**SHRIMATI INDIRA GANDHI COLLEGE TRICHY**

**(Nationally Accredited at ‘A’ Grade (3rd Cycle) by NAAC)**

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**SEMESTER-II STUDYMATERIAL**

**SUBJECT CODE: 16CACBM1B**

**SUBJECT: BUSINESS ECONOMICS**

**What Is Economics?**

Economics is a social science concerned with the production, distribution, and consumption of goods and services. It studies how individuals, businesses, governments, and nations make choices on allocating resources to satisfy their wants and needs, trying to determine how these groups should organize and coordinate efforts to achieve maximum output.

**Nature And Scope of Economics**.

**Economics** is defined as the social science that deals with the production, distribution, and consumption of goods and services. ... The **nature and scope of economics** depend upon the interaction of **economic** agents and how economies work.

Economics is defined as the social science that deals with the production, distribution, and consumption of goods and services. Evolved in the 19th century, the economic studies have become one of the most significant studies of modern days. From a small shop to a country, Economics plays a crucial role in the efficient running of both. No business can flourish without applying the principles of economics. The study of economics is extensive and varied. The nature and scope of economics depend upon the interaction of economic agents and how economies work. Let’s analyze the nature and scope of economics deeply.

#### ****Nature of Economics****

The nature of economics deals with the question that whether economics falls into the category of science or arts. Various economists have given their arguments in favour of science while others have their reservations for arts.

#### Economics as a Science

To consider anything as a science, first, we should know what science is all about? Science deals with systematic studies that signify the cause and effect relationship. In science, facts and figures are collected and are analyzed systematically to arrive at any certain conclusion. For these attributes, economics can be considered as a science. However, economics is treated as a social science because of the following features:

* It involves a systematic collection of facts and figures.
* Like in science, it is based on the formulation of theories and laws.
* It deals with the cause and effect relationship.

These points validate that the nature of economics is correlated with science. Just as in science, various economic theories are also based on logical reasoning.

#### ****Economics as an Art****

It is said that “knowledge is science, action is art.” Economic theories are used to solve various economic problems in society. Thus, it can be inferred that besides being a social science, economics is also an art.

#### ****Scope of Economics****

Economists use different economic theories to solve various economic problems in society. Its applicability is very vast. From a small organization to a multinational firm, economic laws come into play. The scope of economics can be understood under two subheads: Microeconomics and Macroeconomics. Let’s discuss these in detail:

#### ****Microeconomics****

Microeconomics examines individual economic activity, industries, and their interaction. It has the following characteristics:

* **Elasticity:** It determines the ratio of change in the proportion of one variable to another variable. For example- the income elasticity of demand, the price elasticity of demand, the price elasticity of supply, etc.
* **Theory of Production:** It involves an efficient conversion of input into output. For example- packaging, shipping, storing, and manufacturing.
* Cost of Production: With the help of this theory, the object price is evaluated by the price of resources.
* **Monopoly:** Under this theory, the dominance of a single entity is studied in a particular field.
* **Oligopoly:** It corresponds to the dominance of small entities in a market.

#### ****Macroeconomics****

It is the study of an economy as a whole. It explains broad aggregates and their interactions “top down.” Macroeconomics has the following characteristics:

* **Growth:** It studies the factors which explain economic growth such as the increase in output per capita of a country over a long period of time.
* **Business Cycle:** This theory emerged after the Great Depression of the 1930s. It advocates the involvement of the central bank and the government to formulate monetary and fiscal policies to monitor the output over the business cycle.
* **Unemployment:** It is measured by the unemployment rate. It is caused by various factors like rising in wages, a shortfall in vacancies, and more.
* **Inflation and Deflation:** Inflation corresponds to an increase in the price of a commodity, while deflation corresponds to a decrease in the price of a commodity. These indicators are valuable to evaluate the status of the economy of a country.

**DEMAND**

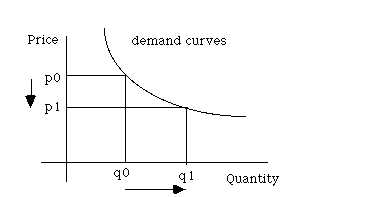
**Demand** is defined as the amount of good or service a consumer is willing and able to buy per period of time. It is essential to understand the term “willing and able.” Many people want to buy products that they cannot afford at prices they cannot pay. ... It shows how much of the product is desired at a certain price.

**DEMAND CURVE**

a **demand curve** is a [graph](https://en.wikipedia.org/wiki/Graph_of_a_function) depicting the relationship between the price of a certain [commodity](https://en.wikipedia.org/wiki/Commodity) (the *y*-axis) and the quantity of that commodity that is demanded at that price (the *x*-axis). Demand curves may be used to model the price-quantity relationship for an individual consumer (an **individual demand curve**), or more commonly for all consumers in a particular market (a **market demand curve**). It is generally assumed that demand curves are downward-sloping, as shown in the adjacent image. This is because of the [law of demand](https://en.wikipedia.org/wiki/Law_of_demand): for most goods, the quantity demanded will decrease in response to an increase in price, and will increase in response to a decrease in price.

The [demand](https://www.thebalance.com/what-is-demand-definition-explanation-effect-3305708) curve is a visual representation of how many units of a good or service will be bought at each possible price. It plots the relationship between quantity and price that's been calculated on the [demand schedule](https://www.thebalance.com/demand-schedule-definition-and-real-life-example-3305719), which is a table that shows exactly how many units of a good or service will be purchased at various prices.

As you can see in the chart, the price is on the vertical (y) axis, and the quantity is on the horizontal (x) axis. This chart plots the conventional relationship between price and quantity. The lower the price, the higher the quantity demanded. As the price decreases from p0 to p1, the quantity increases from q0 to q1.



Demand Curve.

This relationship follows the [law of demand](https://www.thebalance.com/law-of-demand-definition-explained-examples-3305707), which states that the quantity demanded will drop as the price rises, all other things being equal. The relationship between quantity and price will follow the demand curve as long as the four [determinants of demand](https://www.thebalance.com/five-determinants-of-demand-with-examples-and-formula-3305706) don't change. These determinants are:

1. Price of related goods or services
2. Income of the buyer
3. Tastes or preferences of the buyer
4. The expectation of the buyer (especially about future prices)

If any of these four determinants change, [the entire demand curve shifts](https://www.thebalance.com/shift-in-demand-curve-when-price-doesn-t-matter-3305720) because a new demand schedule must be created to show the changed relationship between price and quantity. Demand curves are also used to show the relationship between quantity and price in [aggregate demand](https://www.thebalance.com/aggregate-demand-definition-formula-components-3305703), which is the total demand in society. It has the same determinants of demand, plus the number of potential buyers in the market.

The Two Types of Demand Curves

[Elastic demand](https://www.thebalance.com/elastic-demand-definition-formula-curve-examples-3305836) is when a price decrease causes a significant increase in the quantities bought. Like a stretchy rubber band, the quantity demanded moves a lot with just a little change in prices. An example of this would be ground beef; if prices drop just 25%, you might buy three times as much as you usually would because you know you'll use it eventually and can put the extras in the freezer. If demand is perfectly elastic, the curve looks like a horizontal flat line.

[Inelastic demand](https://www.thebalance.com/inelastic-demand-definition-formula-curve-examples-3305935) is when a price decrease won't increase the quantities purchased. An example of this is bananas. No matter how cheap they are, there's only so many you can eat before they spoil. You won't buy three bunches even if the price falls 25%. If demand is perfectly inelastic, the curve looks like a vertical straight line.

The reason you react more to a sale on ground beef than a sale on bananas is because of the marginal utility of each additional unit. Marginal utility refers to the usefulness (utility) of each additional unit the further out on the margin you go. Because you can freeze ground beef, the third package is just as good to you as the first. The marginal utility of ground beef is high. Bananas lose their consistency in the freezer, so their marginal utility is low.

***Definition:*** The law of demand states that other factors being constant (cetris peribus), price and quantity demand of any good and service are inversely related to each other. When the price of a product increases, the demand for the same product will fall.  
  
***Description:*** Law of demand explains consumer choice behavior when the price changes. In the market, assuming other factors affecting demand being constant, when the price of a good rises, it leads to a fall in the demand of that good. This is the natural consumer choice behavior. This happens because a consumer hesitates to spend more for the good with the fear of going out of cash.

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The above diagram shows the demand curve which is downward sloping. Clearly when the price of the commodity increases from price p3 to p2, then its quantity demand comes down from Q3 to Q2 and then to Q3 and vice versa.

## What is the Law of Demand?

The law of demand is one of the most fundamental concepts in economics. It works with the [law of supply](https://www.investopedia.com/terms/l/lawofsupply.asp) to explain how market economies allocate resources and determine the prices of goods and services that we observe in everyday transactions. The law of demand states that quantity purchased varies inversely with price. In other words, the higher the price, the lower the quantity demanded. This occurs because of [diminishing marginal utility](https://www.investopedia.com/terms/l/lawofdiminishingutility.asp). That is, consumers use the first units of an economic good they purchase to serve their most urgent needs first, and use each additional unit of the good to serve successively lower valued ends.

Understanding the Law of Demand

[Economics](https://www.investopedia.com/terms/e/economics.asp) involves the study of how people use limited means to satisfy unlimited wants. The law of demand focuses on those unlimited wants. Naturally, people prioritize more urgent wants and needs over less urgent ones in their economic behavior, and this carries over into how people choose among the limited means available to them. For any economic good, the first unit of that good that a consumer gets their hands on will tend to be put to use to satisfy the most urgent need the consumer has that that good can satisfy.

For example, consider a castaway on a desert island who obtains a six pack of bottled, fresh water washed up on shore. The first bottle will be used to satisfy the castaway's most urgently felt need, most likely drinking water to avoid dying of thirst. The second bottle might be used for bathing to stave off disease, an urgent but less immediate need. The third bottle could be used for a less urgent need such as boiling some fish to have a hot meal, and on down to the last bottle, which the castaway uses for a relatively low priority like watering a small potted plant to keep him company on the island.

In our example, because each additional bottle of water is used for a successively less highly valued want or need by our castaway, we can say that the castaway values each additional bottle less than the one before. Similarly, when consumers purchase goods on the market each additional unit of any given good or service that they buy will be put to a less valued use than the one before, so we can say that they value each additional unit less and less. Because they value each additional unit of the good less, they are willing to pay less for it. So the more units of a good consumers buy, the less they are willing to pay in terms of the price.

By adding up all the units of a good that consumers are willing to buy at any given price we can describe a market [demand curve](https://www.investopedia.com/terms/d/demand-curve.asp), which is always downward-sloping, like the one shown in the chart below. Each point on the curve (A, B, C) reflects the quantity demanded (Q) at a given price (P). At point A, for example, the quantity demanded is low (Q1) and the price is high (P1). At higher prices, consumers demand less of the good, and at lower prices, they demand more.

Definition: An **indifference curve** is a graph showing combination of two goods that give the consumer equal satisfaction and utility. Each point on an **indifference curve** indicates that a consumer is **indifferent** between the two and all points give him the same utility.

In [economics](https://en.wikipedia.org/wiki/Economics), an **indifference curve** connects points on a graph representing different quantities of two goods, points between which a consumer is *indifferent*. That is, any combinations of two products indicated by the curve will provide the consumer with equal levels of utility, and the consumer has no [preference](https://en.wikipedia.org/wiki/Preference_(economics)) for one combination or bundle of goods over a different combination on the same curve. One can also refer to each point on the indifference curve as rendering the same level of [utility](https://en.wikipedia.org/wiki/Utility) (satisfaction) for the consumer. In other words, an indifference curve is the [locus](https://en.wikipedia.org/wiki/Locus_(mathematics)) of various points showing different combinations of two goods providing equal utility to the consumer. Utility is then a device to represent [preferences](https://en.wikipedia.org/wiki/Preference) rather than something from which preferences come.[[1]](https://en.wikipedia.org/wiki/Indifference_curve#cite_note-Geanakoplis_(1987),_p._117-1) The main use of indifference curves is in the [representation](https://en.wikipedia.org/wiki/Mathematical_problem) of potentially observable [demand](https://en.wikipedia.org/wiki/Demand) patterns for individual consumers over commodity bundles.[[2]](https://en.wikipedia.org/wiki/Indifference_curve#cite_note-B%C3%B6hm_and_Haller_(1987),_p._785-2)

There are infinitely many indifference curves: one passes through each combination. A collection of (selected) indifference curves, illustrated graphically, is referred to as an **indifference map**.

## IDefinition of 'Indifference Curve'

***Definition:*** An indifference curve is a graph showing combination of two goods that give the consumer equal satisfaction and utility. Each point on an indifference curve indicates that a consumer is indifferent between the two and all points give him the same utility.  
  
***Description:*** Graphically, the indifference curve is drawn as a downward sloping convex to the origin. The graph shows a combination of two goods that the consumer consumes.

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The above diagram shows the U indifference curve showing bundles of goods A and B. To the consumer, bundle A and B are the same as both of them give him the equal satisfaction. In other words, point A gives as much utility as point B to the individual. The consumer will be satisfied at any point along the curve assuming that other things are constant.

***Here's how the indifference curve works...***

### Meaning of Production:

Since the primary purpose of economic activity is to produce utility for individuals, we count as production during a time period all activity which either creates utility during the period or which increases ability of the society to create utility in the future.

