BA4103 MANAGERIAL ECONOMICS L T P C
3 0 0 3

COURSE OBJECTIVE:

 To introduce the concepts of scarcity and efficiency; to explain principles of micro economics relevant to managing an organization; to describe principles of macroeconomics to have the understanding of economic environment of business.

UNIT I INTRODUCTION 9

The themes of economics – scarcity and efficiency – three fundamental economic problems – society's capability – Production possibility frontiers (PPF) – Productive efficiency Vs economic efficiency – economic growth & stability – Micro economies and Macro economies – the role of markets and government – Positive Vs negative externalities.

UNIT II CONSUMER AND PRODUCER BEHAVIOUR 9

Market – Demand and Supply – Determinants – Market equilibrium – elasticity of demand and supply – consumer behaviour – consumer equilibrium – Approaches to consumer behaviour – Production – Short-run and long-run Production Function – Returns to scale – economies Vs diseconomies of scale – Analysis of cost – Short-run and long-run cost function – Relation between Production and cost function.

UNIT III PRODUCT AND FACTOR MARKET 9

Product market – perfect and imperfect market – different market structures – Firm's equilibrium and supply – Market efficiency – Economic costs of imperfect competition – factor market – Land, Labour and capital – Demand and supply – determination of factor price – Interaction of product and factor market – General equilibrium and efficiency of competitive markets.

UNIT IV PERFORMANCE OF AN ECONOMY – MACRO ECONOMICS 9

Macro-economic aggregates – circular flow of macroeconomic activity – National income determination – Aggregate demand and supply – Macroeconomic equilibrium – Components of aggregate demand and national income – multiplier effect – Demand side management – Fiscal policy in theory.

UNIT V AGGREGATE SUPPLY AND THE ROLE OF MONEY 9

Short-run and Long-run supply curve – Unemployment and its impact – Okun's law – Inflation and the impact – reasons for inflation – Demand Vs Supply factors –Inflation Vs Unemployement tradeoff – Phillips curve –short- run and long-run –Supply side Policy and management- Money market- Demand and supply of money – money-market equilibrium and national income – the role of monetary policy.

TOTAL: 45PERIODS

COURSE OUTCOMES:

- To introduce the concepts of scarcity and efficiency;
- To explain principles of microeconomics relevant to managing an organization
- To describe principles of macroeconomics
- To have the understanding of economic environment of business.
- To study about the policies that regulate economic variables

REFERENCES:

1. Paul A. Samuelson, William D. Nordhaus, Sudip Chaudhuri and Anindya Sen, Economics, 19th edition, Tata McGraw Hill, New Delhi, 2011
2. William Boyes and Michael Melvin, Textbook of economics, Biztantra, 7 th edition 2008.
3. N. Gregory Mankiw, Principles of Economics, 8 th edition, Thomson learning, New Delhi,2017.
4. Richard Lipsey and Alec Chrystal, Economics, 13th edition, Oxford, University Press, New Delhi, 2015.
5. Karl E. Case and Ray C. Fair, Principles of Economics, 12th edition, Pearson, Education Asia, New Delhi, 2017.
6. Panneerselvam. R, Engineering Economics, 2 nd Edition, PHI Learning, 2014.

UNIT I
INTRODUCTION

Meaning:

The word 'Economics' originates from the Greek work '*Oikonomikos*' which can be divided into two parts:

(*a*) '*Oikos*', which means 'Home', and

(*b*) '*Nomos',* which means 'Management'.

Thus, Economics means 'Home Management'. The head of a family faces the problem of managing the unlimited wants of the family members within the limited income of the family

Definition:

- ***It is defined as a social science that studies how individuals, governments, firms and nations make choices on allocating scarce resources to satisfy their unlimited wants***. Economics can generally be broken down into: macroeconomics, which concentrates on the behavior of the aggregate economy; and microeconomics, which focuses on individual consumers.
- ***Economics is the study of how society chooses to use productive resources that have alternative uses, to produce commodities of various kinds, and to distribute them among different groups***.

Evolution of Economics

Economics was developed by several economists with different vision. Generally, the development of economics is divided into:

- Classical Period (1776-1890)
- Neo-Classical Period (1890-1932)
- Modern Period (1932-onwards)

Classical Period (1776-1890)

The famous economists of this period were Adam Smith, T.R. Malthus, J.B. Say, Devid Ricardo, etc. These economists are pillar of the classical economics. The study of economics in and around wealth and its significance.

Neo-Classical Period (1890-1932)

The famous economists of this period were Alfred Marshall, A.C. Pigou, Carl Marx, etc. The study of economics as the satisfaction or welfare derived from the consumption of material goods.

Modern Period (1932-onwards)

The famous economists of this period were Leonel Robbins, J.M. Keynes, etc. The study of economics for changing the focus of the study are 'wealth and aspect' and 'material welfare' to 'scarcity and choice' and 'human development'.

Development of Economics

Economists at different times have emphasized different aspects of economic activities, and have arrived at different definitions of Economics.

These definitions can be classified into four groups:

1. Wealth definitions,
2. Material welfare definitions,
3. Scarcity definitions, and

. Growth-centered definitions.

Wealth definition:

Adam Smith, considered to be the founding father of modern Economics, ***defined Economics as the study of the nature and causes of nations' wealth or simply as the study of wealth***. The central point in Smith's definition is wealth creation. He assumed that, the wealthier a nation becomes the happier. Thus, it is important to find out, how a nation can be wealthy. ***Economics is the subject that tells us how to make a nation wealthy.***

Material welfare definition:

Alfred Marshall also stressed the importance of wealth. But he also emphasized the role of the individual in the creation and the use of wealth. He wrote: "***Economics is a study of man in the ordinary business of life. It enquires how he gets his income and how he uses it. Thus, it is on the one side, the study of wealth and on the other and more important side, a part of the study of man****".* Marshall's definition is considered to be material-welfare centered definition of Economics.

Scarcity definition:

The next important definition of Economics was due to Prof. Lionel Robbins. In his book '*Essays on the Nature and Significance of the Economic Science',* published in 1932, Robbins gave a definition which has become one of the most popular definitions of Economics. According to Robbins, **"*Economics is a science which studies human behaviour as a relationship between ends and scarce means which have alternative uses****"*. It is a scarcity based definition of Economics.

Modern Growth-Oriented Definition of Samuelson

Professor Samuelson writes, ***"Economics is the study of how people and society end upchoosing, with or without the use of money, to employ scarce productive resources that could have alternative uses to produce various commodities over time and distributing them for consumption, now or in the future, among various persons or groups in society. It analyses costs and benefits of improving patterns of resource allocation****"*

Nature of Economics:

- **Economic theories can broadly be divided into two parts, viz., macroeconomics and microeconomics**.
  - Macroeconomics is concerned with the economic magnitudes relating to the whole economy (such as national income, national production, etc.)
  - Microeconomics is concerned with the decision-making of a single economic entity (such as a business firm) within this system
- **Prescriptive in nature:** Managerial economics actually prescribes the ways through which a business firm can achieve its goal within its constraints. It prescribes the policies that should be undertaken by any business firm for achieving its specific target
- **Pragmatic in its approach:** Managerial economics is pragmatic in its approach because it emphasizes on the real-life problems faced by any business firm and their possible solutions
- **Emphasizes on quantitative analysis:** Managerial economics is mainly concernedwith some of the quantitative aspects of business decisions. Business decisions relating to
  (i) output to be produced,
  (ii) inputs to be used,
  *(iii)*prices to be fixed,
  (iv) estimated cost andrevenue schedules, etc., are expressed in quantitative terms
- Economics aims at providing help in decision making by firms.

- **Choice and Allocation:**
  Economics is concerned with decision-making of economic nature. This implies that economics deals with identification of economic choices and allocation of scarce resources on the best alternative.

- **Multi-disciplinary:**
  Economics is an integration of different academic disciplines.
- **Normative in Nature**:
  Normative economics makes value judgments and prescribes what should be done to solve economic problems.
- **Positive Economics**
  A positive science explains "why" and "wherefore" of things. i.e. causes and effects
- **Economics is both science as well as art also**

Scope of Economics:

'Scope' means the sphere of study. We have to consider what economics studies and what lies beyond it. The scope of economics will be brought out by discussing the following.

a) Subject – matter of economics.
b) Economics is a social science
c) Whether Economics is a science or an art?
d) If Economics is science, whether it is positive science or a normative science?

a) Subject – matter of economics:

Economics studies man's life and work. It does not study how a person is born, how he grows up and dies, how human body is made up and functions, all these are concerned with biological sciences, Similarly Economics is also not concerned with how a person thinks and the human organizations being these are a matter of psychology and political science. Economics only tells us how a man utilizes his limited resources for the satisfaction of his unlimited wants, a man has limited amount of money and time, but his wants are unlimited. He must so spend the money and time he has that he derives maximum satisfaction. This is the subject matter of Economics.

Economic Activity: A worker is working in factory, a Doctor attending the patients, a teacher teaching his students and so on. They are all engaged in what is called "Economic Activity". They earn money and purchase goods. Neither money nor goods is an end in itself. They are needed for the satisfaction of human wants and to promote human welfare.
To fulfill the wants a man is taking efforts. Efforts lead to satisfaction. Thus wants- Efforts-Satisfaction sums up the subject matter of economics.

b) Economics is a social Science:

In early stage, the society has the connection between wants efforts and satisfaction is close and direct. But in a modern Society things are not so simple and straight. Here man produces what he does not consume and consumes what he does not produce. When he produces more, he has to sell the excess quantity. Similarly he has to buy a product which is not produced by him. Thus the process of buying and selling which is called as Exchange comes in between wants efforts and satisfaction. Nowadays, most of the things we need are made in factories. To make them the worker gives his labour, the land lord his land, the capitalist his capital, while the businessman organizes the work of all these. They all get reward in money. The labourer earns wages, the landlord gets rent the capitalist earns interest, while the entrepreneur's (Businessman) reward is profit. Economics studies how these income—

wag
es, rent interest and profits-are determined. This process in called "Distribution: Thus we can say that the subject-matter of Economics is

1. Consumption- the satisfaction of wants.
2. Production- i.e. producing things, making an effort to satisfy our wants
3. Exchange- its mechanism, money, credit, banking etc.
4. Distribution – sharing of all that is produced in the country. In addition, Economics also studies "Public Finance"

Macro Economics – When we study how income and employment is generated and how the level of country's income and employment is determined, at aggregated level, it is a matter of macro-economics. Thus national income, output, employment, general price level economic growth etc. are the subject matter of macro Economics.

Micro-Economic – When economics is studied at individual level i.e. consumer's behavior, producer's behavior, and price theory etc it is a matter of micro-economics.

c) Economics, a Science or an Art?. Whether Economics is a science or an art? Let us first understand what is terms 'science' and 'arts' really means.

A science is a systematized body of knowledge. A branch of knowledge becomes systematized when relevant facts hove been collected and analyzed in a manner that we can trace the effects back to their and project cases forward to their effects. In other words laws have been discovered explaining facts, it becomes a science, In Economics also many laws and principles have been discovered and hence it is treated as a science. An art lays down formulae to guide people who want to achieve a certain aim. In this angle also Economics guides the people to achieve aims, e.g. aim like removal poverty, more production etc. Thus Economics is an art also. In short Economics is both science as well as art also.

d) Economics whether positive or normative science:

A positive science explains "why" and "wherefore" of things. i.e. causes and effects and normative science on the other hand rightness or wrongness of the things. In view of this, Economics is both a positive and. normative science. It not only tells us why certain things happen, it also says whether it is right or wrong the thing to happen. For example, in the world few people are very rich while the masses are very poor. Economics should and can explain not only the causes of this unequal distribution of wealth, but it should also say whether this is good or bad. It might well say that wealth ought to be fairly distributed. Further it should suggest the methods of doing it.

Factors of Production: It refers to the resources used to produce goods and services in a society. Economists divide these resources into the four categories described below.

- **Land** refers to all natural resources. Such things as the physical land itself, water, soil, timber are all examples of land. The economic return on land is called **rent.** For example, a person could own land and rent it to a farmer who could use it to grow crops. A second resource is labor.
- **Labor** refers to the human effort to produce goods and services. The economic return on labor is called **wages.** Anyone who has worked for a business and collected a paycheck for the work done understands wages. A third factor of production is capital.
- **Capital** is anything that is produced in order to increase productivity in the future.Tools, machines and factories can be used to produce other goods. The field of economics differs from the field of finance and does not consider money to be capital. The economic return on capital is called **interest.**
- **Entrepreneurship** refers to the management skills, or the personal initiative used to combine resources in productive ways. Entrepreneurship involves the taking of risks. The economic return on entrepreneurship is **profits**

TW

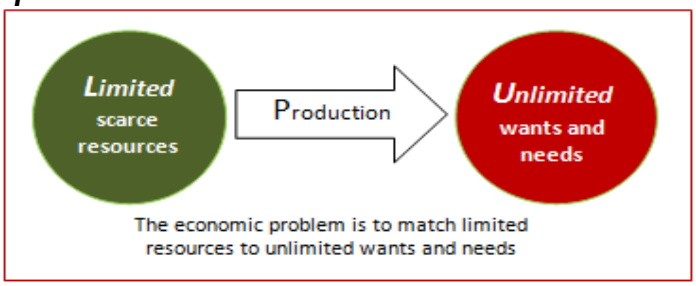
IN THEMES OF ECONOMICS

***Scarcity and Efficiency* refers to the *Twin themes of Economics*;**
Scarcityoccurs where it's impossible to meet all unlimited the desires and needs of the peoples with limited resources i.e; goods and services. Society must need to find a balance between sacrificing one resource and that will result in getting other.
Efficiency denotes the most effective use of a society's resources in satisfying peoples wants and needs. It means that the economy's resources are being used as effectively as possible to satisfy people's needs and desires. Thus, the essence of economics is to acknowledge the reality of scarcity and then figure out how to organize society in a way which produces the most efficient use of resources.
The essence of economics is to acknowledge thereality of scarcity and then figure out how to organize society in a way which produces the most efficientuse of resources. That is where economics makes itsunique contribution

The economic problem

All societies face the *economic problem*, which is the problem of how to make the best use of limited, or scarce, resources. The economic problem exists because, although the needs and wants of people are endless, the resources available to satisfy needs and wants are limited.

''The economic problem is essentially a problem arising from the necessity of choice ; choice of the manner in which limited resources with the alternative uses are disposed off. The problem of choice making arising out of limited means and unlimited wants is called economic problem.



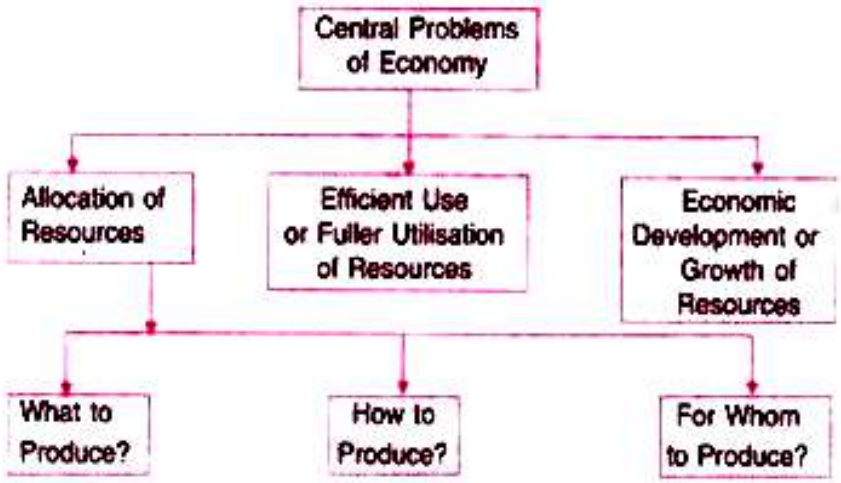
Why do Economic Problems Arise?

1. **Unlimited wants.** Human wants are unlimited. As we satisfy one want, many more new wants come up. Besides this, one cannot satisfy even one particular want for all times to come
2. **Different priorities**. All wants are not equally important. Some are more important and some are less. So, a man can satisfy his different wants in order of his priorities.
3. **Limited means**. If means would have also been unlimited to satisfy unlimited wants, there would have been no economic problem. The reality of the life is different i.e., the existing supply of resources is inadequate in relation to the known desires of individuals. This gives rise to the problem of scarcity which is the basis of all economic problems.
4. **Means having alternative uses**. Means are not only limited but they can also be used for different alternative uses. For example, wood may be used for fuel, furniture, house construction and many other uses

BASIC OR CENTRAL OR FUNDAMENTAL PROBLEMS OF ECONOMY

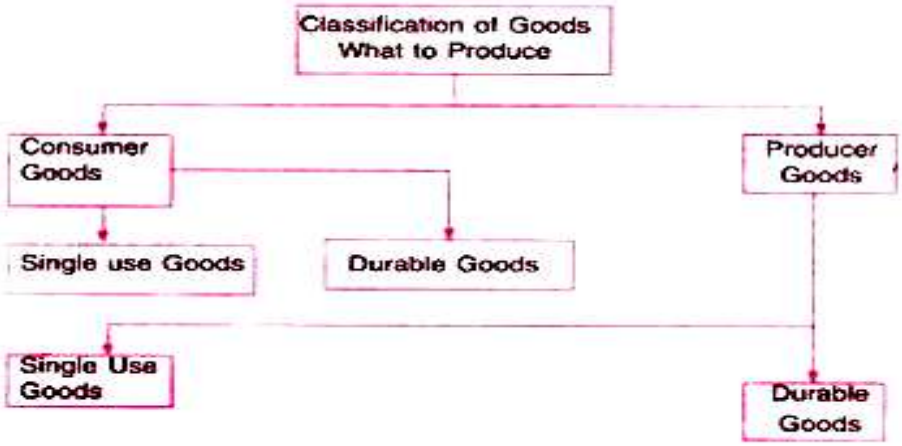
I. Allocation of Resources

The available resources of the society may be used to produce various commodities for different groups and in different manner. It requires that decisions regarding the following should be made:



1. What to produce? (Types and amount of commodities to be produced)

Land, labour, capital, machines, tools, equipments and natural means are limited. Every demand of every individual in the economy cannot be satisfied, so the society has to decide what commodities are to be produced and to what extent. Goods produced in an economy can be classified as consumer goods and producer goods. These goods may be further classified as single use goods and durable goods.



Factors which determine what to produce:

- **Consumers' needs** – The producers would have to take into consideration the needs of the consumers. They have to decide what needs to produce, the quantity and quality of goods and services required by the consumers.
- **Market demand** – The demand of a particular set of goods and services by consumers may encourage producers to produce more of these goods.
- **Consumer income** – In deciding what to produce, the producer normally take into consideration the earnings of the consumers in the society. Producers normally ask themselves this question: Are the consumers earning enough to be able to purchase the goods and services at a given price when produced. if yes, they go ahead and produce but if no, they may not produce.
- **Cost of production** – He produces when the cost of production is low to enable him make some profit.
- **Availability of resources**: When resources of production are available and affordable, the producers will be encouraged to produce goods and services. Since economic resources are scarce or limited, it follows that the producers may not always have enough to produce commodities in abundance to meet the needs of the consumers.

- **T**

ype of economy - The type of economic system in a given society determines the type and quantity of goods and services to be produced. For example, in a capitalist economy, the price system determines the type and quantity of goods and services as profit is the major determinant whereas in a socialist economy, the state controls and directs the allocation of resources hence it decides what to produce with the sole aim of satisfying the wants of the whole citizens of the society or state.

2. HOW TO PRODUCE? (Problem of the selection of the technique of production)

After the decision regarding the goods to be produced is taken, next problem arises as to what techniques should be adopted to produce commodity. Goods can be produced in large-scale industries or in small-scale village and cottage industries.

Factors which determines how to produce:

- **Technique of production** – This involves the level of involvement of human labour and machines. The two techniques of labour are (a) labour intensive and (b) capital intensive.
- **Technological advancement** – The method of production adopted by the individual, firm or state depends on the level of technological development of the state.
- **Production function** – This involves any analysis which shows the possible quantity of goods by using each of the given alternative combination of resources that produces the largest quantity of output at the lowest unit of cost of production.
- **cost of factors of production** – The cheaper the relative cost of factors of production, the more the production of goods and services to satisfy human wants.

3. FOR WHOM TO PRODUCE ? (Problem of distribution of income):

Goods and services produced in the economy are consumed by its citizens. The individuals may belong to economically weaker sectioned or rich class of people. Actually this is the problem of distribution. All goods and services produced must get to the final consumers.

Factors which determines who to produce for

- **Satisfaction of wants** or needs of the consumers.
- **Level of income** – the higher the level of income of the consumer, the more they are able to buy goods and services produced.
- **Type of economic system** practiced in the society.

II. Fuller Utilization/Employment of Resources (Efficient use)

Out means and resources are limited and scarce, so they should be properly used. There should not be the wastage of these resources. The problem with the economy is how to use its available resources i.e., land, labour, capital and other resources, so that maximum production with minimum efforts and wastages be made possible

III. Growth of Resources (Economic development)

Increase in the population is the common feature of the economy. It becomes necessary that the rate of economic development must be faster than the rate of increase in the population, so that the economic development may take place and the reasonable standard of living of the citizens can be maintained. In this connection, the economy has to decide about the rate of capital formation, investment and savings

Society's capability:

- Takes the initiative in combining the resources of land, labour, and capital
- Makes strategic business decisions
- Is an innovator
- Commercializes new products, new production techniques, and even new forms of business organization
- Takes risk to get profits

Production Possibility Frontier (PPF)

Definition:

The production possibility frontier

Production Possibility Frontier represents the point at which an economy is most efficiently producing its goods and services and, therefore, allocating its resources in the best way possible. If the economy is not producing the quantities indicated by the PPF, resources are being managed inefficiently

Production Possibility Curve

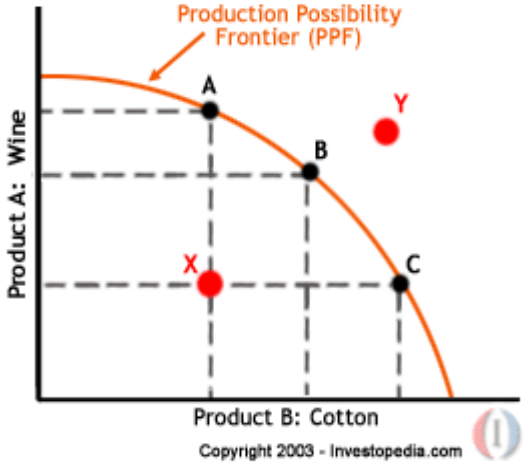
Production Possibility Curve is a curve that shows the possible combinations of any two economic goods an economy can produce by using the available scarce resources.

Assumptions of the concept

1. Human wants are unlimited.
2. The resources are limited but which has alternative uses
3. It takes into consideration the production of only two goods. However, in reality the economy will produce many goods. The life on the earth is not possible only with two goods.
4. It also assumes that the economy has utilized scarce resources efficiently and fully. In other words, the economy is in full employment.
5. PPC is drawn provided that the state of technology is given and it remains constant over the period.
6. Resources available in the economy (which are called factors of production such as land, labour, capital and organizer) are fixed and constant. However, resources can be shifted from one commodity to another.
7. The economy is not able to change the quality of the factors of production. They are also given and constant.
8. It is also assumed that the production only related to short-period rather than long period

Explanation of PPF

Imagine an economy that can produce only wine and cotton. According to the PPF, points A, B and C - all appearing on the curve - represent the most efficient use of resources by the economy. Point X represents an inefficient use of resources, while point Y represents the goals that the economy cannot attain with its present levels of resources.



As we can see, in order for this economy to produce more wine, it must give up some of the resources it uses to produce cotton (point A). If the economy starts producing more cotton (represented by points B and C), it would have to divert resources from making wine and, consequently, it will produce less wine than it is producing at point A. As the chart shows, by moving production from point A to B, the economy must decrease wine production by a small amount in comparison to the increase in cotton output. However, if the economy moves from point B to C, wine output will be significantly reduced while the increase in cotton will be quite small. Keep in mind that A, B, and C all represent the most efficient allocation of resources for the economy; the nation must decide how to achieve the PPF and

whi ch combination to use. If more wine is in demand, the cost of increasing its output is proportional to the cost of decreasing cotton production.

Point X means that the country's resources are not being used efficiently or, more specifically, that the country is not producing enough cotton or wine given the potential of its resources. Point Y, as we mentioned above, represents an output level that is currently unreachable by this economy. However, if there was changes in technology while the level of land, labor and capital remained the same, the time required to pick cotton and grapes would be reduced. Output would increase, and the PPF would be pushed outwards. A new curve, on which Y would appear, would represent the new efficient allocation of resources

Importance and Application of the Concept

The concept has got the following importance:

1. Since PPC shows the productive capacity of the economy, it gives reliable answers for the fundamental economic problems of what to produce?, How to produce?, and To whom to produce?.

2. Secondly, it illustrates the concept of opportunity cost. Here the country is trying to produce any two goods. So the production of the one commodity can be increased by reducing the production of other good. This is due to the fact that economic resources are scarce. Also opportunity cost ratios can be calculated.

3. Thirdly, it leads to the efficient allocation of scarce economic resources. More resources should be diverted to the commodity that economy demands more than another commodity.

4. It illustrates the productive potential of the economy. The growth of the economy can be judged from the shifts in the PPC. Economics growth in both quantitative and qualitative terms can be known from PPC.

5. It is very useful in order to achieve the social welfare of the community.

6. Last but not least, PPC can be used by the producers to make their decisions regarding the use of factors of production and it assist in the determination of the costs of the production.

PPC, therefore, shows unemployment of resources, Technological Progress, economic growth and economic efficiency. According to Professor Dorfman,

PPC explains three efficiencies. They are:

1. Efficient selection of goods to be produced,
2. Efficient allocation of resources in the production of these goods with efficient choice of method of production, and
3. Efficient allotment of the goods produced among consumers.

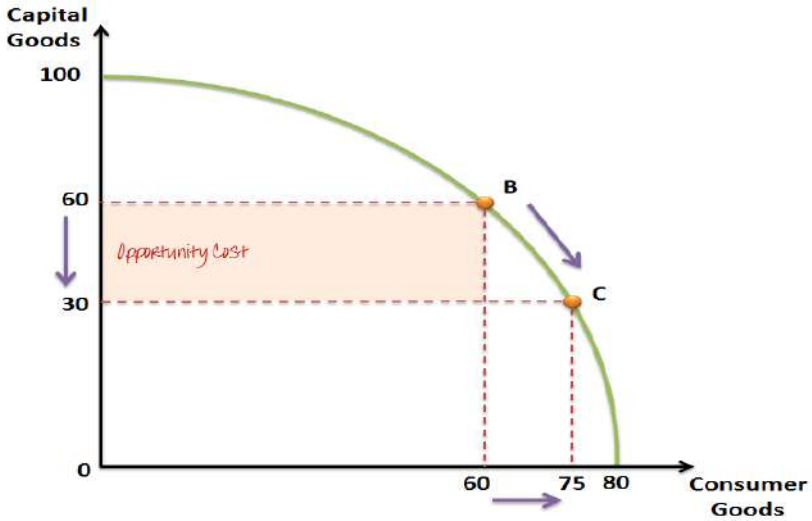
Usually this concept is applied for individual countries. Also this concept can be applied to the individual companies, farms etc to find out the production possibilities.

B. Opportunity Cost

***Opportunity cost* is the value of what is foregone in order to have something else. This value is unique for each individua**l.

You may, for instance, forgo ice cream in order to have an extra helping of mashed potatoes. For you, the mashed potatoes have a greater value than dessert. But you can always change your mind in the future because there may be some instances when the mashed potatoes are just not as attractive as the ice cream. The opportunity cost of an individual's decisions, therefore, is determined by his or her needs, wants, time and resources (income).

This is important to the PPF because a country will decide how to best allocate its resources according to its opportunity cost



In the above diagram, when the economy moves from point B to point C, there is an increase in consumer goods from 60 to 75 units, and a fall in capital goods from 60 to 30. So it could be said that, to increase the production of consumer goods by 15 units, there is an opportunity cost of 30 units of capital goods, i.e. We have to *give up* capital goods to produce more consumer goods

C. Trade, Comparative Advantage and Absolute Advantage

Specialization and Comparative Advantage

An economy can focus on producing all of the goods and services it needs to function, but this may lead to an inefficient allocation of resources and hinder future growth. By using specialization, a country can concentrate on the production of one thing that it can do best, rather than dividing up its resources.

For example, let's look at a hypothetical world that has only two countries (Country A and Country B) and two products (cars and cotton). Each country can make cars and/or cotton. Now suppose that Country A has very little fertile land and an abundance of steel for car production. Country B, on the other hand, has an abundance of fertile land but very little steel. If Country A were to try to produce both cars and cotton, it would need to divide up its resources. Because it requires a lot of effort to produce cotton by irrigating the land, Country A would have to sacrifice producing cars. The opportunity cost of producing both cars and cotton is high for Country A, which will have to give up a lot of capital in order to produce both. Similarly, for Country B, the opportunity cost of producing both products is high because the effort required to produce cars is greater than that of producing cotton.

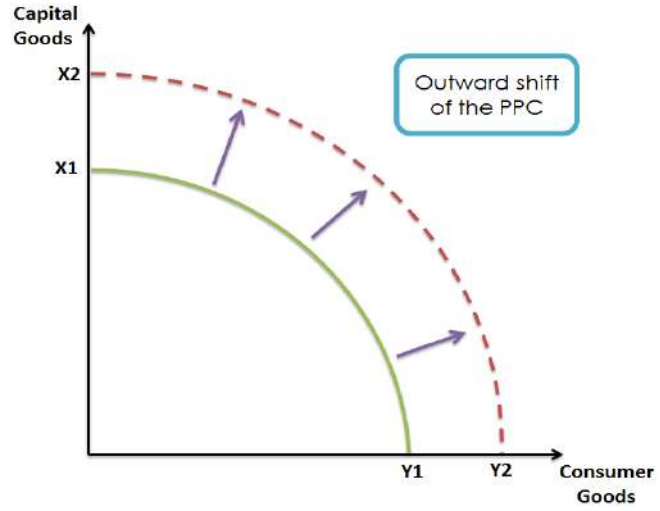
Each country can produce one of the products more efficiently (at a lower cost) than the other. Country A, which has an abundance of steel, would need to give up more cars than Country B would to produce the same amount of cotton. Country B would need to give up more cotton than Country A to produce the same amount of cars. Therefore, County A has a comparative advantage over Country B in the production of cars, and Country B has a comparative advantage over Country A in the production of cotton.

Absolute Advantage

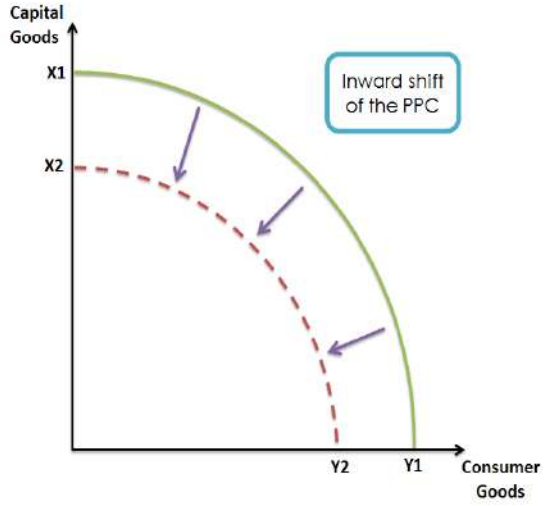
Sometimes a country or an individual can produce more than another country, even though countries both have the same amount of inputs. For example, Country A may have a technological advantage that, with the same amount of inputs (arable land, steel, labor), enables the country to manufacture more of both cars and cotton than Country B. A country that can produce more of both goods is said to have an absolute advantage. Better quality resources can give a country an absolute advantage as can a higher level of education and overall technological advancement. It is not possible, however, for a country to have a comparative advantage in everything that it produces, so it will always be able to benefit from trade.

Shifts in Production Possibility Frontier

An outward shift of a PPF



Inward Shift of a PPF



Reasons for an outward shift in the PPF:

- an increase in factor resources
- an increase in the efficiency (or productivity) of factor resources
- an improvement in technology

Reasons for an inward shift in the PPF:

- Investment spending is insufficient to replace worn out capital goods
- Natural disaster (hurricanes, tsunami, floods etc.)
- Civil war

Economic Efficiency:Definition

It is defined as an economic state in which every resource is optimally allocated to serve each person in the best way while minimizing waste and inefficiency.

In absolute terms, a situation can be called **economically efficient** if:

- No one can be made better off without making someone else worse off (commonly referred to as Pareto efficiency).
- No additional output can be obtained without increasing the amount of inputs.

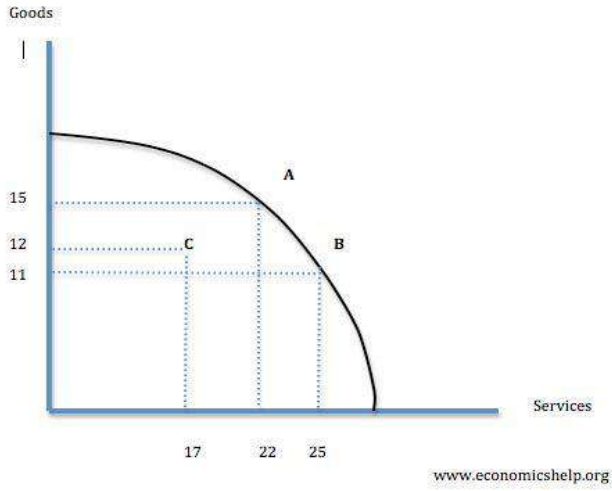
- P

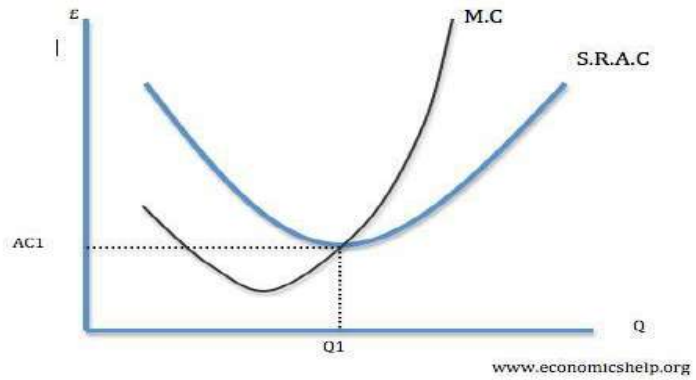
roduction proceeds at the lowest possible per-unit cost

When an economy is economically efficient, any changes made to assist one person would harm another. In terms of production, goods are produced at their lowest possible cost, as are the variable inputs of production

Types of Economic Efficiency:

1. Productive efficiency: ***This occurs when the maximum number of goods and services are produced with a given amount of inputs.***





Productive efficiency will also occur at the lowest point on the firms average costs curve. Thus, Productive efficiency is concerned with producing goods and services with the optimal combination of inputs to produce maximum output for the minimum cost. To be productively efficient means the economy must be producing on its production possibility frontier.

- Points A and B are productively efficient.
- Point C is inefficient because you could produce more goods or services with no opportunity cost

2. **Technical Efficiency:**

Optimum combination of factor inputs to produce a good: related to productive efficiency. Technical efficiency is the effectiveness with which a given set of inputs is used to produce an output. A firm is said to be technically efficient if a firm is producing the maximum output from the minimum quantity of inputs, such as labour, capital and technology.

For example, a firm would be technically inefficient if a firm employed too many workers than was necessary

3. **X inefficiency:** This occurs when firms do not have incentives to cut costs .

For Example:

Not Finding Cheapest Suppliers. Out of inertia, a firm may continue to source raw materials from a high cost supplier rather than look for cheaper raw materials

4. **Pareto efficiency** is however, a situation where resources are distributed in the most efficient way. It is defined as a situation where it is not possible to make one party better off without making another party worse off. Pareto efficiency is said to occur when it is impossible to make one party better off without making someone worse off. It is an economic state where resources are distributed in the most efficient way

5. **Allocative efficiency:**

This occurs when goods and services are distributed according to consumer preferences. An economy could be productively efficient but produce goods people don't need this would be allocative inefficient. Allocative efficiency occurs when the price of the good = the MC of production

6. **Static Efficiency:**

It is concerned with the most efficient combination of resources at a given point in time. Static efficiency has two aspects. The first is that there is maximum output of goods given the volume of resources in the economy. Second, the goods produced must be a preferred combination

7. **Dynamic efficiency:** This refers to efficiency over time. Dynamic efficiency involves the introduction of new technology and working practises to reduce costs over time. With this mind, we can define dynamic efficiency as an aspect of economic efficiency that measures the speed or the rate at which the production possibility curve moves from one static equilibrium point to another within a given period.

8. **Distributive Efficiency :**
   It is concerned with allocating goods and services according to who needs them most. Therefore, requires an equitable distribution. Distributive efficiency occurs when goods and services are consumed by those who need them most

9. **Social efficiency:** is the optimal distribution of resources in society, taking into account all external costs and benefits as well as internal costs and benefits. Social Efficiency occurs at an output where Marginal Social Benefit (MSB) = Marginal Social Cost (MSC). Thus, social efficiency occurs when externalities are taken into consideration and occurs at an output where the social cost of production (SMC) = the social benefit (SMB).

