throughout the market.

3. Firm is a Price Taker: The firm has to sell the goods at a price determined by the industry as the firm has no control over the price. The market or industry determines this price on the basis of market demand and market supply as shown in the figure. So, industry is the price maker and firm is the price taker.

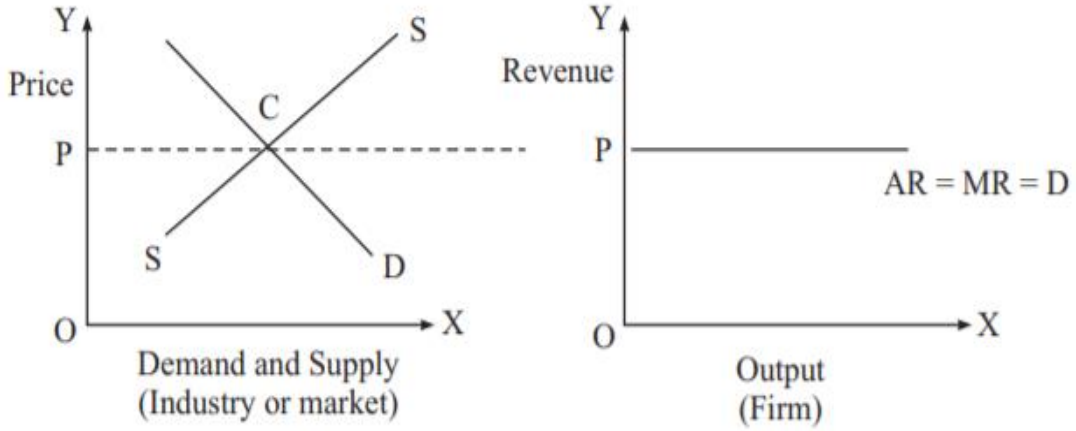
4. Free Entry and Exit: Under perfect competition firms are free to enter into the market or exit from the market at any point of time. This means that there is no obstruction from anywhere for a new firm to produce the same product produced by the existing firms in the market; similarly, if a firm wishes to exit then it is free to do so.

5. Perfect Knowledge: This feature implies that both sellers and buyers have perfect knowledge about the goods and their prices so that it is not possible for a firm to charge a different price. It also ensures uniform price for the buyers and uniform cost function for the producers.

6. Perfect Mobility: The goods as well as the factors of production are perfectly mobile so that there is no restriction- legal or monetary (involving expenditure in movement of goods). This feature ensures that the price throughout the market tends to be uniform.

7. No Selling Costs: Selling costs are the costs aimed at promotion of sales of product of a firm, e.g., expenditure on advertisement of a product. In perfect competition, there is no need to incur selling cost because of assumption of perfect knowledge and homogeneous goods. This implies that if people have complete knowledge about the product, the seller does not find it necessary to educate consumers through advertisements. Similarly, when goods are homogeneous, there is no basis on which the seller can claim superiority of his products over the products of its rivals.

8. Shape of Demand Curve: Under perfect competition, the demand curve for the firm is horizontal and perfectly elastic. It means that the firm can sell any amount of the product at the price determined by the industry, but the firm cannot vary the price.



➢ 5.2 Monopolistic Competition (Imperfect Competition)

Monopolistic Competition is a market structure in which there is a large number of sellers in the market of a commodity, but the product of each seller differs in some respect from the product of the other sellers. Thus, product differentiation is the cornerstone of Monopolistic Competition.

Monopolistic competition is like an amalgam of monopoly and perfect competition, and hence the name Monopolistic Competition.

According to J.S. Bains, "Monopolistic Competition is a market structure where there is a large number of sellers, selling differentiated but close substitute products."

Example: Restaurants, Market for Toothpaste etc.