Business firms are important components (units) of the economic system.

They are artificial entities created by individuals for the purpose of organising and facilitating production. The essential characteristics of the business firm is that it purchases factors of production such as land, labour, capital, intermediate goods, and raw material from households and other business firms and transforms those resources into different goods or services which it sells to its customers, other business firms and various units of the government as also to foreign countries.

### Definition of Production:

**According to Bates and Parkinson:**

“Production is the organised activity of transforming resources into finished products in the form of goods and services; the objective of production is to satisfy the demand for such transformed resources”.

**According to J. R. Hicks:**

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“Production is any activity directed to the satisfaction of other peoples’ wants through exchange”. This definition makes it clear that, in economics, we do not treat the mere making of things as production. What is made must be designed to satisfy wants.

#### What is not Production?

The making or doing of things which are not wanted or are made just for the fun of it does not qualify as production. On the other hand, all jobs which do aim at satisfying wants are part of production.

Those who provide services Such as hair-dressers, solicitors, bus drivers, postmen, and clerks are as much a part of the process of satisfying wants as are farmers, miners, factory workers and bakers. The test of whether or not any activity is productive is whether or not anyone will buy its end-product. If we will buy something we must want it; if we are not willing to buy it then, in economic terms, we do not want it.

#### Importance of Exchange:

So from our above definition it is clear that many valuable activities such as the work done by people in their own houses and gardens (the so-called do it yourself exercise) and all voluntary work (such as free coaching, free-nursing, collection of subscription for a social cause such as flood-relief or earthquake- relief) immensely add to the quality of life but there is no practical way of measuring their economic worth (value).

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This being so, and because in economics an important task is to measure changes in the volume of pro­duction, it is necessary to add the qualifying clause ‘through exchange’, i.e., in return for money, to the definition of production.

### Three Types of Production:

**For general purposes, it is necessary to classify production into three main groups:**

#### 1. Primary Production:

Primary production is carried out by ‘extractive’ industries like agriculture, forestry, fishing, mining and oil extraction. These industries are engaged in such activities as extracting the gifts of Nature from the earth’s surface, from beneath the earth’s surface and from the oceans.

#### 2. Secondary Production:

This includes production in manufacturing industry, viz., turning out semi-finished and finished goods from raw materials and intermediate goods— conversion of flour into bread or iron ore into finished steel. They are generally described as manufacturing and construction industries, such as the manufacture of cars, furnishing, clothing and chemicals, as also engineering and building.

#### 3. Tertiary Production:

Industries in the tertiary sector produce all those services which enable the finished goods to be put in the hands of consumers. In fact, these services are supplied to the firms in all types of industry and directly to consumers. Examples cover distributive traders, banking, insurance, transport and communications. Government services, such as law, administration, education, health and defence, are also included.

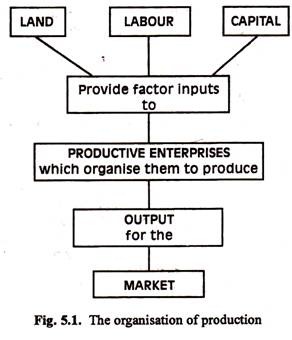
#### Output:

Any activity connected with money earning and money-spending is called an economic activity. Production is an important economic activity. It results in the output (creation) of an enormous variety of economic goods and services.

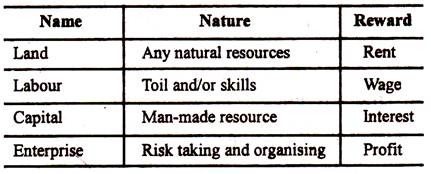
### Factors of Production:

Production of a commodity or service requires the use of certain resources or factors of production. Since most of the resources necessary to carry on production are scarce relative to demand for them they are called economic resources.

Resources, which we shall call factors of production, are combined in various ways, by firms or enterprises, to produce an annual flow of goods and services.

**[](https://cdn.economicsdiscussion.net/wp-content/uploads/2015/10/clip_image00214.jpg)**

**Table 5.1: A Classification of Factors of Production:**

**[](https://cdn.economicsdiscussion.net/wp-content/uploads/2015/10/clip_image0035.jpg)**

Each factor gets a reward on the basis of its contribution to the production process, as shown in the table.

In fact, the resources of any community, referred to as its factors of production, can be classified in a number of ways, but it is common to group them according to certain characteristics which they possess. If we keep in mind that the production of goods and services is the result of people working with natural resources and with equipment such as tools, machinery and buildings, a generally acceptable classification can readily be derived. The traditional division of factors of pro­duction distinguishes labour, land and capital, with a fourth factor, enterprise, some-times separated from the rest.

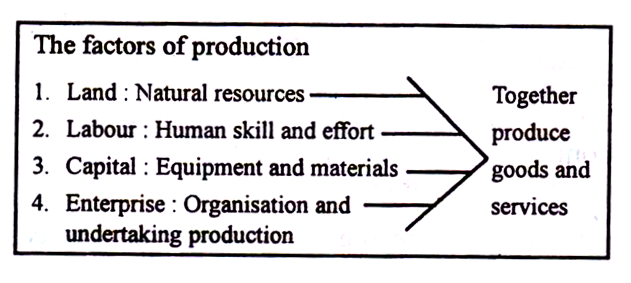
The people involved in production use their skills and efforts to make things and do things that are wanted. This human effort is known as labour. In other words, labour represents all human resources. The natural resources people use are called land. And the equipment they use is called capital, which refers to all man-made resources.

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The first three factors—land; labour and capital do not work independently or in isolation. There is need to combine these factors and co-ordinate their activities. This two-fold function is performed by the organiser or the entrepreneur.

But this is not the only function of the entrepreneur. In fact, production can never take place without some risk being involved; the decision to produce something has to be taken in anticipation of demand and there must be some element of uncertainty about that demand materialising.

Thus, risk taking or enterprise can be considered as a fourth factor of production, and those responsible for taking these risks are usually referred to as entrepreneurs (see the box below which is self-explanatory). We may now study the nature and characteristics of four factors against this backdrop. But before we proceed further we may make a passing reference to factor mobility.

[](https://cdn.economicsdiscussion.net/wp-content/uploads/2015/10/image1.png)

#### (1) Land and Natural Resources:

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In economics the term land is used in a broad sense to refer to all natural resources or gifts of nature. As the Penguin Dictionary of Economics has put it:**“Land in economics is taken to mean not simply that part of the earth’s surface not covered by water, but also all the free gifts of nature’s such as minerals, soil fertility, as also the resources of sea. Land provides both space and specific resources”.**

From the above definition, it is quite clear that land includes farming and building land, forests, and mineral deposits. Fisheries, rivers, lakes, etc. all those natural resources (or gifts of nature) which help us (the mem­bers of the society) to produce useful goods and services. In other words, land includes not only the land surface, but also the fish in the sea, the heat of the sun that helps to dry grapes and change them into resins, the rain that helps farmers to grow crops, the mineral wealth below the surface of the earth and so on.

**Characteristics:**

**Land has certain important characteristics:**

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**1. Fixed supply:**

The total land area of earth (in the sense of the surface area available to men) is fixed. Therefore, the supply of lands is strictly limited. It is, no doubt, possible to increase the supply of land in a particular region to some extent through reclamation of land from sea areas or deforestation. But this is often offset by various kinds of soil erosion. The end result is that changes in the total area are really insignificant. Of course, the effective supply of agricultural (farm) land can be increased by drainage, irrigation and use of fertilisers.

In consequence, the prices of land and natural resources tend to be extremely sensitive to changes in consumer demand, rising sharply if they become more desirable. In this context, we may refer to the sharp increase in the price of building land in Bombay in the last five decades. However, new discoveries are often stimulated by high prices (as in the case of Calcutta’s Salt Lake area), and like that of oil in the U.K.’s North Sea, which tend to moderate price increases.

**2. Alternative uses:**

Although the total supply of land is fixed, land has alternative uses. The same plot of land can be used to set up factories or to grow wheat or sugarcane or even to build a stadium. This means that the supply of land to a particular use is fairly (if not completely) elastic. For example, the amount of land used for growing tomato can be increased by growing less of some other crop (e.g., cauliflower). The supply of building land can be increased by reducing the area under agricultural operation.

**3. No cost of production:**

Since land is a gift of nature, it has no cost of production. Since land is already in existence, no costs are to be incurred in creating it. In this sense, land differs from both labour (which has to be reared, educated and trained) and capital (which has to be created by using labour and other scarce resources or by spending money).

So, it logically follows that the entire return from land—called rent—is a surplus income (at least from society’s point of view). As Stanlake has rightly put it, “any increase in the value of natural resources due to rising populations and rising incomes accrues to the owners of these resources as a windfall gain—it does not arise from any efforts on their part”.

However, the above argument is not valid today. In fact, much of the services of land required expenditure of resources to obtain or maintain them and hence they are often called capital (i.e. produced means of production). So is land, as a factor of production, ‘really distinct’ from capital.

**4. Differences in fertility:**

Another important feature of land is that it is not homogeneous. All grades (plots) of land are not equally productive or fertile. Some grades of land are more productive than others. And Ricardo argued that rent arises not only due to scarcity of land as a factor but also due to differences in the fertility of the soil.

**5. Operation of the law of diminishing return:**

Finally, we may refer to a special feature of land, not shared by other factors. In fact, production on land is subject to the operation of the law of diminishing return. As Alfred Marshall has put it “while the part which nature plays in production shows a tendency to diminishing return, the part which man plays shows a tendency to increasing return”.

This simply means that as more and more workers are employed on the same plot of land, output per worker will gradually fall (because each additional worker will make less and less contribution to total product). The law of diminishing return refers to diminishing marginal product of the variable factor.

**Mobility:**

Land is not geographically mobile. But, it is occupationally mobile. In most parts of India, for example, land has many alternative uses. It might be used for farmland, roads, rail­

rail­ways, airlines, public parks, playgrounds, resi­dential housing, office buildings, shopping complex, and so on. Some of the land, for example, in hill area, of say, Shillong, or Darjeeling, has an extremely limited degree of occupational mobility, being useful perhaps for sheep grazing, golf course or as a centre of tourism.

**Return:**

The income received by the owner of land is known as rent. It may be noted that rent is usually paid for something more than the use of land or another natural resource, but includes also an element of payment for another factor which is involved in making the resource available in a usable form.

An example of this is the labour which assists in the process of bringing minerals to the surface. Iron ore is of no use while it is still under the ground. Productivity and value of land can be increased if it is improved with fertilisers, irrigation and the erection of fences and buildings. So rent paid for this kind of fertile land is rather a mixed type of factor income.

#### (2) Labour:

Like land, labour is also a primary factor of production. The distinctive feature of the factor of production, called labour, is that it provides a human service. It refers to human effect of any kind—physical and mental— which is directed to the production of goods and services. ‘Labour’ is the collective name given to the productive services embodied in human physical effort, skill, intellectual powers, etc.

As such, there are different types of labour input, varying in effort and skill content, and in particular types of skill content. Thus, like ‘land’, labour is not homogeneous. The term covers clerical, managerial and administrative functions as well as skilled and unskilled manual work.

**Land and Labour:**

Labour differs from land in an important way. While land is a stock, labour is a flow. The term ‘labour’ is used to refer to the flow of labour service per unit of time. So labour is perishable. If we do not make use of today’s labour power, a correspondingly large amount is not made available tomorrow (and in future).

A related, but important point should be noted in this context. The worker sells his services in the market, but retains his capital (working ability). In other words, what is bought and sold is the service of labour, not labour itself. A firm cannot buy and sell labour in the same way that it can buy land and capital.

**Dual Role:**

Another important point to note is that labour is not only a factor of production. The supplier of labour—the worker—is also a consumer. Thus, labour plays a dual role in a modern economy. Labour is both the subject and the object of production.

**This means two things:**

(1) That the production of anything requires the use of labour as a factor, and

(2) That almost everything is produced to satisfy the needs of the workers, who are the main consumers. In fact, any economic activity takes place to satisfy the consumers. And, consumption demand provides the business people with the incentive to undertake production.

**Peculiarities of Labour as a Factor:**

In examining labour markets, it is important to recognise that labour has a number of special characteristics which distinguish it from ordinary commodities.

**1. First, labour market transactions are particularly significant for:**

First, labour market transactions are particularly significant for the individual worker. Much of a person’s life style and relations with other people depend on the job he or she does. Furthermore, the employment of labour involves a continuing personal relation­ship between employers and employees, whereas transactions in market for goods are often brief and impersonal.

**2. Labour is an end and means in itself:**

A commodity is only a means of production and the object of production is its consumption by labour. Labour, therefore, becomes a means to its own end.

**3. Thirdly, the individual sells his services but not himself:**

The employer, however, must be able to exert some control or authority over the actions of employees. This is not a very simple matter, which can be covered unambiguously by a contract of employment. A great deal of energy has been devoted to planning systems for the direction of employees, and even a brief examination of the state of industrial relations in most countries shows that still much remains to be done.

**4. Labour is inseparable from the labourer:**

In other words, labour and the labourer go together. When the seller sells a commodity he does not necessarily go with the commo­dity. But the labour can supply his labour only when he goes with it. Moreover, when a seller sells a commodity he parts with it. But when a labourer sells his labour, he retains the quality with him. He may gain the satisfaction of his services, but he cannot be separated from the labour.