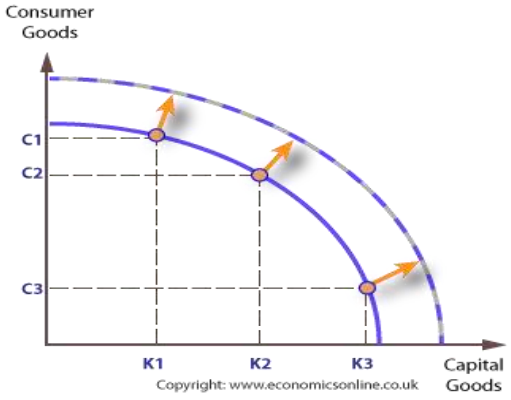
Economic Growth & Stability:

Meaning:

Economic growth is defined as an increase in the output that an economy produces over a period of time, the minimum being two consecutive quarters.

Economic growth is an increase in what an economy can produce if it is using all its scarce resources. An increase in an economy's productive potential can be shown by an outward shift in the economy's production possibility frontier (PPF).

An outward shift of a PPF means that an economy has increased its capacity to produce.



Reasons behind Economic Growth:

Employs new technology

- Investment in new technology increases potential output for all goods and services because new technology is inevitably more efficient than old technology.
- An economy will not be able to grow if an insufficient amount of resources are allocated to capital goods.

Em

ploys a division of labour, allowing specialization

- *A* division of labour *refers to how production can be broken down into separate tasks, enabling machines to be developed to help production, and allowing labour to specialise on a small range of activities.*
- *A division of labour, and specialisation, can considerably improve productive capacity, and shift the PPF outwards.*

Employs new production methods

- New methods of production can increase potential output.
- The widespread use of computer controlled production methods, such as robotics, has dramatically improved the productive potential of many manufacturing firms.

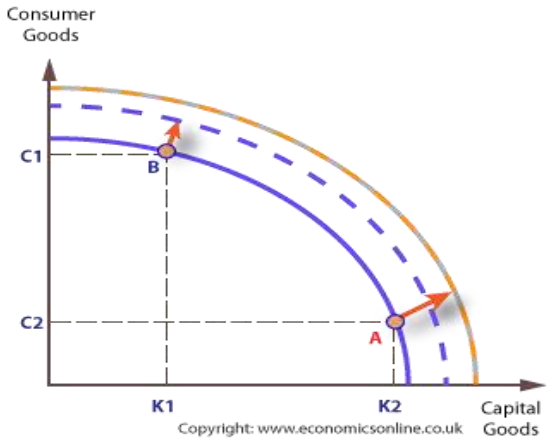
Increases its labour force

- Growth in the size of the working population enables an economy to increase its potential output.

Discovers new raw materials

Discoveries of key resources, such as oil, increase an economy's capacity to produce.

Investment



- Allocating scarce funds to capital goods, such as machinery, is referred to as real investment.
- If an economy chooses to produce more capital goods than consumer goods, at point A in the diagram, then it will grow by more than if it allocated more resources to consumer goods, at point B, below.
- To achieve long run growth the economy must use more of its capital resources to produce capital rather than consumer goods

Factor mobility

If workers, or other resources, are moved from one sector to another, then the position of the PPF will change, with an increase in the maximum output in the industry receiving the resources, and a fall in the maximum output of the industry losing resources

Policies for Economic Growth

Fiscal stabilizers

- Built-in automatic fiscal stabilizers, which include progressive taxes and escalating welfare payments, provide a shock absorber to stabilize an economy following an economic shock.
- The combined effect of these is to create fiscal drag during periods of unusually strong growth, and fiscal boost during periods of very weak growth or negative growth.

- E

ffective policies and institutions the rule of law, and political stability enhance economic growth

- Infrastructure is a key component of an enabling environment for economic growth. Enterprises need adequate transportation systems from rural roads to airports and ports to access markets for their goods and services.
- A skilled workforce is an important foundation of sustainable economic growth.
- Women play a central role as income earners, in lifting themselves, their families, and their communities out of poverty.
- Agriculture is the largest economic sector in many developing countries. It is a significant generator of employment, contributing to poverty reduction and food security
- sound environmental management: Sustainable and responsible management of natural resources and appropriate responses to climate impacts that enable the long-term viability of the economy
- **Technology policy**
  Technology policy refers to policies where government provides incentives for private firms to invest into new technology. These incentives could be in the form of grants, cheap loans, or tax relief.
- **Reducing red-tape and de-regulation**
  A key driver of growth for both developed and developing countries is FDI, and this can be encouraged by reducing red tape and unnecessary regulation, and opening up markets to overseas investors.
- Deregulation is when the government reduces or eliminates industry restrictions to improve the ease of doing business. The government will remove a regulation when businesses complain it interferes too much with their ability to compete, especially with foreign companies. However, consumer groups can also prompt deregulation by pointing out how industry leaders are too cozy with their regulatory authority
- **Providing incentives**
  National governments can provide incentives for individuals to start their own business and for small businesses to expand.
- **Tax reform**
  Redesigning the tax and benefit system to increase the labour activity rate and encourage work and discourage idleness is clearly an important option for countries wishing to improve their supply-side performance.
- **Increasing competitiveness and contestability**
  Another important stimulus to supply-side growth is to increase the degree of competitiveness in the micro-economy by promoting contestability, reducing barriers to entry, and by deregulating markets to encourage new entrants.
- **New markets**
  Sustainability can also be achieved by encouraging the formation of new markets which exploit new technology or new trading methods. The newly emerging markets for waste and carbon credits, and the development of carbon offsetting schemes, are recent examples of how new markets can emerge, with or without government support.
- **Infrastructure**
  Long-term development of infrastructure projects is also central to the promotion of long terms growth and development in a globalised environment. Better infrastructure enables output to be transported at lower cost, as well as generating jobs and other positive externalities

Economic Stability

Economic stability refers to an economy that experiences constant growth and low inflation. Advantages of having a stable economy include increased productivity, improved efficiencies, and low unemployment. Common signs of an instability are extended time in a recession or crisis, rising inflation, and volatility in currency exchange rates. An unstable economy causes a decline in consumer confidence, stunted economic growth, and reduced international investments

Micro economies and Macro economies

Micro Economics definition

Microeconomics is that branch of economics which is concerned with the decision-making of a single unit of an economic system.

- How does an individual (or a family) decide on how much of various commodities and services to consume?
- How does a business firm decide how much of its product (or products) to produce?
- Determination of income, employment, etc. in the economic system as a whole is not the concern of microeconomics.

Thus, microeconomics can be defined as the study of economic decision-making by micro-units.

Importance of Micro Economics

1.**Determination of demand pattern:**

It determines the pattern of demand in the economy, *i.e.*, the amounts of the demand for the different goods and services in the economy, because the total demand for a good or service is the sum total of the demands of all the individuals.

2. **Determination of the pattern of supply**

The pattern of supply in the country as a whole can be obtained from the amounts of goods and services produced by the firms in the economy. Microeconomics, therefore, determines the pattern of supply as well.

3. **Pricing:**

By determining demand and supply, microeconomics helps us in understanding the process of price determination. The prices of the various goods and services determine the pattern of resource allocation in the economy.

4. **Policies for improvement of resource allocation**

Economic development stresses the need for improving the pattern of resource allocation in the country. Development polices, therefore, can be formulated only if we understand how the pattern of resource allocation is determined.

5. **Solution to the problems of micro-units:**

Finally, it goes without saying that, since the study of microeconomics starts with the individual consumers and producers, policies for the correction of any wrong decisions at the micro-level are also facilitated by microeconomics. For example, if a firm has to know exactly what it should do in order to run efficiently, it has to know the optimal quantities of outputs produced and of inputs purchased

Limitations of Microeconomics

1. **Monetary and fiscal policies:**

The role of monetary and fiscal policies in the determination of the economic variables cannot be analyzed completely without going beyond microeconomics

2. **Income determination:**

Microeconomics also does not tell us anything about how the income of a country (*i.e.*, national income) is determined.

3. **Business cycles**

Microeconomics does not help us in understanding as to why there are fluctuations occurs in business cycles and what the remedies are.

4. **Unemployment**

One of the main economic problems faced by an economy like India is the problem of unemployment. This, again, is one of the areas on which microeconomics does not shed much light.

Macroeconomics

Macroeconomics is the branch of economics that studies the behavior and performance of an economy as a whole. It focuses on the aggregate changes in the economy such as unemployment, growth rate, gross domestic product and inflation.

Importance of Macroeconomics

1. **Income and employment determination**

The determinations of national income and of total employment in the country are vital concerns of macroeconomics

2. **Price level:**

The determination of the general price level is discussed in Macroeconomic theories. Upward movement of the general price level is known as *inflation.* Thus, if we want to understand the process of inflation and find ways of controlling it, we must resort to the study of macroeconomics.

3. **Business cycles:** The economic booms and depressions in the levels of income and employment follow one another in a cyclical fashion. While income rises and employment expands during boom periods, they shrink during depressions. Since depressions bring business failures and unemployment in their wake, economists have sought remedies to depressions..

4. **Balance of payments:** The difference between the total inflow and the total outflow of foreign exchange is known as the balance of payments of a country. When this balance is negative (*i.e.*, outflow exceeds inflow), the country faces a lot of economic hardships. The causes and remedies of such balance of payments problems are discussed in macroeconomics.

5. **Government policies:** The effects of various government policies on the economic variables like national income or the general price level are also studied in macroeconomics.

6. **Interrelations between markets:** Probably, the most important contribution of macroeconomic theories is to show that different markets of the economic system (for example, the commodity market, the labour market, the bond market, the money market, etc.) are interrelated. Any disturbance in one of these markets affects all the others.

Differences between Microeconomics and Macroeconomics

Microeconomics	**Macroeconomics**
It is that branch of economics which deals with the economic decision-making of individual economic agents such as the producer, the consumer, etc.	It is that branch of economics which deals with aggregates and averages of the entire economy, *e.g.*, aggregate output, national income, aggregate savings and investment, etc.
It takes into account small components of the whole economy.	It takes into consideration the economy of any country as a whole
It deals with the process of price determination in case of individual products and factors of production	It deals with general price-level in any economy
It is concerned with the optimization goals of individual consumers and producers (*e.g.*, individual consumers are utility-maximisers, while individual producers are profitmaximisers.)	It is concerned with the optimization of the growth process of the entire economy.
Microeconomic theories help us in formulating appropriate policies for resource allocation at the firm level.	Macroeconomic theories help us in formulating appropriate policies for controlling inflation (*i.e.*, rising price-level), unemployment, etc.

It takes into account the aggregates over homogeneous or similar products (*e.g.*, the supply of steel in an economy.)	It takes into account the aggregates over heterogeneous or dissimilar products (say, the Gross Domestic Product of any country during any year

Role of Governments in managing the growth in Emerging/Developing Economies

I. Role of Government as a Regulatory and Growth promoting body

1. Monetary and Fiscal Policies

Modern economics is greatly influenced by Keynesian theories propounding the increased role of governments in regulating and stabilizing markets to ensure stable growth. Keynesian economics argues that private sector decisions sometimes lead to inefficient macroeconomic outcomes and therefore advocates active policy responses by the public sector, including monetary policy actions by the central bank and fiscal policy actions by the government to stabilize output over the business cycle. In the **Keynesian** economic model, the government has the very important job of smoothening out the business cycle bumps. They stress on the importance of measures like *government spending*, *tax breaks and hikes*, etc. for the best functioning of the economy.

Monetary Policy works by lowering the interest rates, which attractive private companies to invest in real assets which increase the aggregate demand indirectly, by raising the private sector expenditure. The opposite is also done to reduce the money supply in the economy so that inflationary tendencies are minimized and economy over-heating is prevented.

Fiscal Policy is more direct, but acts more slowly. It works by increasing demand for goods. Government does the borrowings to build roads, buildings etc, does the tax cutting, and tries to put more spending power in the hands of households.

Traditionally, the working of monetary policies can be summed up as: Central Bank lowers the interest rates as a result injecting liquidity in the financial system. Commercial banks try to lend the additional money leading to the falling of interest rates further. This leads to the fact that risky business becomes profitable. Firms and houses, as a result, begin to buy more number of goods, thereby increasing employment.

The financial tools available in the hands of the Reserve Bank of India to control the monetary and fiscal policies are:

1. ***Bank Rate***: It is the Discount Rate, rate which the central bank charges on loans and advances to commercial banks (Short term).
2. ***Repo Rate*****:** It is the rate at which the RBI lends money to commercial banks, a short term for repurchase agreement. A reduction in the repo rate will help banks to get money at a cheaper rate. It is equivalent to the discount rate of US. (Long term).
3. ***Reverse Repo Rate***: It is the rate at which Reserve Bank of India (RBI) borrows money from banks.
4. ***Cash Reserve Ratio (CRR)***: It indicates the amount of funds that the banks have to keep with RBI. If RBI decides to increase the percent of this, the available amount with the banks comes down. RBI is using this method to drain out the excessive money from the banks
5. ***Statutory Liquidity Ratio (SLR)*****:** It is the amount a commercial bank needs to maintain in the form of cash, or gold or govt. approved securities (Bonds) before providing credit to its customers. SLR rate is determined and maintained by the RBI in order to control the expansion of bank credit.

Thus, through the use of Monetary and Fiscal policies, the government can effectively control the money supply and hence the demand fluctuations of the market. This is essential as growth cannot be uncontrolled. An uncontrolled spiral of growth invariably is built on shaky foundations which are bound to cave in bringing everything crashing down. Until growth of the economy is backed by strong fundamentals, the speculative trading would remain strictly short term with the specter of a long term crash imminent. The sub-prime mortgage

cris

is caused by speculative trading in realty is an apt example of such a scenario. This long term thinking is what stabilizes growth and makes emerging economies an attractive destination since they have robust fundamentals.

2. Production in Core Sectors

The government steps in for production of goods or services in areas which either are economically unviable for private enterprise, natural monopolies requiring heavy capital investments or are restricted from private industry participation. Investment and growth of these sectors are in the best interests of the nation. However, some of these industries require very high capital investment and may achieve break-even after many years. This makes it an unviable project to be invested and pursued by private enterprise that is mostly answerable to shareholders for their business results. The role of governments here is to invest in the long term growth and development of the nation. Pandit Nehru, the first Prime Minister of India, called these as nation building activities which required state involvement for sharing the fruits of growth and prosperity with the entire society. The investment of government in such areas as infrastructure also provides a firm foundation for the future growth of the country. Infrastructure provides connectivity, new untapped markets and a chance to boost commerce in distant corners of the nation. Secondly, such capital investments provide employment opportunities as well as a boost to the country's GDP. This GDP boost also in turn shows an effect on the valuation of the private firms trading through the stock markets (see Figure 1). Government can also use this as a chance to collaborate with indigenous industries and increase their growth prospects. Thus, similar to the magic multiplier effect in banks, the government capital infusion and government controlled industries produce multiple positive effects on the economy thus producing robust growth prospects.

Sectorial spending patterns of governments reveal that the emphasis is towards promoting areas having lower growth as well as empowering disadvantaged sections of the nation to ensure the trickling down of prosperity in an equitable manner. Additionally, government spending even in developed countries is seen in such areas such as education, law and judiciary, healthcare, pension schemes and defense. This shows the central role of government in nation building for the future as well as in providing services for the betterment of the citizens.

3. Regulatory Responsibilities

The governments in emerging economies also shoulder regulatory responsibilities which enable it to control various macro-economic aspects of the economy. Through regulation, government can iron out the inconsistencies and inefficiencies of the market as well as shape the economic environment as per the shifting global and local trends. Regulations are essential in certain areas to ensure fair practices, preservation of rights and the empowerment of the citizens. Government also holds in its grips the tariff regulations which enable it to preserve the indigenous small scale industries from global competition as well as prevent dumping of inferior goods on local markets. The presence of multinational companies and low cost markets abroad having incentive to dump such rejected goods in the market can skew the prices and hence create inefficiencies in the free market price discovery process as well. This kind of actions can severely affect indigenous industries and can result in monopolies emerging. The regulation of trade is another key focus area of policy since unrestricted trade can lead to local markets facing inflation. The working of the SEBI (Security Exchange Board of India), IRDA (Insurance Regulatory and Development Authority and other such regulatory bodies working in tandem with central and state government in India ensure that legal and ethical practices are followed and the general public is given a fair deal.

Overall, we can see the central role taken up by government in controlling and shaping the growth in emerging economies. While their involvement definitely has its benefits, there needs to be a balance since open market policies work best when they have minimal intrusions from external entities so that pure market forces determine the valuations and expectations of the consumers. Stringent government regulation and high tariff walls lead to protectionist tendencies which can choke private industries and mar the conducive environment for foreign investment.

4. Providing the economy with a legal structure:

This is the first and most important function a government should provide and without it an economy may collapse. This function requires the government to ensure property rights, provide enforcement of contracts, act as a referee and impose penalties for foul play. In order to perform this function, the government should furnish the economy with regulations, legislations, and means that ensure product quality, define ownership rights and enforce contracts. Our legal system, the FDA, The FED and SEC are examples of how the government fulfills this task.

5. Maintaining competition:

Since competition is the optimal and efficient market mechanism that encourages producers and resource suppliers to respond to price signals and consumer sovereignty, the government should fight monopoly power and non-competitive behavior. Thus, anti-monopoly laws (Sherman Act of 1890; Clayton Act of 1913) are designed to regulate business behavior and promote competition. It is important to mention here that Microsoft was found guilty of violating these laws in 2000.

6. Redistribution of income:

The government should strive to provide relief to the poor, dependent, handicapped, and unemployed. Welfare, Social Security and Medicare programs are examples of programs that support the poor, sick and elderly. These programs are built on transferring income from the high income groups to the limited income ones, through progressive taxes. Other means of redistribution might include price support programs such as the farm subsidy and low interest loans to students based on their family incomes.

7. Provision of public goods:

When the markets fail to provide the needed goods or the correct amounts of certain goods or services, the government fills in the vacuum. Examples of public goods that the markets do not provide are defense, security, police protection and the judicial system. Education and health services are examples of quasi-public (merit) goods that the market does not provide enough of. The government should provide the first, and help in the provision of the second.

8. Promoting growth and stability:

The government (assisted by the Fed) should promote macroeconomic growth and stability (increasing the GDP, fighting inflation and unemployment) through changes in its fiscal and monetary policies. The fiscal policies means the use of taxes and spending and it is managed by the executive branch represented mainly by the Treasury Department. The monetary policies signifies the use of interest rates, money supply, reserve requirements, etc. and it is managed by RBI.

9. Promoting Positive Externality:

One role for government is to implement economic policies that promote positive externalities. The existence of a positive externality means that marginal social benefit is greater than marginal private benefit

10. Providing the Legislative Framework

The government provides a clear and predictable legal framework for businesses. Regulations are administered in an open and transparent system, and applied fairly to all parties. The government makes it clear to businesses that it deals with them solely on the merits of their case. There is no favoured treatment for local companies or for government-linked companies.

11.Providing a Stable Environment for Businesses

Fiscal policy in Singapore is guided by the principle that it should support the private sector as the engine of growth and ensures that the macro-environment is stable. The Singapore government has been prudent and conservative in its budgetary policy. It has balanced its budget in nearly every year for the last 3 decades. Monetary policy is geared towards keeping inflation low and stable for long-term competitiveness and to ensure that savings are not debased.
The government also sets clear and transparent ground-rules and ensures that markets are competitive, for example, by ensuring that imports are allowed to come in freely.

11. **Investing in Infrastructure and Manpower**

    The government invests in infrastructure and manpower, areas in which the private sector is likely to under-invest. It ensures that the education and training system is geared towards the needs of the economy, with a strong emphasis on providing technical and professional manpower. Similarly, an efficient infrastructure lowers business costs and makes it attractive for investors to come to Singapore.

12. **Facilitating Businesses**

    The government facilitates businesses, including foreign investors wishing to come to Singapore. This function is carried out mainly by promotional agencies like the Economic Development Board and the International Enterprise Singapore.

13. **Maintaining competition:** Since competition is the optimal and efficient market mechanism that encourages producers and resource suppliers to respond to price signals and consumer sovereignty, the government should fight monopoly power and non-competitive behavior. Thus, anti-monopoly laws (Sherman Act of 1890; Clayton Act of 1913) are designed to regulate business behavior and promote competition. It is important to mention here that Microsoft was found guilty of violating these laws in 2000.

14. **Redistribution of income:** The government should strive to provide relief to the poor, dependent, handicapped, and unemployed. Welfare, Social Security and Medicare programs are examples of programs that support the poor, sick and elderly. These programs are built on transferring income from the high income groups to the limited income ones, through progressive taxes. Other means of redistribution might include price support programs such as the farm subsidy and low interest loans to students based on their family incomes.

15. **Provision of public and quasi-public goods:** When the markets fail to provide the needed goods or the correct amounts of certain goods or services, the government fills in the vacuum. Examples of public goods that the markets do not provide are defense, security, police protection and the judicial system. Education and health services are examples of quasi-public (merit) goods that the market does not provide enough of. The government should provide the first, and help in the provision of the second.

16. **Promoting growth and stability:**
    The government (assisted by the Fed) should promote macroeconomic growth and stability (increasing the GDP, fighting inflation and unemployment) through changes in its fiscal and monetary policies. The fiscal policies means the use of taxes and spending and it is managed by the executive branch represented mainly bythe Treasury Department. The monetary policies signifies the use of interest rates, money supply, reserve requirements, etc. and it is managed by the Federal Reserve System

17. Providing Public Goods and Ensuring Positive Externalities

Public goods and externalities (defined below) provide the main theoretical justifications for government production. Public goods are those that can be enjoyed by an unlimited number of people without prejudice to one another and without exclusion of others. Some examples include lighthouses, national defenses, the legal system, and parks. Public goods are also indivisible; they must be produced in such large units that they cannot ordinarily be sold to individual buyers. Because of these characteristics, it is not feasible tocharge for their consumption; therefore private suppliers lack the incentive to supply them.

Externalities, or spillovers, occur when some of the costs or benefits of an economic activity are passed on (or spill over)to parties other than the immediate seller or buyer. Some externalities have a beneficial effect on others and are referred to as positive externalities; those that have a detrimental effect are referred to as negative externalities. Pollution is an example of a negative externality, whereasinvestment in research and development, training, and education have positive spillovers and thus are positive externalities. The market, left on its own, will tend to produce too many goods and services that carry negative externalities (indicating a need to tax those externalities or impose restrictions on their emergence) and too few goods and services involving positive externalities (indicating a need to subsidize them or have them provided publicly)

Role of Market in economy

1. **Price Discovery**:

Economists have traditionally believed that there exists an invisible hand in a free market based economy, which bring a state of equilibrium in market and this in-turn result in price discovery. Advocates of the free market form of economy argue that price discovery is a natural process that ensures fair, accurate, and responsive pricing. The essential philosophy of price discovery is that firms maximize their profit and consumers maximize their benefits. The preconditions for price discovery to happen are the presence of a large number of buyers and sellers, absence of any buyer/seller having absolute power to influence the market and absence of any form of information asymmetry among the parties involved. This concept of price discovery is the most intrinsic feature of a free market based economy. The mechanism of price discovery ensures that there is an unbiased way to determine the intrinsic value of any good in the market. Through the presence of a large number of buyers and sellers, the continuous exchange of goods enables all parties involved to obtain the best value with minimal inaccuracies. This technically ensures that skewed pricing schemes or incorrect valuation is not followed and every product has a constantly varying price affected by its quality and the nature of its demand. This dynamicity brings out the competitive forces in the market and ensures that innovation is always at the forefront of any industry policy.

2. Foreign Investment Opportunities:

A major attraction of following free market policies is its ability to attract foreign investors into funding growth and development projects in the country. Foreign investors and angel investors generally look for high growth opportunities to invest their money in as seen by the increasing FII and FDI inflows into India. With the maturity of developed markets and flat growth seen in such economies, these developed countries divert large sums of money into such emerging investment locations offering higher growth rates. The only caveat is the added risk introduced into their investment profile. For this reason, such investment vehicles generally prefer politically stable and economically progressive countries which have transparent policies and lower regulations on investments. Such foreign investments are crucial for augmenting the government spending on key sectors like education, healthcare, infrastructure, natural resources.

An over dependence on these inflows would leave a country in a sensitive position where may lead to huge outflows of investment. The onus is firmly on these emerging countries to establish and maintain a stable environment conducive for investment and presenting a balanced picture of sustainable growth. There are many instances of economies encountering pricing bubbles and speculative trading on the back of erratic foreign

investments. So not only is it essential that investment is attracted, but regulations must also be made to limit these inflows to ensure sustainable growth. The inflationary tendencies of the economy as well as the speculative valuation of stocks on the back of FII and FDI inflows are well documented and hence need extra caution to be exercised.

3. Growth in GDP:

Gross Domestic Product or GDP is a primary measure of the vitality of an economy as it conveys the dollar value of all the goods and services produced by that country over a specified period of time. As can be clearly seen, a robust and dynamic market can spur growth in the investment in private industries which in turn helps fund their growth plans. The highly capital intensive nature of heavy industries and core sectors requires heavy investments and this is where markets come into the picture. Through the stock markets as well as foreign investment vehicles, industries gain the capital required to pursue high growth strategies and scale up their businesses. This in turn results in increased production of goods and services and hence a robust GDP growth.

4. Rise of the Consumer

The market structure promotes transparency of pricing, infusion of cash for growth initiatives and provides competitively priced technologically superior products in the hands of the consumers. In addition to this, the growth impetus provided by market economies results in huge employment opportunities resulting in increased per capita income. This increased income thus boosts consumer spending and helps in developing high growth markets internally. The presence of large number of competitive firms in every sphere helps shift the power into the hands of the consumer and empowers him to make informed decisions. Consumer spending accounts for nearly 60% of the total GDP of United States of America and international trends show the importance of a strong local consumer demand to ensure robust growth patterns.

As we have seen above, there are numerous benefits of an open economy which triggers and sustains high growth in an economy. However, an area of concern is the formation of asset and valuation bubbles due to large inflows of investments. Since emerging economies are currently riding high on consumer sentiments, FIIs and FDIs are reaching unprecedented levels. This is primarily backed by strong short term profit making interests. An uncontrolled free market structure can result in valuation bubbles which are basically high valuations built on weak fundamentals. Preventive measures for such scenarios require a strong presence of regulatory authorities and balancing policy shifts to ensure that growth is balanced and sustainable

Externality

Definition*: An externality is an effect of a purchase or use decision by one set of parties on others who did not have a choice and whose interests were not taken into account*.

PRIVATE AND SOCIAL COSTS

Externalities create a **divergence** between the **private** and **social costs** of production.

Social cost includes all the costs of production of the output of a particular good or service. We include the third party (external) costs arising, for example, from pollution of the atmosphere.

SOCIAL COST = PRIVATE COST + EXTERNALITY

For example: - a chemical factory emits wastage as a by-product into nearby rivers and into the atmosphere. This creates negative externalities which impose higher **social costs** on other firms and consumers. e.g. clean up costs and health costs.

Another example of higher social costs comes from the problems caused by traffic congestion in towns, cities and on major roads and motor ways.

It is important to note though that the manufacture, purchase and use of private cars can also generate **external benefits** to society. This why **cost-benefit analysis** can be useful in measuring and putting some monetary value on both the social costs and benefits of production

Types of externality

1. **Positive Externality in Production.**
   A farmer grows apple trees. An external benefit is that he provides nectar for a nearby bee keeper who gains increased honey as a result of the farmers orchard.
2. **Negative Externality in Production**
   Making furniture by cutting down rainforests in the Amazon leads to negative externalities to other people. Firstly it harms the indigenous people of the Amazon rainforest. It also leads to higher global warming as there are less trees to absorb carbon dioxide.
3. **Positive Externality in Consumption.**
   If you take a three year training course in IT. You gain skills but also other people in the economy can benefit from your knowledge.
4. **Negative Externality in Consumption:**
   If you smoke in a crowded room, other people have to breathe in your smoke. This is unpleasant for them and can leave them exposed to health problems associated with smoking.

Positive consumption externalities

A positive externality is a benefit that is enjoyed by a third-party as a result of an economic transaction. Third-parties include any individual, organization, property owner, or resource that is indirectly affected. While individuals who benefit from positive externalities without paying are considered to be free-riders, it may be in the interests of society to encourage free-riders to consume goods which generate substantial external benefits.

Most merit goods generate positive consumption externalities, which beneficiaries do not pay for. For example, with healthcare, private treatment for contagious diseases provides a considerable benefit to others, for which they do not pay. Similarly, with education, the skills acquired and knowledge learnt at university can benefit the wider community in many ways.

Unlike the case of negative externalities, which should be discouraged to achieve a socially efficient allocation of scarce resources, positive externalities should be encouraged.

There are plenty of examples of economic activities that can generate positive externalities:

1. **Industrial training by firms**: This can reduce the costs faced by other firms and has important effects on labour productivity. A faster growth of productivity allows more output to be produced from a given amount of resources and helps improve living standards throughout the economy. See the revision notes on the **production possibility frontier**
2. **Research into new technologies** which can then be disseminated for use by other producers. These technology spill-over effects help to reduce the costs of other producers and cost savings might be passed onto consumers through lower prices
3. E**ducation**: A well educatedlabour force can increase efficiency and produce other important social benefits. Increasingly policy-makers are coming to realise the increased returns that might be exploited from investment in **human capital** at all ages.
4. **Health provision:** Improved health provision and health care reduces absenteeism and creates a better quality of life and higher living standards.
5. **Employment creation** by new small firm
6. **Flood protection system and spending on improved fire protection in schools and public arenas**
7. **Arts and sporting participation and enjoyment derived from historic buildings**

Policies to promote positive externalities

One role for government is to implement economic policies that promote positive externalities. There are two general approaches to promoting positive externalities; to increase the supply of, and demand for, goods, services and resources that generate external benefits.

- **Increasing supply**

Government grants and subsidies to producers of goods and services that generate external benefits will reduce costs of production, and encourage more supply. This is a common remedy to encourage the supply of merit goods such as healthcare, education, and social housing. Such merit goods can be funded out of central and local government taxation. Public goods, such as roads, bridges and airports, also generate considerable positive externalities, and can be built, maintained and fully, or part, funded out of tax revenue.

- **Increasing demand**

Demand for goods, which generate positive externalities, can be encouraged by reducing the price paid by consumers. For example, subsidizing the tuition fees of university students will encourage more young people to go to university, which will generate a positive externality for future generations.

The ultimate encouragement to consume is to make the good completely free at the point of consumption, such as with freely available hospital treatment for contagious diseases.

Government can also provide free information to consumers, to compensate for the information failure that discourages consumption. If individuals are fully informed about the benefits of consuming goods and services that generate external benefits, they may develop a better understanding of the product and demand more of it. For example, public information broadcasts, such as aids awareness programmes, can reduce ignorance, and encourage the use of condoms.

An additional option is to compel individuals to consume the good or service that generates the external benefit. For example, if suspected of having a contagious disease, an individual may be forced into hospital to receive treatment, even against their will. In terms of education, attendance at school up until the age of 16 is compulsory, and parents may be fined for encouraging their children to truant.

Negative Externality

There are two types of negative externalities:

1) **Negative Production Externality** –
   when a firm's production reduces the well-being of others who are not compensated by the firm.
   Examples:
   - The production of smoke from factories may create clean-up costs to reduce air pollution by nearby residents.
   - The building of a dam that prevents the fish from swimming upstream, thus destroying the fishing industry in towns upstream. Note that if the fishermen are compensated by the dam builders for the full value of their loss, then no negative externality exists. This and other examples can be found in the article "Environmental Economics: Pollution"

2) **Negative consumption externality** –
   when an individual's consumption reduces the well-being of others who are not compensated by the individual.
   Example:
   - The consumption of cigarettes in a restaurant that allows smoking decreases the enjoyment of a non-smoker who is consuming his/her meal at the same restaurant.

Remedies or solutions to Negative externality

I. Market Based Solutions:

Market-based solutions try to manipulate market forces to reduce the externality, by exploiting the price mechanism. One such market-based solution is to extend property rights so that third parties can negotiate with those individuals or organizations that cause the externality. As long as one party can establish a property right, there will be a bargaining process leading to an agreement in which externalities are taken into account.

If property rights cannot be established, such as with the air, sea, or roads, then the only two options are:

1. We learn to live with externalities, or:
2. Government intervenes on our behalf through taxes or direct controls and regulations, such as:
   - Taxing polluters, such as carbon taxes, or taxes on plastic bags.
   - Subsidizing households or firms to be non-polluters, such as giving grants for home insulation improvements.
   - Selling permits to pollute, which may become traded by the polluters.
   - Forcing polluters to pay compensation to those who suffer, such as making noise polluting airports pay for double-glazing.
   - Road pricing schemes, such as the Electronic Road Pricing (ERP) system in Singapore, which is a pay-as-you-go, card-based, road-pricing scheme.
   - Providing more information to consumers and producers, such as requiring that tickets to travel on polluting forms of transport, especially air travel, should contain information on how much CO_2 pollution will be created from each journey.

II. Negative consumption externalities

When certain goods are consumed, such as *demerit goods*, negative effects can arise on third parties.

For example, if individuals consume alcohol, get intoxicated and do harm to the property of innocent third parties, a negative consumption externality has arisen. This reduces the MSB by the extent of the negative effect on others, so that the socially efficient consumption of alcohol is less than the free market level of consumption.

Another important example of a negative consumption externality if that of road congestion. As individuals 'consume' road-space they reduce available road-space and deny this space to others.

There are several remedies for negative consumption externalities, including imposing *indirect taxes*, and setting *minimum prices*, imposing fines for over-consumption, controlling supply through a licensing system.

Promoting Positive Externalities and Reducing Negative Externalities

- Governments have several methods to reduce the effects of negative externalities and to promote positive externalities.
- The quantity of goods with negative externalities is greater than what the market equilibrium would be if the cost of the negative externality was factored into the price of the product. On the other hand, the quantity of goods that have positive externalities is less than what is socially desirable, since the people who enjoy the benefits of the product but who do not participate in the market do not affect the market quantity.
- The government can remedy these situations by taxing products with negative externalities and subsidizing products with positive externalities.

- Government intervention can generally be divided into 2 types of actions:
  - **command-and-control policies** that regulate actions directly and
  - **market-based policies** that would provide incentives so that the self-interest of the market participants would achieve the socially optimized solution.

- **Direct controls** are a type of command-and-control policy that prohibits specific activities that create negative externalities or that require that the negative externality be limited to a certain level, such as limiting emissions in smokestacks or tailpipes, or limiting toxic wastes, with specific procedures to clean it up.
- The government can promote positive externalities by paying **subsidies** to either buyers or producers, which is a type of market-based policy. Subsidies to buyers would lower the cost of the product, which would increase demand. Subsidies to producers would lower their cost of production, thereby increasing supply. The government may also decide that the cost of an externality is great enough to make it a **public good**, where the government pays outright for its production, such as vaccinations against contagious diseases, like smallpox or polio.
- Most government subsidies consists of **tax breaks** for either the buyers or the suppliers. Education, for instance, has many positive externalities, and the government subsidizes it by giving tax breaks for people who save for college.
- Because technology has large spillover benefits, the government sometimes forms an **industrial policy** that promotes specific technologies that would have the greatest benefit to society. However, industrial policies are often criticized because they require that the government pick winners and losers and, as often happens in governments where the legislators are more interested in money than in the well-being of their country, well-financed lobbyists often control how the money is allocated.
- Another common market-based policy to reduce negative externalities is by assessing a **corrective tax**, which is a tax that **internalizes the externality** by incorporating it as a cost of production. Corrective taxes are also known as **Pigovian taxes**, named after the economist Arthur Pigou, who was an early advocate of their use.
- The primary advantage of corrective taxes over regulation is that companies have an incentive only to satisfy the regulation, whereas corrective taxes will incentivize companies to continually reduce their negative externalities to lower their costs.
- One of the best examples to show the superiority of a market-based policy over that of a command-and-control policy is how the government has attempted to regulate the fuel economy of motor vehicles. A better solution is simply to increase gasoline taxes, which would motivate many people and businesses to reduce their consumption of gasoline, since it would cost them more. People would find many creative solutions that would otherwise not be sought if the government simply stipulated how things should be done. Furthermore, people would continually strive to reduce their gasoline expense, whereas the auto manufacturers would just satisfy the law. Gasoline taxes would also reduce congestion, accidents, and pollution by motivating people to drive slower and to drive less — fuel economy regulations would have no such effect.
- Government intervenes on our behalf through taxes or direct controls and regulations, such as:
- Taxing polluters, such as carbon taxes, or taxes on plastic bags.
- Subsidising households or firms to be non-polluters, such as giving grants for home insulation improvements.
- Selling permits to pollute, which may become traded by the polluters.
- Forcing polluters to pay compensation to those who suffer, such as making noise polluting airports pay for double-glazing.
- Road pricing schemes, such as the Electronic Road Pricing (ERP) system in Singapore, which is a pay-as-you-go, card-based, road-pricing scheme.
- Providing more information to consumers and producers, such as requiring that tickets to travel on polluting forms of transport, especially air travel, should contain information on how much CO_2 pollution will be created from each journey.

Unit – II

A market is any place where the sellers of a particular good or service can meet with the buyers of that goods and service where there is a potential for a transaction to take place.

The buyers must have something they can offer in exchange for there to be a potential transaction.

In economics, a market is a group of buyers and sellers of a specific good or service. A market usually does not refer to a physical location for the buying and selling of products. "Harper collins dictionary of economics" points out that economists use the word "market" to describe a mechanism of exchange between buyers and sellers of a good or service.

DEMAND

Meaning

In economics, use of the word 'demand' is made to show the relationship between the prices of a commodity and the amounts of the commodity which consumers want to purchase at those price.

Definition

"Demand is defines as the want, need or desire which is backed by willingness and ability to buy a particular commodity in a given period of time."

Bober defines, "by demand we mean the various quantities of given commodity or service which consumers would buy in one market in a given period of time at various prices, or at various incomes, or at various prices of related goods."