- **Features of Monopolistic Competition (Imperfect Competition)**

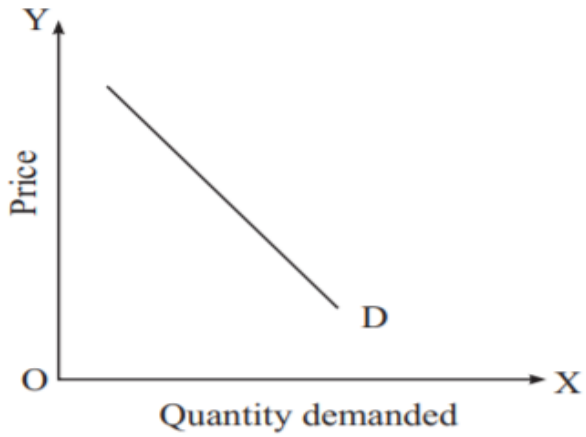
1. Large number of firms: Under monopolistic competition, there is a large number of firms selling closely related products. Thus, the control of a particular firm is somewhat diminished when compared to that of monopoly.

2. Product Differentiation: Product Differentiation is a very important feature of Monopolistic Competition. This differentiation could be on the basis of quality, packaging, colour etc. or this differentiation could also be just a matter of perception. For example: You must have seen different brands of tooth paste. Even if they look different having different taste, the product it has same use.

3. Selling Costs: Under monopolistic competition firms spend a lot on advertisement of their product in order to attract the customers and sell their product. Every firm tries to promote its product through advertisement for which it bears some extra cost ove and above its cost of production. This is called selling cost.

4. Non-Price Competition: Under Monopolistic Competition, sometimes, firms compete with each other without changing price. They may start various promotion schemes, gift schemes or compete in terms of advertisement etc. Thus, firms compete under in every possible way to attract consumers and gain maximum possible market share.

5. Nature of Demand Curve: Like monopoly, Monopolistic Competition also has a downward sloping demand curve. However due to the existence of competitors in the market, the degree of steepness of the curve is little less, reflecting greater price elasticity of demand and less control of the firm than that of monopoly.



5.3 Oligopoly

Oligopoly is an important form of imperfect competition. Oligopoly exists when there are few firms selling the product. W.H. Fellner wrote a book on oligopoly with the title, "Competition among the Few". This title aptly summarizes what Determination oligopoly is. Oligopoly can simply be defined as the competition among the few firms. The products of these firms may either be close substitutes or homogeneous.

Example: Mobile service providers, car industry, airlines etc.

- **Features of Oligopoly**

1. Interdependence: Interdependence is a very significant feature of Oligopoly. When the number of firms is small, any strategy regarding change in price, output or quality of a product, will depend on the rival's reaction for its success. Thus, the success of price reduction policy by one company (say, Pepsi) will depend on reaction by its rival (say, Coke). For example, if Pepsi lowers the price per bottle from Rs 10 to Rs 8, the effect of this step on demand for Pepsi will depend on the counter-strategy of Coke. If Coke decides to follow price war strategy and lowers price from Rs 10 per bottle to Rs 7 per bottle, demand for Pepsi may decrease even below its initial level.

2. Indeterminate Demand Curve: Demand curve presents different quantities of a product demanded at various prices. However, demand for a product at different prices can be known only when rivals' counter strategies can be predicted with certainty. This being not possible, we cannot draw the usual demand curve for the firm's product in case of oligopoly.

3. Selling Costs: Oligopoly firms bear selling cost such as advertisement, sales promotion etc. to sale the product.

4. Group Behaviour: Since there are a few firms under oligopoly, there is a tendency among them to come together in order to avoid competition. They may meet secretly to negotiate price and quantity in the market. The aim is to maximise profit in the same manner as a monopolist does. Obviously when they come together it looks as if all firms have become a single entity like a monopolist. But such groupism is done secretly as the government may take action if it comes to know about this type of group behaviours of firm where in firms are trying to reduce competition among themselves. Note that when firms form a group secretly to share profit or quantity etc. it is called collusive oligopoly. When firms work independently and compete with each other, it is called non-collusive oligopoly.

5. Price Rigidity: In oligopoly market, once the price of the product is fixed by the firms, it is normally not changeable. So, price is rigid. The reasons for this are that firms face different types of consumers having different elasticities of demand. So, response of change in quantity due to change in price many vary from one firm to another creating uncertainty about future sales. So, fearing this firms do not change price once it is fixed.