**5. Fifthly, the individual must be present when the labour services are used and thus a fifth feature is that labour services are not transferable:**

For example, a person who has agreed to carry out certain tasks cannot transfer his services to someone else to do the work, while he does something else. This contrasts with commodities which can be transferred among individuals.

One conse­quence of having to ‘deliver’ the services personally is that employees have strong views on how their services should be used. Working conditions are of central importance to workers. It also means that workers must live near their place of work. The location may significantly affect labour market decisions.

**6. Sixthly, labour services cannot be stored:**

Labour cannot be ‘saved’ or stored for future use (although rest may enhance performance to some extent).

**7. Labour is perishable:**

A commodity, if it is not disposed off today, can be disposed off the next day and it may not lose its value. Labour, however, is perishable in this that if the labourer is not able to sell his services for a day he cannot get the value for that day. It is lost forever; it is because of this that labour has a weak bargaining power.

**8. Labour is affected by surroundings:**

A commodity is usually very much affected by its surrounding; a labourer is very much affected by the surroundings because he is a living being. Therefore, any change in atmos­phere has an effect on his health feelings etc.

**9. The supply of labour is independent of its demand:**

In case of most commodities we see that supply usually varies with demand but in case of labour its supply is in no way related to demand. Both are determined by different factors.

**10. Finally, labour services are enhanced by training:**

Skill acquisition is often a lengthy and costly process. However, adjust­ments in the labour market, such as increasing the supply of a particular skill, often requires a long time. This also means that individuals do not usually train for more than one occupation as they only have a limited working life over which to justify the investment.

**Mobility of Labour:**

**The mobility of labour has two aspects:**

(a) The spatial or geographical mobility of labour, which relates to the rate at which workers move between geographical areas and regions in response to differences in wages and job availability (e.g., a worker from West Bengal moving to Mumbai) and

(b) The occupational mobility of labour which relates to the extent to which workers change occupations or skills in response to differences in wages or job availability (e.g., a jute mill worker joining a tea garden).

It may apparently seem that labour is the most mobile of all factors—both occupationally and geographically. Workers can move both freely from one industry to another and from one region to another.

**Reward:**

The reward or price that is paid to labour in return for the services it performs is known as a wage or salary. A man’s wages are asso­ciated with his productivity or efficiency and this, in its turn, depends on a variety of factors including the education and job training he has received, his innate skill and the extent to which he is motivated to put his best effort in the work he is doing.

In general, the supply of labour varies directly with wages and compensation. Normally, when wages are relatively low, increases in wages will tend to lead to an increase in the supply of labour. However, as wages continue to rise a stage ultimately comes when higher wages (incomes) make leisure more attractive.

When incomes are relatively high, therefore, higher wage rates may actually lead to a fall in the number of hours worked (and, thus, in the amount of labour offered by an individual worker.) This is why the supply curve of labour bends back to the left and this is often cited as an important exception to the (empirical) law of supply.

#### (3) Capital:

Capital, the third agent or factor is the result of past labour and it is used to produce more goods. Capital has, therefore, been defined as ‘produced means of production.’ It is a man-made resource. In a board sense, any product of labour-and-land which is reserved for use in future production is capital.

To put it more clearly, capital is that part of wealth which is not used for the purpose of consumption but is utilised in the process of production. Tools and machinery, bullocks and ploughs, seeds and fertilizers, etc. are examples of capital. We have already identi­fied certain things described as capital in our discussion on producers’ goods.

Even in ancient times, capital was created for producing food, hunting animals and for the transportation of goods. At that stage capital goods consisted of simple tools and implements. Even in the least developed countries some capital is used. In such countries people make use of simple ploughs, axes, bows and arrows, and leather bags to carry water.

It may be pointed out in this context that the same article may, at one time, be a con­sumption good and, at another time, capital, depending on the use to which it is put. Thus, if a doctor goes out in his motor car to examine a patient he is using his car as capital. But if he goes out for a joy ride in his motor car, he is using it as a consumption good. Similarly, when coal is used in a factory, it is capital, but when coal is used as domestic fuel, it is a consumption good.

Economists use the term capital to mean goods used for further production. In the business world, however, capital is always expressed in terms of money. If a business­man is asked, “What is your capital?” he will always mention a sum of money. But money is not capital because money, by itself, cannot produce anything.

The business-person thinks of money as capital because he can easily convert money into real resources like tools, machines and raw materials, and use these resources for the production of goods. Also capital is measured in terms of money. So the amount of resources used or possessed by a business-person is conveniently expressed as a sum of money.

**Classification of Capital:**

Capital can be classified in two broad categories that which is used up in the course of production and that which is not.

**Fixed and Circulating Capital:**

Fixed capital means durable capital like tools, machinery and factory buildings, which can be used for a long time. Things like raw materials, seeds and fuel, which can be used only once in production are called circulating capital. Circulating capital refers to funds embodied in stocks and work-in- progress or other current assets as opposed to fixed assets. It is also called working capital.

**Two Features of Capital**:

**Two important features of capital are:**

Firstly, it entails a sacrifice, since resources are devoted to making non-consumable capital goods instead of goods for immediate con­sumption. Secondly, it enhances the producti­vity of the other factors, viz., land and labour.

In fact, it is this enhanced productivity which represents the reward for the sacrifice involved in creating capital. Hence we can predict that new capital is only created so long as its productivity is at least sufficient to compensate those who make the sacrifices involved in its creation. These two features may now be discussed in detail.

**Capital Formation:**

People use capital goods like machines, equipment, etc. because capital goods are the creators of other goods. But this is not the whole truth. People use capital for another important reason to produce goods with less effort and lower costs than would be the case if labour were not assisted by capital. But in order to use capital goods people must first produce them. This calls for a sacrifice of current consumption.

When people use their labour to produce capital goods like textile producing machines, they can use the same labour for producing consumer goods like textiles. As Stanlake has put it “The opportunity cost of the capital goods is the potential output of consumer goods which has to be foregone in order to produce that capital, the production of capital demands abstinence from current consumption.”

**Factors Affecting Capital Formation:**

**The creation of capital depends on two things:**

(a) Savings and (b) a diversion of resources (from the production of consumption goods to meet current needs to the production of capital goods to meet future needs). Saving is the difference between current income and current consumption. In other words, it is the act of foregoing current consumption.

It means that resources otherwise used to produce consumer goods are set aside for producing capital goods. If people choose not to buy some consumer goods, with some part of their current income, they refrain from buying (utilising) the services of the factors required to make those goods.

These factors might, therefore, remain idle. But these savings may be borrowed and utilised by business firms (entrepreneurs) to finance the construction of capital goods. This is the second step—the diversion of resources for the production of consumer goods to the production of capital (producers) goods. It may be noted that savings make possible capital accumulation. It does not cause it.

**In short, capital formation depends on savings, which, in its turn, depends on two things:**

(1) The capacity to save and

(2) The desire to save.

The capacity to save depends on income and the existence of savings institutions like banks, insurance companies, post offices, stock exchanges, etc. If income is low, savings will also be low. Even if income is high savings will be low in the absence of the above-mentioned savings institutions.

**The desire to save depends on**

(1) the rate of interest and (2) stability in the value of money (i.e., the rate of inflation).

If the rate of interest is high people will be eager to save more by curtailing their current consumption. People will also be eager to save more if they expect that there will exist reasonable price stability in the economy in future.

**Mobility of Capital:**

Capital is both geographically and occupationally mobile. However, a certain portion of a nation’s capital stock which consists of such things as railway networks, blast furnaces and shipyards are highly specialised equip­ment and are virtually immobile in the geo­graphical sense. It is physically possible to dismantle them and move them to different sites or locations, but the cost of doing so will be so great that it will not be economically feasible to do so.

Such equipment are not even occu­pationally mobile. Each such equipment can only be used for a specific purpose. Many buildings however, can be put to better uses. Many of the old buildings used as cinema house or god-owns in northern area of Calcutta have been dismantled and converted into multi-storeyed buildings.

Some capital equip­ment is mobile in both the geographical and occupational sense. Examples of such capital equipment are electric motors, machine tools, hand tools, typewriters, and lorries. Such equipment can be used effectively in a wide variety of industries and are capable of moving from one location to another at very little cost.

**Return:**

The earning of capital, i.e., the price that has to be paid for it, is known as interest. If it stated as percentage of the principal, represen­ting the sum paid by a borrower who needs finance to purchase a piece of capital equip­ment.

#### (4) Enterprise (Organisation):

**Meaning:**

Organisation, as a factor of production, refers to the task of bringing land, labour and capital together. It involves the establishment of co-ordination and co-operation among these factors. The person in charge of organisation is known as an organiser or an entrepreneur. So, the entrepreneur is the person who takes the charge of supervising the organisation of production and of framing the necessary policy regarding business.

**Functions or Role of the Entrepreneur:**

**The entrepreneur in modern business performs the following useful functions:**

**1. Decision-making:**

The primary task of an entrepreneur is to decide the policy of production. An entrepreneur is to determine what to produce, how to produce, where to produce, how much to produce, how to sell and so forth. Moreover, he is to decide the scale of production and the proportion in which he combines the different factors he employs. In brief, he is to make vital business decisions relating to the purchase of productive factors and to the sales of the finished goods or services.

**2. Management Control:**

Earlier writers used to consider management control one of the chief functions of the entrepreneur. Management and control of the business are conducted by the entrepreneur himself. So the latter must possess a high degree of management ability to select the right type of persons to work with him. But the importance of this function has declined, as the business nowadays is managed more and more by paid managers.

**3. Division of income:**

The next major function of the entrepreneur is to make necessary arrangement for the division of total income among the different factors of production employed by him. Even if there is a loss in the business, he is to pay rent, interest; wages and other contractual income out of the realised sale proceed.

**4. Risk-taking and uncertainty-bearing:**

Risk-taking is perhaps the most important function of an entrepreneur. Modern production is very risky as an entrepreneur is required to produce goods or services in anticipation of their future demand. Broadly, there are two kinds of risk which he has to face.

Firstly, there are some risks, such as risks of fire, loss of goods in transit, theft, etc., which can be insured against. These are known as measurable and insurable risks. Secondly, some risks, however, cannot be insured against because their probability cannot be calculated accurately. These constitute what is called uncertainty (e.g., competitive risk, technical risk, etc.). The entrepreneur under­takes both these risks in production.

**5. Innovation:**

Another distinguishing function of the entrepreneur as emphasised by Schumpeter, is to make frequent inventions- invention of new products, of new techniques and discovering new markets—to improve his competitive position, and to increase earnings.

**Importance of Enterprise:**

The above description indicates the supreme position of the entrepreneur in production. This is particularly true in the capitalistic or even mixed economy which is based on the price-profit system. In the socialistic eco­nomy, the state becomes the entrepreneur; the scope of private entrepreneur is extremely limited in such an economy.

It is to be noted that the importance of the entrepreneur has been declining with the growth of joint-stock business and state-undertakings. This is due to the fact that risk is borne by the share­holders and the day-by-day control of the business is generally in the hands of salaried managers or managing directors.

**A Separate Factor:**

Some economists feel that the above entrepreneurial functions are no different from those of a particular and specialised form of labour. They point out that risk- bearing is not something peculiar to the entrepreneur.

Many types of labour have to take risk. For example, the miner or the air- hostess runs the risk of personal injury and life and most forms of labour run the risk of unemployment. But enterprise is a separate factor because the first three factors are substitutable to some extent, but the fourth factor is a specific factor and cannot be substituted by any other factor.

**Mobility:**

Enterprise seems to be the most mobile of all the four factors. There is need to train labour for some specific task to be performed in a particular industry (say, road transport service, hotel business or computer operation). Once labour is trained for some specific task appropriate to some particular industry, it cannot be easily and quickly transferred to some other industry to do a completely different job. But the basic functions of the entrepreneur-organisation, management and risk-taking are the same in all industries.

Whatever the nature, duration and extent of economic activity and entrepreneur has to raise capital to organise the factors of production, and take certain fundamental decisions on what, how and where to produce. The efficient operation of an enterprise, irrespective of its nature and form, depends on certain human relations and human qualities such as initiative, leadership orga­nisational ability and controlling capacity.

Very few people have these rare qualities. But those who have such qualities are able to operate effectively and efficiently in almost any industry.

**Return:**

The return to the entrepreneur is profit. Profit is the reward for successful conduct of business.

# Scale of Production in Economics

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In this article we will discuss about scale of production in economics. Also learn about the economies of scale.

This is an age of large-scale production. And the present system of production is based on division of labour and specialisation.

In any discussion of production theory and production process, we draw a distinction between the short run and long run. It is assumed that in the short run some of the resources used in the production process remain constant (i.e., fixed in supply).

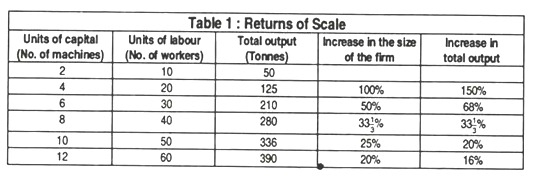
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This is why when there is an increase in the supply (usage) of one factor, say labour, output increases no doubt but not proportionately and the phenomenon of diminishing returns is encoun­tered In the long run, however, it is possible for a firm to vary the quantities of all factors of production. More land can be acquired, new factory and office buildings can be constructed and more machinery acquired and installed. It is even possible to change the size of the plant or factory in the long run.