Demand for product implies:

- desires to acquire it,
- willingness to pay for it, and
- Ability to pay for it.

Characteristics of Demand

- **Willingness and ability to pay**. Demand is the amount of a commodity for which a consumer has the willingness and also the ability to buy.
- **Demand is always at a price**. If we talk of demand without reference to price, it will be meaningless. The consumer must know both the price and the commodity. He will then be able to tell the quantity demanded by him.
- **Demand is always per unit of time**. The time may be a day, a week, a month, or a year.

Determinants of Demand

1. Price of the product
2. Price of the related goods-substitutes, complements and supplements

3. Level of consumers income
4. Consumers taste and preference
5. Advertisement of the product
6. Consumers' expectations about future price and supply position
7. Demonstration effect or 'bend-wagon effect'
8. Consumer-credit facility
9. Population of the country
10. Distribution pattern of national income.

1. Price of the Product

The price of a product is one of the most important **determinants of demand** in the long run and the only determinant in the short run. The price and quantity demanded are inversely related to each other. The law of demand states that the quantity demanded of a good or a product, which its consumers would like to buy per unit of time, increases when its price falls, and decreases when its price increases, provided the other factors remain' same.

2. Price of the Related Goods or Products

The demand for a good is also affected by the change in the price of its related goods. The related goods may be the substitutes or complementary goods.

Substitutes: Two goods are said to be substitutes of each other if a change in price of one good affects the demand for the other in the same direction. For instance goods X and Y are considered as substitutes for each other if a rise in the price of X increase demand for Y, and vice versa.

Complementary Goods: A good is said to be a complement for another when it complements the use of the other or when the two goods are used together in such a way that their demand changes (increases or decreases) simultaneously.

3. Consumers Income

Income is the basic determinant of market demand since it determines the purchasing power of a consumer. Therefore, people with higher current disposable income spend a larger amount on goods and services than those with lower income. Income-demand relationship is of more varied nature than that between demand and its other determinants.

- Essential Consumer Goods (ECG)
- Inferior goods
- Normal goods
- Prestige and luxury goods

4. Consumer's Taste and Preference

Consumer's taste and preference play an important role in determining demand for a product. Taste and preference depend, generally, on the changing life-style, social customs, religious values attached to a good habit of the people. Change in these factors changes consumer's taste and preferences. As a result, consumers reduce or give up the consumption of some goods and add new ones to their consumption pattern.

- They can make quick profits by designing new models of their goods and popularizing them through advertisement, and
- They can plan production in a better way and can even avoid over-production if they keep an eye on the changing fashion.
-

5.Advertisement Expenditure

Advertisement costs are incurred with the objective of increasing the demand for the goods. This is done in the following ways:

- By informing the potential consumers about the availability of the goods.
- By showing its superiority to the rival goods.
- By influencing consumers choice against the rival goods, and
- By setting fashions and changing tastes.

6. Consumers Expectations

Consumers' expectations regarding the future prices, income and supply position of goods play an important role in determining the demand for goods and services in the short run. If consumers expect a rise in the price of a storable good, they would buy more of it at its current price with a view to avoiding the possibility of price rise future. On the contrary, if consumers expect a fall in the price of certain goods, they postpone their purchase with a view to take advantage of lower prices in future, mainly in case of non-essential goods.

7. Demonstration Effect

When new goods or new models of existing ones appear in the market, rich people buy them first. For instance, when a new model of car appears in the market, rich people would mostly be the first buyer, LED TV sets and Blu-Ray Drives were first seen in the houses of the rich families some people buy new goods or new models of goods because they have genuine need for them.

8. Consumer-Credit Facility

Availability of credit to the consumers from the sellers, banks, relations and friends encourages the consumers to buy more than what they would buy in the absence of credit availability. Therefore, the consumers who can borrow more can consume more than those who cannot borrow. Credit facility affects mostly the demand for durable goods, particularly those, which require bulk payment at the time of purchase.

9. Population of the Country

The total domestic demand for a good of mass consumption depends also on the size of the population. Therefore, larger the population larger will be the demand for a product, when price, per-capita income, taste and preference are given. With an increase or decrease in the size of population, employment percentage remaining the same, demand for the product will either increase or decrease.

10. Distribution of National Income

The level of national income is the basic determinant of the market demand for a good. Apart from this, the distribution pattern of the national income is also an important **determinant for demand of a good**. If national income is evenly distributed, market demand for normal goods will be the largest.

TYPES OF DEMAND

Direct and Derived Demands

Direct demand refers to demand for goods meant for final consumption; it is the demand for consumers' goods like food items, readymade garments and houses.

Derived demand refers to demand for goods which are needed for further production; it is the demand for producers' goods like industrial raw materials, machine tools and equipment. Thus the demand for an input or what is called a factor of production is a derived demand

For example, the demand for gas in a fertilizer plant depends on the amount of fertilizer to be produced and substitutability between gas and coal as the basis for fertilizer production. However, the direct demand for a product is not contingent upon the demand for other products.

Domestic and Industrial Demands

The example of the refrigerator can be restated to distinguish between the demand for domestic consumption and the demand for industrial use. In case of certain industrial raw materials which are also used for domestic purpose, this distinction is very meaningful.

For example, coal has both domestic and industrial demand, and the distinction is important from the standpoint of pricing and distribution of coal.

Autonomous and induced demand

When the demand for a product is tied to the purchase of some parent product, its demand is called **induced or derived.**

For example, the demand for cement is induced by (derived from) the demand for housing. As stated above, the demand for all producers' goods is derived or induced.

Autonomous demand, on the other hand, is not derived or induced. Unless a product is totally independent of the use of other products, it is difficult to talk about autonomous demand.

iv) Perishable and Durable Goods' Demands

The **perishable** refers to final output like bread or raw material like cement which can be used only once. Non-durable items are meant for meeting immediate (current) demand.

The **durable** refers to items like shirt, car or a machine which can be used repeatedly. Thus durable goods demand has two varieties – replacement of old products and expansion of total stock. Such demands fluctuate with business conditions, speculation and price expectations. Real wealth effect influences demand for consumer durables.

New and Replacement Demand

If the purchase or acquisition of an item is meant as an addition to stock, it is a **new demand**. The demand for the latest model of a particular machine (say, the latest generation computer) is anew demand.

If the purchase of an item is meant for maintaining the old stock of capital/asset, it is **replacement demand**. Such replacement expenditure is to overcome depreciation in the existing stock. The demand for spare parts of a machine is replacement demand.

Final and Intermediate Demands

This distinction is again based on the type of goods- final or intermediate. The demand for semi-finished products, industrial raw materials and similar intermediate goods are all derived demands, i.e., Induced by the demand for final goods. In the context of input-output models, such distinction is often employed.

Individual and Market Demands

This distinction is often employed by the economist to study the size of the buyers' demand, individual as well as collective.

A market is visited by different consumers, consumer differences depending on factors like income, age, sex etc. They all react differently to the prevailing market price of a commodity.

For example, when the price is very high, a low-income buyer may not buy anything, though a high income buyer may buy something. In such a case, we may distinguish between the demand of an individual buyer and that of the market which is the market which is the aggregate of individuals.

Total Market and Segmented Market Demands

Different individual buyers together may represent a given market segment; and several market segments together may represent the total market. For example, the hindustan machine tools may compute the demand for its watches in the home and foreign markets separately; and then aggregate them together to estimate the total market demand for its HMT watches.

Company and Industry Demands

Thus the company's demand is similar to an individual demand, whereas the industry's demand is similar to aggregated total demand

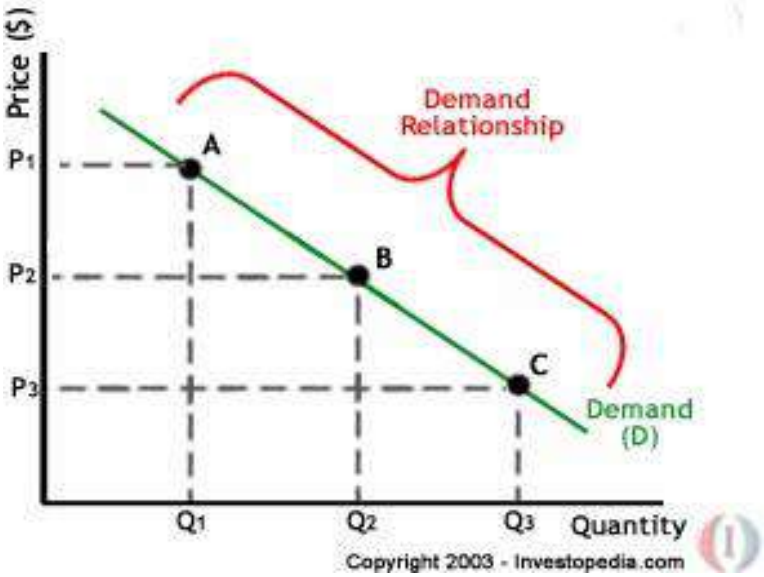
For example, you may think of the demand for cement produced by the cement corporation of india (i.e., A company's demand), or the demand for cement produced by all cement manufacturing units including the CCI (i.e., An industry's demand).

Demand Function and Demand Curve

- Demand function is a comprehensive formulation which specifies the factors that influence the demand for the product. What can be those factors which affect the demand?
- For example,
- **$D_x = D (p_x, p_y, p_z, B, W, A, E, T, U)$**
- Here d_x, stands for demand for item x (say, a car)
- P_x, its own price (of the car)
- P_y, the price of its substitutes (other brands/models)
- P_z, the price of its complements (like petrol)
- B, the income (budget) of the purchaser (user/consumer)
- W, the wealth of the purchaser
- A, the advertisement for the product (car)
- E, the price expectation of the user
- T, taste or preferences of user
- U, all other factors

Law of Demand:

- A microeconomic law that states that, all other factors being equal, as the price of a good or service increases, consumer demand for the good or service will decrease and vice versa.
- This law summarizes the effect price changes have on consumer behavior. For example, a consumer will purchase more pizzas if the price of pizza falls. The opposite is true if the price of pizza increases.



Assumptions of Law of Demand

(i) There should not be any change in the tastes of the consumers for goods (T).

(ii) The purchasing power of the typical consumer must remain constant (m).

(iii) The price of all other commodities should not vary (p^o).

Now let us suppose that price of tea comes down from $40 per pound to $20 per pound. The demand for tea may not increase, because there has taken place a change in the taste of consumers or the price of coffee has fallen down as compared to tea or the purchasing power of the consumers has decreased, etc., Etc. From this we find that demand responds to price inversely only, if other thing remains constant. Otherwise, the chances are that, the quantity demanded may not increase with a fall in price or vice-versa.

Demand, thus, is a negative relationship between price and quantity.

Limitations/Exceptions of Law of Demand:

Though as a rule when the prices of normal goods rise, the demand they decreases but there may be a few cases where the law may not operate.

(i) **Prestige goods:** There are certain commodities like diamond, sports cars etc., which are purchased as a mark of distinction in society. If the price of these goods rise, the demand for them may increase instead of falling.

(ii) **Price expectations**: If people expect a further rise in the price particular commodity, they may buy more in spite of rise in price. The violation of the law in this case is only temporary.
(3) Ignorance of the consumer: If the consumer is ignorant about the rise in price of goods, he may buy more at a higher price.

(iv) **Giffen goods**: If the prices of basic goods, (potatoes, sugar, etc) on which the poor spend a large part of their incomes declines, the poor increase the demand for superior goods, hence when the price of Giffen good falls, its demand also falls. There is a positive price effect in case of Giffen goods.

(v) Demonstration effect or 'Band-wagon-effect'

When new goods come in fashion, many people buy them not because they have a genuine need for them but because their neighbours have bought the same goods. The purchase made by the buyers are made out of such feelings as jealousy, competition, equality in the peer group, social inferiority and the desire to raise their social status. Purchases made on account of these factors are the result of what economists call 'demonstration effect' or the 'Band-wagon-effect'. These effects have a positive effect on demand.

Reasons Behind the law of demand:

Demand Curve is negatively Sloped:

The demand curve generally slopes downward from left to right. It has a negative slope because the two important variables price and quantity work in opposite direction. As the price of a commodity decreases, the quantity demanded increases over a specified period of time, and vice versa, other, things remaining constant.

The fundamental reasons for demand curve to slope downward are as follows:

(i) Law of diminishing marginal utility: the law of demand is based on the law of diminishing marginal utility. According to the cardinal utility approach, when a consumer purchases more units of a commodity, its marginal utility declines. The consumer, therefore, will purchase more units of that commodity only if its price falls. Thus a decrease in price brings about an increase, in demand. The demand curve, therefore, is downward sloping.

Marginal utility is a additional satisfaction of a consumer gains from consuming one more unit of a good or service.

Cardinal utility is measurable and the customer can express his satisfaction in cardinal or quantitative numbers such as 1,2,3 and so on

ii) Income effect: other things being equal, when the price of a commodity decreases, the real income or the purchasing power of the household increases. The consumer is now in a position to purchase more commodities with the same income. The demand for a commodity thus increases not only from the existing buyers but also from the new buyers who were earlier unable to purchase at higher price. When at a lower price, there is a greater demand for a commodity by the households, the

Demand curve is bound to slope downward from left to right.

(iii) Substitution effect: the demand curve slopes downward from left to right also because of the substitution effect. For instance, the price of meat falls and the prices of other substitutes say poultry and beef remain constant. Then the households would prefer to purchase meat because it is now relatively cheaper. The increase in demand with a fall in the price of meat will move the demand curve downward from left to right.

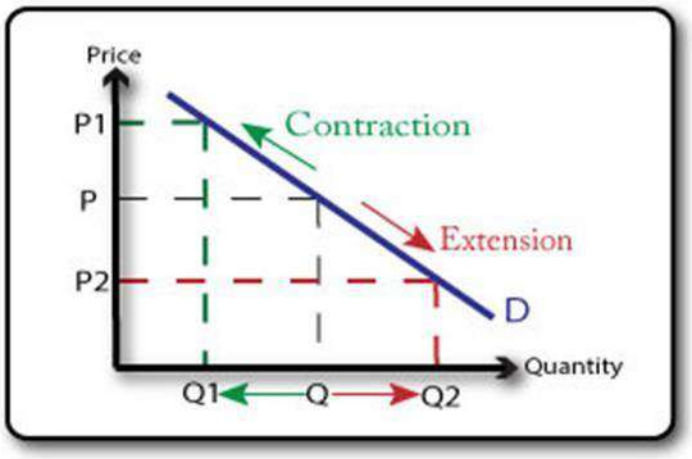
iv) Entry of new buyers: when the price of a commodity falls, its demand not only increases from the old buyers but the new buyers also enter the market. The combined result of the income and substitution effect is that demand extends, ceteris paribus, as the .Price falls. The demand curve slopes downward from left to right.

Changes in demand for a commodity can be shown through the demand curve in two ways:

- Movement along the demand curve and
- Shifts of the demand curve.

1) Movement along the Demand Curve:

A movement refers to a change along a curve. On the demand curve, a movement denotes a change in both price and quantity demanded from one point to another on the curve. Therefore, a movement occurs when a change in the quantity demanded is caused only by a change in price, and vice versa.



Expansion in Demand:

Expansion in demand refers to a rise in the quantity demanded due to a fall in the price of commodity, other factors remaining constant.

1. It leads to a downward movement along the same demand curve.
2. It is also known as 'extension in demand' or 'increase in quantity demanded'. It can be better understood from the table

As seen in the given schedule and diagram, the quantity demanded rises from 100 units to 150 units with a fall in the price from rs. 20 to rs. 15, resulting in a downward movement from A to B along the same demand curve DD.

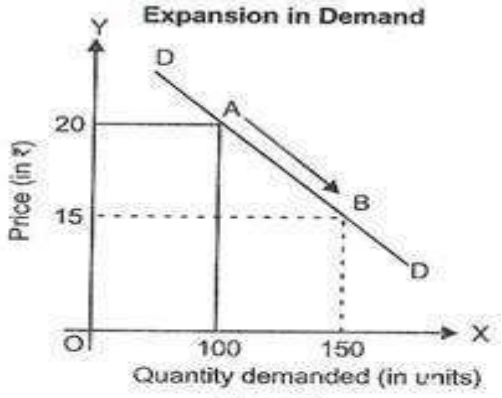


Fig. 3.5

Price (Rs.)	Demand (units)
20	100
15	150

Contraction in Demand:

- Contraction in demand refers to a fall in the quantity demanded due to a rise in the price of commodity, other factors remaining constant.
- It leads to an upward movement along the same demand curve.
- It is also known as 'decrease in quantity demanded'. It can be better understood from the table

- As seen in the given schedule and diagram, the quantity demanded falls from 100 units to 70 units with a rise in the price from Rs. 20 to Rs. 25, resulting in an upward movement from A to B along the same demand curve DD.

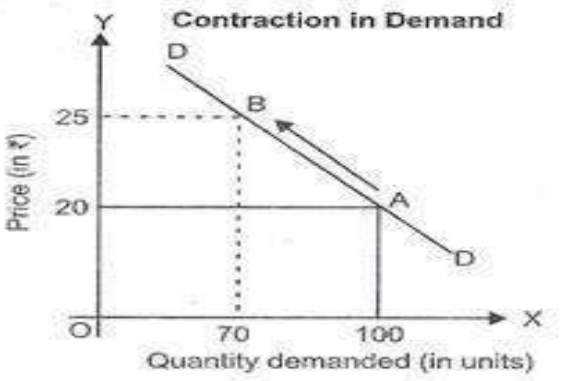


Fig. 3.6

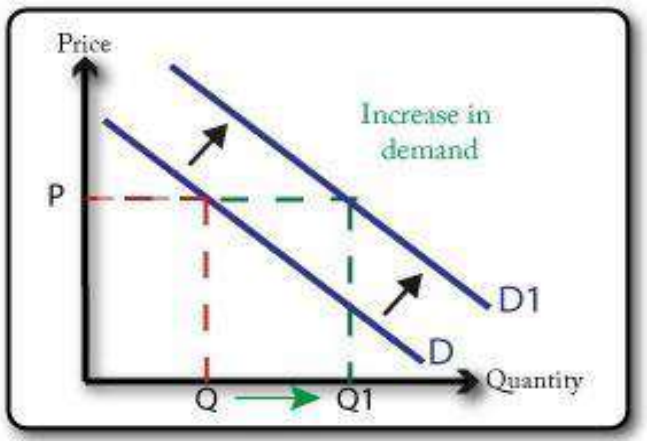
Table: Contraction in Demand

Price (Rs.)	Demand (units)
20	100
25	70

(2) Shifts in Demand Curve:

- Demand, as we know, is determined by many factors. When there is a change in demand due to one or more than one factors other than price, results in the shift of demand curve.
- For example, if the level of income in community rises, other factors remaining the same, the demand for the goods increases. Consumers demand more goods at each price per period of me (rise or increase in demand). The demand curve shifts upward from the original demand curve indicating that consumers at each price purchase more units of commodity per unit of time.

P^{dx} ($)	Q^{dx}	Rise in Q^{dx}	Fall in Q^{dx}
12	100	300	50
6	250	500	200
4	500	600	300



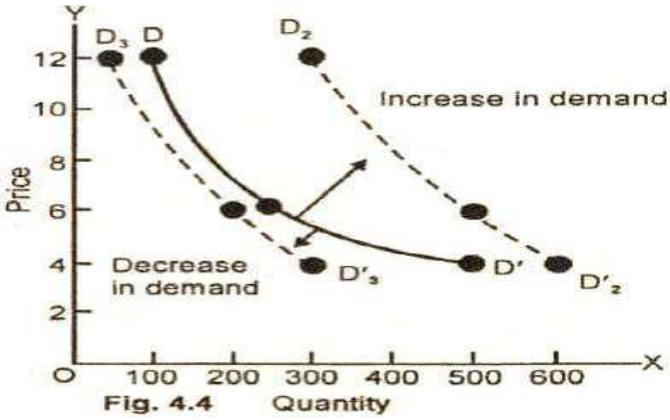


Fig. 4.4

1. In this figure, the original demand curve is DD/.

2. At a price of $12 per unit, consumers purchase 100 units. When price falls to$4 per unit, the quantity demanded increases to 500 units per unit of time. Let us assume now that level of income increases in a community. Now consumers demand 300 units of the commodity at price of $12 per unit and 600 at price of $4 per unit.

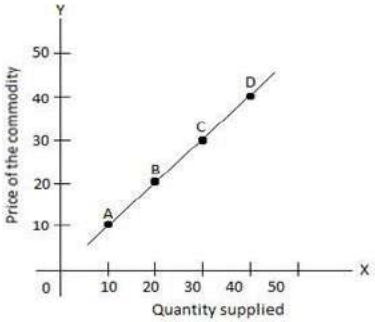
3. As a result, there is an upward shift of the demand curve dd^2. In case the community income falls, there is then decrease in demand at price of $12 per unit. The quantity demanded of a good falls to 50 units. It is 300 units at price of $4 unit per period of time. There is a downward shift of the demand to the left of the original demand curve.

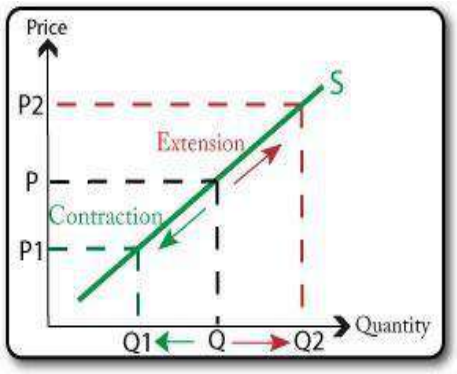
Movement along a supply curve

- The amount of commodity supplied changes with rise and fall of the price while other determinants of supply remain constant. This change when shown in the graph is known as movement along a supply curve.

- In simple words, movement along a supply curve represents the variation in quantity supplied of the commodity with change in its price and other factors remaining unchanged.

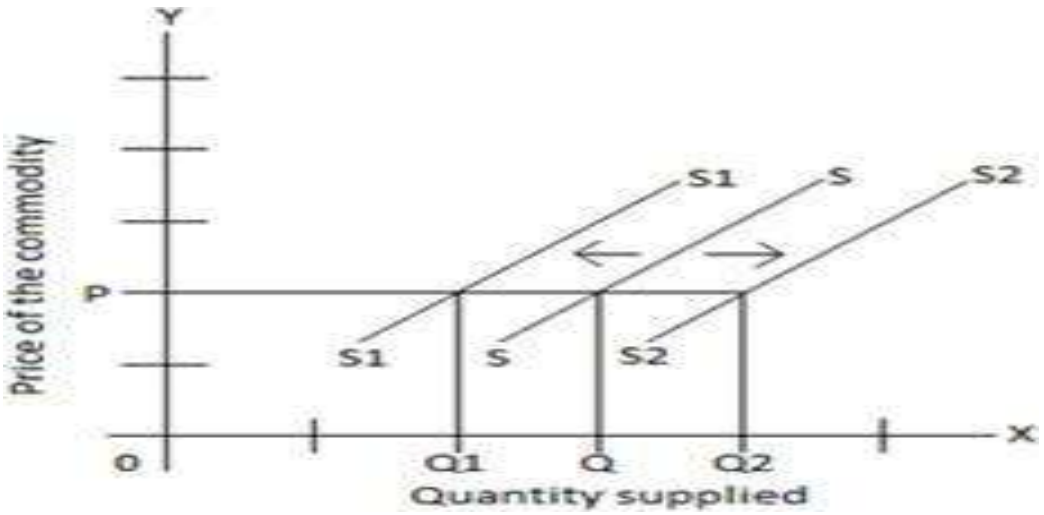
- The movement in supply curve can be of two types – extension and contraction. Extension in a supply curve is caused when there is increase in the price or quantity supplied of the commodity while contraction is caused due to decrease in the price or quantity supplied of the commodity.





Shift in supply curve

- The amount of commodity that the producers or suppliers are willing to offer at the marketplace can change even in cases when factors other than price of the commodity change. Such non-price factors can be cost of factors of production, tax rate, state of technology, natural factors, etc.
- When quantity of the commodity supplied changes due to change in non-price factors, the supply curve does not extend or contract but shifts entirely. For an instance, introduction of improved technology in industries helps in reducing cost of production and induces production of more units of commodity at same price. As a result, quantity of commodity supplied increases but price of the commodity remains as it is



Reasons for rightward shift of supply curve

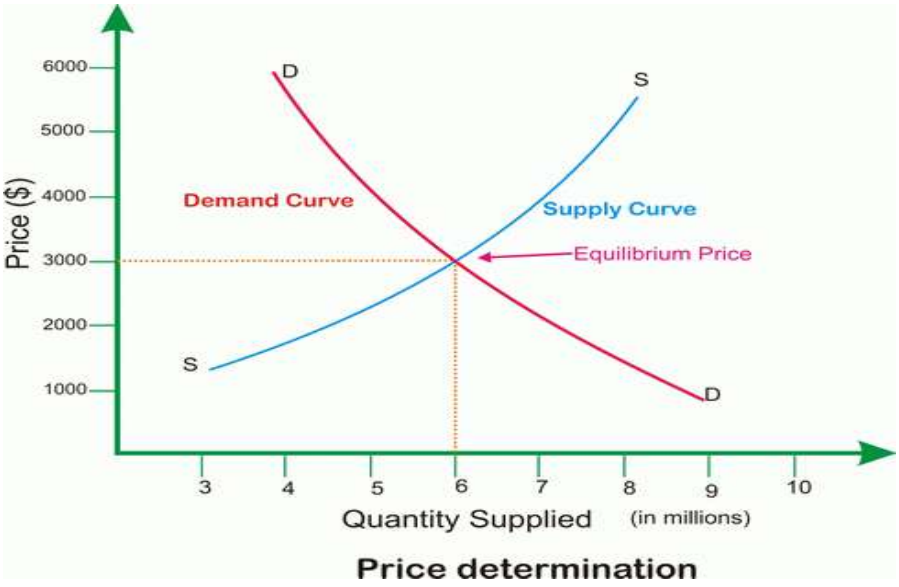
- Improvement in technology
- Decrease in tax
- Decrease in cost of factor of production
- Favorable weather condition
- Seller's expectation of fall in price in future

Reasons for leftward shift of supply curve

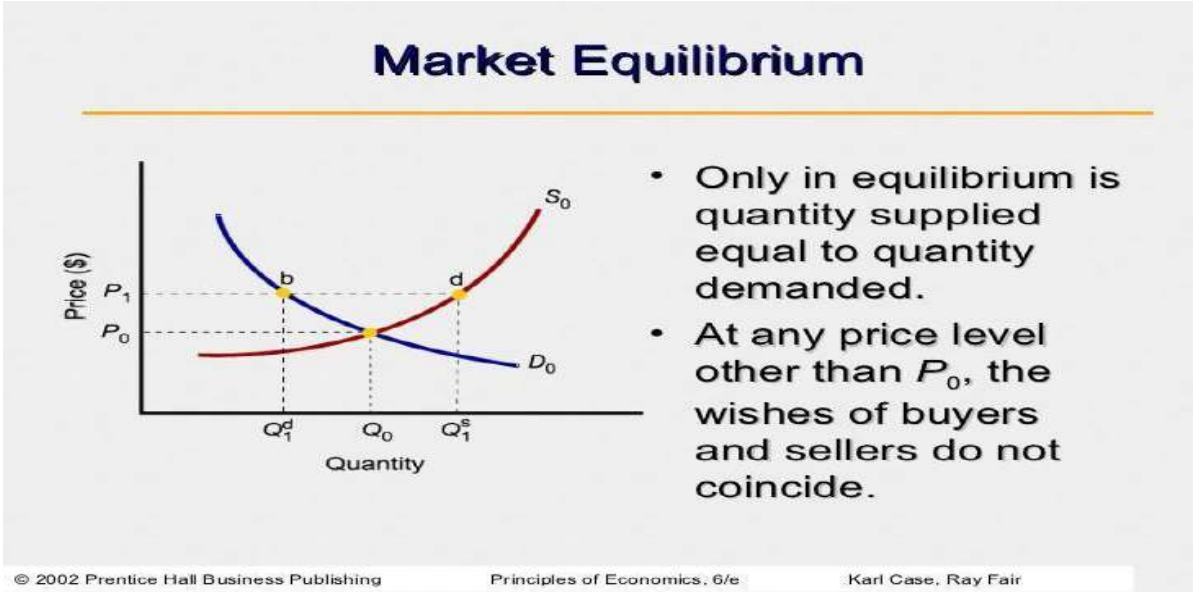
- Use of old or outdated technology.
- Increase in tax.
- Increase in cost of factor of production.
- Unfavorable weather condition.
- Seller's expectation of rise in price in future.

Market equilibrium

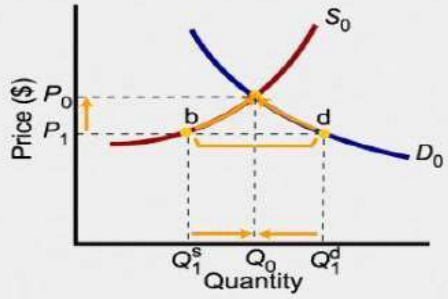
- The operation of the market depends on the interaction between buyers and sellers.
- Equilibrium is the condition that exists when quantity supplied and quantity demanded are equal.
- At equilibrium, there is no tendency for the market price to change.



Price determination



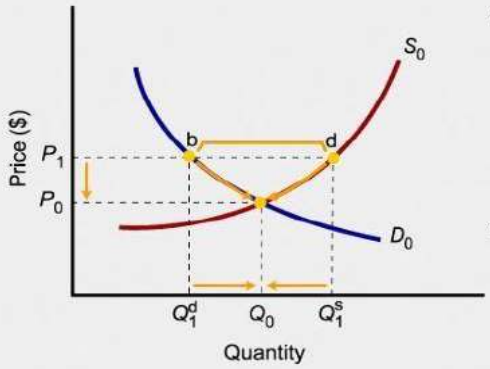
Market Disequilibria



- ***Excess demand***, or shortage, is the condition that exists when quantity demanded exceeds quantity supplied at the current price.
- When quantity demanded exceeds quantity supplied, price tends to rise until equilibrium is restored.

 Principles of Economics, 6/e Karl Case, Ray Fair

Market Disequilibria



- ***Excess supply***, or surplus, is the condition that exists when quantity supplied exceeds quantity demanded at the current price.
- When quantity supplied exceeds quantity demanded, price tends to fall until equilibrium is restored.

 Principles of Economics, 6/e Karl Case, Ray Fair

Elasticity of Demand

The term elasticity means a proportionate (percentage) change in one variable relative to a proportionate (percentage) change in another variable. The quantity demanded of a good is affected by changes in the price of the good, changes in price of other goods, changes in income and changes in other factors.

The elasticity of demand may be as follows:

Ф Price Elasticity

Ф Income Elasticity and

Ф Cross Elasticity

- Price Elasticity

The response of the consumers to a change in the price of a commodity is measured by the price elasticity of the commodity demand. The responsiveness of changes in quantity demanded due to changes in price is referred to as price elasticity of demand

Price Elasticity = Proportionate change in the Quantity demanded / Proportionate change in price

$$= \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}}$$

$$\frac{\Delta Q}{Q}$$

$$\Delta P / P$$

ΔQ = change in quantity demanded

ΔP = change in price

P = price Q = quantity demanded

Determinants of Price Elasticity Of Demand

The exact value of price elasticity for a commodity is determined by a wide variety of factors. The two factors considered by economists are the **availability of substitutes and time.** The better the substitutes for a product, the higher the price elasticity of demand.. The longer the period of time, the more the price elasticity of demand for that product. The price elasticity of necessary goods will have lower elasticity than luxuries.

- 1. **Nature of the commodity**: the demand for necessities is inelastic because the demand does not change much with a change in price. But the demand for luxuries is elastic in nature.
- 2. **Extent of use**: A commodity having a variety of uses has a comparatively elastic demand.

- 3. **Range of substitutes**: the commodity which has more number of substitutes has relatively elastic demand. A commodity with fewer substitutes has relatively inelastic demand.
- 4. **Income level**: people with high incomes are less affected by price changes than people with low incomes.
- **5. Proportion of income spent on the commodity**: when a small part of income is spent on the commodity, the price change does not affect the demand therefore the demand is inelastic in nature.
- 6. **Urgency of demand / postponement of purchase**: the demand for certain commodities are highly inelastic because you cannot postpone its purchase. For example medicines for any sickness should be purchased and consumed immediately.
- 7. **Durability of a commodity**: if the commodity is durable then it is used it for a long period. Therefore elasticity of demand is high. Price changes highly influences the demand for durables in the market.
- 8. **Purchase frequency of a product/ recurrence of demand**: the demand for frequently purchased goods are highly elastic than rarely purchased goods.
- 9. **Time**: in the short run demand will be less elastic but in the long run the demand for commodities are more elastic.

Types of Price Elasticity of Demand

1. Relatively Elastic Demand (Ed >1)

A small percentage change in price leading to a larger change in quantity demanded.

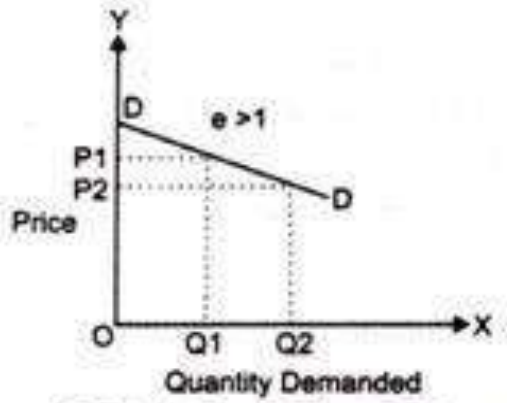
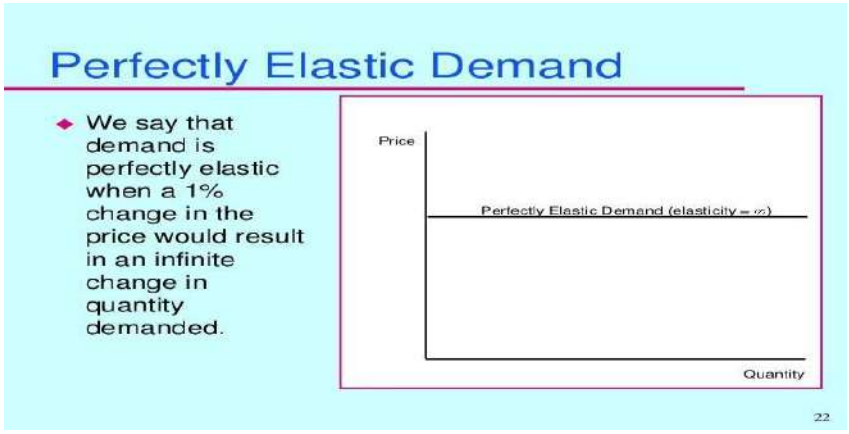


Figure-4: Relatively Elastic Demand

2. Perfectly Elastic Demand (Ed = ∞)

A small change in price will change the quantity demanded by an infinite amount.



3. Relatively Inelastic Demand (Ed < 1)

A change in price leads to a smaller percentage change in quantity demanded.

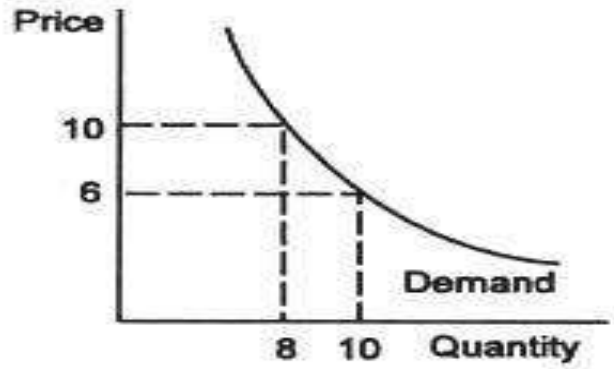


Fig. 13 : Relatively inelastic demand

4. Perfectly Inelastic Demand (Ed = 0)

The quantity demanded does not change regardless of the percentage change in price.

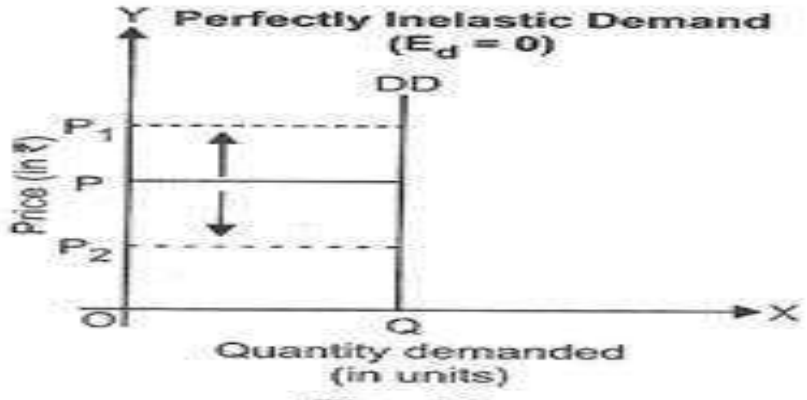
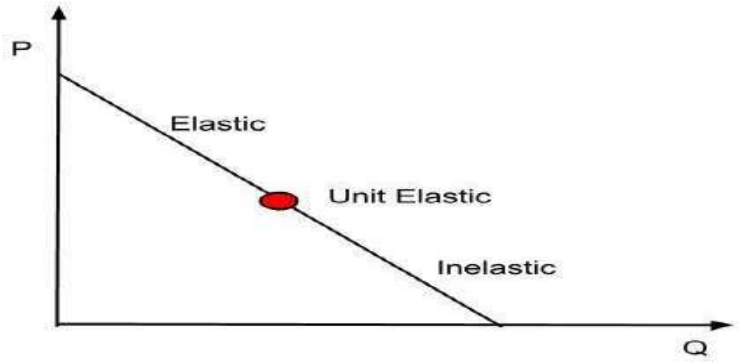


Fig. 4.5

5. Unit Elasticity of Demand (Ed =1)

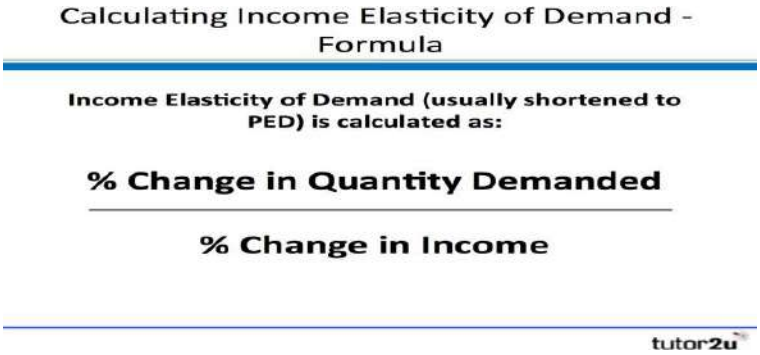
The percentage change in quantity demanded is the same as the percentage change in price that caused it.