- **Types of Oligopoly**

Oligopoly may further be classified into collusive oligopoly and non-collusive oligopoly.

(a) Collusive oligopoly: The firms under oligopoly may decide to co-operate with each other and make common policies for all the firms. Thus, firms may collude with each other work on common pricing policies and make common output decisions. In such an environment, the group of firms can behave like a monopolist and earn supernormal profits. This group of colluding firms is called ‘cartel’. One prominent example of cartel is ‘the Organization of Petroleum Exporting Countries (PEC)’.

(b) Non-collusive oligopoly: When firms do not co-operate with each other and engage in fierce competition with each other, the market is called non-collusive oligopoly. Under such environment, while competing with each other, firms drive price levels, and profit levels down to the level of normal profit only.

5.3 Monopoly

Monopoly is a market structure in which there is a single seller, there are no close substitutes for the commodity produced by the firm and there are barriers to entry. Monopoly also implies absence of competition.
Example: Indian Railways which is operated under government of India.

- **Features of Monopoly:**

1. Single Seller: In monopoly, there is only one firm producing the product. The whole industry consists of this single firm. Thus, under monopoly, there is no distinction between firm and industry. Being the only firm, there is significant control of the firm over supply and price. Thus, under monopoly, buyers do not have the option of buying the commodity from any other seller. They have to buy the product from the firm or they can go without the commodity. This fact gives immense control to the monopolist over the market.

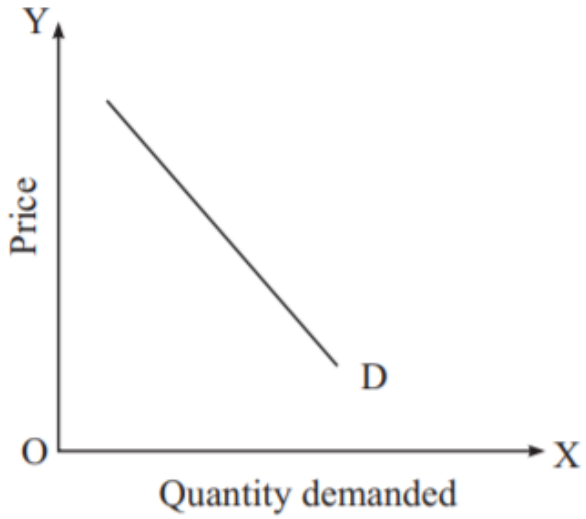
2. No Close Substitute: There are no close substitutes of the product produced by the monopolist firm. If there are close substitutes of the product in the market, it implies presence of more than one firm and hence no monopoly. In order to ensure a total of control over the market by the monopolist firm, it is assumed that there are no close substitutes of the product.

3. No to Entry: Monopoly can only exist when there is strong barriers before a new firm to enter the market. In fact, once a monopoly firm starts producing the product, no other firm can produce the same. One reason for this is the ability of the monopolist to produce the product at a lower cost than any new firm who thinks to enter the market. If a new firm who knows that it cannot produce at a lower cost than the monopolist, then the that firm will never enter the market for fear of losing out in competition. Similarly, the monopolist who is operating for a long time may be enjoying reputation among its customers and is in a better position to use the situation in its own benefit. A new firm has to take long time to achieve this and so may not be interested to enter the market.

4. Price Maker: Being the single seller of the product, the monopolist has full control over the pricing of the product. On the other hand, if there is a large number of buyers in the market, so no single buyer exercises any significant influence over price determination. Thus, it is a seller's market. So, monopoly firm is a price maker.

5. Price Discrimination: Having considerable control over the market on account of being single seller with no entry of other firms, the monopolist can exercise policy of price discrimination, it means that the monopolist can sell different quantities of the same product to a consumer at different price or same quantity to different consumers at different prices by adjudging the standard of living of the consumer.

6. Shape of Demand Curve: Since a monopolist has full control over the price, therefore, he can sell more by lowering the price. This makes the demand curve downward sloping. As there is no competition of the firm in the market, demand curve is in elastic.



********** End of Unit 3 *******