In short in the long run it is possible for a firm (or a producing unit) to change the scale of its operation or its size and the level of activity. In the true sense a change in the scale (of production) takes place when the quantities of all the factors are changed by the same percentage so that the proportions in which they are combined remain unchanged.

It may apparently seem that when all inputs are changed proportion­ately there is a proportionate change in output. But, in reality, this does not happen. A feature of any production system (process) is that, when there is a change in the scale of production there is not necessarily (usually) propor­tionate change in output. When the size of a firm gets doubled, output may get more than doubled, exactly doubled or less than doubled.

We use the term returns to scale to refer to the relationship between change in scale of production (or size of the firm, measured in terms of the quantities of factors used) and the resultant changes in output. This important concept is illustrated in Table 1.

[](https://cdn.economicsdiscussion.net/wp-content/uploads/2016/12/clip_image0024-3.jpg)

The firm increases in size but the factor proportion (i.e., capital-labour ratio) remains unchanged (i.e., 1 unit of capital per 5 units of labour).

In the last two columns of Table 1 we make a comparison between the proportionate changes in total output with the proportionate changes in the size of the firm (or its scale of operations). As the size of the firm increases from 2 machines and 10 workers to 6 machines and 30 workers, it experi­ences increasing returns to scale (output increases more than proportionately).

A change in scale from 6 machines and 30 workers to 8 machines and 40 workers yields constant return to scale (firm size and the volume of output change by the same percentage). Any further increase in the size of the firm yields decreasing returns to scale, i.e., output increases less than proportion­ately. In Table 1 when the size of the firm increases by 25% output-increases by 20% and when the size increases by 20% output increases by 16%.

Those features of large-scale production (i.e., increasing size) which account for increasing returns to scale (i.e., more than proportionate increase in output) are usually described as economies of scale. Likewise, the causes of falling efficiency as the size of the firm increases are described as dis­economies of scale.

The economies of scale are the advantages of large-scale production and the diseconomies are the disadvantages. Alfred Marshall divided these economies and diseconomies into two broad categories, viz., internal and external.

Economies of scale exist when expansion of the scale of production capacity of a firm or industry causes total production costs to increase less than proportionately with output. As a result long-run average costs of production fall.

**Economies of scale are generally classified as:**

**(a) Internal Economies:**

These occur as a result of the expansion of the individual firm independently of changes in size of the other firms in the industry. As G. F. Stanlake has put it, **“Internal economies of scale are those which arise from the growth of the firm independently of what is happening to other firms. They are not due to any increase in monopoly power or to any technological innovation; they arise quite simple from an increase in the scale of production in the firm itself”.**

**(b) External Economies:**

These exist if the expansion in scale of the whole industry or group of firms results in a fall in the costs of each individual firm. In the words of Stan lake, “external economies of scale are those advantages in the form of lower average costs which a firm gains from the growth of the industry. These economies accrue to all firms in the industry independently of changes in the scales of individual outputs.”

**Scale of Production: Internal Economies, Types and Limits!**

If a firm carries on production with large or more plants, it is known as large scale production. On the contrary, if the production is small and the size of plants smaller, it is called small scale production. The scale of production may have certain advantages and disadvantages. The economies of scale may be divided into two parts— Internal economies and external economies.

#### Internal economies:

These are economies available to a firm or a factory and which are not dependent upon the actions or activities of other firms. They depend upon the scale of operation of a firm. There are two main causes for internal economies: Indivisibilities and Specialization.

There are some factors of production which cannot be divided into parts. Machines, management, research are examples of indivisibilities. Some factors like labour and machines can get specialized when production is done on a large scale.

**Internal economies may be divided into five parts:**

**(i) Technical economies:**

In large scale production, huge and modern machines are used. The ma­chines have less operational costs and more production. Thus, production is increased with a little increase in costs. Labor can get specialized and result is increased efficiency and production.

**(ii) Managerial economies:**

Managerial specialization is also possible when the scale of production is large. In increased production, the managerial costs are distributed over a wide range. Services of most efficient managers can be hired if they are suitably paid. Large scale production makes it possible.

**(iii) Marketing economies:**

These are concerned with the buying of raw materials and selling of finished products. Heavy purchases of raw materials may cause a concession in cost of their supply and make it possible to have better quality. There may be economy in transportation costs. Similarly, large firms enjoy some facilities in selling their goods. They can have their own arrangement of transpor­tation, advertisement and sales promotion.

**(iv) Financial economies:**

Large firms have a market reputation due to their assets and properties and volume of production. Their goodwill helps them exercise influence on financial institutions in obtaining funds in desired volumes at a reasonable rate of interest. They do generally face financial difficulties.

**(v) Risk-bearing economies:**

Risks in large firms are dispersed over different activities and volume of production. Diversification of production may lessen risks.

#### External economies:

These are economies available to all the firms in an industry when the scale of production goes up in that industry or a group of industries. These economies are available of localization of an industry at a particular place. These economies include economies due to centralization and invention and research.

Internal economies, therefore, depend upon the size of the firm whereas external economies depend upon the size of the industry. For the economies, they are all internal economies.

#### Limits to Scale of Production:

The size of a firm cannot be increased to an unlimited extent.

**There are limits to growth on account of the following factors:**

1. With large size, difficulties in management of the firm may arise. A large firm gets unmanageable.

2. There are some activities which are difficult to be undertaken on a large scale. It depends on the nature of the activity.

3. Sometimes technical facilities are not available in desired amounts limiting the growth of the enter­prise.

4. Factors of production may not be available in desired amounts.

5. Capital may not be available in sufficient quantities and at reasonable rates.

6. Demand for the commodity produced by a firm can also limit its size.

**Supply** refers to the amount of goods that are available. Demand refers to how many people want those goods. When **supply** of a product goes up, the price of a product goes down and demand for the product can rise because it costs loss. ... As a result, prices will rise.

**Definition of 'Law Of Supply'**

***Definition:***

Law of supply states that other factors remaining constant, price and quantity supplied of a good are directly related to each other. In other words, when the price paid by buyers for a good rises, then suppliers increase the supply of that good in the market.  
  
  
***Description:*** Law of supply depicts the producer behavior at the time of changes in the prices of goods and services. When the price of a good rises, the supplier increases the supply in order to earn a profit because of higher prices.

|  |
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| https://economictimes.indiatimes.com/photo/19490988.cms |

The above diagram shows the supply curve that is upward sloping (positive relation between the price and the quantity supplied). When the price of the good was at P3, suppliers were supplying Q3 quantity. As the price starts rising, the quantity supplied also starts rising.

A **supply schedule** is a table that shows the relationship between the price of a good and the quantity supplied. ... The **supply schedule** is a table view of the relationship between the price suppliers are willing to sell a specific quantity of a good or service.

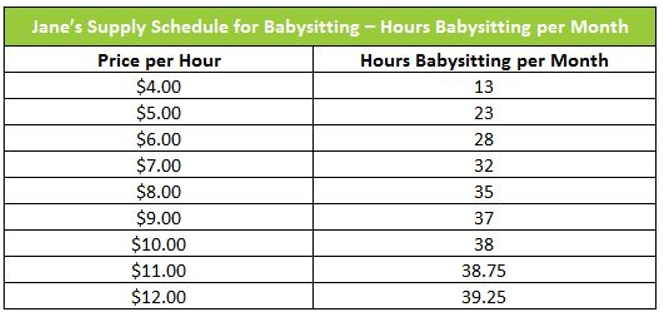
## Definition of a Supply Schedule:

A**supply schedule** is a schedule showing the quantity of a good or service that sellers will offer at various prices during a specific period of time.

## Detailed Explanation:

A supply schedule is used to plot a supply curve. How many hours would you work at $5.00 an hour? How about $9.00?  $20?  $50? $150? If you make a table with the number of hours you would work at each wage (price for your labor), you have created your supply schedule. A supply schedule can be created for any good or service. Draw the supply curve by plotting the data points. Economists put the price on the vertical axis and the quantity producers would be willing to supply at a given price on the horizontal axis.  
  
A company's supply curve illustrates the number of goods and services the company is willing to supply at every price. The quantity supplied and price are directly related, meaning  that as the price of a good or service increases, the quantity producers are willing to supply increases, and vice versa. The amount a producer is willing to supply of a good or service at a specific price is represented by a point on the supply curve. The production process and outside influences are held constant. Outside influences include the technology, input costs, regulations, the number of firms in the industry, future expectations, regulations, and tax rates. A change in any of these results in a new supply curve, which economists refer to as a change in supply.

For example, assume Jane is a babysitter. She is willing to work more hours if she is paid a higher wage. The table below is Jane's supply schedule and will be used to graph her supply curve. At the lower prices, Jane may be willing to babysit infrequently, more as a neighborly gesture than as an income- generating venture. At these low prices, she would prefer seeking alternative employment or spending time with her friends. However, as the price increases, Jane realizes that she would prefer babysitting to another job that is more restrictive. Higher prices provide an incentive to forgo hanging out with friends to earn more money.

  
  
Jane's supply curveis plotted by plotting the number of hours she would babysit at every price, over a defined period of time. Her wage (price) is on the vertical axis, and the number of hours she is willing to work per month is on the horizontal axis.

  
  
The market supply schedule and curve is for an entire community and includes all of the babysitters. The market supply curve is drawn by plotting total number of hours all the babysitters would babysit at each price. Note that the supply curve assumes that the producers' costs and other variables that impact the supply remain unchanged.

Economists plot the demand curve and the supply curve together to determine the equilibrium price and equilibrium quantity of a good or service. At equilibrium there would not be a surplus or shortage of the good or service.

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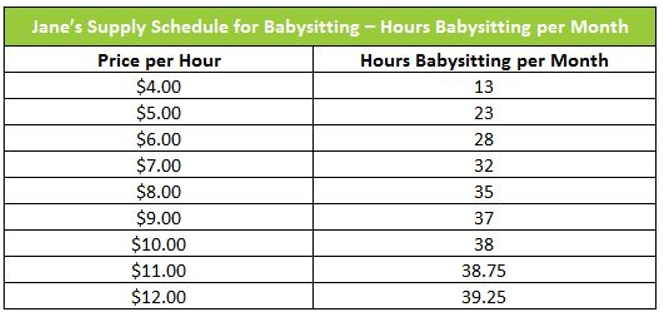
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### Elasticity of supply

The Price Elasticity of Supply measures the rate of response of quantity demand due to a price change. If you've already read Elasticity of Demand and understand it, you may want to just skim this section, as the calculations are similar.

Definitions

— According to **Lipsey,** *"Elasticity of supply is the ratio of percentage change in quantity supplied over the percentage change in price."*

— In the words of **Prof. Bilas,** *"Elasticity of supply is defined as the percentage change in quantity supplied divided by percentage change in price."*

**Price elasticity of supply** measures the relationship between change in quantity supplied and a change in price.  The formula for price elasticity of supply is:

[https://sites.google.com/site/economicsbasics/_/rsrc/1290410605942/elasticity-of-supply/PES.PNG](https://sites.google.com/site/economicsbasics/elasticity-of-supply/PES.PNG?attredirects=0)

* ∆Q =change in the demand.(difference in demand)
* ∆P=change in the price.(difference in the price)
* P1=initial price. (first price/ old price)
* Q1=initial demand. (first demand/ old demand)

The value of elasticity of supply is**positive**, because an increase in price is likely to increase the quantity supplied to the market and vice versa.

**Calculating the Price Elasticity of Supply**

You may be asked "Given the following data, calculate the price elasticity of supply when the price changes from $9.00 to $10.00" Using the chart on the bottom of the page, I'll walk you through answering this question.

First we need to find the data we need. We know that the original price is $9 and the new price is $10, so we have Price(OLD)=$9 and Price(NEW)=$10. From the chart we see that the quantity supplied (make sure to look at the supply data, not the demand data) when the price is $9 is 150 and when the price is $10 is 110. Since we're going from $9 to $10, we have Q Supply(OLD)=150 and Q Supply(NEW)=210, where "Q Supply" is short for "Quantity Supplied". So we have:

* Price(OLD)=9
* Price(NEW)=10
* QSupply(OLD)=150
* QSupply(NEW)=210

To calculate the price elasticity, we need to know what the percentage change in quantity supply is and what the percentage change in price is. It's best to calculate these one at a time.

**Calculating the Percentage Change in Quantity Supply**

The formula used to calculate the percentage change in quantity supplied is:

**[QSupply(NEW) - QSupply(OLD)] / QSupply(OLD)**

By filling in the values we wrote down, we get:

**[210 - 150] / 150 = (60/150) = 0.4**

So we note that **% Change in Quantity Supplied = 0.4** (This is in decimal terms. In percentage terms it would be 40%). Now we need to calculate the percentage change in price.

**Calculating the Percentage Change in Price**

Similar to before, the formula used to calculate the percentage change in price is:

**[Price(NEW) - Price(OLD)] / Price(OLD)**

By filling in the values we wrote down, we get:

**[10 - 9] / 9 = (1/9) = 0.1111**

We have both the percentage change in quantity supplied and the percentage change in price, so we can calculate the price elasticity of supply.