Income Elasticity

Income elasticity of demand measures the responsiveness of quantity demanded to a change in income. It is measured by dividing the percentage change in quantity demanded by the percentage change in income.

If the demand for a commodity increases by 20% when income increases by 10% then the income elasticity of that commodity is said to be positive and relatively high.

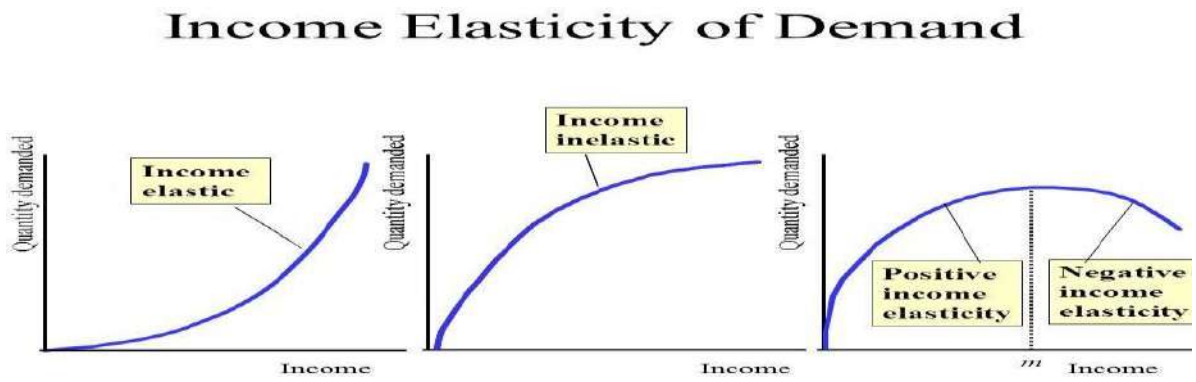


TYPES OF INCOME ELASTICITY

- **Zero Income Elasticity**: The increase in income of the individual does not make any difference in the demand for that commodity. (Ei = 0)
- **Negative Income Elasticity**: The increase in the income of consumers leads to less purchase of those goods. (Ei < 0).
- **Unitary Income Elasticity**: The change in income leads to the same percentage of change in the demand for the good. (Ei = 1).
- **Income Elasticity is Greater than 1**: The change in income increases the demand for that commodity more than the change in the income. (Ei > 1).

- **Income Elasticity is Less than** 1: The change in income increases the demand for the commodity but at a lesser percentage than the change in the income. (Ei < 1).

With a rise in consumer's income, the demand increases for superior goods and decreases for inferior goods and vice versa. The income elasticity of demand is positive for superior goods or normal goods and negative for inferior goods since a person may shift from inferior to superior goods with a rise in income.



Cross Elasticity

- The quantity demanded of a particular commodity varies according to the price of other commodities. Cross elasticity measures the responsiveness of the quantity demanded of a commodity due to changes in the price of another commodity.
- If two goods are substitutes then they will have a positive cross elasticity of demand. In other words if two goods are complementary to each other than negative income elasticity may arise.
- The responsiveness of the quantity of one commodity demanded to a change in the price of another good is calculated with the following formula.

$$Ec = \frac{\text{\% change in demand for commodity A}}{\text{\% change in price of commodity B}}$$

If two commodities are unrelated goods, the increase in the price of one good does not result in any change in the demand for the other goods. For example the price fall in Tata salt does not make any change in the demand for Tata nano.

Significance of Elasticity of Demand:

The concept of elasticity is useful for the managers for the following decision making activities

1. In production i.e. In deciding the quantity of goods to be produced

2. Price fixation i.e. In fixing the prices not only on the cost basis but also on the basis of prices of related goods.

3. In distribution i.e. To decide as to where, when, and how much etc.

4. In international trade i.e. What to export, where to export

5. In foreign exchange

6. For nationalizing an industry

7. In public finance

SUPPLY

Supply of a commodity refers to the various quantities of the commodity which a seller is willing and able to sell at different prices in a given market at a point of time, other things remaining the same.

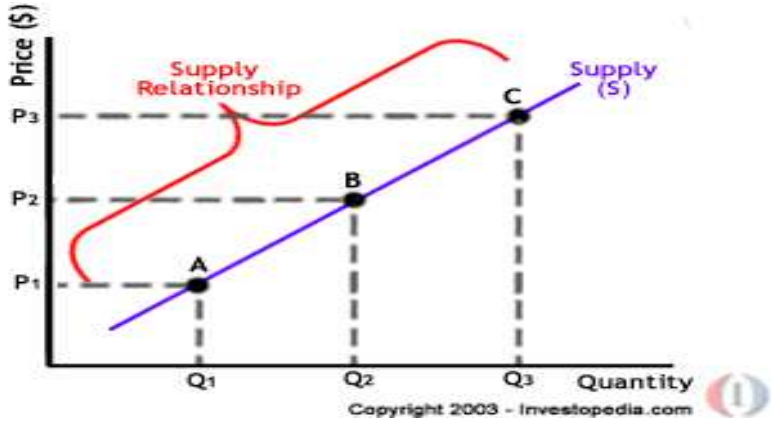
Supply is what the seller is able and willing to offer for sale. The quantity supplied is the amount of a particular commodity that a firm is willing and able to offer for sale at a particular price during a given time period.

Law of Supply: Is the relationship between price of the commodity and quantity of that commodity supplied. i.e. An increase in price will lead to an increase in quantity supplied and vice versa.

Supply Curve: A graphical representation of how much of a commodity a firm sells at different prices. The supply curve is upward sloping from left to right. Therefore the price elasticity of supply will be positive. Graph - supply curve

Assumptions

1. No change in the state of technology.
2. No change in the price of factors of production.
3. No change in the number of firms in the market.
4. No change in the goals of the firm.
5. No change in the seller's expectations regarding future prices.
6. No change in the tax and subsidy policy of the products.
7. No change in the price of other goods.



- **Determinants Of Supply:**

1. **The cost of factors of production**: Cost depends on the price of factors. Increase in factor cost increases the cost of production, and reduces supply.

2. **The state of technology**: Use of advanced technology increases productivity of the organization and increases its supply.

3. **External factors**: External factors like weather influence the supply. If there is a flood, this reduces supply of various agricultural products.

4. **Tax and subsidy**: Increase in government subsidies results in more production and higher supply.

5. **Transport**: Better transport facilities will increase the supply.

6. **Price:** If the prices are high, the sellers are willing to supply more goods to increase their profit.

7. **Price of other goods**: The price of other goods is more than 'X' then the supply of 'X' will be increased.

Elasticity of Supply

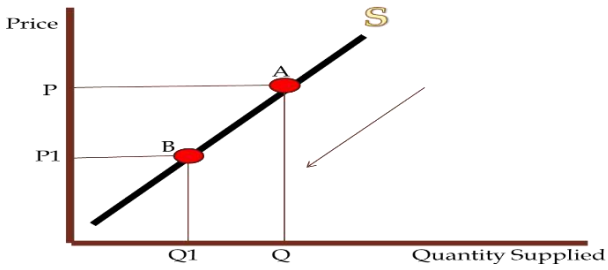
- Elasticity of supply of a commodity is defined as the responsiveness of a quantity supplied to a unit change in price of that commodity.

$$Es = \frac{\Delta qs / qs}{\delta p / p}$$

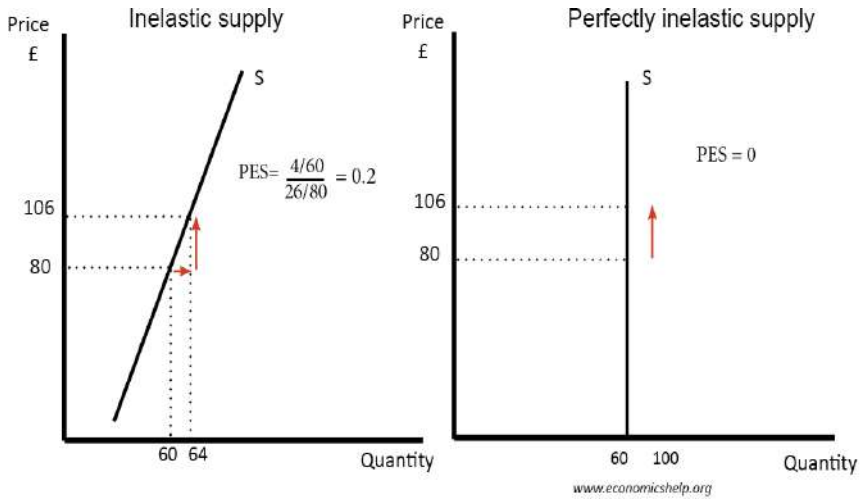
- δqs = change in quantity supplied
- qs = quantity supplied
- δp = change in price
- p = price

Kinds of Supply Elasticity

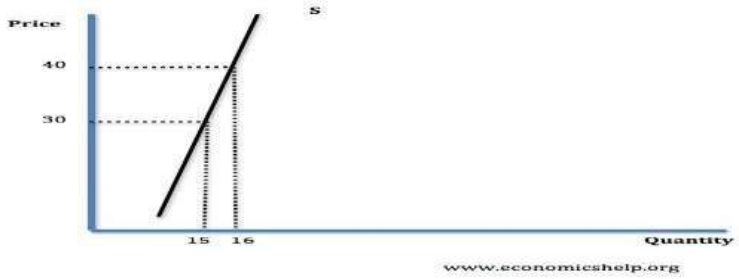
Price elasticity of supply: Price elasticity of supply measures the responsiveness of changes in quantity supplied to a change in price.



Perfectly inelastic: If there is no response in supply to a change in price. (Es = 0))



Inelastic supply: The proportionate change in supply is less than the change in price (Es =0-1)



Unitary elastic: The percentage change in quantity supplied equals the change in price (Es=1)

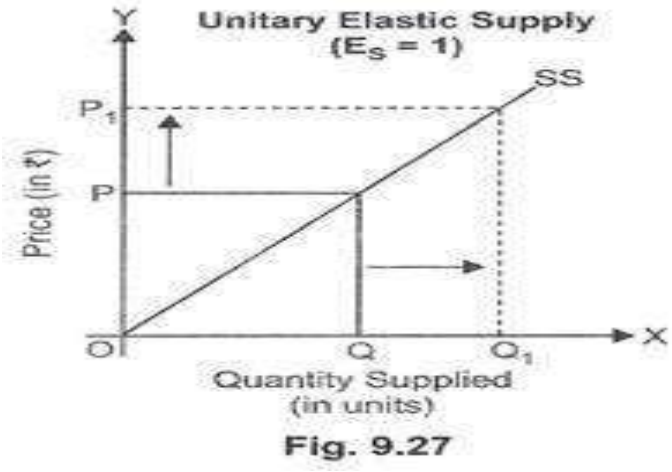
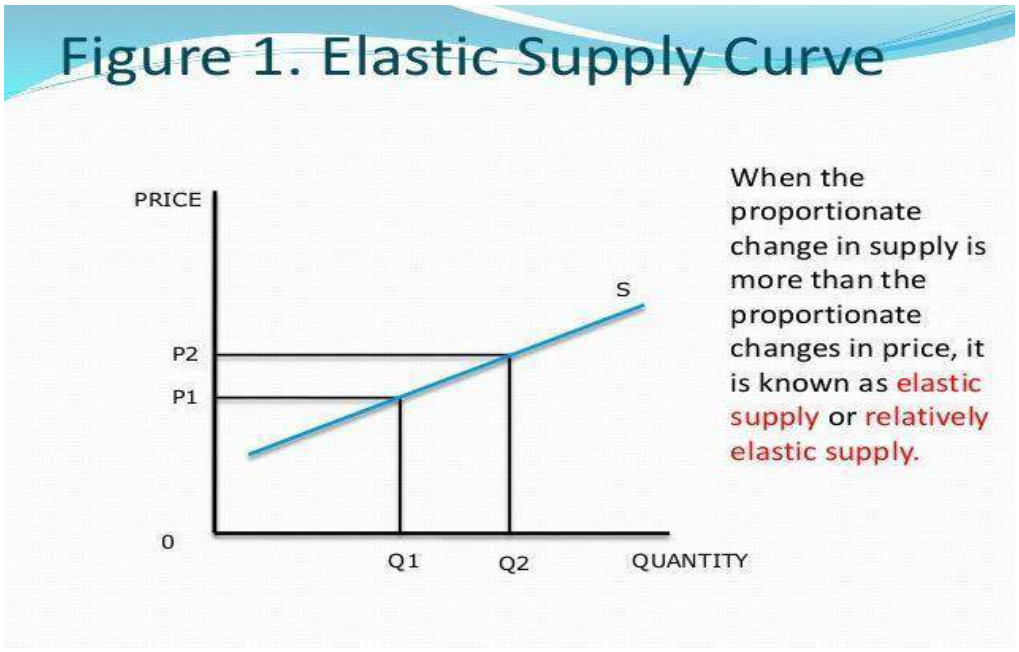
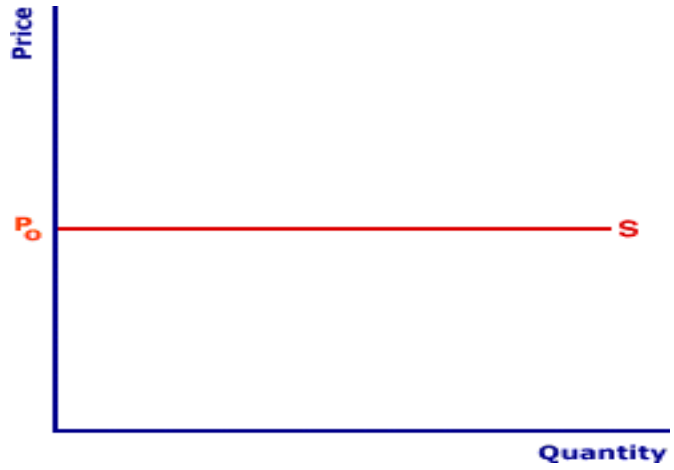


Fig. 9.27

Elastic: The change in quantity supplied is more than the change in price (Ex= 1- ∞)



Perfectly elastic: Suppliers are willing to supply any amount at a given price (Es=∞)



- The major **determinants** of elasticity of supply are availability of substitutes in the market and the time period, shorter the period higher will be the elasticity.
- **Factors influencing elasticity of supply**

1. **Nature of the commodit**y: if the commodity is perishable in nature then the elasticity of supply will be less. Durable goods have high elasticity of supply.

2. **Time peri**od: if the operational time period is short then supply is inelastic. When the the production process period is longer the elasticity of supply will be relatively elastic.

3. **Scale of production**: small scale producer's supply is inelastic in nature compared to the large producers.

4. **Size of the firm and number of products**: if the firm is a large scale industry and has more variety of products then it can easily transfer the resources. Therefore supply of such products is highly elastic.

5. **Natural factors**: natural calamities can affect the production of agricultural products so they are relatively inelastic.

6. **Nature of production**: if the commodities need more workmanship, or for artistic goods the elasticity of supply will be high.

- **Consumer Behaviour**

Consumer behavior is the **study of individuals**, groups, or organizations and the processes they use **to select**, secure, and dispose of **products**, services, experiences, or ideas **to satisfy needs and the impacts** that these processes have **on the consumer** and society

What is Utility

A hypothetical unit used to measure how much utility a person obtains from consuming a good. In other words, The satisfaction, or pleasure, that people receive from consuming a good or service.

UTILITY function

Utility is a measure of satisfaction, referring to the total satisfaction received by a consumer from consuming a good or service
Utility represents the advantage or fulfillment a person receives from consuming a good or service.
Utility, then, explains how individuals and economies aim to gain optimal satisfaction in dealing with scarcity.

CONCEPTS IN UTILITY/MEASUREMENT OF UTILITY.

- Total Utility
- Marginal Utility

What is Total Utility?

- ***The amount of satisfaction received from all the units of a good or service consumed.***
- The sum total of satisfaction which a consumer receives by consuming the various unit of the commodity.(The more unit of a commodity he consumes, the greater will be his total utility)
- Consumers theoretically wish to obtain the maximum degree of total utility for the amount of money that they expend on an item or service offered by a business.

What is Marginal Utility?

- The change in total utility from one additional unit of a good or service.
- The concept of marginal utility grew out of attempts by economists to explain the determination of price.
- Marginal utility can be defined as a measure of relative satisfaction gained or lost from an increase or decrease in the consumption of that good or service.

- An increase in an activity's overall benefit that is caused by a unit increase in the level of that activity, all other factors remaining constant.
- Also called marginal benefit.

$$\text{Marginal utility} = \frac{\text{Change in total utility}}{\text{Change in quantity consumed}}$$

APPROACHES OF UTILITY MEASUREMENT/Consumer Behaviour

1. Cardinal Approach
2. Ordinal Approach

.

CARDINAL APPROACH

- Pioneered by Alfred Marshall
- Also called neo classical approach
- Cardinal utility exists if the utility derived from consumption is measurable in the same way that other physical characteristics--height and weight--are measured using a scale that is comparable between people

Assumptions of cardinal utility

- **Rationality:** It is assumed that the consumers are rational, and they satisfy their wants in the order of their preference. This means they will purchase those commodities first which yields the highest utility and then the second highest and so on.
- **Limited Resources (Money):** The consumer has limited money to spend on the purchase of goods and services and thus this makes the consumer buy those commodities first which is a necessity.
- **Maximize Satisfaction:** Every consumer aims at maximizing his/her satisfaction for the amount of money he/she spends on the goods and services.
- **Utility is cardinally Measurable:** It is assumed that the utility is measurable, and the utility derived from one unit of the commodity is equal to the amount of money, which a consumer is ready to pay for it, i.E. **1 util = 1 unit of money.**
- **Diminishing Marginal Utility:** This means, with the increased consumption of a commodity, the utility derived from each successive unit goes on diminishing. This law holds true for the theory of consumer behavior.
- **Marginal Utility of Money is Constant:** It is assumed that the marginal utility of money remains constant irrespective of the level of a consumer's income.
- **Utility is Additive:** The cardinalists believe that not only the utility is measurable but also the utility derived from the consumption of different commodities are added up to realize the total utility.

Approaches to cardinal utility

- Law Of Diminishing Marginal Utility
- Law Of Equi-marginal Utility
- Consumer's Surplus

Units of Commodity X	Total Utility (Tux)	Marginal Utility (MUx)
1	30	30
2	50	20
3	65	15
4	70	5
5	65	-5
6	45	-20

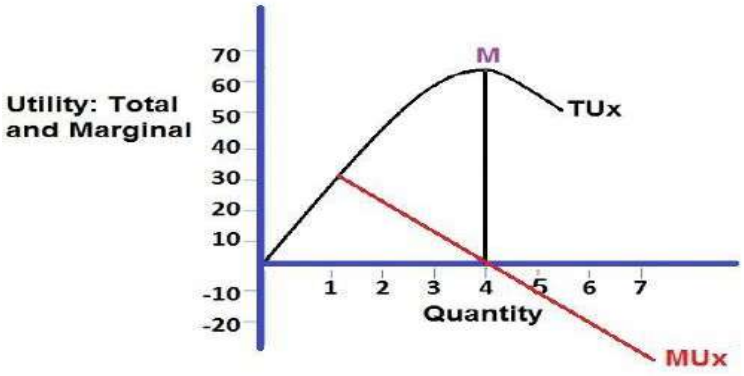
Law of Diminishing Marginal Utility

The law of diminishing marginal utility states that 'as a consumer consumes more and more units of a specific commodity, utility from the successive units goes on diminishing'.

Mr. H. Gossen, a German economist, was the first to explain this Law in 1854.

Law based upon following assumptions

1. The units of the good, which are consumed, are homogeneous
2. The good is consumed within a short time without any gaps
3. The units of the good consumed are of a standard size
4. The consumer's income does not change in the period of observations
5. There is no change in the tastes of the consumers.



- As shown in the table., With the increase in the consumption of the units of commodity X, the total utility increases, but at a diminishing rate. The marginal utility also diminishes with the consumption of each successive unit of X.
- As shown in the fig. Tu_x increases as a result of the consumption of additional units of the commodity X while the mu_x is a downward sloping curve, which shows that the utility diminishes with the consumption of more and more units of the commodity X. At units 4, the tu_x reaches to the maximum point, the **point of saturation**denoted as **M**, from where the **tu_x starts declining.** Beyond this point, i.E. As the tu_x starts declining the mu_x becomes negative. The downward sloping marginal utility curve illustrates the law of diminishing marginal utility.

The relationship between the Total Utility and Marginal Utility can be summarized as:

- When MU decreases, TU increases at a decreasing rate.
- When mu is zero, TU is maximum.
- When mu is negative, TU starts declining.
- Thus, the law of diminishing marginal utility holds universally, for both the durable and non-durable goods. In certain conditions, such as accumulation of money, a hobby of collecting old coins, stamps, visiting cards, etc. The marginal utility might initially increase, but eventually, it starts declining.

Limitations

- **Unrealistic assumptions:**

  Include homogeneity, continuity, and constancy conditions. All these assumptions are impossible to find at once.

- **ii. Inapplicability to certain goods:**

  Implies that the law of diminishing marginal utility cannot be applied to goods, such as television and refrigerator. This is because the consumption of these goods is not continuous in nature.

- **iii. Constant marginal utility of money:**

  Assumes that MU of money remains constant, which is unrealistic. There is also a gradual decline in the MU of money.

- **iv. Change in other people's stock:**

Implies that the utility of consumers is also dependent on what other people have in their stock. Thus, the utility depends on social needs.

- **v. Other possessions:**

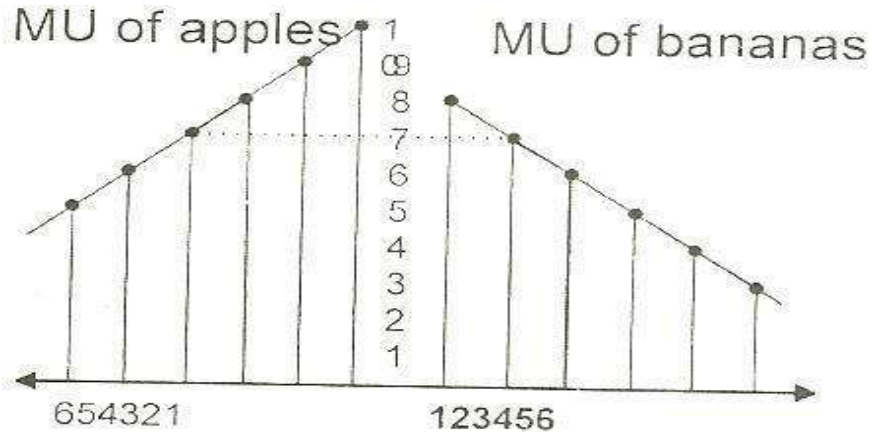
  Assumes that utility of consumers also depends on possessions already owned by them. For example, a consumer is suffering from diabetes, thus, he is not allowed to consume sugar that he/she already possesses. In such a case, the utility of coffee derived by him/her would be less.

Law of Equi Marginal Utility:

- The **law of equi marginal utility** was presented in 19th century by an Australian economists H. H. Gossen. It is also known as law of maximum satisfaction or law of substitution or gossen's second law. A consumer has number of wants. He tries to spend limited income on different things in such a way that marginal utility of all things is equal. When he buys several things with given money income he equalizes marginal utilities of all such things. The law of equi marginal utility is an extension of the law of diminishing marginal utility

Definition:

- "A person can get maximum utility with his given income when it is spent on different commodities in such a way that the marginal utility of money spent on each item is equal".
- It is clear that consumer can get maximum utility from the expenditure of his limited income. He should purchase such amount of each commodity that the last unit of money spend on each item provides same marginal utility.
- **Assumptions of the Law of Equi Marginal Utility:**
- There is no change in the prices of the goods.
- The income of consumer is fixed.
- The marginal utility of money is constant.
- Consumer has perfect knowledge of utility obtained from goods.
- Consumer is normal person so he tries to seek maximum satisfaction.
- The utility is measurable in cardinal terms.
- Consumer has many wants.
- The goods have substitutes.



Limitations:

1. The law is not applicable in case of knowledge. Reading of books provides more satisfaction and knowledge to the scholar. Different books provide variety of knowledge and satisfaction.
2. The law is not applicable in case of indivisible goods. The consumer is unable to divide the goods to adjust units of utility derived from consumption of goods.
3. There is no measurement of utility. It is psychological concept. It is not possible to express it into quantitative form.
4. The law does not hold well in case fashion and customs. The people like to spend money on birthdays, marriages and deaths.
5. The does not hold well in case of very low income. The maximization of utility is not possible due to low income.
6. The law is not applicable in case of durable goods. The calculation of marginal utility of durable goods is impossible.
7. The law fails when goods of choice are not available. The consumer is bound to use commodity, which provides low utility due to non availability of goods having high utility.
8. There are certain lazy consumers. They do not care for maximum utility. The law fails to operate in case of laziness of consumers. They go on consuming goods with comparing utility.
9. It does not work when there are frequent prices changes. The consumer is unable to calculate utility of different commodities. Changing price levels create confusion in the minds of consumers.
10. There may be unlimited resources. The does not work due to unlimited resources. There is no need to change the direction of expenditure from one item to another when there are gifts of nature.

Consumer Surplus:

Definition of Consumer Surplus:

Regarding this prof. Marshall has said that "the excess of price which he (consumer) would be willing to pay rather than go without. The thing over that which he actually does pay, is the economic measure of this surplus satisfaction. It may be called "consumer's surplus".

Assumptions of Consumer's Surplus

1. Marginal Utility of Money is Constant:

The marginal utility of money to the consumer remains constant. It is so when the money spent on purchasing the commodity is only a small fraction of this total income.

2. No Close Substitutes Available:

The commodity in question has no close substitutes and if it does have any substitute, the same may be regarded as an identical commodity and thus only one demand should may be prepared.

3. Utility can be measured:

The utility is capable of cardinal measurement through the measuring rod of money. Moreover, the utility obtainable from one good is absolutely independent of the utility from the other goods. No goods affect the utility that can be derived from the other goods.

4. Tastes and Incomes are same:

That all people are of identical tastes, fashions and their incomes also are the same.

The excess of utilities he derives from different commodities and the actual price paid is called as Consumer's Surplus. Let us take an example of a person whose marginal utility, price and Consumer's Surplus schedule for bread is given in the following table:

Marginal Utility, Price and Consumer's Surplus Schedule

Units of bread	Marginal Utility (in Rs.)	Price (in Rs.)	Consumer's Surplus (in Rs.)
1	10	2	8
2	8	2	6
3	6	2	4
4	4	2	2
5	2	2	0
6	0	2	-2

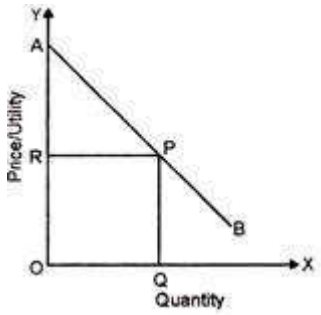
The above table expresses the various amounts of utilities he derives from the consumption of different units of bread. From the first bread alone he derives marginal utility of Rs. 10 but the price which he pays is Rs. 2 and hence Rs. 8 is the Consumer's Surplus.

Similarly, the Consumer's Surplus from 2nd, 3rd, 4th and 5th units are 6, 4, 2 and zero respectively. A rational consumer will consume only 5th commodity where the marginal utility is equal to its price and thereby maximises his Consumer's Surplus. If he will consume the 6th unit he derive zero marginal utility where as he pays the price as Rs. 2. A rational consumer will not consume that commodity.

Diagrammatic Representation of Consumer Surplus:

This can be shown by the following diagram:

In this diagram AB is a demand curve of a consumer OR is the market price. The price line is parallel to X axis because of perfect competition. At point P the marginal curve AB intersect the market price curve OR. Thus for OQ quantity the consumer derives utility as AOQP where as he pays ROQP. Thus, triangular shaded area ARP is Consumer's Surplus.



Consumer's Surplus = Total Utility-(Marginal Utility) x (Multiply x No. of Units purchased)

Criticism of the Concept of Consumer's Surplus, Or Difficulties in the Measurement of Consumer's Surplus:

The concept of Consumer's Surplus has been criticised on several grounds:

1. This Concept is Imaginary:

The concept is complete imaginary, illogical and illusory. You just imagine, what you are prepared to pay and you proceed to deduct from that what you actually pay. It is all hypothetical. One may say that one is prepared to pay anything. Hence it is unreal.

2. Measurement of this Concept is Difficult:

The critics of this concept allege that measurement of Consumer's Surplus is difficult. It is because utility is a subjective concept and will vary from person to person. Total utility is impossible to measure because when we consume more units it is said that the marginal utility of even earlier units start diminishing. Prof. Hicks and Allen have contended and proved that utility being a subjective phenomenon, is determinate and immeasurable.

3. This Concept is not Applicable to Substitutes:

The concept may not apply in case of goods which have substitutes. Why should on imagine how much will be willing to pay for a commodity. One finds it hard to think that the substitute of a commodity has no significant effect on the surplus satisfaction he derives from the commodity.

Decidedly, the consumer will feel more satisfied if two good substitutes as well as complements are made available to him than in case he gets only one of the two at a time. The consumer can properly appreciate the utility from a pen only when the same is accompanied by ink.

4. The Marginal Utility of Money never Remains Constant:

It is improper to assume with Prof. Marshall that the marginal utility of money remains constant and does not alter with increase or decrease in the money stock with the consumer. Therefore, it is incorrect to believe the consistency of the marginal utility of money in real life.

5. Exhaustion of Surplus Utility:

It is said that if a consumer knew that any such thing existed, he would go on buying more and more till the surplus utility he enjoyed disappeared. This is not correct. A consumer does not run after a surplus yielded by one commodity. He has to weigh the utilities of other commodities too.

6. This Concept is not Applicable to Necessaries:

The idea of Consumer's Surplus does not apply to the necessaries of life or conventional necessaries. In such cases the surplus is immeasurable. What would not a man be prepared to pay for a glass of water when he is dying of thirst?

7. The Complete List of Demand and Price not Available to Consumer:

Another ground on which the concept has been criticized is that the complete and reliable list of demand and prices is never available to the consumer. The demand schedule according to which he regulates and decides his purchases is not necessary to come true in practice. How much the consumer would be willing to pay rather than go without the thing is something hard to answer correctly.

Explanation of the Law:

The above definition of Prof. Marshall can be explained with the help of practical examples:

(i) Consumer's surplus when there is single purchase and

(ii) Consumer's surplus when there is multiple unit purchase.

(I) consumer surplus on single unit purchase:

When a consumer purchases only one unit of a commodity even then the consumer surplus arises. Let us suppose a student is willing to pay rs. 30 for a particular book and when he actually go to market and purchase it at rs. 25. Thus rs. 5 (30-25) is the consumer's surplus.

(ii) Consumer's surplus on a multi-unit commodity:

In our real life one purchases number of units of a particular commodity. The price that a consumer pays for all the different units of commodity actually measures the utilities of the marginal unit and he pays the same price for different commodities.

The ordinal utility approach is based on the following assumptions:

Rationality: Implies that a consumer is a rational being and aims at maximizing the total satisfaction given the income and prices of goods and services.

Ordinal utility: Assumes that utility is expressible only in ordinal terms. This implies that a consumer is only able to express his/her preference for goods.

Transitivity and consistency of choice: Implies that consumer choices are assumed to be transitive and consistent. The transitivity of choice means that if a consumer prefers A to B and B to C, he/she would prefer A to C. On the other hand, the consistency of choice means that if a consumer prefers A to B in one period, he or she cannot prefer B to A in another period.

Non-satiety: Implies that a consumer is assumed to be non-satisfied. In other words, it is assumed that consumer does not reach the level of satisfaction by consuming a good and always prefers a large quantity of goods.

Diminishing marginal rate of substitution: Acts as an important concept in indifference curve analysis. Marginal rate of substitution implies the rate at which a consumer is willing to substitute one good (X) for another good (Y), so that the total satisfaction remains the same.

Meaning of indifference curve: Indifference curve is defined as the locus of points on the graph each representing a different combination of two substitute goods, which yield the same utility or level of satisfaction to a consumer. The combinations of goods give equal satisfaction to a consumer.

Table-3 shows the indifference schedule for goods X and Y:

Table-3: Indifference Schedule	
Good X	**Good Y**
1	12
2	8
3	5
4	3
5	2

Table Depicts that a consumer starts with one unit of good X and 12 units of good Y. For gaining an additional unit of X, he/she sacrifices 4 units of good Y, so that the level of satisfaction remains the same. Similarly, we get the combinations of 3X+ 5Y, 4X+ 3Y, 5X+2Y. The consumer's satisfaction remain same whichever the combination of goods. This schedule of combinations can be show n graphically on indifference curve. The quantity of good X is measured on x-axis and quantity of good Y is shown on Y- axis.

Figure shows indifference curve:

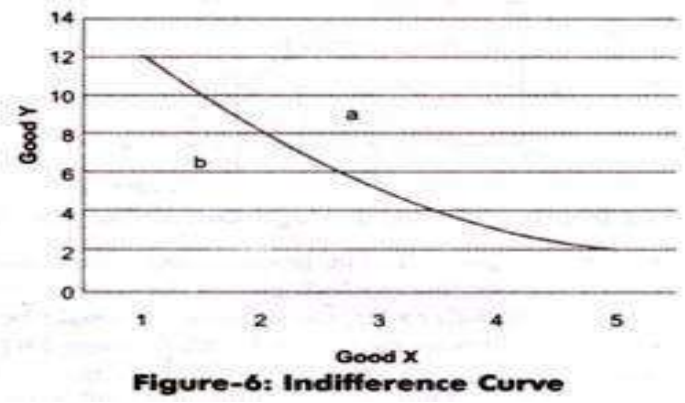


Figure-6: Indifference Curve

- In figure-, point b shown below and left of the indifference curve would give less satisfaction and point a above the indifference curve would be more preferred than combinations. A description of consumer's preferences is represented on indifference map that consists of a set of indifference curves. Indifference map shows the indifference curves ranked in order of preferences of consumers.
- **It is expressed as:**
- MRS x,y = $\Delta Y/\Delta X$
- MRS is called the slope of indifference curve.

Production Function

Production

- Production is measured as a "rate of output per period of time". There are three aspects to production processes:
- The quantity of the good or service produced.
- The form of the good or service created.
- The temporal and spatial distribution of the good or service produced.

Production Function

- In economics, a production function relates physical output of a production process to physical inputs or factors of production.
- It is a mathematical function that relates the maximum amount of output that can be obtained from a given number of inputs - generally capital and labor.
- Increasing marginal costs can be identified using the production function. If a firm has a production function
- Q=F(K,L)
- (that is, the quantity of output (Q) is some function of capital (K) and labor (L)),
- Then if 2Q<F(2K,2L), the production function has increasing marginal costs and diminishing returns to scale.
- Similarly, if 2q>f(2k,2l), there are increasing returns to scale, and
- If 2q=f(2k,2l), there are constant returns to Scale.

Factors of production

- Economic resources are the goods or services available to individuals and businesses used to produce valuable consumer products.
- The classic economic resources include land, labor and capital. Entrepreneurship is also considered an economic resource because individuals are responsible for creating businesses and moving economic resources in the business environment.
- **Land**
- Land is the economic resource encompassing natural resources found within the economy. ·This resource includes timber, land, fisheries, farms and other similar natural resources.
- Land is usually a limited resource for many economies. Although some natural resources, such as timber, food and animals, are renewable, the physical land is usually a fixed resource.
- **Labor**
- Labor represents the human capital available to transform raw or national resources into consumer goods.
- Human capital includes all individuals capable of working in the economy and providing various services to other individuals or businesses.
- This factor of production is a flexible resource as workers can be allocated to different areas of the economy for producing consumer goods or services.
- **Capital**
- Capital has two economic definitions as a factor of production.

- Capital can represent the monetary resources companies use to purchase natural resources, land and other capital goods.
- Monetary resources flow through a economy as individuals buy and sell resources to individuals and businesses.
- **Entrepreneurship**
- Entrepreneurship is considered a factor of production because economic resources can exist in an economy and not be transformed into consumer goods.
- Entrepreneurs usually have an idea for creating a valuable good or service and assume the risk involved with transforming economic resources into consumer products.

Types of production function

- Short run production function-law of variable proportions
- Long run production function
  (i)law of returns to scale
  (ii)isoquants

Short run production function-law of variable proportions

- If one input is variable and all other inputs are fixed the firm's production function exhibits the law of variable proportions.
- If the number of units of a variable factor is increased, keeping other factors constant, how output changes is the concern of this law.
- Suppose land, plant and equipment are the fixed factors, and labour the variable factor.
- When the number of labors is increased successively to have larger output, the proportion between fixed and variable factors is altered and the law of variable proportions sets in.
- The law states that as the quantity of a variable input is increased by equal doses keeping the quantities of other inputs constant, total product will increase, but after a point at a diminishing rate.
- The law of variable proportions (or the law of non-proportional returns) is also known as the law of diminishing returns.

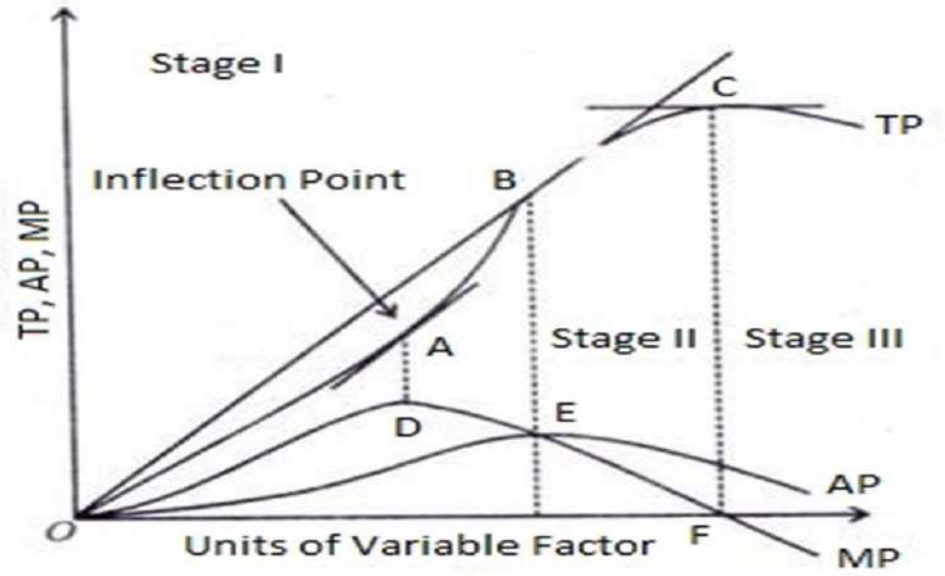
Assumptions

1. Only one factor is variable while others are held constant.
2. All units of the variable factor are homogeneous.
3. There is no change in technology.
4. It is possible to vary the proportions in which different inputs are combined.
5. It assumes a short-run situation, for in the long-run all factors are variable.
6. The product is measured in physical units, i.e., In quintals, tones, etc. The use of money in measuring the product may show increasing rather than decreasing returns if the price of the product rises, even though the output might have declined.

No of Workers	Total Product	Average Product	Marginal Product	
1	8	8	8	STAGE 1
2	20	10	12	
3	36	12	16	
4	48	12	12	STAGE 2
5	55	11	7	
6	60	10	5	
7	60	8.6	0	STAGE 3
8	56	7	-4	

- Given these assumptions, let us illustrate the law with the help of above table, where on the fixed input land of 4 acres, units of the variable input labor are employed and the resultant output is obtained.
- The production function is revealed in the first two columns. The average product and marginal product columns are derived from the total product column.
- **Average product** = **Total product**

  No of workers
- Marginal product is change in total production when we increase one worker. For example in table 3 worker produce 36 units and 4 worker produce 48 unit then marginal product is (48 – 36) = 12.
- An analysis of the table shows that the total, average and marginal products increase at first, reach a maximum and then start declining.
- The total product reaches its maximum when 7 units of labor are used and then it declines.
- The average product continues to rise till the 4th unit while the marginal product reaches its maximum at the 3rd unit of labor, then they also fall. It should be noted that the point of falling output is not the same for total, average and marginal product.
- The marginal product starts declining first, the average product following it and the total product is the last to fall.
- This observation points out that the tendency to diminishing returns is ultimately found in the three productivity concepts.
- The law of variable proportions is presented diagrammatically in figure below the total product (tp) curve first rises at an increasing rate up to point a where its slope is the highest. From point A upwards, the total product increases at a diminishing rate till it



- Point A where the tangent touches the TP curve is called the **inflection point** up to which the total product increases at an increasing rate and from where it starts increasing at a diminishing rate.
- The marginal product curve (MP) and the average product curve (AP) also rise with tp.
- The MP curve reaches its maximum point d when the slope of the TP curve is the maximum at point a.
- The maximum point on the AP curves is e where it coincides with the MP Curve. This point also coincides with point B on TP curve from where the total product starts a gradual rise.
- When the TP curve reaches its maximum point c the MP curve becomes zero at point f.
- When TP starts declining, the MP curve becomes negative.
- It is only when the total product is zero that the average product also becomes zero.
- The rising, the falling and the negative phases of the total, marginal and average products are in fact the different stages of the law of variable proportions which are discussed below.

Three Stages of Production

- **Stage-I: Increasing Returns**
- In stage I the average product reaches the maximum and equals the marginal product when 4 workers are employed, as shown in the table above.
- This stage is shown in the figure from the origin to point e where the MP curve reaches its maximum and the AP curve is still rising. In this stage, the TP curve also increases rapidly.
- Thus this stage relates to increasing returns.
- Here land is too much in relation to the workers employed. It is, therefore, profitable for a producer to increase more workers to produce more and more output.

Causes of Increasing Returns

- The main reason for increasing returns in the first stage is that in the beginning the fixed factors are larger in quantity than the variable factor.
- In the beginning, the fixed factor cannot be put to the maximum use due to the non-applicability of sufficient units of the variable factor.
- Another reason for increasing returns is that the fixed factors are indivisible which means that they must be used in a fixed minimum size

Stage-II: Diminishing Returns

- It is the most important stage of production. Stage II starts from point E where the MP curve intersects the AP curve which is at the maximum.
- Then both continue to decline with AP above MP and the tp curve begins to increase at a decreasing rate till it reaches point c.
- At this point the MP curve becomes negative when the TP curve begins to decline, table above shows this stage when the workers are increased from 4 to 7 to cultivate the given land.
- In figure, it lies between be and cf. Here land is scarce and is used intensively. More and more workers are employed in order to have larger output.
- So in this stage the total product increases at a diminishing rate and the average and marginal product decline.
- The law of diminishing returns in this sense has been defined by prof. Benham thus: "as the proportion of one factor in a combination of factors is increased, after a point, the average and marginal product of that factor will diminish."

Causes of diminishing returns

- But the law of diminishing returns is not applicable to agriculture only, rather it is applicable universally.
- It is called the law in its general form, which states that if the proportion in which the factors of production are combined, is disturbed, the average and marginal product of that factor will diminish
- According to wicksteed, the law of diminishing returns "is as universal as the law of life itself.' The universal applicability of this law has taken economics to the realm of science.

Stage-III: Negative Marginal Returns

- Production cannot take place in stage III either. For in this stage, total product starts declining and the marginal product becomes negative.
- The employment of the 8th worker actually causes a decrease in total output from 60 to 56 units and makes the marginal product minus 4.
- In the figure, this stage starts from the dotted line cf where the mp curve is below the a'-axis. Here the workers are too many in relation to the available land, making it absolutely impossible to cultivate it.

Long run production function- The Law of Returns to Scale

- The law of returns to scale describes the relationship between outputs and scale of inputs in the long-run when all the inputs are increased in the same proportion.
- In the words of prof. Roger miller, "returns to scale refer to the relationship between changes in output and proportionate changes in all factors of production.
- To meet a long-run change in demand, the firm increases its scale of production by using more space, more machines and labours in the factory'.

Assumptions

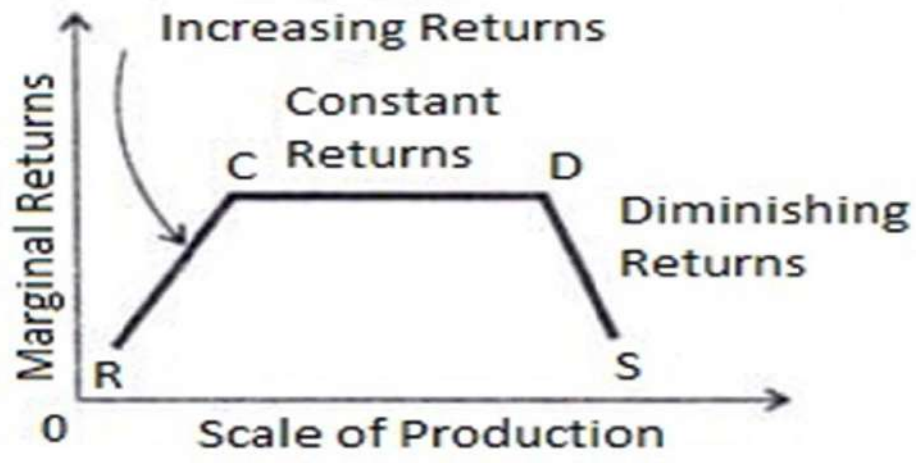
- All factors (inputs) are variable but enterprise is fixed.
- A worker works with given tools and implements.
- Technological changes are absent.
- There is perfect competition.
- The product is measured in quantities.

Unit	Scale of Production	Total Returns	Marginal Returns
1	1worker +2 Acres of land	8	8
2	1worker +2 Acres of land	17	9
3	1worker +2 Acres of land	27	10
4	1worker +2 Acres of land	38	11
5	1worker +2 Acres of land	49	11
6	1worker +2 Acres of land	59	10
7	1worker +2 Acres of land	68	9
8	1worker +2 Acres of land	76	8

Increasing Returns

Constant Returns

Diminishing Returns



Increasing Returns to Scale

- Returns to scale increase, because the increase in total output is more than proportional to the increase in all inputs.
- The table shows that in the beginning with the scale of production of (1 worker + 2 acres of land), total output is 8. To increase output when the scale of production is doubled (2 workers + 4 acres of land), total returns are more than doubled. They become 17. Now if the scale is trebled (3 workers + o acres of land), returns become more than three-fold, i.E., 27.
- It shows increasing returns to scale. In the figure RS is the returns to scale curve where R to C portion indicates increasing returns.

Causes of increasing returns to scale

- **Indivisibility of factors:** indivisibility means that machines, management, labor, finance, etc. Cannot be available in very small sizes
- **Specialization and division of labor:** when the scale of the firm is expanded there is wide scope of specialization and division of labor.
- **Internal economies:** as the firm expands, it enjoys internal economies of production. It may be able to install better machines, sell its products more easily, borrow money cheaply, procure the services of more efficient manager and workers, etc.
- **External economies:** when the industry itself expands to meet the increased long-run demand for its product, external economies appear which are shared by all the firms in the industry.

Constant Returns to Scale

- Returns to scale become constant as the increase in total output is in exact proportion to the increase in inputs.
- If the scale of production is increased further, total returns will increase in such a way that the marginal returns become constant.
- In the table, for the 4th and 5th units of the scale of production, marginal returns are 11, i.E., Returns to scale are constant.
- In the figure, the portion from c to d of the rs curve is horizontal which depicts constant returns to scale.
- It means that increments of each input are constant at all levels of output.
- **Causes of Constant Returns to Scale**
- **Internal economies and diseconomies:** as the firm expands further, internal economies are counter balanced by internal diseconomies.
- **External economies and diseconomies:** the returns to scale are constant when external diseconomies and economies are neutralized and output increases in the same proportion.
- **Divisible factors:** when factors of production are perfectly divisible, substitutable, and homogeneous with perfectly elastic supplies at given prices, returns to scale are constant.

Diminishing Returns to Scale

- Returns to scale diminish because the increase in output is less than proportional to the increase in inputs.
- The table shows that when output is increased from the 6th, 7th and 8th units, the total returns increase at a lower rate than before so that the marginal returns start diminishing successively to 10, 9 and 8.
- In the figure, the portion from d to s of the RS curve shows diminishing returns.

Causes of Diminishing Returns to Scale

1. Indivisible factors may become inefficient and less productive.

2. Business may become unwieldy and produce problems of supervision and coordination.

3. Large management creates difficulties of control and rigidities.

4. These arise from higher factor prices or from diminishing productivities of the factors.

5. As the industry continues to expand, the demand for skilled labor, land, capital, etc. Rises. There being perfect competition, intensive bidding raises wages, rent and interest.

Iso-quant curve: definitions, assumptions and properties

- The term iso-quant or iso-product is composed of two words, iso = equal, quant = quantity or product = output.
- Thus it means equal quantity or equal product. Different factors are needed to produce a good. These factors may be substituted for one another.

Definitions:

- "The iso-product curves show the different combinations of two resources with which a firm can produce equal amount of product." Bilas
- "Iso-product curve shows the different input combinations that will produce a given output." Samuelson

Assumptions:

The main assumptions of iso-quant curves are as follows:

1. Two factors of production:

- Only two factors are used to produce a commodity.

2. Divisible factor:

- Factors of production can be divided into small parts.

3. Constant technique:

- Technique of production is constant or is known beforehand.

4. Possibility of technical substitution:

- The substitution between the two factors is technically possible. That is, production function is of 'variable proportion' type rather than fixed proportion.

5. Efficient combinations:

- Under the given technique, factors of production can be used with maximum efficiency.

Iso-Product Schedule:

Let us suppose that there are two factor inputs—labour and capital. An iso-product schedule shows the different combination of these two inputs that yield the same level of output as shown in table 1.

Table 1. Iso-Product Schedule.

Combination	Units of labour	Units of capital	Output of cloth (metres)
A	1	15	200
B	2	11	200
C	3	8	200
D	4	6	200
E	5	5	200

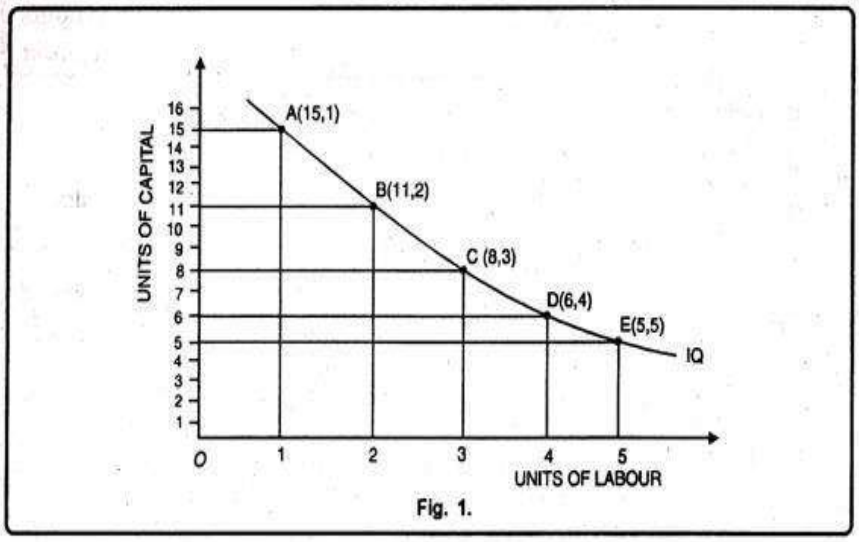


Fig. 1.

Properties of Iso-Quant Curves:

Iso-quant Curves Slope Downward from Left to Right:

Iso- quant curves also slope downward from left to right. The slope of an iso-quant curve expresses the marginal rate of technical substitution (MRTS).They slope downward because MTRS of labour for capital diminishes. When we increase labour, we have to decrease capital to produce a given level of output.

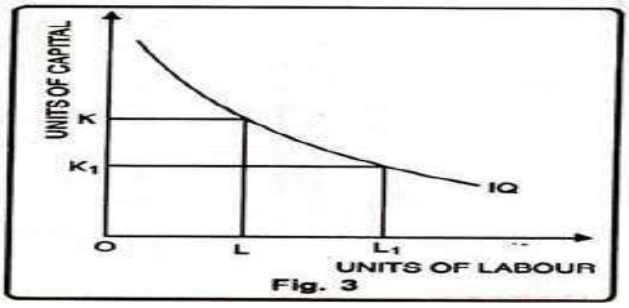


Fig. 3

Isoquants are Convex to the Origin: Generally in production process substitutes can be arranged such as labour can be substituted by capital and vice versa. However the marginal rate of substitution (MRTS) has a decreasing tendency.

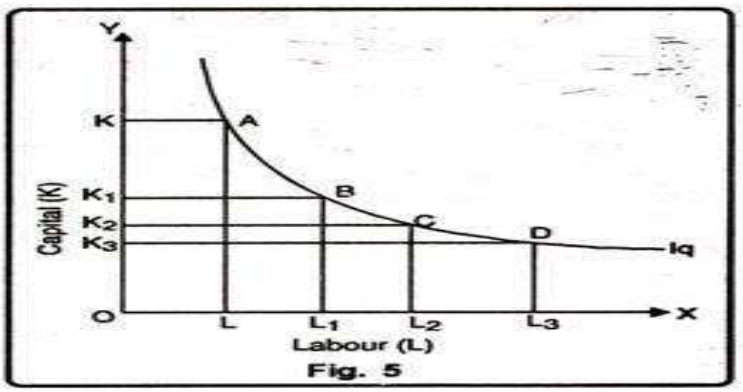


Fig. 5

Higher Iso-Quant Curves Represent a larger Output: The higher isoquant is one which can yield higher output by use of same amount of one factor and higher amount of other factor or higher amount of both the factors.

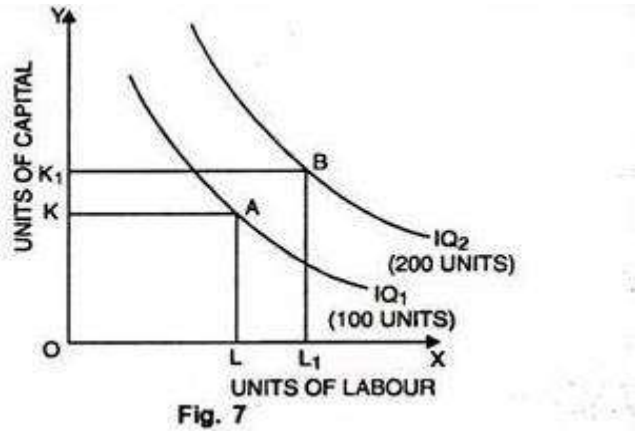


Fig. 7

Two Iso-quant Curves Never Cut Each Other: Since, isoquants represents different level of output and hence they do not intersect or touch each other.

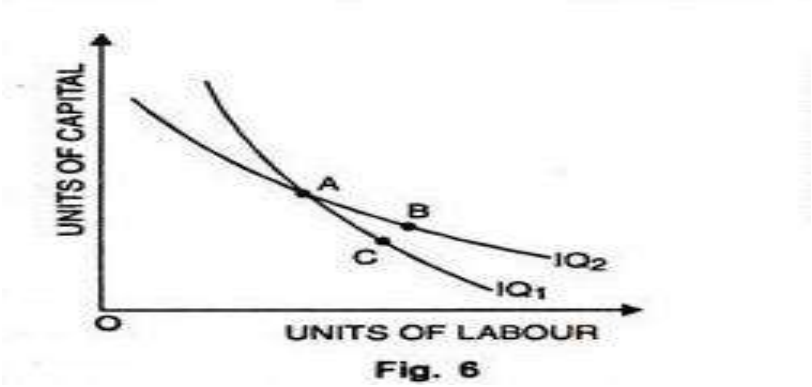


Fig. 6

Difference Between Law Variable Proportion & Law of Returns to Scale

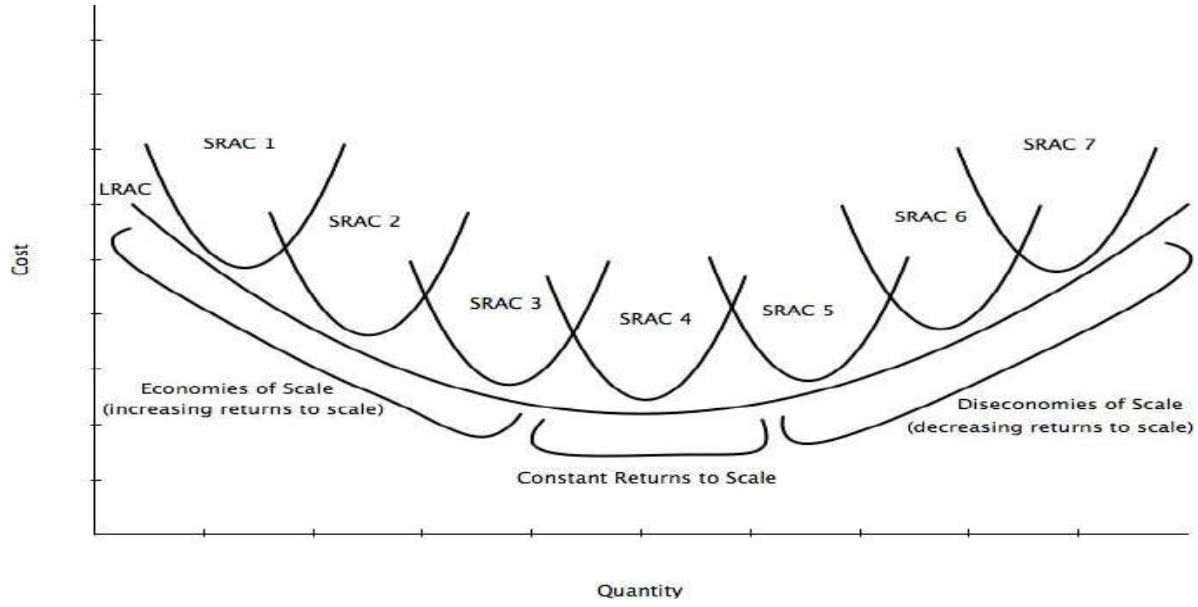
Point of Difference	Law Variable of Proportion	Law of Return to Scale
Period of Time	Short Run	Long Run
Variability of Inputs	Only one factor input say labour, is variable others are fixed	All factor Inputs are variables
Factor Proportion	Variable	Fixed
Relationship	Studies how output reacts to changes variable input, while other inputs are kept fixed.	Studies how output reacts to a give proportionate change in all inputs (scale of production)

Economies of Scale

Economies of scale means a fall in average cost of production due to growth in the size of the industry within which a firm operates. Economies of scale exist when long run average costs decline as output is increased.

Diseconomies of Scale

The size of the business becomes too large, then it becomes difficult for management to control the organizational activities therefore diseconomies of scale arise.



Types of Economies and diseconomies of scale

- They are generally classified in to two categories as internal factors and external factors.
- Internal Factors:
- Labour economies: If the labour force of a firm is specialized in a specific skill then the organization can achieve economies of scale due to higher labour productivity.
- Technical economies: with the use of advanced technology they can produce large quantities with quality which reduces their cost of production.
- Managerial economies: The managerial skills of an organization will be advantageous to achieve economies of scale in various business activities.
- Marketing economies: Use of various marketing strategies will help in achieving economies of scale.
- Vertical integration: If there is vertical integration then there will be efficient use of raw material due to internal factor flow.
- Financial economies: The firm's financial soundness and past record of financial transactions will help them to get financial facilities easily.
- Economies of risk spreading: Having variety of products and diversification will help them to spread their risk and reduce losses.
- Economies of scale in purchase: When the organization purchases raw material in bulk reduces the transportation cost and maintains uniform quality.

External Factors:

- Better repair and maintenance facilities: When the machinery and equipment are repaired and maintained, then the production process never gets affected.
- Research and Development: Research facilities will provide opportunities to introduce new products and process methods.
- Training and Development: Continuous training and development of skills in the managerial, production level will achieve economies of scale.
- Economies of location: The plant location plays a major role in cutting down the cost of materials, transport and other expenses.
- Economies of Information Technology: Advanced information technology provides timely accurate information for better decision making and for better services.
- Economies of by-products: Organizations can increase the economies of scale by minimizing waste and can be environmental responsible by using the by- products of the organization

Cost Analysis

- It refers to the measure of the cost – output relationship, i.eThe economists are concerned with determining the cost incurred in hiring the inputs and how well these can be re-arranged to increase the productivity (output) of the firm.

- In other words, the cost analysis is concerned with determining money value of inputs (labour, raw material), called as the overall cost of production which helps in deciding the optimum level of production.

Types Of Costs

- **Actual cost/ outlay cost/ absolute cost / accounting cost**: The cost or expenditure which a firm incurs for producing or acquiring a good or service. (E.g.. Raw material cost) .
- **Opportunity cost**: The revenue which could have been earned by employing that good or service in some other alternative uses. (Eg. A land owned by the firm does not pay rent. Thus a rent is an income forgone by not letting it out)
- **Sunk cost**: Are retrospective (past) costs that have already been incurred and cannot be recovered.
- **Historical cost**: The price paid for a plant originally at the time of purchase.
- **Replacement cost**: The price that would have to be paid currently for acquiring the same plant.
- **Incremental cost**: Is the addition to costs resulting from a change in the nature of level of business activity. Change in cost caused by a given managerial decision.
- **Explicit cost**: Cost actually paid by the firm. If the factors of production are hired or rented then it is an explicit cost.
- **Implicit cost**: if the factors of production are owned by a firm then its cost is implicit cost.
- **Book cost**: costs which do not involve any cash payments but a provision is made in the books of accounts in order to include them in the profit and loss account to take tax advantages.
- **Social cost**: total cost incurred by the society on account of production of a good or service.
- **Transaction cost**: the cost associated with the exchange of goods and services.
- **Controllable cost:** costs which can be controllable by the executives are called as controllable cost.
- **Shut down cost:** cost incurred if the firm temporarily stops its operation.
- **Economic costs are related to future**. They play a vital role in business decisions as the costs considered in decision - making are usually future costs. They are similar in nature to that of incremental, imputed explicit and opportunity costs.
- **Fixed cost**: some inputs are used over a period of time for producing more than one batch of goods. The costs incurred in these are called fixed cost. For example amount spent on purchase of equipment, machinery, land and building
- **Variable cost:** when output has increased the firm spends more on these items. For example the money spent on labour wages, raw material and electricity usage. Variable costs vary according to the output. In the long run all costs become variable.
- **Total cost**: the market value of all resources used to produce a good or service.

- **Total fixed cost:** cost of production remains constant whatever the level of output.
- **Total variable cost:** cost of production varies with output.
- **Average cost**: total cost divided by the level of output.
- **Average variable cost**: variable cost divided by the level of output.
- **Average fixed cost**: total fixed cost divided by the level of output.
- **Marginal cost:** cost of producing an extra unit of output.
- **DETERMINANTs Of COSTS**

The cost of production of goods and services depends on various input factors used by the organization and it differs from firm to firm. The major cost determinants are:

1. Level of output: the cost of production varies according to the quantum of output. If the size of production is large then the cost of production will also be more.

2. Price of input factors: A rise in the cost of input factors will increase the total cost of production.

3. Productivities of factors of production: when the productivity of the input factors is high then the cost of production will fall.

4. Size of plant: the cost of production will be low in large plants due to mass production with mechanization.

5. Output stability: the overall cost of production is low when the output is stable over a period of time.

6.Lot size: larger the size of production per batch then the cost of production will come down because the organizations enjoy economies of scale.

7.Laws of returns: the cost of production will increase if the law of diminishing returns appliesin the firm.

8.Levels of capacity utilization: higher the capacity utilization, lower the cost of production

9. Time period: in the long run cost of production will be stable.

10.Technology: when the organization follows advanced technology in their process then the cost of production will be low.

11.Experience: over a period of time the experience in production process will help the firm to reduce cost of production.

12.Process of range of products: higher the range of products produced, lower the cost of production.

13.Supply chain and logistics: better the logistics and supply chain, lower the cost of production.

14.Government incentives: if the government provides incentives on input factors then the cost of production will be low.

Short Run And long run Cost Function

Short run cost function

- Short run costs are accumulated in real time throughout the production process.
- Fixed costs have no impact of short run costs, only variable costs and revenues affect the short run production
- Variable costs change with the output. Examples of variable costs include employee wages and costs of raw materials. The short run costs increase or decrease based on variable cost as well as the rate of production.
- If a firm manages its short run costs well over time, it will be more likely to succeed in reaching the desired long run costs and goals.

SHORT RUN COST FUNCTIONS • TC = FC + VC fixed & variable costs

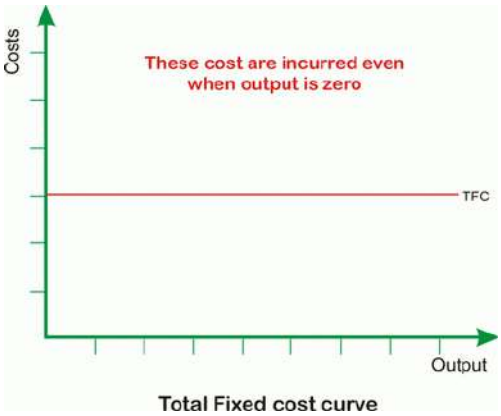
• ATC = AFC + AVC = FC/Q + VC/Q

Total Fixed Cost

Total cost for all fixed inputs of the firm per time is called total fixed cost.

For example firm taking land on lease rs. 1 lack per month and borrowed money from other for that they have to pay interest rs. 2oooo per month which is not change with production it is fixed whether production is increasing or decreasing. So total fixed cost per month is rs. 120000 per month.

Quantity	Total Fixed Cost	Total Cost
0	3.00	3.00
1	3.00	8.00
2	3.00	11.00
3	3.00	13.00
4	3.00	14.50
5	3.00	16.00
6	3.00	18.00
7	3.00	21.00
8	3.00	26.00
9	3.00	34.00
10	3.00	46.00

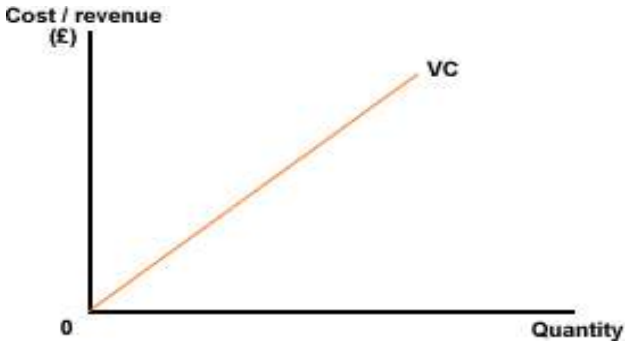


Total Fixed cost curve

Total Variable Cost

- Total variable cost is calculated by adding variable cost of all variable inputs. · It is varies with output.
- For example if material required for construction of one building is double if we construct two building.
- According to Ferguson "Total variable cost is the sum of amount spent for each of the variable inputs used.''

Quantity	Total Variable Cost	Total Cost
0	0.00	3.00
1	5.00	8.00
2	8.00	11.00
3	10.00	13.00
4	11.50	14.50
5	13.00	16.00
6	15.00	18.00
7	18.00	21.00
8	23.00	26.00
9	31.00	34.00
10	43.00	46.00



Total Cost

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

Total cost = total fixed cost + total variable cost

$TC = FC + VC$

Table 3.

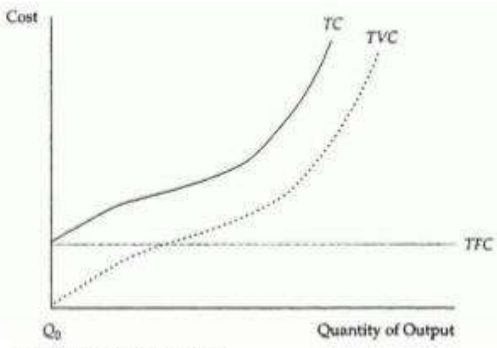
Output 1	Fixed Cost 2	Variable Cost 3	Total Cost (2 + 3)
0	40	0	40
1	40	20	60
2	40	30	70
3	40	32	72
4	40	34	74
5	40	36	76
6	40	38	78
7	40	40	80
8	40	46	86

Reading 15: Demand & Supply Analysis: The Firm

❑ OUTPUT & TOTAL COST

Total Cost (TC) = Total Fixed Cost (TFC) + Total Variable Cost (TVC)

- **Total fixed cost (TFC)**
  - Equals cost of fixed inputs & normal profit
  - Is independent of firm's output level in the SR
  - Example: rent, PPE
- **Total variable cost (TVC)**
  - Equals cost of all variable production inputs
  - TVC increases as output increases
  - Example: labor, raw material



Source: CFA Curriculum 2012

FGATE 73

Average and Marginal Cost:

- One can gain a better insight into the firm's cost structure by analysing the behaviour of short-run average and marginal costs. We may first consider average fixed cost (AFC).
- Average fixed cost is total fixed cost divided by output,
- i.e., AFC = TFC /Q
- Since total fixed cost does not vary with output average fixed cost is a constant amount divided by output. Average fixed cost is relatively high at very low output levels. However, with gradual increase in output, AFC continues to fall as output increases, approaching zero as output becomes very large.

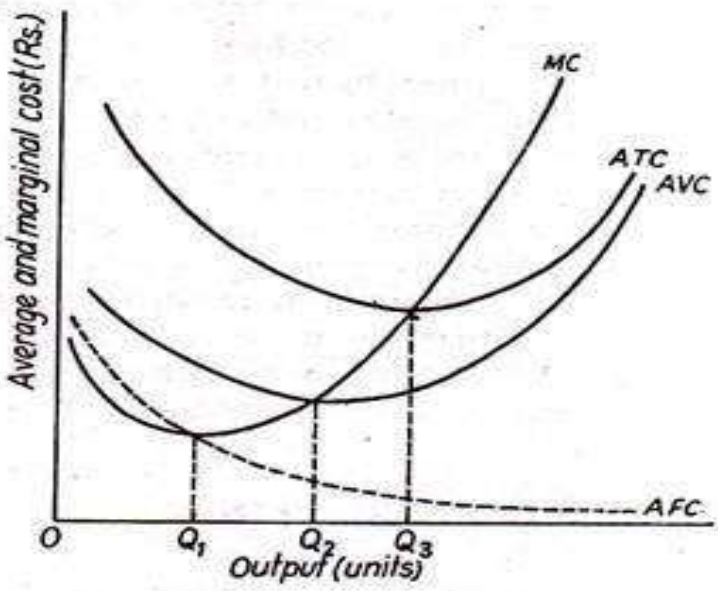


Figure 14.4 Short-run average and marginal cost curves

- AVC is a typical average variable cost curve. Average variable cost first falls, reaches a minimum point (at output level Q_2) and subsequently increases.
- The next important concept is one of average total cost (atc).
- It is calculated by dividing total cost by output,

$$\text{i.e., } ATC = \frac{TC}{Q}$$

$$\text{Alternatively, } TC = TFC + TVC$$

$$\text{and } ATC = \frac{TFC}{Q} + \frac{TVC}{Q}$$

$$= AFC + AVC$$

- The ATC curve, illustrated, is u-shaped
- Because the AVC cost curve is u-shaped. This is accounted for by the law of variable proportions. It first declines, reaches a minimum (at Q_3 units of output) and subsequently rises. The minimum point on ATC is reached at a larger output than at which AVC attains its minimum. This point can easily be proved.
- ATC = AFC + AVC

- The properties of the average and marginal cost curves and their relationship to each other are as described in fig the properties of the average and marginal cost curves and their relationship to each other are as described in fig

  (1) AFC Declines continuously, approaching both axes asymptomatically (as shown by the decreasing distance between ATC and AVC) and is a rectangular hyperbola.

  (2) AVC first declines, reaches a minimum at $Q_2$and rises thereafter. When AVC is at its minimum, MC equals AVC.

  (3) ATC first declines, reaches a minimum at Q_3, and rises thereafter. when ATC is at its minimum, MC equals ATC.

  (4) MC first declines, reaches a minimum at Q_1, and rises thereafter. MC equals both AVC and ATC when these curves are at their minimum values.

Long run cost function

- In the long run, all the factors of production used by an organization vary. The existing size of the plant or building can be increased in case of long run.
- There are no fixed inputs or costs in the long run. Long run is a period in which all the costs change as all the factors of production are variable.
- There is no distinction between the long run total costs (LTC) and long run variable cost as there are no fixed costs. It should be noted that the ability of an organization of changing inputs enables it to produce at lower cost in the long run.
- **Long run total cost:**
- Long run total cost (LTC) refers to the minimum cost at which given level of output can be produced. According to leibhafasky, "the long run total cost of production is the least possible cost of producing any given level of output when all inputs are variable." LTC represents the least cost of different quantities of output. LTC is always less than or equal to short run total cost, but it is never more than short run cost.

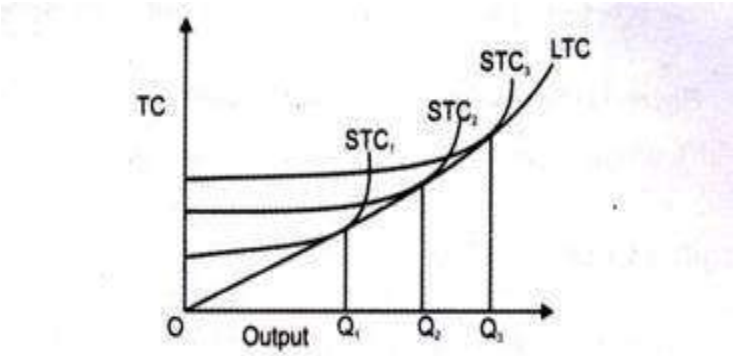


Figure-10: LTC Curve

- **Long Run Average Cost:**
- Long run average cost (LAC) is equal to long run total costs divided by the level of output. The derivation of long run average costs is done from the short run average cost curves. In the short run, plant is fixed and each short run curve corresponds to a particular plant. The long run average costs curve is also called planning curve or

envelope curve as it helps in making organizational plans for expanding production and achieving minimum cost.