**Final Step of Calculating the Price Elasticity of Supply**

We go back to our formula of:

**PEoS = (% Change in Quantity Supplied)/(% Change in Price)**

We now fill in the two percentages in this equation using the figures we calculated.

**PEoD = (0.4)/(0.1111) = 3.6**

When we analyze *price* elasticities we're concerned with the absolute value, but here that is not an issue since we have a positive value. We conclude that the price elasticity of supply when the price increases from $9 to $10 is 3.6.

**Five Types of Elasticities of Supply:**

1.       **Unit Elastic Supply:**When change in price of X brings about exactly proportionate change in its quantity supplied then supply is unit elastic i.e. elasticity of supply is equal to one, e.g. if price rises by 10% and supply expands by 10% then, change in the quantity supplied the supply is relatively inelastic or elasticity of supply is less than one.

Es = % change in Quantity Supplied of X

% change in price of X

2.       **Relatively Elastic Supply:**When change in price brings about more than proportionate change in the quantity supplied, then supply is relatively elastic or elasticity of supply is greater than one.

3.       **Perfectly Inelastic Supply:**When a change in price has no effect on the quantity supplied then supply is perfectly inelastic or the elasticity of supply is zero.

 4.        **Perfectly Elastic Supply:**When a negligible change in price brings about an infinite change in the quantity supplied, then supply is said to be perfectly elastic or elasticity of supply is infinity.

All the five types of Elasticities of supply can be shown by different slopes of the supply curve. Fig. (1) Shows the supply is unit elastic because change in price from OP to OP1 brings about exactly proportionate change in the quantity supplied of commodity X viz., from OM to OM1. In this case     Es = 1.

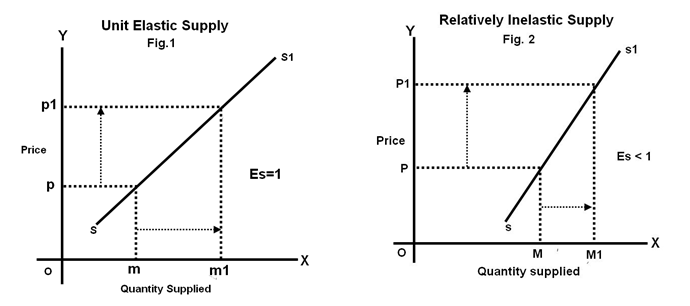
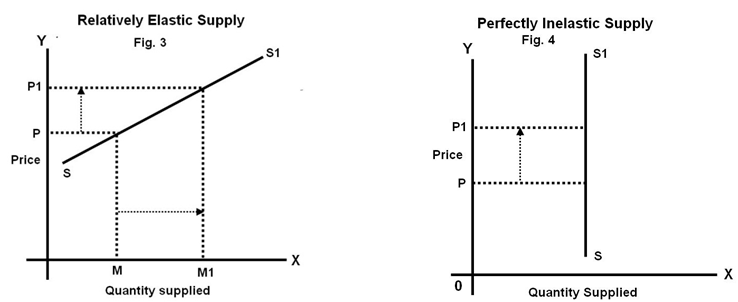
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Fig (2) shows that supply is relatively inelastic because change in price of from OP to  OP1 brings about less than proportionate change in quantity supplied of X. in this case Es < 1.

Fig (3) shows that supply is relatively elastic because change in price of X from OP to OP1 brings about more than proportionate change in quantity supplied of X. in this case Es > 1.

Fig (4) shows that supply is perfectly inelastic because change in price of X from OP to OP1 has absolutely no effect on quantity supplied of X. in this case Es = 0. Thus, if the supply curve is vertical, i.e. parallel to Y-axis it represents perfectly inelastic supply.

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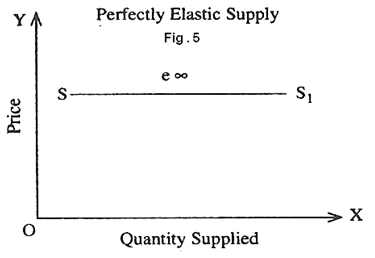
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Fig (5) shows that supply is perfectly elastic because a small change in price of X brings about infinite change in supply. Thus, if the supply curve is horizontal or parallel to X- axis it represents perfectly elastic supply.

Hence, the five different types of elasticities of supply can be shown by five different slopes of supply curve.

**Definition of 'Perfect Competition'**

***Definition:*** Perfect competition describes a market structure where competition is at its greatest possible level. To make it more clear, a market which exhibits the following characteristics in its structure is said to show perfect competition:  
  
1. Large number of buyers and sellers

2. Homogenous product is produced by every firm

3. Free entry and exit of firms

4. Zero advertising cost

5. Consumers have perfect knowledge about the market and are well aware of any changes in the market. Consumers indulge in rational decision making.  
6. All the factors of production, viz. labour, capital, etc, have perfect mobility in the market and are not hindered by any market factors or market forces.  
7. No government intervention

8. No transportation costs

9. Each firm earns normal profits and no firms can earn super-normal profits.  
10. Every firm is a price taker. It takes the price as decided by the forces of demand and supply. No firm can influence the price of the product.  
  
***Description:***Ideally, perfect competition is a hypothetical situation which cannot possibly exist in a market. However, perfect competition is used as a base to compare with other forms of market structure. No industry exhibits perfect competition in India.

**Definition of 'Monopoly'**



***Definition:***A market structure characterized by a single seller, selling a unique product in the market. In a monopoly market, the seller faces no competition, as he is the sole seller of goods with no close substitute.

***Description:***In a monopoly market, factors like government license, ownership of resources, copyright and patent and high starting cost make an entity a single seller of goods. All these factors restrict the entry of other sellers in the market. Monopolies also possess some information that is not known to other sellers.  
  
Characteristics associated with a monopoly market make the single seller the market controller as well as the price maker. He enjoys the power of setting the price for his goods.

## Duopoly Explained

In a duopoly, two competing businesses control the majority of the market [sector](https://www.investopedia.com/terms/s/sector.asp) for a particular product or service they provide. A business can be part of a duopoly even if it provides other services that do not fall into the market sector in question. For example, Amazon is a part of the duopoly in the e-book market but is not associated with a duopoly in its other product sectors, such as computer hardware.

A duopoly is a form of oligopoly, and should not be confused with monopoly, where only a single producer exists and controls the market. With a duopoly, each company will tend to compete against the other, keeping prices lower and benefiting consumers. However, since there are only two major players in an industry under a duopoly, there is some likelihood that a monopoly could be formed, either through collusion between the two companies, or if one goes out of business.

An oligopoly exists when a few businesses control the vast majority of the market sector. While a duopoly qualifies as an oligopoly, not all oligopolies are duopolies. For example, the automobile industry is an oligopoly because there are a limited number of producers, but more than two, who must respond to worldwide demand.

# Concept of National Income

National income means the value of goods and [services](https://www.toppr.com/guides/business-studies/business-services/nature-and-types-of-services/) produced by a country during a[financial year](https://www.toppr.com/guides/accountancy/financial-statements/balance-sheet-and-opening-entry/). Thus, it is the net result of all economic activities of any country during a period of one year and is valued in terms of [money](https://www.toppr.com/guides/economics/money-and-credit/all-about-money-and-credit/). National income is an uncertain term and is often used interchangeably with the national dividend, national output, and national [expenditure](https://www.toppr.com/guides/economics/national-income-accounting/expenditure-method-and-income-method/). We can understand this concept by understanding the national income definition.

**National Income: Definition, Concepts and Methods of Measuring National Income!**

### Introduction:

National income is an uncertain term which is used interchangeably with national dividend, national output and national expenditure. On this basis, national income has been defined in a number of ways. In common parlance, national income means the total value of goods and services produced annually in a country.

In other words, the total amount of income accruing to a country from economic activities in a year’s time is known as national income. It includes payments made to all resources in the form of wages, interest, rent and profits.

**Contents:**

1. Definitions of National Income
2. Concepts of National Income
3. Methods of Measuring National Income
4. Difficulties or Limitations in Measuring National Income
5. Importance of National Income Analysis
6. Inter-Relationship among different concept of National Income

### 1. Definitions of National Income:

The definitions of national income can be grouped into two classes: One, the traditional definitions advanced by Marshall, Pigou and Fisher; and two, modern definitions.

#### The Marshallian Definition:

According to Marshall: “The labour and capital of a country acting on its natural resources produce annually a certain net aggregate of commodities, material and immaterial including services of all kinds. This is the true net annual income or revenue of the country or national dividend.” In this definition, the word ‘net’ refers to deductions from the gross national income in respect of depreciation and wearing out of machines. And to this, must be added income from abroad.

**It’s Defects:**

Though the definition advanced by Marshall is simple and comprehensive, yet it suffers from a number of limitations. First, in the present day world, so varied and numerous are the goods and services produced that it is very difficult to have a correct estimation of them.

Consequently, the national income cannot be calculated correctly. Second, there always exists the fear of the mistake of double counting, and hence the national income cannot be correctly estimated. Double counting means that a particular commodity or service like raw material or labour, etc. might get included in the national income twice or more than twice.

For example, a peasant sells wheat worth Rs.2000 to a flour mill which sells wheat flour to the wholesaler and the wholesaler sells it to the retailer who, in turn, sells it to the customers. If each time, this wheat or its flour is taken into consideration, it will work out to Rs.8000, whereas, in actuality, there is only an increase of Rs.2000 in the national income.

Third, it is again not possible to have a correct estimation of national income because many of the commodities produced are not marketed and the producer either keeps the produce for self-consumption or exchanges it for other commodities. It generally happens in an agriculture- oriented country like India. Thus the volume of national income is underestimated.

#### The Pigouvian Definition:

A.C. Pigou has in his definition of national income included that income which can be measured in terms of money. In the words of Pigou, “National income is that part of objective income of the community, including of course income derived from abroad which can be measured in money.”

This definition is better than the Marshallian definition. It has proved to be more practical also. While calculating the national income now-a- days, estimates are prepared in accordance with the two criteria laid down in this definition.

First, avoiding double counting, the goods and services which can be measured in money are included in national income. Second, income received on account of investment in foreign countries is included in national income.

**It’s Defects:**

The Pigouvian definition is precise, simple and practical but it is not free from criticism. First, in the light of the definition put forth by Pigou, we have to unnecessarily differentiate between commodities which can and which cannot be exchanged for money.

But, in actuality, there is no difference in the fundamental forms of such commodities, no matter they can be exchanged for money. Second, according to this definition when only such commodities as can be exchanged for money are included in estimation of national income, the national income cannot be correctly measured.

According to Pigou, a woman’s services as a nurse would be included in national income but excluded when she worked in the home to look after her children because she did not receive any salary for it. Similarly, Pigou is of the view that if a man marries his lady secretary, the national income diminishes as he has no longer to pay for her services.

Thus the Pigovian definition gives rise to a number of paradoxes. Third, the Pigovian definition is applicable only to the developed countries where goods and services are exchanged for money in the market.

According to this definition, in the backward and underdeveloped countries of the world, where a major portion of the produce is simply bartered, correct estimate of national income will not be possible, because it will always work out less than the real level of income. Thus the definition advanced by Pigou has a limited scope.

#### Fisher’s Definition:

Fisher adopted ‘consumption’ as the criterion of national income whereas Marshall and Pigou regarded it to be production. According to Fisher, “The National dividend or income consists solely of services as received by ultimate consumers, whether from their material or from the human environments. Thus, a piano, or an overcoat made for me this year is not a part of this year’s income, but an addition to the capital. Only the services rendered to me during this year by these things are income.”

Fisher’s definition is considered to be better than that of Marshall or Pigou, because Fisher’s definition provides an adequate concept of economic welfare which is dependent on consumption and consumption represents our standard of living.

**It’s Defects:**

But from the practical point of view, this definition is less useful, because there are certain difficulties in measuring the goods and services in terms of money. First, it is more difficult to estimate the money value of net consumption than that of net production.

In one country there are several individuals who consume a particular good and that too at different places and, therefore, it is very difficult to estimate their total consumption in terms of money. Second, certain consumption goods are durable and last for many years.

If we consider the example of piano or overcoat, as given by Fisher, only the services rendered for use during one year by them will be included in income. If an overcoat costs Rs. 100 and lasts for ten years, Fisher will take into account only Rs. 100 as national income during one year, whereas Marshall and Pigou will include Rs. 100 in the national income for the year, when it is made.

Besides, it cannot be said with certainty that the overcoat will last only for ten years. It may last longer or for a shorter period. Third, the durable goods generally keep changing hands leading to a change in their ownership and value too.

It, therefore, becomes difficult to measure in money the service-value of these goods from the point of view of consumption. For instance, the owner of a Maruti car sells it at a price higher than its real price and the purchaser after using it for a number of years further sells it at its actual price.

Now the question is as to which of its price, whether actual or black market one, should we take into account, and afterwards when it is transferred from one person to another, which of its value according to its average age should be included in national income?

But the definitions advanced by Marshall, Pigou and Fisher are not altogether flawless. However, the Marshallian and Pigovian definitions tell us of the reasons influencing economic welfare, whereas Fisher’s definition helps us compare economic welfare in different years.

#### Modern Definitions:

From the modern point of view, Simon Kuznets has defined national income as “the net output of commodities and services flowing during the year from the country’s productive system in the hands of the ultimate consumers.”