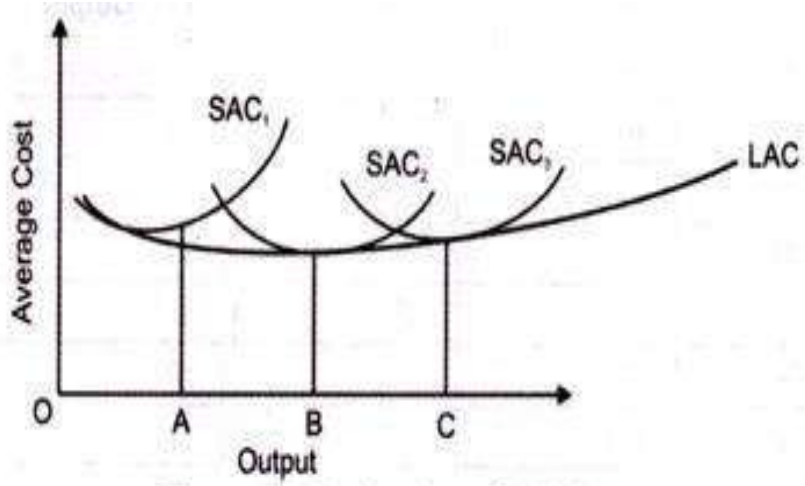


Figure-11: Derivation of LAC Curve

- Suppose there are three sizes of the plant and no other size of the plant can be built. In short run, the plant sizes are fixed thus, organization increase or decrease the variable factors. However, in the long run, the organization can select among the plants which help in achieving minimum possible cost at a given level of output.
- Thus, in the long run, an organization has a choice to use the plant incurring minimum costs at a given output. LAC depicts the lowest possible average cost for producing different levels of output. The LAC curve is derived from joining the lowest minimum costs of the short run average cost curves.
- **Long Run Marginal Cost:**
- Long run marginal cost (LMC) is defined as added cost of producing an additional unit of a commodity when all inputs are variable. This cost is derived from short run marginal cost. On the graph, the LMC is derived from the points of tangency between LAC and SAC.

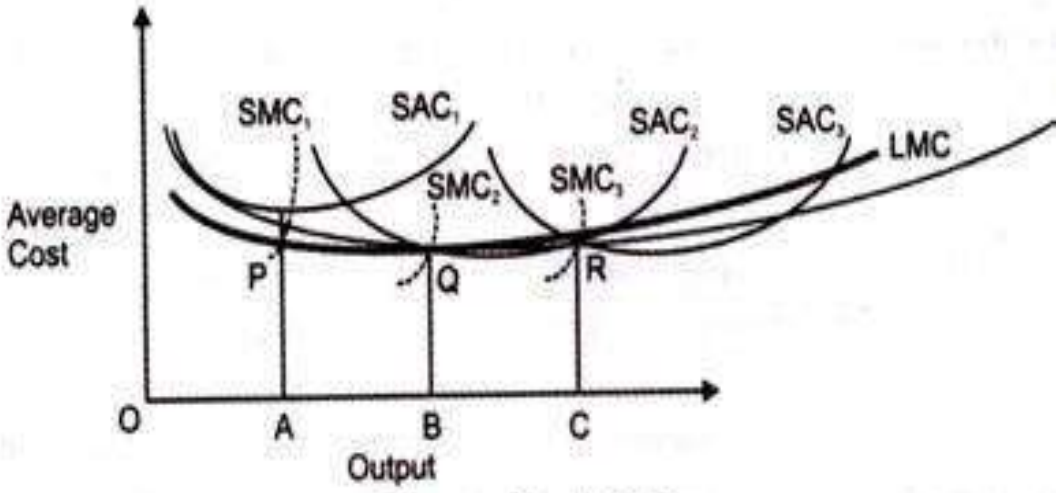


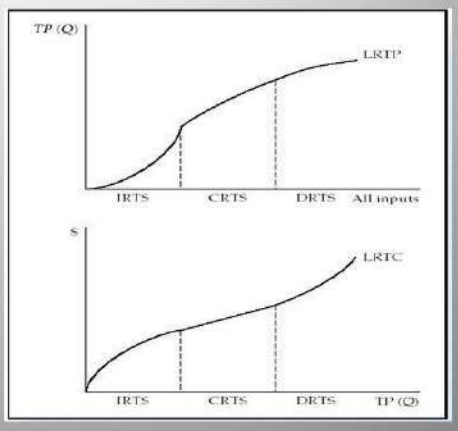
Figure-13: LMC Curve

- If perpendiculars are drawn from point A, B, and C, respectively; then they would intersect SMC curves at P, Q, and R respectively. By joining P, Q, and R, the LMC curve would be drawn. It should be noted that LMC equals to SMC, when LMC is tangent to the LAC.

- **RELATIONSHIP BETWEEN PRODUCTION AND COST FUNCTION**

The LR Relationship Between Production and Cost

- This graph illustrates the relationship between the long-run production function and the long-run cost function.



Unit-III

Introduction: Production Function

Production

Production is processes that create/adds value or utility. It is the process in which the inputs are converted in to outputs.

Inputs : Fixed inputs and Variable inputs

The factors of production that is carry out the production is called inputs.

Fixed inputs	Variable inputs
❑ Remain the same in the short period . ❑ At any level of out put, the amount is remain the same. ❑ The cost of these inputs are called Fixed Cost ❑ Examples:- Building, Land etc ❑ (In the long run fixed inputs are become varies)	❑ In the long run all factors of production are varies according to the volume of outputs. ❑ The cost of variable inputs_is called Variable Cost ❑ Example:- Raw materials, labour, etc

What is Production Function?

The basic relationship between the factors of production and the output is reffered to as a Production Function.

The firm's production function for a particular good (q) shows the maximum amount of the good that can be produced using alternative combinations of capital (K) and labor (L)

The production function expresses a functional relationship between physical inputs and physical outputs of a firm at any particular time period. The output is thus a function of inputs. Mathematically production function can be written as

Q= f (L1, L2, C,O,T)

Where "Q" stands for the **quantity of output** and L1, L2, C,O,T are various input factors such as land, labour, capital and organization and technology. Here output is the function of inputs. Hence output becomes the dependent variable and inputs are the independent variables.
It is a technical relation which connects factors inputs used in the production function and the level of outputs

Q = f (Land, Labour, Capital, Organization, Technology, etc)

The above function does not state by how much the output of "Q" changes as a consequence of change of variable inputs. In order to express the quantitative relationship between inputs and output, Production function has been expressed in a precise mathematical equation i.e.

Y= a+b (x)

Which shows that there is a constant relationship between applications of input (the only factor input 'X' in this case) and the amount of output (y) produced.

Importance:

1. When inputs are specified in physical units, production function helps to estimate the level of production.
2. It becomes is equates when different combinations of inputs yield the same level of output.
3. It indicates the manner in which the firm can substitute on input for another without altering the total output.
4. When price is taken into consideration, the production function helps to select the least combination of inputs for the desired output.
5. It considers two types' input-output relationships namely 'law of variable proportions' and 'law of returns to scale'. Law of variable propositions explains the pattern of output in the short-run as the units of variable inputs are increased to increase the output. On the other hand law of returns to scale explains the pattern of output in the long run as all the units of inputs are increased.
6. The production function explains the maximum quantity of output, which can be produced, from any chosen quantities of various inputs or the minimum quantities of various inputs that are required to produce a given quantity of output.

Production function can be fitted the particular firm or industry or for the economy as whole. Production function will change with an improvement in technology.

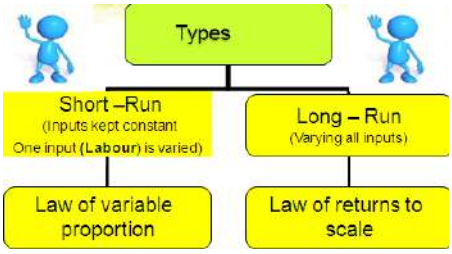
Assumptions:

Production function has the following assumptions.

1. The production function is related to a particular period of time.
2. There is no change in technology.
3. The producer is using the best techniques available.
4. The factors of production are divisible.

5. Production function can be fitted to a short run or to long run.

Types of production function:-



These two types of relationships have been explained in the form of laws.

i) Law of variable proportions (short run production function)
ii) Law of returns to scale (long run production function)

I. Law of variable proportions:

The law of variable proportions which is a new name given to old classical concept of "Law of diminishing returns has played a vital role in the modern economics theory. Assume that a firms production function consists of fixed quantities of all inputs (land, equipment, etc.) except labour which is a variable input when the firm expands output by employing more and more labour it alters the proportion between fixed and the variable inputs. The law can be stated as follows:

"When total output or production of a commodity is increased by adding units of a variable input while the quantities of other inputs are held constant, the increase in total production becomes after some point, smaller and smaller"

"If equal increments of one input are added, the inputs of other production services being held constant, beyond a certain point the resulting increments of product will decrease i.e. the marginal product will diminish". (**G. Stigler**)

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

The law of variable proportions refers to the behaviour of output as the quantity of one Factor is increased Keeping the quantity of other factors fixed and further it states that the marginal product and average product will eventually do cline. This law states three types of productivity an input factor – Total, average and marginal physical productivity.

Assumptions of the Law: The law is based upon the following assumptions:

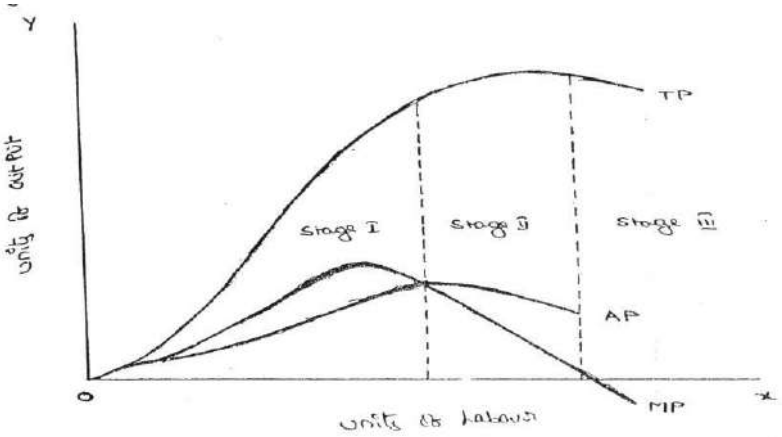
i) The state of technology remains constant. If there is any improvement in technology, the average and marginal output will not decrease but increase.
ii) Only one factor of input is made variable and other factors are kept constant. This law does not apply to those cases where the factors must be used in rigidly fixed proportions.
iii) All units of the variable factors are homogenous.

Three stages of law:

The behaviors of the Output when the varying quantity of one factor is combines with a fixed quantity of the other can be divided in to three district stages. The three stages can be better understood by following the table.

Fixed factor	Variable factor (Labour)	Total product	Average Product	Marginal Product	Stages
1	1	100	100	-	**Stage I**
1	2	220	120	120	
1	3	270	90	50	
1	4	300	75	30	**Stage II**
1	5	320	64	20	
1	6	330	55	10	
1	7	330	47	0	**Stage III**
1	8	320	40	-10	

Above table reveals that both average product and marginal product increase in the beginning and then decline of the two marginal products drops of faster than average product. Total product is maximum when the farmer employs 6th worker, nothing is produced by the 7th worker and its



marginal productivity is zero, whereas marginal product of 8th worker is '-10', by just creating credits 8th worker not only fails to make a positive contribution but leads to a fall in the total output.

Production function with one variable input and the remaining fixed inputs is illustrated as below

From the above graph the law of variable proportions operates in three stages.

In the first stage, total product increases at an increasing rate. The marginal product in this stage increases at an increasing rate resulting in a greater increase in total product. The average product also increases. This stage continues up to the point where average product is equal to marginal

product. The law of increasing returns is in operation at this stage. The law of diminishing returns starts operating from the second stage awards. At the second stage total product increases only at a diminishing rate. The average product also declines.

The second stage comes to an end where total product becomes maximum and marginal product becomes zero.

The marginal product becomes negative in **the third stage**. So the total product also declines. The average product continues to decline.

We can sum up the above relationship thus when 'A.P.' is rising, "M. P.' rises more than " A. P; When 'A. P." is maximum and constant, 'M. P.' becomes equal to 'A. P.' when 'A. P.' starts falling, 'M. P.' falls faster than ' A. P.'Thus, the total product, marginal product and average product pass through three phases, viz., increasing diminishing and negative returns stage. The law of variable proportion is nothing but the combination of the law of increasing and demising returns.

II. Law of Returns of Scale:

The law of returns to scale explains the behavior of the total output in response to change in the scale of the firm, i.e., in response to a simultaneous to changes in the scale of the firm, i.e., in response to a simultaneous and proportional increase in all the inputs. More precisely, the Law of returns to scale explains how a simultaneous and proportionate increase in all the inputs affects the total output at its various levels.

When a firm expands, its scale increases all its inputs proportionally, then technically there are three possibilities. (i) The total output may increase proportionately (ii) The total output may increase more than proportionately and (iii) The total output may increase less than proportionately.

Types of returns to scale

1. Increasing Return to Scale: If increase in the output is greater than the proportional increase in the inputs, it means increasing return to scale**.**

2. Constant returns to scale: If increase in the total output is proportional to the increase in input, it means constant returns to scale.

3. Diminishing Returns to Scale: If increase in the output is less than proportional increase in the inputs, it means diminishing returns to scale.

Labour	Capital	TP	MP
2	1	8	8
4	2	18	10
6	3	30	12
8	4	40	10
10	5	50	10
12	6	60	10
14	7	68	8

Increasing returns to scale (Inputs 10% increase – Outputs 15% increase)

Constant returns to scale (Inputs 10% increase – Outputs 10%increase)

Decreasing returns to scale (Inputs 10% increase – Outputs 5% increase)

Production Function with Two Variable Factors

For the analysis of production function with two variable factors we make use of the concept called isoquants or iso- product curves which are similar to indifference curves of the theory of demand. Therefore, before we explain the production function with two variable factors and returns to scale, we shall explain the concept of isoquants (that is, equal product curves) and their properties.

ISOQUANTS:

The term Isoquants is derived from the words 'iso' and 'quant' – 'Iso' means equal and 'quant' implies quantity. Isoquant therefore, means equal quantity. A family of iso-product curves or isoquants or production difference curves can represent a production function with two variable inputs, which are substitutable for one another within limits.

Isoquants are the curves, which represent the different combinations of inputs producing a particular quantity of output. Any combination on the Isoquant represents the some level of output.

For a given output level firm's production become,

Q= f (L, K)

Where 'Q', is the units of output is a function of the quantity of two inputs 'L' and 'K'.

Thus an Isoquant shows all possible combinations of two inputs, which are capable of producing equal or a given level of output. Since each combination yields same output, the producer becomes indifferent towards these combinations.

Assumptions:

1. There are only two factors of production, viz. labour and capital.
2. The two factors can substitute each other up to certain limit
3. The shape of the Isoquant depends upon the extent of substitutability of the two inputs.
4. The technology is given over a period.

An Isoquant may be explained with the help of an arithmetical example. Labor is on the X-axis and capital is on the Y-axis. IQ is the ISO-Product curve which shows all the alternative combinations A, B, C, D, E which can produce 50 quintals of a product.

Combinations	Labour (units)	Capital (Units)	Output (quintals)
A	1	12	50
B	2	8	50
C	3	5	50
D	4	3	50
E	5	2	50

The concept of isoquant can be easily understood from Table 17.1. It is presumed that two factors labour and capital are being employed to produce a product. Each of the factor combinations A. B, C, D and E produces the same level of output, say 100 units. To start with, factor combination A consisting of 1 unit of labour and 12 units of capital produces the given 100 units of output.
Similarly, combination B consisting of 2 units of labour and 8 units of capital, combination C consisting of 3 units of labour and 5 units of capital, combination D consisting of 4 units of labour and 3 units of capital, combination E consisting of 5 units of labour and 2 units of capital are capable of producing the same amount of output, i.e., 100 units. In the above graph we have plotted all these combinations and by joining them we obtain an isoquant showing that every combination represented on it can produce 100 units of output.

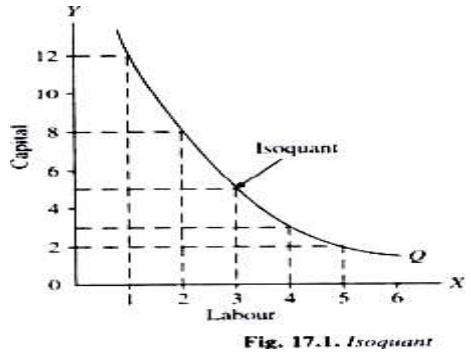


Fig. 17.1. *Isoquant*

Though isoquants are similar to be indifference curves of the theory of consumer's behaviour, there is one important difference between the two. An indifference curve represents all those combinations of two goods which provide the same satisfaction or utility to a consumer but no attempt is made to specify the level of utility in exact quantitative terms it stands for.
This is so because the cardinal measurement of satisfaction or utility in unambiguous thermos is not possible. That is why we usually label indifference curves by ordinal numbers as I, II, III etc. indicating that a higher indifference curve represents a higher level of satisfaction than a lower one, but the information as to how much one level of satisfaction is greater than another is not provided.

On the other hand, we can label isoquants in the physical units of output without any difficulty. Production of a good being a physical phenomenon lends itself easily to absolute measurement in physical units. Since each isoquant represents a specified level of production, it is possible to say by how much one isoquant indicates greater or less production than another.

The above figure we have drawn an isoquant-map or equal- product map with a set of four isoquants which represent 100 units, 120 units, 140 units and 160 units of output respectively. Then, from this set of isoquants it is very easy to judge by how much production level on one isoquant curve is

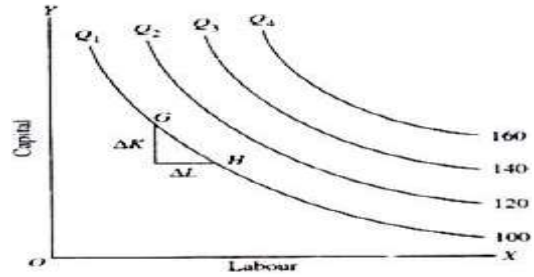


Fig. 17.2. *Isoquant map*

greater or less than on another.

Isoquants of Perfect Substitutes and Complements:

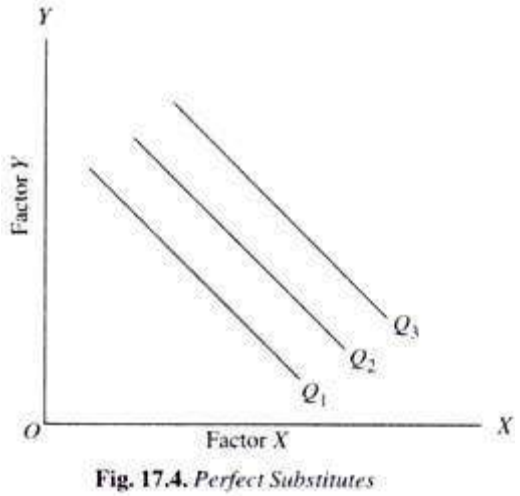


Fig. 17.4. *Perfect Substitutes*

The following are the important properties of isoquants:

1. Isoquants, like indifference curves, slope downward from left to right (i.e., they have a negative slope):

This is so because when the quantity of a factor, say labour, is increased, the quantity of other capital i.e., capital must be reduced so as to keep output constant on a given isoquant.

2. No two isoquants can intersect each other:

If the two isoquants, one corresponding to 20 units of output and the other to 30 units of output intersect each other, there will then be a common factor combination corresponding to the point of intersection.

It means that the same factor combination which can produce 20 units of output according to one isoquant can also produce 30 units of output according to the other isoquant. But this is quite absurd. How can the same factor combination produce two different levels of output, technique of production remaining unchanged?

3. Isoquants, like indifference curves, are convex to the origin:

The convexity of isoquant curves means that as we move down the curve successively smaller units of capital are required to be substituted by a-given increment of labour so as to keep the level of output unchanged. Thus, the convexity of equal product curves is due to the diminishing marginal rate of technical substitution of one factor for the other.

4. Do not touch any axis: the iso quant touches neither X- axis nor Y- axis, as both inputs are required to produce a given product.

Marginal Rate of Technical Substitution:

Marginal rate of technical substitution in the theory of production is similar to the concept of marginal rate of substitution in the indifference curve analysis of consumer's demand. Marginal rate of technical substitution indicates the rate at which factors can be substituted at the margin without altering the level of output.

More precisely, marginal rate of technical substitution of labour for capital may be defined as the number of units of capital which can be replaced by one unit of labour, the level of output remaining unchanged. The concept of marginal rate of technical substitution can be easily understood from below table

Combinations	Labour (units)	Capital (Units)	Output (quintals)	MRTS
A	1	12	50	----
B	2	8	50	4:1
C	3	5	50	3:1
D	4	3	50	2:1
E	5	2	50	1:1

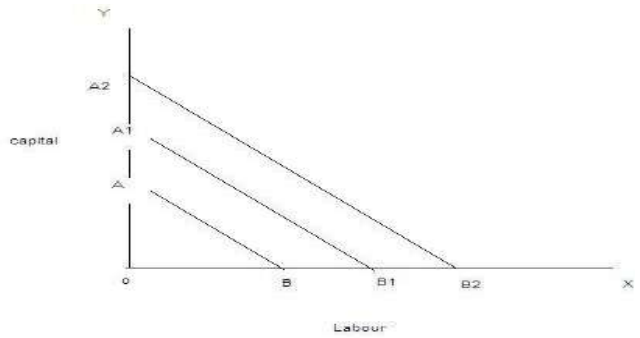
Isocost curve

Isocost curve is the locus traced out by various combinations of L and K, each of which costs the producer the same amount of money (C) Differentiating equation with respect to L, we have $dK/dL = -w/r$ This gives the slope of the producer's budget line (isocost curve). Iso cost line shows various combinations of labour and capital that the firm can buy for a given factor prices. The slope of iso cost line = PL/Pk. In this equation , PL is the price of labour and Pk is the price of capital. The slope of iso cost line indicates the ratio of the factor prices. A set of isocost lines can be drawn for different levels of factor prices, or different sums of money. The iso cost line will shift to the right when money spent on factors increases or firm could buy more as the factor prices are given.

Slope of iso cost line: With the change in the factor prices the slope of iso cost lien will change. If the price of labour falls the firm could buy more of labour and the line will shift away from the origin. The slope depends on the prices of factors of production and the amount of money which the firm spends on the factors. When the amount of money spent by the firm changes, the isocost line may shift but its slope remains the same. A change in factor price makes changes in the slope of isocost lines as shown in the figure.

Least Cost Combination of Inputs

A given level of output can be produced using many different combinations of two variable inputs. In choosing between the two resources, the saving in the resource replaced must be greater than the cost of resource added. The principle of least cost combination states that if two input factors are considered for a given output then the least cost combination will have inverse price ratio which is equal to their marginal rate of substitution.



Where the slope of isoquant is equal to that of isocost , there lies the lowest point of cost of production. The below graph explains the same

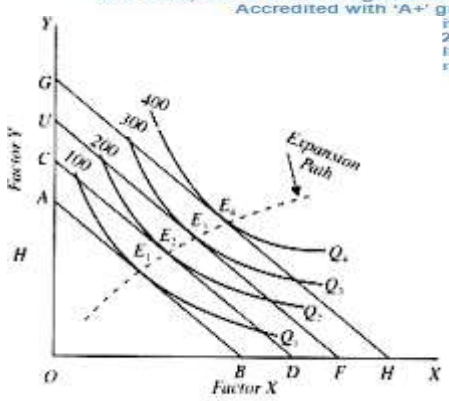


Fig. 18.8. *Expansion Path*

RETURNS TO FACTORS

Returns to factors are also called factor productivities. Productivity is the ratio of output to the input. Factor productivity refers to the short-run relationship of input and output. The productivity of one unit of a factor of production will be equal to the output it can generate. The productivity of a particular factor is measured with the assumption that the other factors are not changed or remain unchanged. Only that particular factor under study is changed.

Returns to factors refer to the output or return generated as a result of change in one or more factors, keeping the other factors unchanged. Given a percentage of increase or decrease in a particular factor such as labour, is it yielding proportionate increase or decrease in production? This is analysed in 'returns to factors.'

The change in productivity can be measured in terms of

(a) Total productivity The total output generated at varied levels of input of a particular factor (while other factors remain constant), is called total physical product.

(b) Average productivity The total physical product divided by the number units of that particular factor used yields average productivity.

(c) Marginal productivity The marginal physical product is the additional output generated by adding an additional unit of the factor under study, keeping the other factors constant.

The total physical product increases along with an increase in the inputs. However, the rate of increase is varied, not constant. The total physical product at first increases at an *increasing*rate because of the law of increasing return to scale, and later its rate of increase declines because of the law of decreasing returns to scale.

Cobb-Douglas production function:

Production function of the linear homogenous type is invested by ***Junt wicksell*** and first tested by ***C. W. Cobb*** and ***P. H. Dougles*** in 1928. This famous statistical production function is known as Cobb-Douglas production function. Originally the function is applied on the empirical study of the American manufacturing industry. Cobb – Douglas production function takes the following mathematical form.

$Y= (AL^{B} K^{1-B})$

Where Y=output, K=Capital, L=Labour A,B ∞=positive constant

The function estimated for the USA by Cobb and Douglas is

$$Y= (1.01L^{0.75} K^{0.25})$$

$$R^2 = 0.9409$$

The production function shows that one percent change in labour input, capital remaining the same, is associated with a 0.75 percent change in output. Similarly, one percent change in capital, labour remaining the same, is associated with a 0.25 percent change in output.

The co efficient of determination R^2 means that 94 percent of the variations on the dependent variable (p) were accounted for by the variations in the independent variables (L and c).

Assumptions:

It has the following assumptions

1. The function assumes that output is the function of two factors viz. capital and labour.
2. It is a linear homogenous production function of the first degree
3. The function assumes that the logarithm of the total output of the economy is a linear function of the logarithms of the labour force and capital stock.
4. There are constant returns to scale
5. All inputs are homogenous
6. There is perfect competition
7. There is no change in technology

ECONOMIES OF SCALE

Production may be carried on a small scale or o a large scale by a firm. When a firm expands its size of production by increasing all the factors, it secures certain advantages known as economies of production. Marshall has classified these economies of large-scale production into internal economies and external economies.

Internal economies are those, which are opened to a single factory or a single firm independently of the action of other firms.

External economies are those benefits, which are shared in by a number of firms or industries when the scale of production in an industry or groups of industries increases.

Causes of internal economies:

Internal economies are generally caused by two factors

1. Indivisibilities
2. Specialization.

1. Indivisibilities:

Many fixed factors of production are indivisible in the sense that they must be used in a fixed minimum size. For instance, if a worker works half the time, he may be paid half the salary. But he cannot be chopped into half and asked to produce half the current output. Thus as output increases the indivisible factors which were being used below capacity can be utilized to their full capacity thereby reducing costs. Such indivisibilities arise in the case of labour, machines, marketing, finance and research.

2. Specialization:

Division of labour, which leads to specialization, is another cause of internal economies. Specialization refers to the limitation of activities within a particular field of production. Specialization may be in labour, capital, machinery and place. For example, the production process may be split into four departments relation to manufacturing, assembling, packing and marketing under the charge of separate managers who may work under the overall charge of the general manger and coordinate the activities of the for departments. Thus specialization will lead to greater productive efficiency and to reduction in costs.

Internal Economies:

Internal economies may be of the following types.

A). Technical Economies.

Technical economies arise to a firm from the use of better machines and superior techniques of production. As a result, production increases and per unit cost of production falls. A large firm, which employs costly and superior plant and equipment, enjoys a technical superiority over a small firm. Another technical economy lies in the mechanical advantage of using large machines. The cost of operating large machines is less than that of operating mall machine. More over a larger firm is able to reduce it's per unit cost of production by linking the various processes of production. Technical economies may also be associated when the large firm is able to utilize all its waste materials for the development of by-products industry. Scope for specialization is also available in a large firm. This increases the productive capacity of the firm and reduces the unit cost of production.

B). Managerial Economies:

These economies arise due to better and more elaborate management, which only the large size firms can afford. There may be a separate head for manufacturing, assembling, packing, marketing, general administration etc. Each department is under the charge of an expert. Hence the appointment of experts, division of administration into several departments, functional specialization and scientific co-ordination of various works make the management of the firm most efficient.

C). Marketing Economies:

The large firm reaps marketing or commercial economies in buying its requirements and in selling its final products. The large firm generally has a separate marketing department. It can buy and sell on behalf of the firm, when the market trends are more favorable. In the matter of buying they could enjoy advantages like preferential treatment, transport concessions, cheap credit, prompt delivery and fine relation with dealers. Similarly it sells its products more effectively for a higher margin of profit.

D). Financial Economies:

The large firm is able to secure the necessary finances either for block capital purposes or for working capital needs more easily and cheaply. It can barrow from the public, banks and other financial institutions at relatively cheaper rates. It is in this way that a large firm reaps financial economies.

E). Risk bearing Economies:

The large firm produces many commodities and serves wider areas. It is, therefore, able to absorb any shock for its existence. For example, during business depression, the prices fall for every firm. There is also a possibility for market fluctuations in a particular product of the firm. Under such circumstances the risk-bearing economies or survival economies help the bigger firm to survive business crisis.

F). Economies of Research:

A large firm possesses larger resources and can establish it's own research laboratory and employ trained research workers. The firm may even invent new production techniques for increasing its output and reducing cost.

G). Economies of welfare:

A large firm can provide better working conditions in-and out-side the factory. Facilities like subsidized canteens, crèches for the infants, recreation room, cheap houses, educational and medical facilities tend to increase the productive efficiency of the workers, which helps in raising production and reducing costs.

External Economies:

Business firm enjoys a number of external economies, which are discussed below:

A). Economies of Concentration:

When an industry is concentrated in a particular area, all the member firms reap some common economies like skilled labour, improved means of transport and communications, banking and financial services, supply of power and benefits from subsidiaries. All these facilities tend to lower the unit cost of production of all the firms in the industry.

B). Economies of Information

The industry can set up an information centre which may publish a journal and pass on information regarding the availability of raw materials, modern machines, export potentialities and provide other information needed by the firms. It will benefit all firms and reduction in their costs.

C). Economies of Welfare:

An industry is in a better position to provide welfare facilities to the workers. It may get land at concessional rates and procure special facilities from the local bodies for setting up housing colonies for the workers. It may also establish public health care units, educational institutions both general and technical so that a continuous supply of skilled labour is available to the industry. This will help the efficiency of the workers.

D). Economies of Disintegration:

The firms in an industry may also reap the economies of specialization. When an industry expands, it becomes possible to spilt up some of the processes which are taken over by specialist firms. For example, in the cotton textile industry, some firms may specialize in manufacturing thread, others in printing, still others in dyeing, some in long cloth, some in dhotis, some in shirting etc. As a result the efficiency of the firms specializing in different fields increases and the unit cost of production falls.

Thus internal economies depend upon the size of the firm and external economies depend upon the size of the industry.

DISECONOMIES OF LARGE SCALE PRODUCTION

Internal and external diseconomies are the limits to large-scale production. It is possible that expansion of a firm's output may lead to rise in costs and thus result diseconomies instead of economies. When a firm expands beyond proper limits, it is beyond the capacity of the manager to manage it efficiently. This is an example of an internal diseconomy. In the same manner, the expansion of an industry may result in diseconomies, which may be called external diseconomies. Employment of additional factors of production becomes less efficient and they are obtained at a higher cost. It is in this way that external diseconomies result as an industry expands.

The major diseconomies of large-scale production are discussed below:

Internal Diseconomies:

A). Financial Diseconomies:

For expanding business, the entrepreneur needs finance. But finance may not be easily available in the required amount at the appropriate time. Lack of finance retards the production plans thereby increasing costs of the firm.

B). Managerial diseconomies:

There are difficulties of large-scale management. Supervision becomes a difficult job. Workers do not work efficiently, wastages arise, decision-making becomes difficult, coordination between workers and management disappears and production costs increase.

C). Marketing Diseconomies:

As business is expanded, prices of the factors of production will rise. The cost will therefore rise. Raw materials may not be available in sufficient quantities due to their scarcities. Additional output may depress the price in the market. The demand for the products may fall as a result of changes in tastes and preferences of the people. Hence cost will exceed the revenue.

D). Technical Diseconomies:

There is a limit to the division of labour and splitting down of production p0rocesses. The firm may fail to operate its plant to its maximum capacity. As a result cost per unit increases. Internal diseconomies follow.

E). Diseconomies of Risk-taking:

As the scale of production of a firm expands risks also increase with it. Wrong decision by the management may adversely affect production. In large firms are affected by any disaster, natural or human, the economy will be put to strains.

External Diseconomies:
When many firms get located at a particular place, the costs of transportation increases due to congestion. The firms have to face considerable delays in getting raw materials and sending finished products to the marketing centers. The localization of industries may lead to scarcity of raw material, shortage of various factors of production like labour and capital, shortage of power, finance and equipments. All such external diseconomies tend to raise cost per unit.

- Cost refers to the expenditure incurred to produce a particular product or service .
- All costs involve a sacrifice of some kind or other to acquire some benefit.
- Costs may be monetary or non monetary , tangible or non – tangible, determined subjectively or objectively.
- Cost of production normally includes the cost of raw materials, labor, and other expenses. This cost is known as total cost(TC).

- TC is compared with the total revenue (TR) realized on the sale of the products manufactured.
- This difference is termed as profit/loss

Cost Concepts

It is used for analyzing the cost of a project in short and long run.

- Long run Vs short run costs
- Fixed Vs variable costs
- Semi fixed Vs semi variable costs
- Marginal costs
- Controllable Vs non controllable costs
- Opportunity Vs outlay costs
- Incremental Vs sunk costs
- Out of pocket Vs book costs
- Explicit Vs implicit Costs
- Replacement cost Vs historical cost
- Past Vs future costs
- Separable Vs joint costs
- Accounting Vs economic costs
- Urgent Vs postponable costs

- Escapable vs unavoidable costs

Long run Vs short run costs

- Short run costs are costs that vary with variation in output. Short run costs are the same as variable costs
- Long run costs are costs that are incurred on fixed assets like plant, machinery, etc
- It is to be noted that running costs and depreciation of capital assets are included under short run costs.

Fixed Costs(FC)

Fixed Cost denotes the costs which do not vary with the level of production. FC is independent of output.

Eg: Depreciation, Interest Rate, Rent, Taxes

Total fixed cost (TFC):

All costs associated with the fixed input

Average fixed cost per unit of output:

AFC = TFC /Output

Variable Costs(VC)

Variable Costs is the rest of total cost, the part that varies as you produce more or less. It depends on Output.

Eg: Increase of output with labour.

Total variable cost (TVC):

All costs associated with the variable input.

Average variable cost- cost per unit of output: AVC =TVC/ Output

Semi fixed Vs semi variable costs

- Semi variable costs are also called semi fixed costs. Semi fixed or semi variable costs are fixed up to a given level and beyond that they vary.
- For example electricity bill, telephone bill etc…

Marginal Costs

The additional cost incurred from producing an additional unit of output:

MC=Δ TC /Δ Output

MC=Δ TVC /Δ Output

Controllable Vs non controllable costs

- Controllable costs are those costs that can be influenced by the action or authority of a plant or any other official.
- Some times few costs are not controllable like direct costs. For example cost of raw material , wages etc..

Opportunity Vs outlay costs

- The opportunity cost may be defined as the expected returns form the second best use of the resources which foregone due to the scarcity of resources.
- The opportunity cost is also called alternative cost. Had the resource available been unlimited, there would be no opportunity cost.
- Actual Costs or Outlay Costs or Absolute Costs mean the actual amount of expenses incurred for producing or acquiring a good or service.
- These are the costs which are generally recorded in the books of accounts for cost or financial purposes such as payment for wages, raw-materials purchased, other expenses paid etc.

Incremental Vs sunk costs

Incremental Cost:

- Is the additional cost due to change in the level or nature of business activity.
- The question of this type of cost, would not arise when a business has to be set up a fresh. It arises only when a change is contemplated in the existing business.

Sunk Cost:

- Is one which is not affected or altered by a change in the level or nature of business activity. It will remain the same whatever the level of activity may be.

Out of pocket Vs book costs

Out of Pocket Costs:

- Refer to costs that involve current cash payments to outsiders. On the other hand book costs such as depreciation, do not require current cash payments.

Book costs

- These can be converted into out of pocket costs by selling the assets and having them on hire. Rent would then replace depreciation and interest, while understanding expansion; book costs do not come into the picture until the assets are purchased.

Explicit Vs implicit Costs

- "The total cost of production of any particular goods can be said to include expenditure or explicit costs and non-expenditure or implicit costs."
- Explicit cost involve payment of cash.
- Implicit costs do not involve any

Replacement cost Vs historical cost

- Historical Costs mean the cost of an asset or the price originally paid for it.
- Replacement cost means the price that would have to be paid currently for acquiring the same plant.

Past Vs future costs

- Past Costs are actual costs or historical costs are records of past costs.
- Future costs are based on forecasts. The costs relevant for most managerial decisions are forecasts of future costs or comparative conjunctions concerning future situations

Separable Vs joint costs

- A separable or Direct or Traceable Cost is one which can be identified easily and indisputably with a unit of operation, i.e., costing unit/cost centre.
- Joint or Indirect or Common Costs are not traceable to any plant, department or operation as well as those that are not traceable to indirect final products.