On the other hand, in one of the reports of United Nations, national income has been defined on the basis of the systems of estimating national income, as net national product, as addition to the shares of different factors, and as net national expenditure in a country in a year’s time. In practice, while estimating national income, any of these three definitions may be adopted, because the same national income would be derived, if different items were correctly included in the estimate.

### 2. Concepts of National Income:

There are a number of concepts pertaining to national income and methods of measurement relating to them.

#### (A) Gross Domestic Product (GDP):

GDP is the total value of goods and services produced within the country during a year. This is calculated at market prices and is known as GDP at market prices. Dernberg defines GDP at market price as “the market value of the output of final goods and services produced in the domestic territory of a country during an accounting year.”

**There are three different ways to measure GDP:**

Product Method, Income Method and Expenditure Method.

These three methods of calculating GDP yield the same result because National Product = National Income = National Expenditure.

**1. The Product Method:**

In this method, the value of all goods and services produced in different industries during the year is added up. This is also known as the value added method to GDP or GDP at factor cost by industry of origin. The following items are included in India in this: agriculture and allied services; mining; manufacturing, construction, electricity, gas and water supply; transport, communication and trade; banking and insurance, real estates and ownership of dwellings and business services; and public administration and defense and other services (or government services). In other words, it is the sum of gross value added.

**2. The Income Method:**

The people of a country who produce GDP during a year receive incomes from their work. Thus GDP by income method is the sum of all factor incomes: Wages and Salaries (compensation of employees) + Rent + Interest + Profit.

**3. Expenditure Method:**

This method focuses on goods and services produced within the country during one year.

**GDP by expenditure method includes:**

(1) Consumer expenditure on services and durable and non-durable goods (C),

(2) Investment in fixed capital such as residential and non-residential building, machinery, and inventories (I),

(3) Government expenditure on final goods and services (G),

(4) Export of goods and services produced by the people of country (X),

(5) Less imports (M). That part of consumption, investment and government expenditure which is spent on imports is subtracted from GDP. Similarly, any imported component, such as raw materials, which is used in the manufacture of export goods, is also excluded.

Thus GDP by expenditure method at market prices = C+ I + G + (X – M), where (X-M) is net export which can be positive or negative.

#### (B) GDP at Factor Cost:

GDP at factor cost is the sum of net value added by all producers within the country. Since the net value added gets distributed as income to the owners of factors of production, GDP is the sum of domestic factor incomes and fixed capital consumption (or depreciation).

Thus GDP at Factor Cost = Net value added + Depreciation.

**GDP at factor cost includes:**

(i) Compensation of employees i.e., wages, salaries, etc.

(ii) Operating surplus which is the business profit of both incorporated and unincorporated firms. [Operating Surplus = Gross Value Added at Factor Cost—Compensation of Employees—Depreciation]

(iii) Mixed Income of Self- employed.

Conceptually, GDP at factor cost and GDP at market price must be identical/This is because the factor cost (payments to factors) of producing goods must equal the final value of goods and services at market prices. However, the market value of goods and services is different from the earnings of the factors of production.

In GDP at market price are included indirect taxes and are excluded subsidies by the government. Therefore, in order to arrive at GDP at factor cost, indirect taxes are subtracted and subsidies are added to GDP at market price.

Thus, GDP at Factor Cost = GDP at Market Price – Indirect Taxes + Subsidies.

#### (C) Net Domestic Product (NDP):

NDP is the value of net output of the economy during the year. Some of the country’s capital equipment wears out or becomes obsolete each year during the production process. The value of this capital consumption is some percentage of gross investment which is deducted from GDP. Thus Net Domestic Product = GDP at Factor Cost – Depreciation.

#### (D) Nominal and Real GDP:

When GDP is measured on the basis of current price, it is called GDP at current prices or nominal GDP. On the other hand, when GDP is calculated on the basis of fixed prices in some year, it is called GDP at constant prices or real GDP.

Nominal GDP is the value of goods and services produced in a year and measured in terms of rupees (money) at current (market) prices. In comparing one year with another, we are faced with the problem that the rupee is not a stable measure of purchasing power. GDP may rise a great deal in a year, not because the economy has been growing rapidly but because of rise in prices (or inflation).

On the contrary, GDP may increase as a result of fall in prices in a year but actually it may be less as compared to the last year. In both 5 cases, GDP does not show the real state of the economy. To rectify the underestimation and overestimation of GDP, we need a measure that adjusts for rising and falling prices.

This can be done by measuring GDP at constant prices which is called real GDP. To find out the real GDP, a base year is chosen when the general price level is normal, i.e., it is neither too high nor too low. The prices are set to 100 (or 1) in the base year.

**Now the general price level of the year for which real GDP is to be calculated is related to the base year on the basis of the following formula which is called the deflator index:**

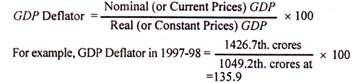
**[Calculation of General Price Level ](https://www.yourarticlelibrary.com/wp-content/uploads/2014/03/clip_image002116.jpg)**

Suppose 1990-91 is the base year and GDP for 1999-2000 is Rs. 6, 00,000 crores and the price index for this year is 300.

Thus, Real GDP for 1999-2000 = Rs. 6, 00,000 x 100/300 = Rs. 2, 00,000 crores

#### ****(E) GDP Deflator:****

GDP deflator is an index of price changes of goods and services included in GDP. It is a price index which is calculated by dividing the nominal GDP in a given year by the real GDP for the same year and multiplying it by 100. Thus,

**[](https://www.yourarticlelibrary.com/wp-content/uploads/2014/03/clip_image00318.jpg)**

It shows that at constant prices (1993-94), GDP in 1997-98 increased by 135.9% due to inflation (or rise in prices) from Rs. 1049.2 thousand crores in 1993-94 to Rs. 1426.7 thousand crores in 1997-98.

#### (F) Gross National Product (GNP):

GNP is the total measure of the flow of goods and services at market value resulting from current production during a year in a country, including net income from abroad.

**GNP includes four types of final goods and services:**

(1) Consumers’ goods and services to satisfy the immediate wants of the people;

(2) Gross private domestic investment in capital goods consisting of fixed capital formation, residential construction and inventories of finished and unfinished goods;

(3) Goods and services produced by the government; and

(4) Net exports of goods and services, i.e., the difference between value of exports and imports of goods and services, known as net income from abroad.

In this concept of GNP, there are certain factors that have to be taken into consideration: First, GNP is the measure of money, in which all kinds of goods and services produced in a country during one year are measured in terms of money at current prices and then added together.

But in this manner, due to an increase or decrease in the prices, the GNP shows a rise or decline, which may not be real. To guard against erring on this account, a particular year (say for instance 1990-91) when prices be normal, is taken as the base year and the GNP is adjusted in accordance with the index number for that year. This will be known as GNP at 1990-91 prices or at constant prices.

Second, in estimating GNP of the economy, the market price of only the final products should be taken into account. Many of the products pass through a number of stages before they are ultimately purchased by consumers.

If those products were counted at every stage, they would be included many a time in the national product. Consequently, the GNP would increase too much. To avoid double counting, therefore, only the final products and not the intermediary goods should be taken into account.

Third, goods and services rendered free of charge are not included in the GNP, because it is not possible to have a correct estimate of their market price. For example, the bringing up of a child by the mother, imparting instructions to his son by a teacher, recitals to his friends by a musician, etc.

Fourth, the transactions which do not arise from the produce of current year or which do not contribute in any way to production are not included in the GNP. The sale and purchase of old goods, and of shares, bonds and assets of existing companies are not included in GNP because these do not make any addition to the national product, and the goods are simply transferred.

Fifth, the payments received under social security, e.g., unemployment insurance allowance, old age pension, and interest on public loans are also not included in GNP, because the recipients do not provide any service in lieu of them. But the depreciation of machines, plants and other capital goods is not deducted from GNP.

Sixth, the profits earned or losses incurred on account of changes in capital assets as a result of fluctuations in market prices are not included in the GNP if they are not responsible for current production or economic activity.

For example, if the price of a house or a piece of land increases due to inflation, the profit earned by selling it will not be a part of GNP. But if, during the current year, a portion of a house is constructed anew, the increase in the value of the house (after subtracting the cost of the newly constructed portion) will be included in the GNP. Similarly, variations in the value of assets, that can be ascertained beforehand and are insured against flood or fire, are not included in the GNP.

Last, the income earned through illegal activities is not included in the GNP. Although the goods sold in the black market are priced and fulfill the needs of the people, but as they are not useful from the social point of view, the income received from their sale and purchase is always excluded from the GNP.

There are two main reasons for this. One, it is not known whether these things were produced during the current year or the preceding years. Two, many of these goods are foreign made and smuggled and hence not included in the GNP.

**Three Approaches to GNP:**

After having studied the fundamental constituents of GNP, it is essential to know how it is estimated. Three approaches are employed for this purpose. One, the income method to GNP; two, the expenditure method to GNP and three, the value added method to GNP. Since gross income equals gross expenditure, GNP estimated by all these methods would be the same with appropriate adjustments.

**1. Income Method to GNP:**

The income method to GNP consists of the remuneration paid in terms of money to the factors of production annually in a country.

**Thus GNP is the sum total of the following items:**

**(i) Wages and salaries:**

Under this head are included all forms of wages and salaries earned through productive activities by workers and entrepreneurs. It includes all sums received or deposited during a year by way of all types of contributions like overtime, commission, provident fund, insurance, etc.

**(ii) Rents:**

Total rent includes the rents of land, shop, house, factory, etc. and the estimated rents of all such assets as are used by the owners themselves.

**(iii) Interest:**

Under interest comes the income by way of interest received by the individual of a country from different sources. To this is added, the estimated interest on that private capital which is invested and not borrowed by the businessman in his personal business. But the interest received on governmental loans has to be excluded, because it is a mere transfer of national income.

**(iv) Dividends:**

Dividends earned by the shareholders from companies are included in the GNP.

**(v) Undistributed corporate profits:**

Profits which are not distributed by companies and are retained by them are included in the GNP.

**(vi) Mixed incomes:**

These include profits of unincorporated business, self-employed persons and partnerships. They form part of GNP.

**(vii) Direct taxes:**

Taxes levied on individuals, corporations and other businesses are included in the GNP.

**(viii) Indirect taxes:**

The government levies a number of indirect taxes, like excise duties and sales tax.

These taxes are included in the price of commodities. But revenue from these goes to the government treasury and not to the factors of production. Therefore, the income due to such taxes is added to the GNP.

**(ix) Depreciation:**

Every corporation makes allowance for expenditure on wearing out and depreciation of machines, plants and other capital equipment. Since this sum also is not a part of the income received by the factors of production, it is, therefore, also included in the GNP.

**(x) Net income earned from abroad:**

This is the difference between the value of exports of goods and services and the value of imports of goods and services. If this difference is positive, it is added to the GNP and if it is negative, it is deducted from the GNP.

Thus GNP according to the Income Method = Wages and Salaries + Rents + Interest + Dividends + Undistributed Corporate Profits + Mixed Income + Direct Taxes + Indirect Taxes + Depreciation + Net Income from abroad.

**2. Expenditure Method to GNP:**

From the expenditure view point, GNP is the sum total of expenditure incurred on goods and services during one year in a country.

**It includes the following items:**

**(i) Private consumption expenditure:**

It includes all types of expenditure on personal consumption by the individuals of a country. It comprises expenses on durable goods like watch, bicycle, radio, etc., expenditure on single-used consumers’ goods like milk, bread, ghee, clothes, etc., as also the expenditure incurred on services of all kinds like fees for school, doctor, lawyer and transport. All these are taken as final goods.

**(ii) Gross domestic private investment:**

Under this comes the expenditure incurred by private enterprise on new investment and on replacement of old capital. It includes expenditure on house construction, factory- buildings, and all types of machinery, plants and capital equipment.

In particular, the increase or decrease in inventory is added to or subtracted from it. The inventory includes produced but unsold manufactured and semi-manufactured goods during the year and the stocks of raw materials, which have to be accounted for in GNP. It does not take into account the financial exchange of shares and stocks because their sale and purchase is not real investment. But depreciation is added.

**(iii) Net foreign investment:**

It means the difference between exports and imports or export surplus. Every country exports to or imports from certain foreign countries. The imported goods are not produced within the country and hence cannot be included in national income, but the exported goods are manufactured within the country. Therefore, the difference of value between exports (X) and imports (M), whether positive or negative, is included in the GNP.

**(iv) Government expenditure on goods and services:**

The expenditure incurred by the government on goods and services is a part of the GNP. Central, state or local governments spend a lot on their employees, police and army. To run the offices, the governments have also to spend on contingencies which include paper, pen, pencil and various types of stationery, cloth, furniture, cars, etc.

It also includes the expenditure on government enterprises. But expenditure on transfer payments is not added, because these payments are not made in exchange for goods and services produced during the current year.

Thus GNP according to the Expenditure Method=Private Consumption Expenditure (C) + Gross Domestic Private Investment (I) + Net Foreign Investment (X-M) + Government Expenditure on Goods and Services (G) = C+ I + (X-M) + G.

As already pointed out above, GNP estimated by either the income or the expenditure method would work out to be the same, if all the items are correctly calculated.