Accounting Vs economic costs

- Accounting cost refers to what are recorded as expenses in the books of accounting records
- Economic costs include the same explicit costs that accounting costs use in calculations, but economic costs also include implicit costs. Implicit costs are those values that are not listed on the ledger, and they are assumed by the business to utilize resources

Urgent Vs postponable costs

- Urgent costs are those costs which must be incurred in order to continue operations of the firm. For example, the costs of materials and labour which must be incurred if production is to take place.
- Postponable costs refer to those costs which can be postponed at least for some time e.g., maintenance relating to building and machinery. Railways usually make use of this distinction. They know that the maintenance of rolling stock and permanent way can be postponed for some time.

Escapable vs unavoidable costs

- Escapable costs or An **avoidable cost** is a cost that is not incurred if the activity is not performed.
- For example, supply expenses are avoidable costs. You can simply decide to not buy the supplies, and no expense will be incurred.
- These costs are often identified as **variable costs**, which vary based on production. If there is no production, there is no cost.
- An **unavoidable cost**, on the other hand, is a cost that is still incurred even if the activity is not performed.
- For example, if a manufacturing plant shuts down, its avoidable costs (i.e. variable costs), like materials or supplies, will be $0, but it still needs to pay for idle equipment, property taxes, lease payments, etc.
- These costs are often considered **fixed costs**. Fixed costs are expenses that do not depend on production.

cost output relationship/ cost function

the costs and output are related. The cost of production depends upon several factors such as volume of production , relation between the costs and output, prices and productivity of the inputs such as land, labour, capital and so forth , and the time scale.

The cost – output relationship significantly differs in the short run and in the long run. It is because , in the short run , the costs can be classified into fixed costs and variable costs. The cost-output relationship in the short run is governed by certain restrictions in terms of fixed costs .

Cost-Output Relation during Short Run or Short Run Cost Curves:

Time element plays an important role in price determination of a firm. During short period two types of factors are employed. One is fixed factor while others are variable factors of production. Fixed factor of production remains constant while with the increase in production, we can change variable inputs only because time is short in which all the factors cannot be varied.

Raw material, semi-finished material, unskilled labour, energy, etc., are variable inputs which can be changed during short run. Machines, capital, infrastructure, salaries of managers and technical experts are included in fixed inputs. During short period an individual firm can change variable factors of production according to requirements of production while fixed factors of production cannot be changed.

The cost-output relation during short period can be studied with the help of short run cost curves based on short run costs as given below:

A. Short Run Total Costs:

Short run total costs of a firm are of following types:

(1) Total Costs:

Those costs which are incurred by a firm in the production of any commodity on the basis of total fixed cost and total variable cost.

Total costs are calculated on the basis of the following formula:

Total cost (TC) = Total fixed cost (TFC) + Total variable cost (TVC)

Total costs change due to change in the total variable costs only during short period because total fixed costs (TFC) remain constant.

Short run total costs can be seen from the following table:

Table 1

Short Run Total Costs

Output (Units)	Total Fixed Cost (TFC) Rs.	Total Variable Cost (TVC) Rs.	Total Cost (TC) Rs.
0	100	0	100
1	100	30	130
2	100	60	160
3	100	80	180
4	100	90	190
5	100	100	200
6	100	120	220
7	100	150	250
8	100	190	290
9	100	240	340
10	100	320	420

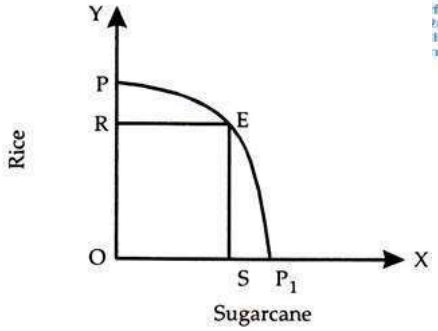
The table reveals that total fixed cost remain constant when the production is zero or its is increasing while total variable cost is zero when production is zero and it changes with the change in output and total cost is the aggregate of total fixed cost and total variable cost.

(2) Total Fixed Cost (TFC):

Those costs which remain constant when the output is zero as well as it is increasing are called total fixed costs. Such costs are borne by the firm whether there is production or not. These costs are not concerned with the production of a commodity. Plant, land and building, machinery, tools, equipment, implements, contractual rent, insurance fee, maintenance cost, property tax, interest on the capital, manager's salary, etc., are the items which are included in total fixed costs.

These costs are borne even there is zero production during short period. The Table 1 shows when production is zero the total fixed cost is Rs. 100 and when it is 10 units even then it is Rs. 100. H

Diagram 1 : Opportunity Cost



indirect costs and overhead costs. TFC is shown in Diagram 1 which is perfectly horizontal to OX-axis.

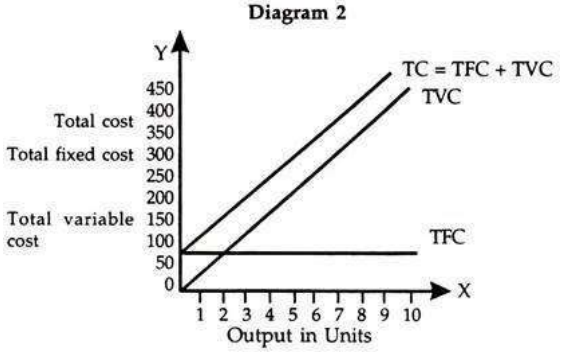
(3) Total Variable Costs (TVC):

Those costs which vary with the production of a commodity during short period and they have direct relation with the change in production. When production is zero these costs will be zero and when production increases they will move in the same direction. These costs are incurred on raw material, direct wages and expenses on energy or power. Variable costs are also called prune costs or direct costs. Total variable costs show an increasing trend as shown in Diagram 1.

Thus, total costs are the summation (aggregates) of total fixed costs and total variable costs. All these costs are related to short run production. They are shown in the Diagram 2 on the basis of the Table 2.

The Diagram 2 shows TC, TFC and TVC. TFC is parallel to OX-axis and it remains constant whether production is zero or it is 10 units. TVC starts from zero production where it is zero and goes on increasing with the increase in output. TC is the total of TFC and TVC. When production is zero total cost is equal to TFC and it increases with increase in production. The difference between TVC and TC is equivalent to TFC which remains constant.

Diagram 2



B. Average Costs or Per Unit Costs:

During short period average costs or per unit costs can be divided into following categories:

(1) Average fixed costs (AFC)
(2) Average variable costs (AVC)
(3) Average Costs (AC)
(4) Marginal Cost (MC).

(1) Average Fixed Cost (AFC):

The average fixed cost is the total fixed cost divided by the volume of output. There is an inverse relation between output and average fixed cost. With the increase in output average fixed cost decreases and with the decrease in output the average fixed cost will increase. The shape of average fixed cost curve becomes rectangular hyperbola with the increase in output.

It is calculated from the following formula:

AFC = TFC/O

O is volume of output AFC and TFC are average fixed cost and total fixed cost.

(2) Average Variable Cost (AVC):

The average variable cost is total variable cost divided by the volume of output. Average variable cost falls with the increase in output, reaches at its minimum and then starts rising. By the operation of law of increasing returns the AVC decreases, and by the operation of constant returns leads to constancy in AVC and the law of diminishing returns leads to increase in AVC. The shape of AVC is U-shaped because of the operation of the laws of returns during short period.

The AVC is calculated by the formula given below:

AVC = TVC/O

AVC and TVC are average variable cost and total variable cost while O is the volume of output.

(3) Average Cost (AC):

Average cost is also called average total cost (ATC) during short period because it is the aggregate of AFC and AVC. AC can be calculated from total cost (TC) divided by the volume of output or by aggregating AVC and AFC.

The following is the formula of calculating AC:

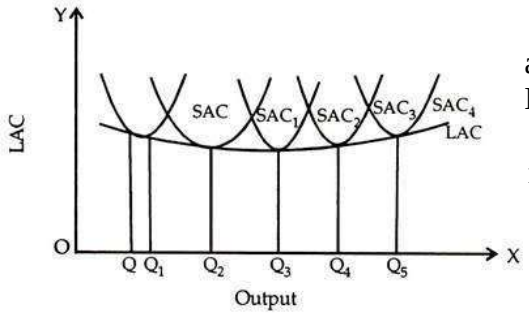
AC = TC/O

AC and TC are average cost and total cost while O is the volume of output.

Another formula for the calculation of AC is as given under:

AC = AFC + AVC

Diagram 5 : Long Run Average Cost Curve (LAC Curve)

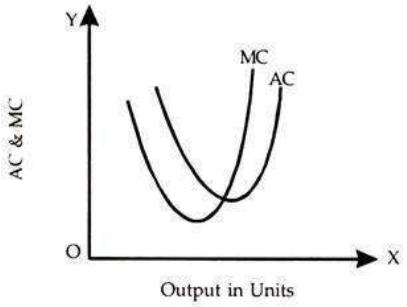


(1) When AC rises, MC also rises but it rises more rapidly than the AC and MC is greater than AC (MC>AC).

(2) When AC is minimum it is equal to AC. The MC curve cuts the AC curve at its minimum point.

The relation between AC and MC can be seen from the following diagram during short period:

Diagram 4 : Relation between AC and MC



The diagram shows AC and MC on OY-axis and volume of output on OX-axis.

Cost-Output Relation during Long Run or Long Run Cost Curves:

Long period gives sufficient time to business managers to change even the scale of production. All the factors of production are variable. All the costs are variable costs and there is no fixed cost. The supply of goods can be adjusted to their demands because scale of production and factors of production can be changed. In the long run we can study the long run average cost curve and long run marginal cost curve.

I. Long Run Average Cost (LAC):

In the long run, all the factors of production are variable and the firm has a variety of choices to select the size of the plants and the factors of production to be employed. Various short run average cost curves represent the various sizes of the plants available to a firm. We can get the long run average cost curve with the help of all the short run average cost curves. The long run average cost curve envelopes all the short run average cost curves in it. It is also called an 'Envelope Curve' or 'Planning Curve'.

The long run average cost curve is also a flat U-shaped curve as shown in the following diagram:

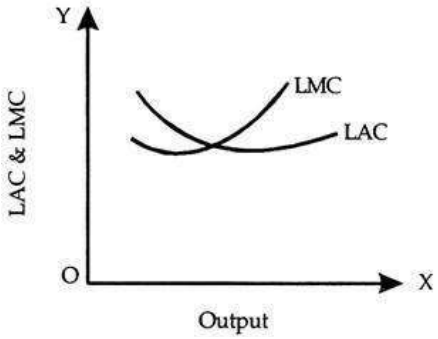
The diagram shows long run cost on OY-axis and output on OX-axis. SAC, SAC_1, SAC_2, SAC_3 and SAC_4 are short run average cost curves which represent the different size of plants. LAC has been drawn by combining all those points of least cost of producing the corresponding output. The least per unit cost of production is OQ, OQ_1, OQ_2, OQ_3, OQ_4, and OQ_5 respectively.

II. Long Run Marginal Cost (LMC):

The long run marginal cost is an addition to the long run total cost when an additional unit of a commodity is produced. It is calculated as the short run marginal cost is calculated. Long run marginal cost curve is also U-shaped but the fall and rise in the marginal cost curve is not sharp but it is gradual.

The LAC and LMC can be seen from the following diagram:

Diagram 6 : LAC and LMC Curves



the diagram shows that LAC and LMC are shown on OY- axis while output is shown on OX-axis. The shape of LAC and LMC are U-shaped. The relation between LAC and LMC is the same as is between short run average cost (SAC) and short run marginal cost (SMC) curves. The LMC curve cuts the LAC curve from its minimum point.

Why LAC Curve is U-Shaped?

In the short run SAC curve is U-shaped because the laws of return operate but in the long run LAC is also U-shaped because the laws of return of scale operate, namely, law of increasing returns to scale, law of constant returns to scale and the law of diminishing returns to scale.

As the level of output is expanded or scale of operation is increased by the large firm they will enjoy economies of scale but if these firms produce beyond their installed capacity then they might get diseconomies of scale. Economies of scale bring down the fall in unit cost and diseconomies results into rise in it.

Overall cost leadership:

What is the definition of cost leadership?

It's a method to reduce costs and produce the least expensive goods in a market or industry in an effort to gain market share. The modern business environment is a very complex and sophisticated one with consumers being aware of the choices available to them. One way firms differentiate themselves is through competitive pricing. Businesses who have the least production costs are able to offer the same level of product quality compared to their competitor for a much lower price. Consumers are constantly looking to increase their purchasing power and if that cannot be achieved through an income increment, then buying more at a lower price is the next best alternative. Businesses who seek to be cost leaders tap into this opportunity to offer the average consumers great products at great prices.

UNIT IV
PERFORMANCE OF AN ECONOMY – MACRO ECONOMICS

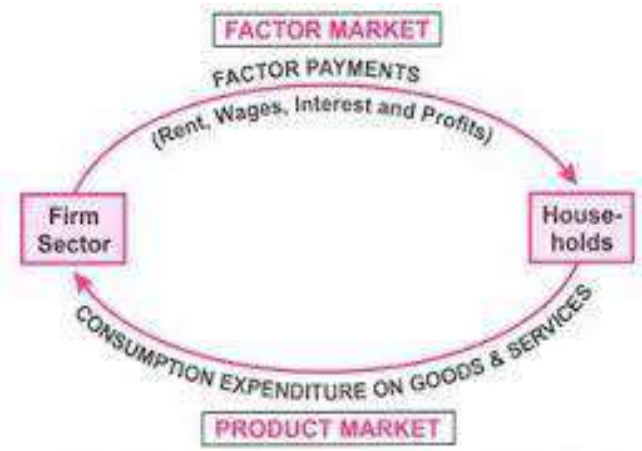
Macro-economic aggregates – circular flow of macroeconomic activity – National income determination – Aggregate demand and supply – Macroeconomic equilibrium – Components of aggregate demand and national income – multiplier effect – Demand side management – Fiscal policy in theory

Macro-Economic Aggregates:

The performance of an economy is evaluated by considering the performance indicators. Some of these indicators are as follows:

- Aggregate output level
- Aggregate price level
- Aggregate investment level
- Aggregate consumption
- Balance of Payments

1. Aggregate Output levels



Circular Flow of Income in a Two Sector Economy

***Aggregate** output* is the total quantity of goods and services produced (or supplied) in an economy in a given period

Aggregate output=Factor Income=Expenditure

Aggregate Output is the total amount of output produced and supplied in the economy in a given period. **Aggregate Income** is the total amount of income received by all factors of production in an economy in a given period. The two of them are always equal at any period of time

GDP:

Gross domestic product (GDP) is the monetary value of all the finished goods and services produced within a country's borders in a specific time period. GDP includes all private and public consumption, government outlays, investments and exports minus imports that occur within a defined territory.

GDP = C+ GI + G + (X – M),

Where,

C = Consumption expenditure of Households.

GI = Gross Investment by Firms,

G = Government expenditure,

X – M = Value of exports – value of imports

Gross national Product:

GNP is the total value of all final goods and services produced within a nation in a particular year, plus income earned by its citizens. GNP measures the value of goods and services that the country's citizens produced regardless of their location.

"Gross National Product (or GNP) is an economic statistic that includes GDP, plus any income earned by residents from overseas investments, minus income earned within the domestic economy by overseas residents."

GNP=GDP + Net factor Income from Abroad

Net foreign income from abroad includes income earned by Indians from other countries, Deducts income earned by foreigners working in India.

If foreign income is positive, GNP > GDP

If foreign income is negative, GNP < GDP

Net Domestic Product (NDP)

Net domestic product is the amount of output we could consume without reducing our stock of capital.

NDP = GDP – depreciation

Net national product (NNP):

Net national product is defined as the total value of the goods and services that a country produces during a period of time, minus the depreciation cost of producing those goods and services.

NNP = GNP – Depreciation

2. Aggregate price levels

The aggregate price level refers to the general or aggregate price of the collective goods and services produced in an economy over a period of time. The calculation of this price is determined by various economic factors, including aspects like the effects of excessive demand and the effects of excessive supply.

i) Consumer Price Index

The CPI is calculated by taking price changes for each item in the predetermined basket of goods and averaging them; the goods are weighted according to their importance. Changes in CPI are used to assess price changes associated with the cost of living.

ii) Wholesale Price Index

Wholesale Price Index (WPI) represents the price of goods at a wholesale stage i.e. goods that are sold in bulk and traded between organizations instead of consumers. WPI is used as a measure of inflation in some economies.

iii) 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.

$$GDP\ Deflator = \frac{Nominal\ GDP}{Real\ GDP}\ x\ 100$$

$$GDP\ \text{Deflator} = \frac{\text{Nominal (or Current Prices) } GDP}{\text{Real (or Constant Prices) } GDP} \times 100$$

$$\text{For example, GDP Deflator in 1997-98} = \frac{1426.7\text{th. crores}}{1049.2\text{th. crores at}} \times 100$$

$$= 135.9$$

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.

Aggregate investment levels:

Investment is the second component of a nation's aggregate demand. Investment is defined as spending by firms on capital equipment or technology and by households on new homes

The determinants of Investment:

- **The Real Interest Rate:** Interest is the cost of borrowing money. Firms will borrow more to invest in new capital when the interest rate is low, and invest less when interest rates are high.
- **Business Confidence:** If firms are confident about the level of future demand for their products, they are more likely to invest now. If confidence is low, firms will withhold from making new investments
- **Technology:** New technology tends to spur new business investment, as firms rush to keep their manufacturing techniques as modern as efficient as possible and to produce the latest goods and services that consumers are demanding.
- **Business taxes:** When firms can keep a larger share of their revenues (i.e. when taxes are lower) they may invest more. Higher business taxes discourage new investments.
- **The degree of excess capacity:** If a firm's factories have excess capacity (meaning they are currently producing below the level they are capable of) firms will be less likely to invest since output can be increased without acquiring new capital.
- **Expectations:** If firms expect prices of their goods to be higher in the future, they are more likely to invest now. If lower prices are expected, firms have less incentive to invest now. Aggregate Demand

Aggregate Consumption levels

As one of the components of aggregate demand, consumption refers to all the spending done by households on goods and services. The level of consumption in a nation depends on several factors.

The determinants of Consumption

- **Disposable Income:** Refers to the after-tax incomes of households. As disposable income rises, C increases. If disposable income falls, C will fall.
- **Wealth:** When value of existing wealth (real assets and financial assets) increases, households tend to spend more on goods and services. When wealth decreases, consumption decreases.
- **Expectations:** If households expect prices or their incomes to rise in the future, then today C increase, shifting AD out. If they expect lower prices or incomes, then C will likely decrease, as households choose to save more for the hard times ahead.
- **Real Interest Rates:** Lower real interest rates lead to more C, as savings becomes less appealing and borrowing to buy durable goods can be done more cheaply.
- **Household Debt:** When consumers increase their debt level, they can consume more in the short-run. But if household debt is too high, C will eventually decrease
- **Taxation:** A higher tax decreases disposable income and causes C to fall. A decrease in taxes shifts both C outwards. Taxes are set by government as part of fiscal policy. Aggregate Demand

Balance of payments:

Balance of payment can be defined as systematic record of all economic transactions between the residence of one country and the residence of another country during a given period of time

COMPONENTS OF BALANCE OF PAYMENT:

1. **CURRENT ACCOUNT**: current account deals with the movement of exports and imports of goods and services. Merchandise may be private or government .It is the major item of the current account. Items of current account are as under:
   - Exports and imports of visible items i.e. goods. It is also known as balance of trade.
   - invisible items
   - services
   - unilateral transfers
   - miscellaneous- commission, advertisement, royalties, patent fee etc.

Each one of these items has credit and debit depending on the principle of double entry book keeping.

2. **CAPITAL ACCOUNT**: deals with financial transactions between one country and rest of the world. These financial or capital transactions can be private ,government or institutional. It can be classified as short term and long term capital movements.
3. **Financial account** consists of financial assets, such as gold, currency, derivatives, special drawing rights, equity and bonds. And the major aspects of financial account are direct investment, portfolio investment, other investment ,reserve assets.

Circular Flow of Macroeconomic Activity

The term circular flow of income or circular flow of economic activity refers to "a simple economic model which describes the circulation/flow of income between producers and consumers". In the circular flow model, producer and consumer are referred to as "firms" and "households" respectively.

Circular Flow Concepts

- **Product Market** – where goods and services are exchanged
- **Households** – suppliers of the factors of production & demanders of goods and services
- **Government** – providers of public goods and services & demanders of both private goods and services and the factors of production
- **Businesses / Firms** – suppliers of goods and services & demanders of the factors of production
- **Factor Market** – where the factors of production are exchanged

The circular-flow diagram is a model that represents the transactions in an economy by flows around a circle

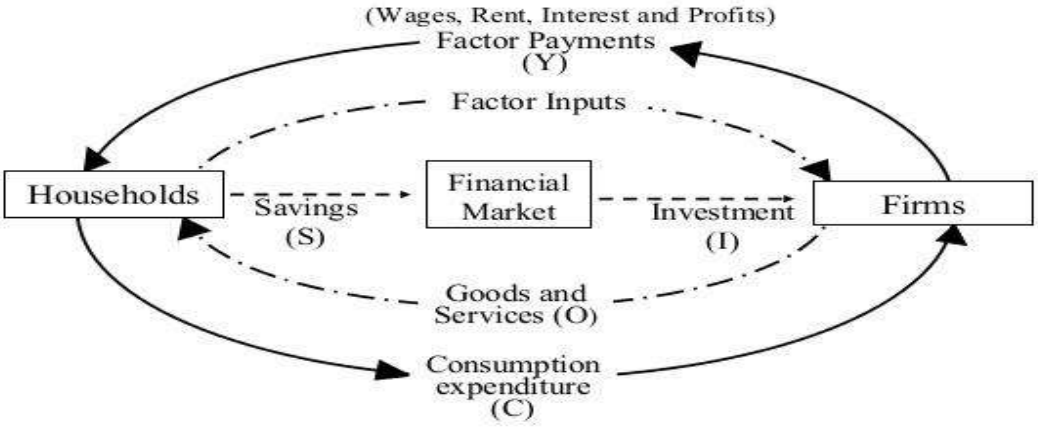
1. **Two Sector Model of Circular flow of Macroeconomic Activity**

In the simple two sector circular flow of income model the state of equilibrium is defined as a situation in which there is no tendency for the levels of income (Y), expenditure (E) and output (O) to change,

Y=E=O

This means that the expenditure of buyers (households) becomes income for sellers (firms). The firms then spend this income on factors of production such as labour, capital and raw materials, "transferring" their income to the factor owners. The factor owners spend this income on goods which leads to a circular flow of income

Circular Flow of Income
(Two Sector Economy)



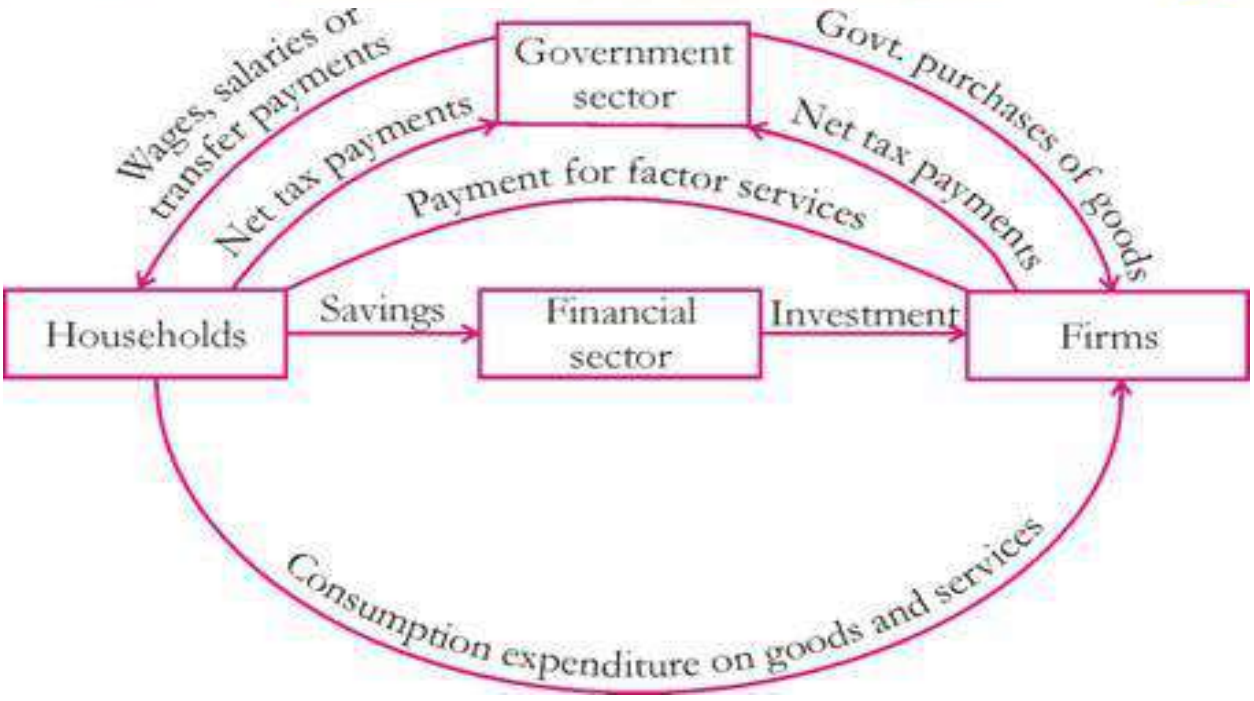
In the equilibrium Y=E=O

.

2. **Three Sector Model of Circular flow of Macroeconomic Activity**

The three-sector, three-market circular flow model highlights the key role that the government sector plays in the macro economy. It expands the circular flow model by illustrating how taxes are diverted from consumption expenditures to the government sector and then used for government purchases. It illustrates that taxes do not vanish from the economy, but are merely diverted.

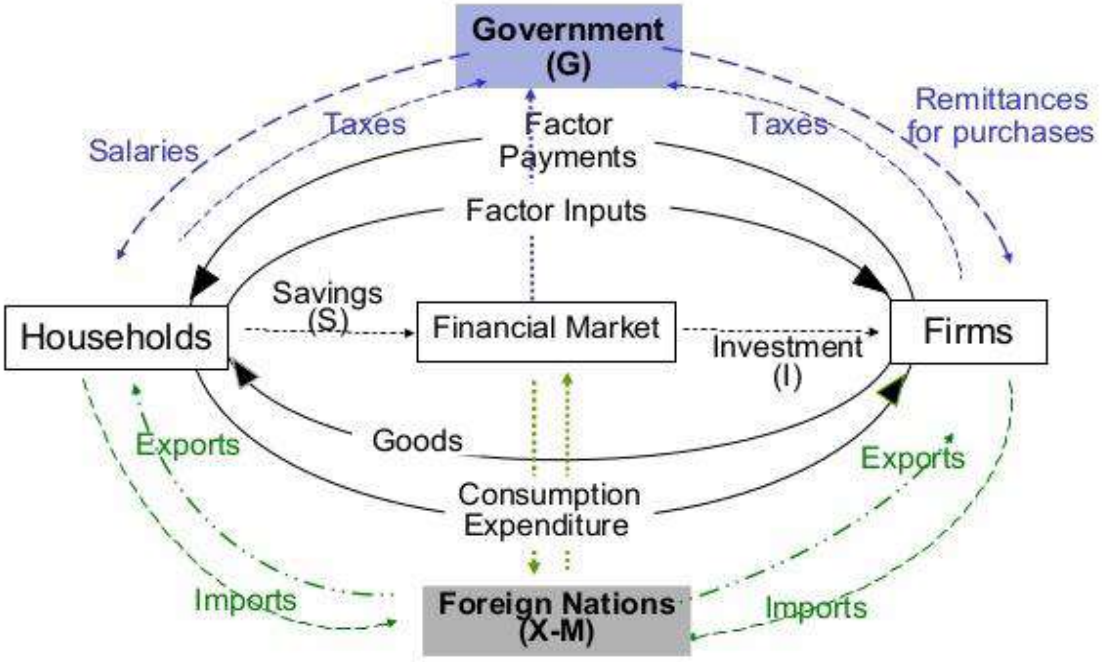
- Household sector supply the factor services like land, labor etc. to the business sector to produce
- Business sector pays rewards to the factor services provided by the household sector in terms of wage, interest etc.
- After producing the goods and services the business sector supplies it for selling.



- The household sector buys goods and services and pays their earnings on different goods and services.
- In an economy the household sector pays both direct taxes and indirect taxes. This is the income of the government sector.
- Similarly the business sector also pays both direct taxes and indirect taxes. It is also the income of the government sector.
- The expenditure of the government sector. Government sector pays transfer payments like scholarships to students, pensions and other allowances to government employees etc. That is payment to the household sector.
- The expenditure of the government sector. Government pays subsidies to the industries, and other productive schemes to minimize their costs. This is the flow from government sector to the business sector.

Four Sector Model of Circular flow of Macroeconomic Activity

Circular Flow of Income
(Four Sector Economy)



Circular flow of income in a four-sector economy consists of households, firms, government and foreign sector.

Household Sector:

Households provide factor services to firms, government and foreign sector.

In return, it receives factor payments. Households also receive transfer payments from the government and the foreign sector.

Households spend their income on:

(i) Payment for goods and services purchased from firms;
(ii) Tax payments to government;
(iii) Payments for imports.

Firms:

Firms receive revenue from households, government and the foreign sector for sale of their goods and services. Firms also receive subsidies from the government.

Firm makes payments for:

(i) Factor services to households;
(ii) Taxes to the government;
(iii) Imports to the foreign sector.

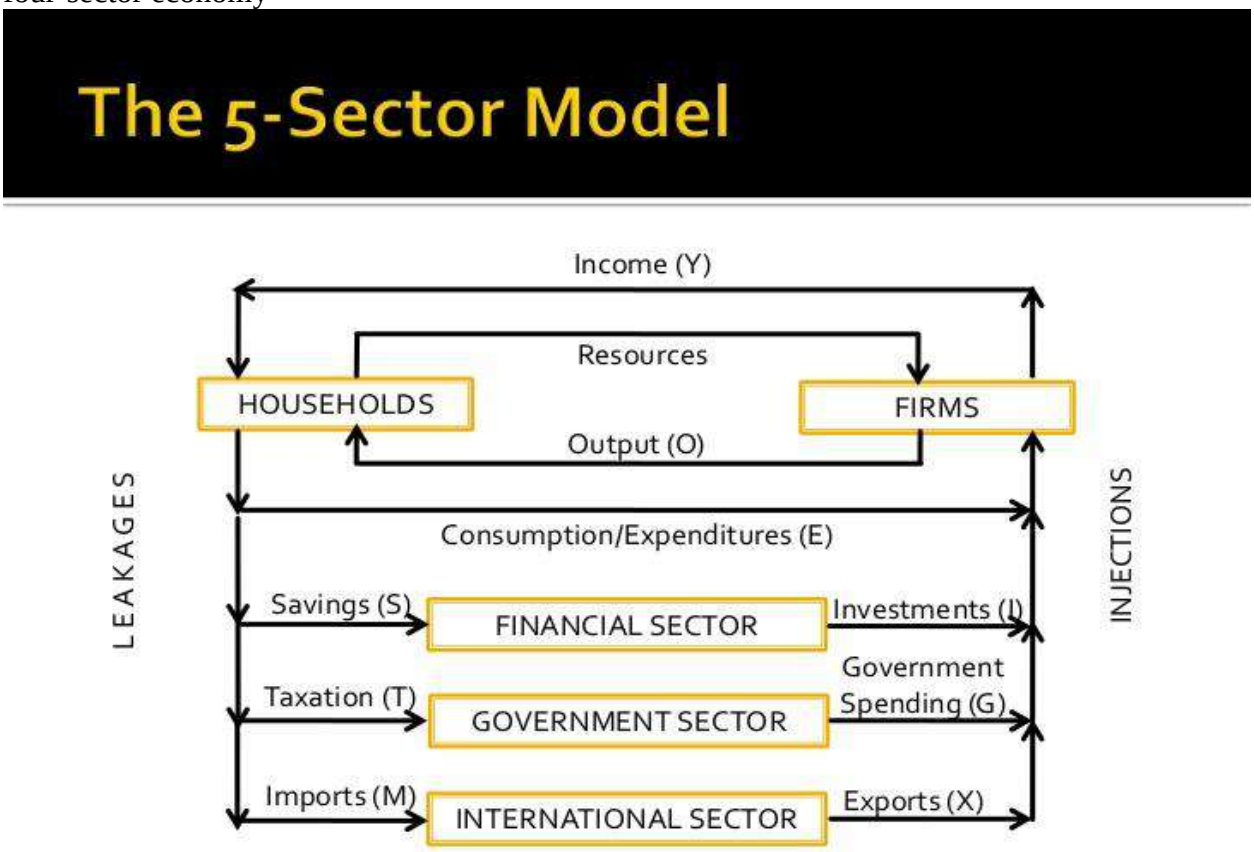
Government:

Government receives revenue from firms, households and the foreign sector for sale of goods and services, taxes, fees, etc. Government makes factor payments to households and also spends money on transfer payments and subsidies.

Foreign Sector:

Foreign sector receives revenue from firms, households and government for export of goods and services. It makes payments for import of goods and services from firms and the government. It also makes payment for the factor services to the households.

The savings of households, firms and the government sector get accumulated in the financial market. Financial market invests money by lending out money to households, firms and the government. The inflows of money in the financial market are equal to outflows of money. It makes the circular flow of income complete and continuous. The circular flow of income in a four-sector economy



- The five sector model of the circular flow of income is a more realistic representation of the economy
- The first is the Financial Sector that consists of banks and non-bank intermediaries who engage in the borrowing (savings from households) and lending of money. In terms of the circular flow of income model the leakage that financial institutions provide in the economy is the option for households to save their money.
- This is a leakage because the saved money cannot be spent in the economy and thus is an idle asset that means not all output will be purchased
- The injection that the financial sector provides into the economy is investment (I) into the business/firms sector.
- The leakage that the Government sector provides is through the collection of revenue through Taxes (T) that is provided by households and firms to the government. For this reason they are a leakage because it is a leakage out of the current income thus reducing the expenditure on current goods and services.

- The injection provided by the government sector is Government spending (G) that provides collective services and welfare payments to the community. An example of a tax collected by the government as a leakage is income tax and an injection into the economy can be when the government redistributes this income in the form of welfare payments that is a form of government spending back into the economy.
- The final sector in the circular flow of income model is the overseas sector which transforms the model from a closed economy to an open economy. The main leakage from this sector are imports (M), which represent spending by residents into the rest of the world. The main injection provided by this sector is the exports of goods and services which generate income for the exporters from overseas residents.

National income

National income or national product is defined as the total market value of all the final goods and services produced in an economy in a given period of time.

This suggests that the labor and capital of a country, working on the natural resources produces certain net amount of goods and services, the aggregates of which as known as national income or national products.

There are many concepts of national income which¬ are used by different economists and all of which are inter-related.

Components /Concepts of National Income :

The important concepts of national income are:

1. Gross Domestic Product (GDP)
2. Gross National Product (GNP)
3. Net National Product (NNP) at Market Prices
4. Net National Product (NNP) at Factor Cost or National Income
5. Personal Income
6. Disposable Income

Let us explain these concepts of National Income in detail.

1. Gross Domestic Product (GDP): Gross Domestic Product (GDP) is the total market value of all final goods and services currently produced within the domestic territory of a country in a year.

Four things must be noted regarding this definition.

- First, it measures the market value of annual output of goods and services currently produced. This implies that GDP is a monetary measure.
- Secondly, for calculating GDP accurately, all goods and services produced in any given year must be counted only once so as to avoid double counting. So, GDP should include the value of only final goods and services and ignores the transactions involving intermediate goods.
- Thirdly, GDP includes only currently produced goods and services in a year. Market transactions involving goods produced in the previous periods such as old houses, old cars, factories built earlier are not included in GDP of the current year.
- Lastly, GDP refers to the value of goods and services produced within the domestic territory of a country by nationals or non-nationals.

2. Gross National Product (GNP): Gross National Product is the total market value of all final goods and services produced in a year. GNP includes net factor income from abroad whereas GDP does not. Therefore,

GNP = GDP + Net factor income from abroad.

Net factor income from abroad = factor income received by Indian nationals from abroad – factor income paid to foreign nationals working in India.

3. Net National Product (NNP) at Market Price: NNP is the market value of all final goods and services after providing for depreciation. That is, when charges for depreciation are deducted from the GNP we get NNP at market price. Therefore'

NNP = GNP – Depreciation

Depreciation is the consumption of fixed capital or fall in the value of fixed capital due to wear and tear.

***4.Net National Product (NNP) at Factor Cost (National Income)*:** NNP at factor cost or National Income is the sum of wages, rent, interest and profits paid to factors for their contribution to the production of goods and services in a year. It may be noted that:

NNP at Factor Cost = NNP at Market Price – Indirect Taxes + Subsidies.

5. Personal Income: Personal income is the sum of all incomes actually received by all individuals or households during a given year. In National Income there are some income, which is earned but not actually received by households such as Social Security contributions, corporate income taxes and undistributed profits. On the other hand there are income (transfer payment), which is received but not currently earned such as old age pensions, unemployment doles, relief payments, etc. Thus, in moving from national income to personal income we must subtract the incomes earned but not received and add incomes received but not currently earned. Therefore,

Personal Income = National Income – Social Security contributions – corporate income taxes – undistributed corporate profits + transfer payments.

6. Disposable Income: From personal income if we deduct personal taxes like income taxes, personal property taxes etc. what remains is called disposable income. Thus,

Disposable Income = Personal income – personal taxes.

Disposable Income can either be consumed or saved. Therefore,

Disposable Income = consumption + saving.