**3. Value Added Method to GNP:**

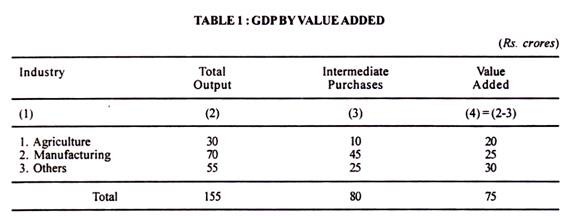
Another method of measuring GNP is by value added. In calculating GNP, the money value of final goods and services produced at current prices during a year is taken into account. This is one of the ways to avoid double counting. But it is difficult to distinguish properly between a final product and an intermediate product.

For instance, raw materials, semi-finished products, fuels and services, etc. are sold as inputs by one industry to the other. They may be final goods for one industry and intermediate for others. So, to avoid duplication, the value of intermediate products used in manufacturing final products must be subtracted from the value of total output of each industry in the economy.

Thus, the difference between the value of material outputs and inputs at each stage of production is called the value added. If all such differences are added up for all industries in the economy, we arrive at the GNP by value added. GNP by value added = Gross value added + net income from abroad. Its calculation is shown in Tables 1, 2 and 3.

Table 1 is constructed on the supposition that the entire economy for purposes of total production consists of three sectors. They are agriculture, manufacturing, and others, consisting of the tertiary sector.

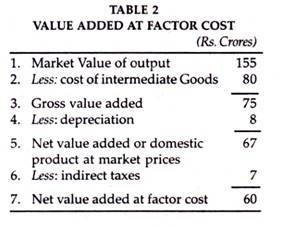
Out of the value of total output of each sector is deducted the value of its intermediate purchases (or primary inputs) to arrive at the value added for the entire economy. Thus the value of total output of the entire economy as per Table 1, is Rs. 155 crores and the value of its primary inputs comes to Rs. 80 crores. Thus the GDP by value added is Rs. 75 crores (Rs. 155 minus Rs. 80 crores).

**[](https://www.yourarticlelibrary.com/wp-content/uploads/2014/03/clip_image00519.jpg)**

The total value added equals the value of gross domestic product of the economy. Out of this value added, the major portion goes in the form wages and salaries, rent, interest and profits, a small portion goes to the government as indirect taxes and the remaining amount is meant for depreciation. This is shown in Table 3.

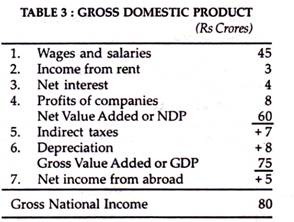
Thus we find that the total gross value added of an economy equals the value of its gross domestic product. If depreciation is deducted from the gross value added, we have net value added which comes to Rs. 67 crores (Rs. 75 minus Rs. 8 crores).

This is nothing but net domestic product at market prices. Again, if indirect taxes (Rs. 7 crores) are deducted from the net domestic product of Rs. 67 crores, we get Rs. 60 crores as the net value added at factor cost which is equivalent to net domestic product at factor cost. This is illustrated in Table 2.

**[](https://www.yourarticlelibrary.com/wp-content/uploads/2014/03/clip_image00623.jpg)**

Net value added at factor cost is equal to the net domestic product at factor cost, as given by the total of items 1 to 4 of Table 2 (Rs. 45+3+4+8 crores=Rs. 60 crores). By adding indirect taxes (Rs 7 crores) and depreciation (Rs 8 crores), we get gross value added or GDP which comes to Rs 75 crores.

If we add net income received from abroad to the gross value added, this gives -us, gross national income. Suppose net income from abroad is Rs. 5 crores. Then the gross national income is Rs. 80 crores (Rs. 75 crores + Rs. 5 crores) as shown in Table 3.

**[](https://www.yourarticlelibrary.com/wp-content/uploads/2014/03/clip_image00715.jpg)**

**It’s Importance:**

The value added method for measuring national income is more realistic than the product and income methods because it avoids the problem of double counting by excluding the value of intermediate products. Thus this method establishes the importance of intermediate products in the national economy. Second, by studying the national income accounts relating to value added, the contribution of each production sector to the value of the GNP can be found out.

For instance, it can tell us whether agriculture is contributing more or the share of manufacturing is falling, or of the tertiary sector is increasing in the current year as compared to some previous years. Third, this method is highly useful because “it provides a means of checking the GNP estimates obtained by summing the various types of commodity purchases.”

**It’s Difficulties:**

However, difficulties arise in the calculation of value added in the case of certain public services like police, military, health, education, etc. which cannot be estimated accurately in money terms. Similarly, it is difficult to estimate the contribution made to value added by profits earned on irrigation and power projects.

#### (G) GNP at Market Prices:

When we multiply the total output produced in one year by their market prices prevalent during that year in a country, we get the Gross National Product at market prices. Thus GNP at market prices means the gross value of final goods and services produced annually in a country plus net income from abroad. It includes the gross value of output of all items from (1) to (4) mentioned under GNP. GNP at Market Prices = GDP at Market Prices + Net Income from Abroad.

#### (H) GNP at Factor Cost:

GNP at factor cost is the sum of the money value of the income produced by and accruing to the various factors of production in one year in a country. It includes all items mentioned above under income method to GNP less indirect taxes.

GNP at market prices always includes indirect taxes levied by the government on goods which raise their prices. But GNP at factor cost is the income which the factors of production receive in return for their services alone. It is the cost of production.

Thus GNP at market prices is always higher than GNP at factor cost. Therefore, in order to arrive at GNP at factor cost, we deduct indirect taxes from GNP at market prices. Again, it often happens that the cost of production of a commodity to the producer is higher than a price of a similar commodity in the market.

In order to protect such producers, the government helps them by granting monetary help in the form of a subsidy equal to the difference between the market price and the cost of production of the commodity. As a result, the price of the commodity to the producer is reduced and equals the market price of similar commodity.

For example if the market price of rice is Rs. 3 per kg but it costs the producers in certain areas Rs. 3.50. The government gives a subsidy of 50 paisa per kg to them in order to meet their cost of production. Thus in order to arrive at GNP at factor cost, subsidies are added to GNP at market prices.

GNP at Factor Cost = GNP at Market Prices – Indirect Taxes + Subsidies.

#### (I) Net National Product (NNP):

NNP includes the value of total output of consumption goods and investment goods. But the process of production uses up a certain amount of fixed capital. Some fixed equipment wears out, its other components are damaged or destroyed, and still others are rendered obsolete through technological changes.

All this process is termed depreciation or capital consumption allowance. In order to arrive at NNP, we deduct depreciation from GNP. The word ‘net’ refers to the exclusion of that part of total output which represents depreciation. So NNP = GNP—Depreciation.

#### (J) NNP at Market Prices:

Net National Product at market prices is the net value of final goods and services evaluated at market prices in the course of one year in a country. If we deduct depreciation from GNP at market prices, we get NNP at market prices. So NNP at Market Prices = GNP at Market Prices—Depreciation.

#### (K) NNP at Factor Cost:

Net National Product at factor cost is the net output evaluated at factor prices. It includes income earned by factors of production through participation in the production process such as wages and salaries, rents, profits, etc. It is also called National Income. This measure differs from NNP at market prices in that indirect taxes are deducted and subsidies are added to NNP at market prices in order to arrive at NNP at factor cost. Thus

NNP at Factor Cost = NNP at Market Prices – Indirect taxes+ Subsidies

= GNP at Market Prices – Depreciation – Indirect taxes + Subsidies.

= National Income.

Normally, NNP at market prices is higher than NNP at factor cost because indirect taxes exceed government subsidies. However, NNP at market prices can be less than NNP at factor cost when government subsidies exceed indirect taxes.

#### (L) Domestic Income:

Income generated (or earned) by factors of production within the country from its own resources is called domestic income or domestic product.

**Domestic income includes:**

(i) Wages and salaries, (ii) rents, including imputed house rents, (iii) interest, (iv) dividends, (v) undistributed corporate profits, including surpluses of public undertakings, (vi) mixed incomes consisting of profits of unincorporated firms, self- employed persons, partnerships, etc., and (vii) direct taxes.

Since domestic income does not include income earned from abroad, it can also be shown as: Domestic Income = National Income-Net income earned from abroad. Thus the difference between domestic income f and national income is the net income earned from abroad. If we add net income from abroad to domestic income, we get national income, i.e., National Income = Domestic Income + Net income earned from abroad.

But the net national income earned from abroad may be positive or negative. If exports exceed import, net income earned from abroad is positive. In this case, national income is greater than domestic income. On the other hand, when imports exceed exports, net income earned from abroad is negative and domestic income is greater than national income.

#### (M) Private Income:

Private income is income obtained by private individuals from any source, productive or otherwise, and the retained income of corporations. It can be arrived at from NNP at Factor Cost by making certain additions and deductions.

The additions include transfer payments such as pensions, unemployment allowances, sickness and other social security benefits, gifts and remittances from abroad, windfall gains from lotteries or from horse racing, and interest on public debt. The deductions include income from government departments as well as surpluses from public undertakings, and employees’ contribution to social security schemes like provident funds, life insurance, etc.

Thus Private Income = National Income (or NNP at Factor Cost) + Transfer Payments + Interest on Public Debt — Social Security — Profits and Surpluses of Public Undertakings.

#### (N) Personal Income:

Personal income is the total income received by the individuals of a country from all sources before payment of direct taxes in one year. Personal income is never equal to the national income, because the former includes the transfer payments whereas they are not included in national income.

Personal income is derived from national income by deducting undistributed corporate profits, profit taxes, and employees’ contributions to social security schemes. These three components are excluded from national income because they do reach individuals.

But business and government transfer payments, and transfer payments from abroad in the form of gifts and remittances, windfall gains, and interest on public debt which are a source of income for individuals are added to national income. Thus Personal Income = National Income – Undistributed Corporate Profits – Profit Taxes – Social Security Contribution + Transfer Payments + Interest on Public Debt.

Personal income differs from private income in that it is less than the latter because it excludes undistributed corporate profits.

Thus Personal Income = Private Income – Undistributed Corporate Profits – Profit Taxes.

#### (O) Disposable Income:

Disposable income or personal disposable income means the actual income which can be spent on consumption by individuals and families. The whole of the personal income cannot be spent on consumption, because it is the income that accrues before direct taxes have actually been paid. Therefore, in order to obtain disposable income, direct taxes are deducted from personal income. Thus Disposable Income=Personal Income – Direct Taxes.

But the whole of disposable income is not spent on consumption and a part of it is saved. Therefore, disposable income is divided into consumption expenditure and savings. Thus Disposable Income = Consumption Expenditure + Savings.

If disposable income is to be deduced from national income, we deduct indirect taxes plus subsidies, direct taxes on personal and on business, social security payments, undistributed corporate profits or business savings from it and add transfer payments and net income from abroad to it.

Thus Disposable Income = National Income – Business Savings – Indirect Taxes + Subsidies – Direct Taxes on Persons – Direct Taxes on Business – Social Security Payments + Transfer Payments + Net Income from abroad.

#### (P) Real Income:

Real income is national income expressed in terms of a general level of prices of a particular year taken as base. National income is the value of goods and services produced as expressed in terms of money at current prices. But it does not indicate the real state of the economy.

It is possible that the net national product of goods and services this year might have been less than that of the last year, but owing to an increase in prices, NNP might be higher this year. On the contrary, it is also possible that NNP might have increased but the price level might have fallen, as a result national income would appear to be less than that of the last year. In both the situations, the national income does not depict the real state of the country. To rectify such a mistake, the concept of real income has been evolved.

In order to find out the real income of a country, a particular year is taken as the base year when the general price level is neither too high nor too low and the price level for that year is assumed to be 100. Now the general level of prices of the given year for which the national income (real) is to be determined is assessed in accordance with the prices of the base year. For this purpose the following formula is employed.

Real NNP = NNP for the Current Year x Base Year Index (=100) / Current Year Index

Suppose 1990-91 is the base year and the national income for 1999-2000 is Rs. 20,000 crores and the index number for this year is 250. Hence, Real National Income for 1999-2000 will be = 20000 x 100/250 = Rs. 8000 crores. This is also known as national income at constant prices.

#### (Q) Per Capita Income:

The average income of the people of a country in a particular year is called Per Capita Income for that year. This concept also refers to the measurement of income at current prices and at constant prices. For instance, in order to find out the per capita income for 2001, at current prices, the national income of a country is divided by the population of the country in that year.

**[Per Capita Income](https://www.yourarticlelibrary.com/wp-content/uploads/2014/03/clip_image0099.jpg)**

Similarly, for the purpose of arriving at the Real Per Capita Income, this very formula is used.

**[Real Per Capita Income](https://www.yourarticlelibrary.com/wp-content/uploads/2014/03/clip_image01012.jpg)**

This concept enables us to know the average income and the standard of living of the people. But it is not very reliable, because in every country due to unequal distribution of national income, a major portion of it goes to the richer sections of the society and thus income received by the common man is lower than the per capita income.

### 3. Methods of Measuring National Income:

There are four methods of measuring national income. Which method is to be used depends on the availability of data in a country and the purpose in hand.

#### (1) Product Method:

According to this method, the total value of final goods and services produced in a country during a year is calculated at market prices. To find out the GNP, the data of all productive activities, such as agricultural products, wood received from forests, minerals received from mines, commodities produced by industries, the contributions to production made by transport, communications, insurance companies, lawyers, doctors, teachers, etc. are collected and assessed at market prices. Only the final goods and services are included and the intermediary goods and services are left out.

#### (2) Income Method:

According to this method, the net income payments received by all citizens of a country in a particular year are added up, i.e., net incomes that accrue to all factors of production by way of net rents, net wages, net interest and net profits are all added together but incomes received in the form of transfer payments are not included in it. The data pertaining to income are obtained from different sources, for instance, from income tax department in respect of high income groups and in case of workers from their wage bills.

#### (3) Expenditure Method:

According to this method, the total expenditure incurred by the society in a particular year is added together and includes personal consumption expenditure, net domestic investment, government expenditure on goods and services, and net foreign investment. This concept is based on the assumption that national income equals national expenditure.

#### (4) Value Added Method:

Another method of measuring national income is the value added by industries. The difference between the value of material outputs and inputs at each stage of production is the value added. If all such differences are added up for all industries in the economy, we arrive at the gross domestic product.

### 4. Difficulties or Limitations in Measuring National Income:

There are many conceptual and statistical problems involved in measuring national income by the income method, product method, and expenditure method.

**We discuss them separately in the light of the three methods:**

#### (A) Problems in Income Method:

**The following problems arise in the computation of National Income by income method:**

**1. Owner-occupied Houses:**

A person who rents a house to another earns rental income, but if he occupies the house himself, will the services of the house-owner be included in national income. The services of the owner-occupied house are included in national income as if the owner sells to himself as a tenant its services.

For the purpose of national income accounts, the amount of imputed rent is estimated as the sum for which the owner-occupied house could have been rented. The imputed net rent is calculated as that portion of the amount that would have accrued to the house-owner after deducting all expenses.

**2. Self-employed Persons:**

Another problem arises with regard to the income of self-employed persons. In their case, it is very difficult to find out the different inputs provided by the owner himself. He might be contributing his capital, land, labour and his abilities in the business. But it is not possible to estimate the value of each factor input to production. So he gets a mixed income consisting of interest, rent, wage and profits for his factor services. This is included in national income.

**3. Goods meant for Self-consumption:**

In under-developed countries like India, farmers keep a large portion of food and other goods produced on the farm for self-consumption. The problem is whether that part of the produce which is not sold in the market can be included in national income or not. If the farmer were to sell his entire produce in the market, he will have to buy what he needs for self-consumption out of his money income. If, instead he keeps some produce for his self-consumption, it has money value which must be included in national income.

**4. Wages and Salaries paid in Kind:**

Another problem arises with regard to wages and salaries paid in kind to the employees in the form of free food, lodging, dress and other amenities. Payments in kind by employers are included in national income. This is because the employees would have received money income equal to the value of free food, lodging, etc. from the employer and spent the same in paying for food, lodging, etc.

#### (B) Problems in Product Method:

**Public Finance: Meaning and Concept of Public Finance!**

#### ****Meaning:****

In public finance we study the finances of the Government. Thus, public finance deals with the question how the Government raises its resources to meet its ever-rising expenditure. As Dalton puts it,” public finance is “concerned with the income and expenditure of public authorities and with the adjustment of one to the other.”

Accordingly, effects of taxation, Gov­ernment expenditure, public borrowing and deficit financing on the economy constitutes the subject matter of public finance. Thus, Prof. Otto Eckstein writes “Public Finance is the study of the effects of budgets on the economy, particularly the effect on the achievement of the major economic objects—growth, stability, equity and efficiency.”

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Further, it also deals with fiscal policies which ought to be adopted to achieve certain objectives such as price stability, economic growth, more equal distribution of income. Economic thinking about the role that public finance is expected to play has changed from time to time according to the changes in economic situ­ation.

Before the Great Depression that gripped the Western industrialised countries during the thirties, the role of public finance was considered to be raising sufficient resources for carrying out the Government functions of civil administration and defence from foreign countries. During this period, the classical economists considered it prudent to keep expenditure to the minimum so that taxing of the people is avoided as far as possible.

Further, it was thought that Government budget must be balanced. Public borrowing was recommended mainly for production purposes. During a war, of course, public borrowing was considered legitimate but it was thought that the Government should repay or reduce the debt as soon as possible.

#### The Concept of Functional Finance:

But under the impact of the Great Depression of thirties and the Keynesian explanation of it, the thinking about and role of public finance underwent a sea change. The classical view of public finance could not meet the requirements of the then prevailing situation.

In order to increase aggregate effective demand and thereby raise the level of income and employment in the country, public finance was called upon to play an active role. During the Second World War and after, the Western economies suffered from serious inflationary pressures which were attributed to the excessive aggregate demand.

So, in such inflationary conditions, the public finance was expected to check prices through reducing aggregate demand. Thus the budget which was previously meant to raise resources for limited activities of the Government assumed a functional role to serve as an instrument of economic regulation.

It came to be realised that government’s taxing and spending policies could go a long way in mitigating economic fluctuations. Balanced budgets are no longer considered sacrosanct and the governments can spend beyond their resources without offending canons of sound finance to restore the health of the economy.

Public borrowing and consequent increase in public debt at the time of depression raises aggregate demand and thereby helps in raising the level of income and employment. Therefore, deficit budget and increase in public debt at such times is a thing to be welcomed.

It was further demonstrated by Keynes that deficit financing by the Government could activise a depressed economy by creating income and employment much more than the original amount of deficit financing through the process of multiplier.

Thus, after Keynesian revolution public finance assumed a functional role of maintaining economic stability at full employment level. Therefore, the present view of public finance is not one of mere resource-raising for the Government but one of serving as an instrument for maintaining stability through management of demand. Therefore, this present view of public finance has been de­scribed by A.P. Lerner as one of “Functional Finance”.

In developing countries, public finance has to fulfill another important role. Whereas in the developed industrialised countries, the basic problem in the short run is to ensure stability at full employment level and in the long run to ensure steady rate of economic growth, that is, growth without fluctuations, the developing countries confront a more difficult problem of how to generate a higher rate of economic growth so as to tackle the problems of poverty and unemployment.

Therefore, public finance has to play a special role of promoting economic growth in the developing countries besides maintaining price stability. Further, for developing countries mere economic growth is not enough; the composition of growing output and distri­bution of additional incomes ought to be such as will ensure removal of poverty and unem­ployment in the developing countries.

Therefore, public finance has not only to augment resources for development and to achieve optimum allocation of resources, but also to promote fair distribution of income and expansion in employment opportunities. This is the functional view of public finance in the context of the developing countries.

# Use of Fiscal Policy for Economic Development (4 Methods)

Article Shared by Pragyandeepa

In underdeveloped countries, following methods of fiscal policy may be pursued to bring economic development.

### 1. Taxation Policy:

**The government should adopt such a taxation policy as may:**

(i) Promote capital formation. Taxation system should provide incentive to all those people who save to invest or who are keen to invest,

(ii) curb consumption expenditure to boost saving. Increased saving can be used to increase investment,

(iii) mobilize economic surplus.

According to Prof. Raja.J. Chelliah, main thrust of taxation policy is to mobilize economic surplus and divert the same into productive channels which may promote economic development. As we know that there are few people who are rich and possess economic surplus. Therefore, efforts should be made to check their conspicuous consumption.

It is important to mobilize such surpluses through progressive taxation system and utilized for productive activities of the economy. If people do not part with their savings voluntarily then compulsory savings schemes may be used for economic development. For this purpose, there should be built-in-flexibility in the taxation system. This is best possible by levying more taxes on consumer goods having more income elasticity. Direct tax should be progressive as far as possible.

Here, one must be careful that progressive taxation system may not adversely affect savings. More direct taxes should be imposed on those persons who spend their income on non-productive activities. The coverage of indirect taxes should be large. Special measures should be taken to check tax evasion, as it leads to the generation of black money and inflation.

**Therefore, taxation system in less developed countries should be such that it should:**

(i) help the government in mobilizing resources for capital formation

(ii) increase the ratio of saving

(iii) reduce the consumption of luxury goods and

(iv) help diminish inequalities in the distribution of income,

(v) help to control inflation and

(vi) bring economic stability with growth.

### 2. Public Expenditure Policy:

In underdeveloped countries, public expenditure policy is adopted. Generally these countries face the problem of capital which is the basic requirement of economic development. It cannot be expected from private sector alone. Thus, public investment is made in different sectors like expansion of means of transport and communication, irrigation, supply of power projects, health and human capital.

**Public expenditure can be made in a reverse manner i.e.:**

(i) Development of public enterprises,

(ii) Encouragement to private sector, and

(iii) Development of infrastructure. Let us explain it in detail.

#### ****(i) Development of Public Enterprises:****

The less developed countries generally suffer from acute shortage of basic and key industries. Heavy capital investment is urgently required for setting up these industrial unit. Moreover, such units involve risks. Ordinarily, private sectors are unable to start these units. Therefore, Government should set up such industries through public expenditure. Even public utility industries like supply of water, power houses, bridges, and hospitals etc. should be established in the public sector.

#### (ii) Encouragement to Private Sector:

In order to accelerate the pace of economic development in under developed countries, Governments should encourage the private sector.

**Fiscal policy here can play significant role by the way of:**

(i) providing subsidies

(ii) reducing taxes and

(iii) making available free technical know-how to industries.

#### (iii) Creation of Infra-structure:

Public Investment can be encouraged by creating infra-structure in the country. Infra-structure refers to the development of railways, roads, electricity, transport, hospitals, bridges etc. Their construction involves huge capital investment which is only possible through public investment.

### 3. Public Debt Policy:

Resources collected through tax are not sufficient to meet the development requirement of the underdeveloped countries. Tax collection is very poor due to poverty of the common masses and it adversely affects the saving and investment. Thus, it becomes necessary to mobilize resources through public debt.

**Public debt is of two types:**

(i) Internal debt and

(ii) External debt.

#### (i) Internal debt:

Internal debt is floated within the country. In a less developed country, it should be so mobilized that it does not have adverse effect on private investment. In fact, it is beneficial to get loans by the method of small saving. Small saving can be attracted by giving encouragement to the common people which in turn helps to raise capital formation. As a result of small savings, people’s propensity to save also increases. In rural areas, there is good scope for small savings.

Therefore, Government should take measures to attract small savings more and more. Moreover, public borrowing should be made from those people who are prepared to spend large amount on comforts and luxury goods. But at the same time, precaution must be taken that such loans may not adversely affect capital formation in private sector.

#### (ii) External Debt:

When internal debt alone is not sufficient to meet the requirements of under developed countries then they have to borrow from external sources. Therefore, external debt refers to funds which are floated in other countries. These types of loans are voluntary in nature. External debts are particularly helpful in the initial stages of economic development of underdeveloped countries. Such debts bring in foreign capital, technology, technical know-how and capital goods.

However, external debts may create the problem of repayment of such borrowings. Therefore, such loans should be utilized strictly for productive purposes. According to Bachnan and Ellis, external debt and internal debt are complementary to each other but unless their use and the process of saving, institutions mobilizing resources, legal structure, lending and investing activities are made favourable to capital formation, external assistance can be of advantage only for a short time.

**In short, public debt occupies significant place in economic development of under developed countries in more than one way:**

(i) It encourages propensity to save

(ii) It helps capital formation for economic development

(iii) It helps to control inflation

(iv) It can be repaid out of the increased national income,

(v) Useful for meeting emergencies and war expenditure;

(vi) Better allocation of resources and

(vii) Useful for social services.

**However there are many obstacles to the mobilization of public debt in under-developed countries e.g.:**

(i) Lack of organised money and capital markets

(ii) Lack of saving

(iii) Use of saving in unproductive activities.

Therefore, efforts should be made to overcome these difficulties so that such borrowings maybe utilized for the uplift of the underdeveloped countries.

### 4. Deficit Financing:

Today, deficit financing has emerged as an important tool of fiscal policy. It means the gap caused by the excess of government expenditure over its receipts through the creation of new money. Generally, deficit financing is done by the method of borrowing from central bank, withdrawal of its cash balance from the central bank and issuing of new currency and putting into circulation. This type of fiscal policy was specially advocated by Lord Keynes. In underdeveloped countries, there is low level of income.

It further lowers the taxable capacity, power to save and hence, low capital formation. To overcome these problems, deficit financing is considered the best solution. Deficit financing is also favoured on account of its usefulness for quick command over resources for development activities like irrigation, transport, power generation and other big projects, war expenditures, encouragement to private investment and mobilization of domestic resources.

On the other hand, deficit financing leads to inflationary trends in the economy and other hardships. Consequently, profits of the producers go up and they are induced to produce more. Under inflationary conditions, income of the entrepreneurial and business classes increases substantially. These classes have a high propensity to save and low propensity to consume.

The main defect of deficit financing is that beyond a particular limit it may lead to excessive rise in prices. This adversely affects the economic development of the country. Thus, there must be some limit to deficit financing. At the same time, Government should make efforts to mobilize the resources and control prices. Unproductive expenditures may be checked and production of the public sector should also be raised.

In order to accelerate the rate of growth, the government may follow a strategy to raise productivity of capital through the use of selective subsidies and manipulation of the composition of the rate (t). In the long run period, fiscal measures must help to increase the rate of capital formation and check a misallocation of productive resources with a balanced sectoral growth.