Uses of National Income Accounting

The national income accounts have wide applications and serve as an effective tool of analysis. NI accounts are extremely useful in:

- Estimating national income of the country.
- Comparing national income of different countries.
- Describing and explaining the level of economic growth of a country.
- Estimating the contribution of each factor of production in the national income.
- Estimating the contribution of each sector in the national income.
- Planning especially for economically backward countries.
- Suggesting effective policies for altering the levels of production and employment.
- Implementing and testing economic theories or models that aim to explain or forecast economic behaviour.

MEASUREMENT OF NATIONAL INCOME

Production generate incomes which are again spent on goods and services produced. Therefore, national income can be measured by three methods:

1. Output or Production method
2. Income method, and
3. Expenditure method.

1. Output or Production Method: This method is also called the value-added method. This method approaches national income from the output side. Under this method, the economy is

divided into different sectors such as agriculture, fishing, mining, construction, manufacturing, trade and commerce, transport, communication and other services. Then, the gross product is found out by adding up the net values of all the production that has taken place in these sectors during a given year.

In order to arrive at the net value of production of a given industry, intermediate goods purchase by the producers of this industry are deducted from the gross value of production of that industry. The aggregate or net values of production of all the industry and sectors of the economy plus the net factor income from abroad will give us the GNP. If we deduct depreciation from the GNP we get NNP at market price. NNP at market price – indirect taxes + subsidies will give us NNP at factor cost or National Income.

The output method can be used where there exists a census of production for the year. The advantage of this method is that it reveals the contributions and relative importance and of the different sectors of the economy.

2. Income Method: This method approaches national income from the distribution side. According to this method, national income is obtained by summing up of the incomes of all individuals in the country. Thus, national income is calculated by adding up the rent of land, wages and salaries of employees, interest on capital, profits of entrepreneurs and income of self-employed people.

This method of estimating national income has the great advantage of indicating the distribution of national income among different income groups such as landlords, capitalists, workers, etc.

3. Expenditure Method: This method arrives at national income by adding up all the expenditure made on goods and services during a year. Thus, the national income is found by adding up the following types of expenditure by households, private business enterprises and the government: -

(a) Expenditure on consumer goods and services by individuals and households denoted by C. This is called personal consumption expenditure denoted by C.

(b) Expenditure by private business enterprises on capital goods and on making additions to inventories or stocks in a year. This is called gross domestic private investment denoted by I.

(c) Government's expenditure on goods and services i.e. government purchases denoted by G.

(d) Expenditure made by foreigners on goods and services of the national economy over and above what this economy spends on the output of the foreign countries i.e. exports – imports denoted by (X – M). Thus,

GDP = C + I + G + (X – M).

Difficulties in the Measurement of National Income

There are many difficulties in measuring national income of a country accurately.

1. The first problem relates to the treatment of non-monetary transactions such as the services of housewives and farm output consumed at home. On this point, the general agreement seems to be to exclude the services of housewives while including the value of farm output consumed at home in the estimates of national income.

2. The second difficulty arises with regard to the treatment of the government in national income accounts. On this point the general viewpoint is that as regards the administrative functions of the government like justice, administrative and defense are concerned they should be treated as giving rise to final consumption of such services by the community as a whole so that contribution of general government activities will be equal to the amount of wages and salaries paid by the government. Capital formation by the government is treated as the same as capital formation by any other enterprise.

3. The third major problem arises with regard to the treatment of income arising out of the foreign firm in a country. On this point, the IMF viewpoint is that production and income arising from an enterprise should be ascribed to the territory in which production takes place. However, profits earned by foreign companies are credited to the parent company.

Aggregate Demand and Supply

Definition of 'Aggregate Demand'

Aggregate demand (AD) is the total demand for goods and services produced in the economy over a period of time.

The total amount of goods and services demanded in the economy at a given overall price level and in a given time period. It is represented by the aggregate-demand curve, which describes the relationship between price levels and the quantity of output that firms are willing to provide.

Components of Aggregate demand:

Aggregate Demand (AD) = C + I + G + (X-M)

Where,

C = Consumers' expenditures on goods and services.
I = Investment spending by companies on capital goods.
G = Government expenditures on publicly provided goods and services.
X = Exports of goods and services.
M = Imports of goods and services.

The Aggregate Demand Curve

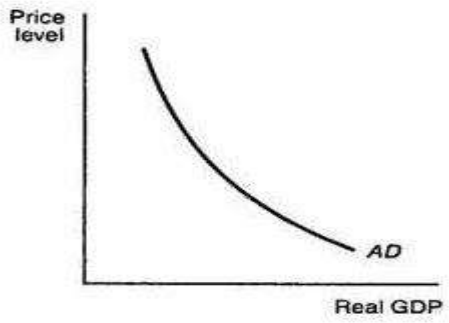


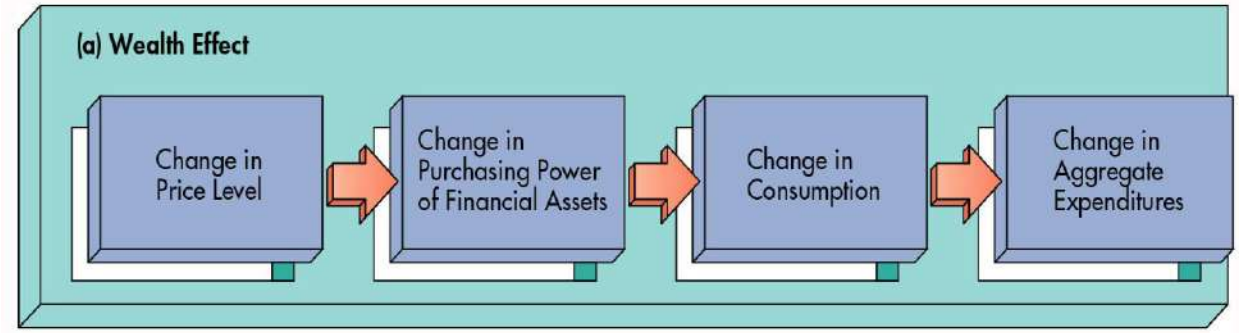
Figure 1 An aggregate demand curve

The aggregate-demand curve shows the quantity of goods and services that households, firms, and the government want to buy at each price level.

Why the Aggregate Demand Curve Slopes Downward

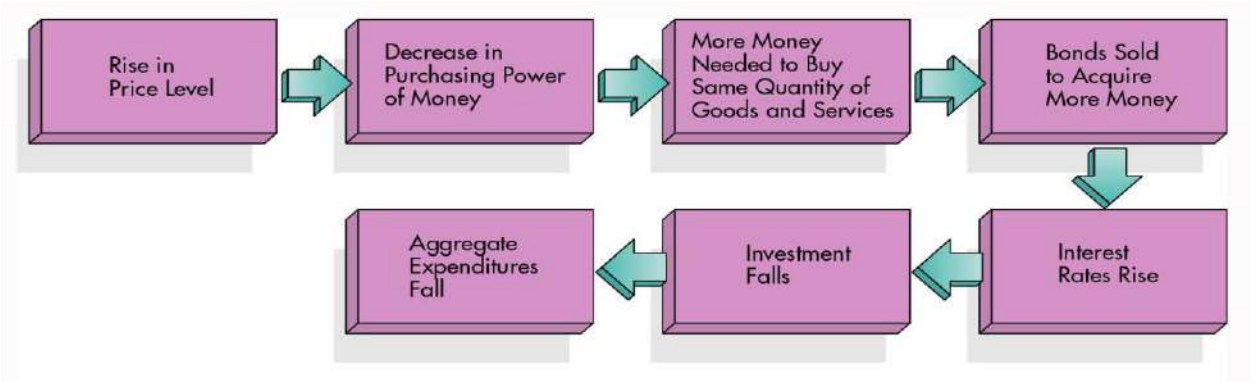
1. Wealth Effect (Real Wealth/Real Balances)
2. Interest Rate Effect
3. Mundell-Fleming's exchange-rate effect

The Wealth Effect:



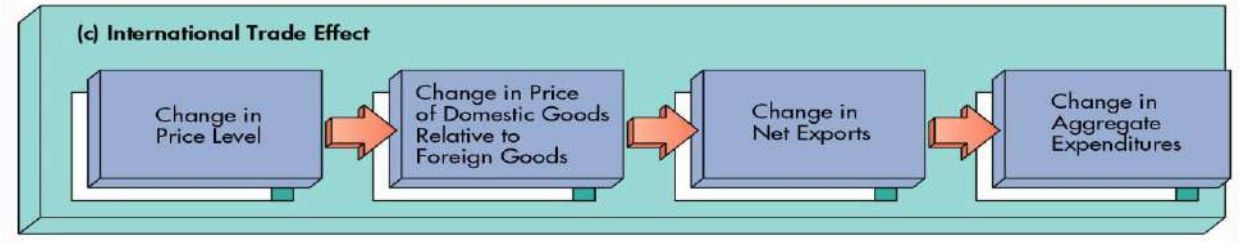
This says that a rise in the price level will make people who have money and other financial assets feel poorer. They then buy less, and the opposite is true if the price level were to fall- people would buy more. If people feel poorer and since **consumption** is a part of AD, then aggregate expenditures will decrease, thus decreasing the quantity demanded.

- **The Interest Rate Effect:**



This says that as price increases, interest rates will increase causing investments to decrease. If prices are higher, then people will have less money because they will be forced to spend more. If interest rates are higher, people will be less willing to put what little money they have into investments. Since **Investments** are part of the aggregate demand, the quantity of aggregate expenditures will go down, showing a negative relationship between price and aggregate expenditures.

- **The International Effect:**



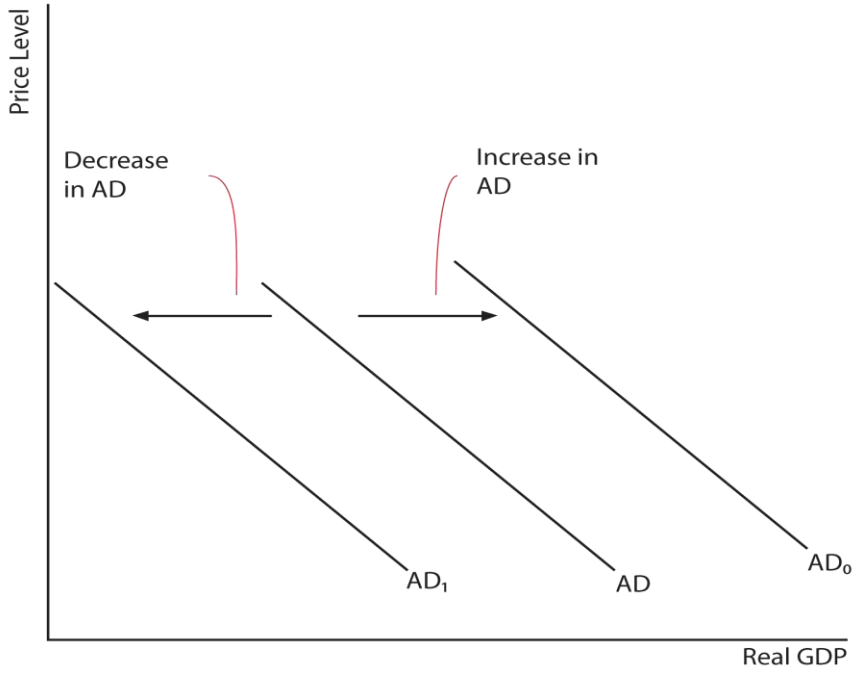
This states that as the price of our goods go up **-and become more expensive to foreigners-** net exports will fall. In addition, imports will increase because foreign goods will seem cheaper than the goods at home whose prices have risen. Since **net exports** will fall and this is a part of AD, then overall aggregate expenditures will decrease.

Factors affecting Aggregate Demand

Aggregate Demand can increase or decrease depending on several things. In effect, these things will cause shifts up or down in the AD curve. These include:

- **Exchange Rates:** When a country's exchange rate increases, then net exports will decrease and aggregate expenditure will go down at all prices. This means that AD will decrease.
- **Distribution of Income:** This is directly related to wages and profits. When worker's real wages increase, then people will have more money on their hands because their overall income has increased. When this happens they tend to consume more causing the consumption expenditures to increase.
- **Expectations:** Consumers tend to have certain expectations about the future of the economy and will adjust their spending accordingly. If they would expect the economy to not do so well in the future, saving would increase thus decrease overall expenditures. Rising price levels will cause aggregate demand to increase. If consumers foresee the price level to rise in the near future, they might just go out and buy that good now, increasing the consumption expenditures in AD. Many different expectations have the capacity to increase or decrease aggregate demand and it is not always clear as to how this will happen.
- **Foreign Income:** This relates U.S. economic output with the income of its trading partners in the world. When foreign income rises, U.S. exports will increase causing aggregate demand to increase.
- **Monetary and Fiscal Policies:** The government has some ability to impact AD. They can spend money or increase taxes in order to influence how consumers spend or save. An expansionary fiscal policy causes AD to increase, while a Contractionary monetary policy causes AD to decrease.

Shifts in Aggregate Demand Curve



A right shift in aggregate demand is typically viewed as a good sign for the economy. Shifts to the left are typically viewed negatively.

Shifting AD to the Right

Increased consumer spending on domestic goods and services can shift AD to the right. It is possible that a declining marginal propensity to save can also shift AD to the right. Expansionary monetary and fiscal policy might increase aggregate demand. All of these effects are the inverse of the factors that tend to decrease aggregate demand.

Shifting AD to the Left

The aggregate demand curve tends to shift to the left when total consumer spending declines. Consumers might spend less because the cost of living is rising or because government taxes have increased. Consumers may decide to spend less and save more if they expect prices to rise in the future. It might be that consumer time preferences change and future consumption is valued more highly than present consumption.

Increase in AD	**Decrease in AD**
Households and firms have high expectations for the future growth	Households and firms have low expectations for the future growth
The government increases spending, or reduces taxes	The government reduces spending, or increases taxes
The federal reserve lowers interest rates	The federal reserve increases interest rates
More exports (weaker currency, or faster world GDP growth)	More imports or less exports (stronger currency or faster domestic GDP growth)

Reasons for Shift in AD:

- Shift arising from Changes in Consumption
- Shifts Arising from Changes in Investment
- Shifts Arising from Changes in Government Purchases
- Shifts Arising from Changes in Net Exports

Aggregate Supply

Aggregate Supply (AS) measures the volume of goods and services produced within the economy at a given overall price level. There is a positive relationship between AS and the general price level. Rising prices are a signal for businesses to expand production to meet a higher level of AD. An increase in demand should lead to an expansion of aggregate supply in the economy.

Definition of 'Aggregate Supply'

The total supply of goods and services produced within an economy at a given overall price level in a given time period. It is represented by the aggregate-supply curve, which describes the relationship between price levels and the quantity of output that firms are willing to provide.

A shift in aggregate supply can be attributed to a number of variables. These include changes in the size and quality of labor, technological innovations, increase in wages, increase in production costs, changes in producer taxes and subsidies, and changes in inflation.

Short-run aggregate supply (SRAS): Illustrates the relationship between the price level of a nation's output and the level of output produces in the fixed- wage and price period, which is the period of time following a change in aggregate demand over which workers' wages and prices are relatively inflexible. In the short run, aggregate supply responds to higher demand (and prices) by bringing more inputs into the production process and increasing utilization of current inputs.

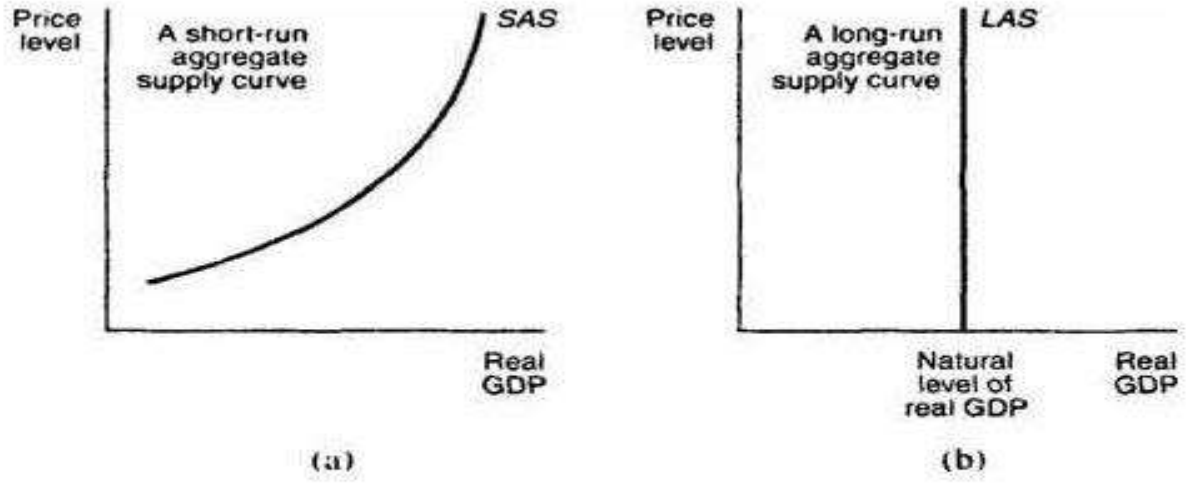


Figure 1 The aggregate supply curve

Short-run Aggregate Supply Curve

i) Why the Aggregate-Supply Curve Slopes Upward in the Short-Run

The quantity of output supplied deviates from its long-run or "natural", level when the price level deviates from the price level that people expect to prevail.

(1) ***Sticky-Wage Theory*** Short-run aggregate-supply curve slopes upward because nominal wages are slow to adjust, or are "sticky" in the short-run. To some extent, the slow adjustment of nominal wages is attributable to long-term contracts between workers and firms that fix nominal wages. Because wages do not adjust immediately to the price level, a lower price level makes employment and production less profitable, so firms reduce the quantity of goods and services they supply.

(2) ***Sticky-Price Theory*** Short-run aggregate-supply curve slopes upward because the prices of some goods and services are slow to adjust, or are "sticky" in the short-run. To some extent, the slow adjustment the prices of some goods and services because they are costs to adjusting prices menu costs. is attributable to long-term contracts between workers and firms that fix nominal wages. Because not all prices adjust instantly to changing conditions, an unexpected fall in the price level leaves some firms with higher-than-desired prices, and these higher-than-desired prices depress sales and induce firms to reduce the quantity of goods and services they produce.

(3) ***The Misperception Theory*** Changes in the overall price level can temporarily mislead suppliers about what is happening in the individual markets in which they sell their output. They mistakenly believe that their relative prices have fallen. Example: workers may notice a fall in their nominal wages before they notice a fall in the prices of the goods they buy. They may infer that the reward to working is temporarily low and respond by reducing the quantity of labor they supply. A lower price level causes misperceptions about relative prices, and these misperceptions induce suppliers to respond to the lower price level by decreasing the quantity of goods and services supplied.

ii) Why the Short Run Aggregate-Supply Curve may Shift?

An increase in the expected price level reduces the quantity of goods and services supplied and shifts the aggregate supply curve to the left. A decrease in the expected price level raises the quantity of goods and services supplied and shifts the short-run aggregate-supply curve to the right.

In the short-run, expectations are fixed, and the economy finds itself at the intersection of the aggregate-demand curve and the short-run aggregate supply curve.

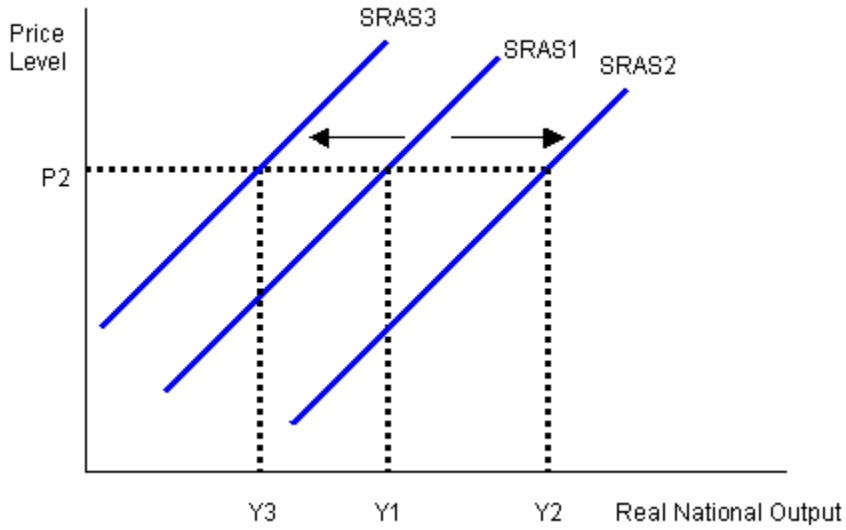
In the long-run, expectations adjust, and the short-run aggregate-supply curve shifts. This shift ensures the economy eventually finds itself at the intersection of the aggregate-demand curve and long-run aggregate-supply curve.

Short-run fluctuations in output and the price level should be viewed as deviations form the continuing long-run trends.

In the long run, the aggregate supply curve is vertical, whereas in the short run ,it slopes upward.

Shifts in the AS curve can be caused by the following factors:

- changes in size & quality of the labour force available for production
- changes in size & quality of capital stock through investment
- technological progress and the impact of innovation
- changes in factor productivity of both labour and capital
- changes in unit wage costs (wage costs per unit of output)
- changes in producer taxes and subsidies
- changes in inflation expectations - a rise in inflation expectations is likely to boost wage levels and cause AS to shift inwards



In the diagram above - the shift from AS1 to AS2 shows an increase in aggregate supply at each price level might have been caused by improvements in technology and productivity or the effects of an increase in the active labour force.

An inward shift in AS (from AS1 to AS3) causes a fall in supply at each price level. This might have been caused by higher unit wage costs, a fall in capital investment spending (capital scrapping) or a decline in the labour force.

Long-run aggregate supply (LRAS): Illustrates the relationship between the price level and the level of output in the flexible-wage and price period, which is the period of time following a change in aggregate demand over which all wages and prices in the economy can adjust to the level of demand. In the long run, however, aggregate supply is not affected by the price level and is driven only by improvements in productivity and efficiency.

Why the Aggregate-Supply Curve is Vertical in the Long Run

In the long run, an economy's production of goods and services (its real GDP) depends on its suppliers of *labor, capital, and natural resources and on the available technology* used to turn these factors of production into goods and services. The quantity supplied is the same

regardless of what the price level happens to be. Just an application of the classical dichotomy and monetary neutrality. This implies that the quantity of output(a real variable) does not depend on the level of prices (a nominal variable).

They supply of specific goods and services depends on relative prices – the prices of those goods and services compared to other prices in the economy. By contrast, the economys overall production of goods and services is limited by its labor, capital, natural resources, and technology.

Thus when, all prices in the economy rise together, there is no change in the overall quantity of goods and services supplied.

i) Why the Long-run Aggregate-Supply Curve Might Shift

The position of the long-run aggregate-supply curve shows the quantity of goods and services predicted by classical macroeconomic theory. This level of production is sometimes called *potential output or full-employment output*. We call it the *natural rate of output* because it shows what the economy produces when *unemployment is at its natural*, or normal rate.The *natural rate of output* is the level of production toward which the economy gravitates in the long run.

(1) ***Shifts Arising from Labor*** Any event that changes labor supply or the natural rate of unemployment. Example: Migration from abroad of workers. A substantial increase in the natural rate of unemployment.

(2) ***Shifts Arising from Capital****:* Any event that changes physical and human capital. Example: An increase in the number of machines or in the number of college degrees.

(3) ***Shifts Arising from Natural Resources:*** An economy's production depends on its natural resources, including its land, minerals and weather. Or its importing of natural resources Example: Mineral deposits, the weather. Importing of Oil

(4) ***Shifts Arising from Technological Knowledge:*** Any event that changes technological progress. Example: Technological breakthroughs.

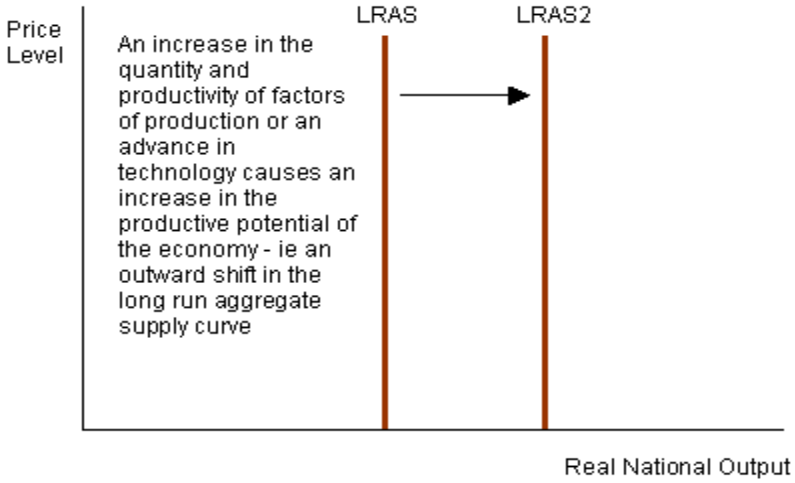
LONG RUN AGGREGATE SUPPLY

Long run aggregate supply is determined by the productive resources available to meet demand and by the productivity of factor inputs (labour, land and capital).

In the short run, producers respond to higher demand (and prices) by bringing more inputs into the production process and increasing the utilization of their existing inputs. Supply does respond to change in price in the short run.

In the long run we assume that supply is independent of the price level (money is neutral) - the productive potential of an economy (measured by LRAS) is driven by improvements in productivity and by an expansion of the available factor inputs (more firms, a bigger capital stock, an expanding active labour force etc). As a result we draw the long run aggregate supply curve as vertical.

Improvements in productivity and efficiency cause the long-run aggregate supply curve to shift out over the years. This is shown in the diagram below



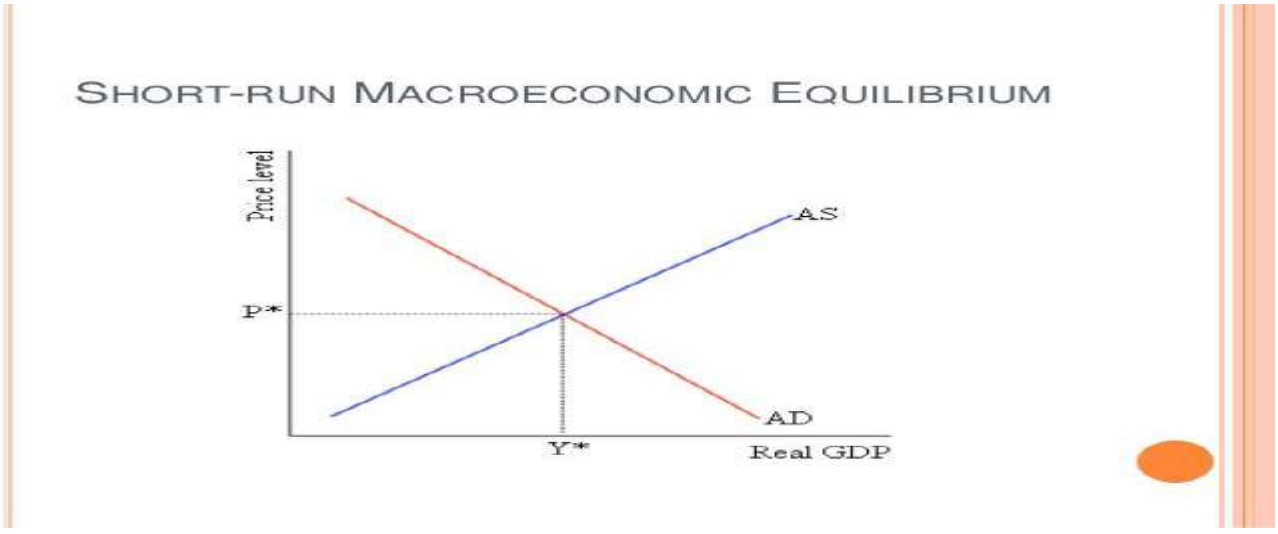
Macro-Economic Equilibrium

Macroeconomic equilibrium is an economic state in an economy where the quantity of aggregate demand equals the quantity of aggregate supply. The point at which either AD intersects SAS or AD intersects LAS is called the **equilibrium point**.

- **Short-Run Equilibrium**
- **Long-Run Equilibrium**

Short run Macroeconomic Equilibrium

Short-run macroeconomic equilibrium occurs (geometrically) **at the intersection of the short-run aggregate supply curve (SAS) and the aggregate demand curve (AD)**. This intersection indicates the price level at which the aggregate quantity of final goods and services supplied in the economy is equal to the aggregate quantity demanded, and indicates as well the corresponding level of real GDP.



This intersection indicates the price level at which the aggregate quantity of final goods and services supplied in the economy is equal to the aggregate quantity demanded, and indicates as well the corresponding level of real GDP

To see that this point of intersection is an equilibrium point, consider first a situation where the price level is below that corresponding to the short-run equilibrium. ′ At this price level, the quantity of real GDP that will be supplied by firms will be less than the quantity of real

GDP that will be demanded by households, business firms, government, and net foreign demand. ′

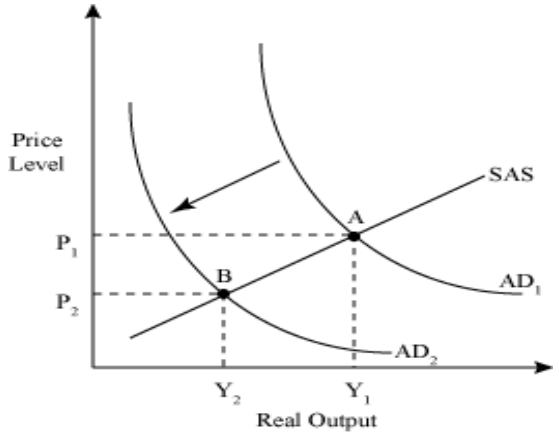
With firms unable to meet demand, inventories decline and back orders become the rule. ′ In order to meet the strong demand, firms will begin to increase production; and in so doing will incur additional resource costs that will result in price increases (i.e., there will be a movement up along the SAS curve). ′ As prices increase, this will lead to a moderating of demand (movement up along the AD curve). These movements will continue until quantity supplied equals quantity demanded -- at the point of intersection of the SAS and AD curves.

Shifts in Aggregate demand

The equilibrium in the short-run is shown by the **intersection** of the Aggregate Demand (AD) curve and the Short-Run Aggregate Supply (SAS) curve. When either AD or SAS shifts, the equilibrium point is changed.

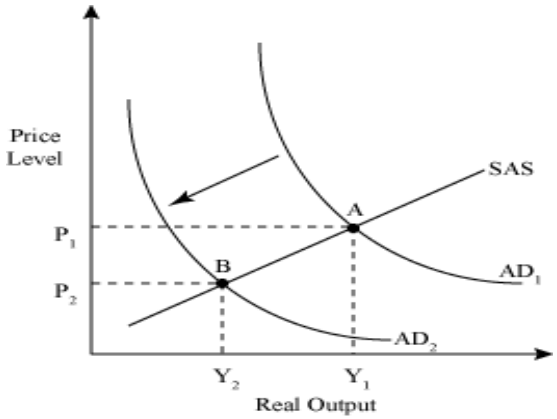
Increase in Aggregate Demand:

A shift to the right of the AD curve will cause the equilibrium output as well as the price level to increase.



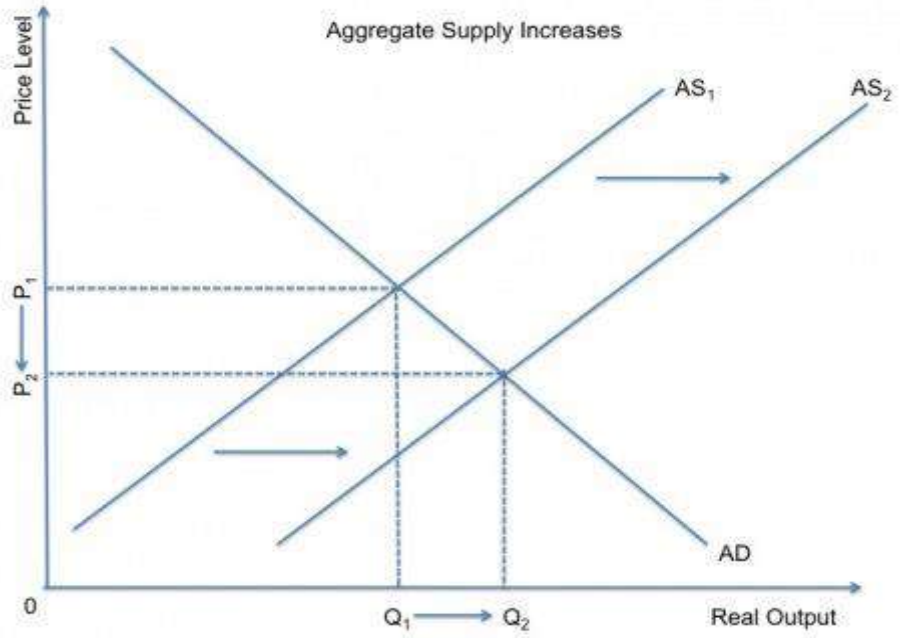
Decrease in aggregate Demand:

If the AD curve were to shift to the left, the opposite would be true: output and price level will decrease.



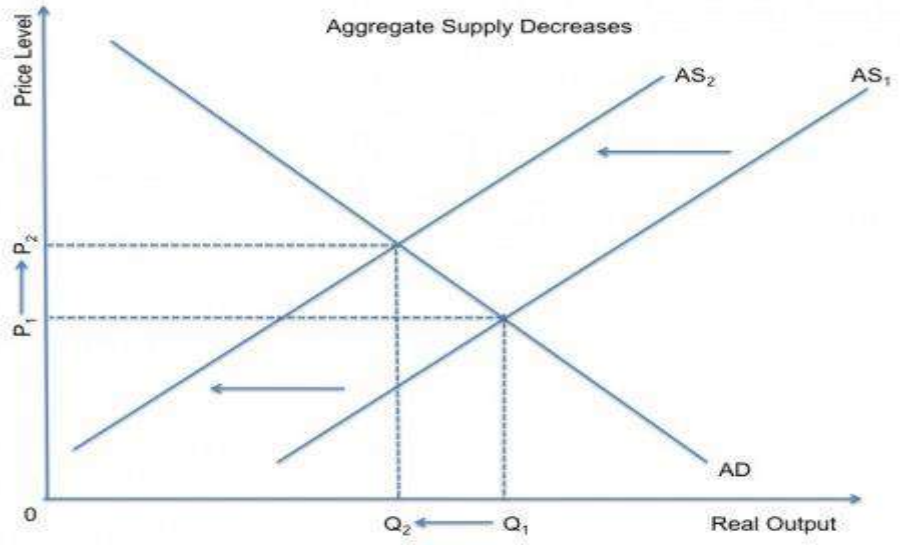
Shifts in Aggregate Supply

When either AD or SAS shifts, the equilibrium point is changed.



Increase in Aggregate supply:

A shift to the right will decrease price level and increase output.

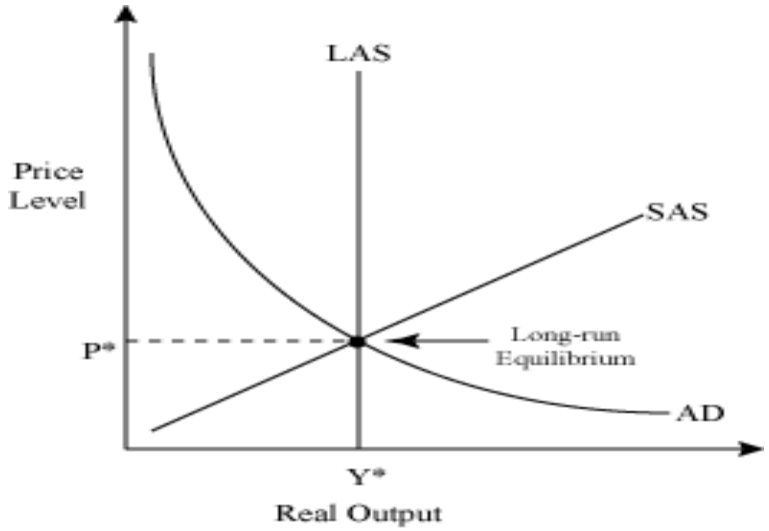


Decrease in Aggregate supply:

A shift to the left in SAS will cause AS to decrease and the price level to rise while equilibrium output will decrease

Long-Run Equilibrium

The equilibrium in the long-run is shown by the **intersection** of the AD curve, the SAS curve, and the Long-Run Aggregate Supply (LAS) curve. Since LAS represents potential output, a shift in the AD curve will only result in a change in price level: a shift to the right increasing price level and a shift to the left decreasing price level. If an economy is said to be in long-run equilibrium, then Real GDP is at its potential output, the actual unemployment rate will equal the natural rate of unemployment (about 6%), and the actual price level will equal the anticipated price level.



Say's Law

Say's Law states that supply will create its own demand. This idea came about in a time where many economists were noting economic downturns which today we call recessions. This idea suggests that people work and supply to the markets because there is a demand for goods of equal value. According to this law, aggregate demand will always equal aggregate supply.
Aggregate Supply

National Income

Definition of National Income

National income or national product is defined as the total market value of all the final goods and services produced in an economy in a given period of time.

Components of National income:

Below are given some of the important components of national income.

1. Gross Domestic Product
2.

1. Gross Domestic Product at Market Price.
2. Gross National Product at Market Price.
3. Net Domestic Product at Market Price.
4. Net National Product at Market Price.
5. Net Domestic Product at Factor Cost.
6. Net National Product at Factor Cost.
7. Gross Domestic Product at Factor Cost.
8. Gross National Product at Factor Cost.
9. Private Income.
10. Personal Income
11. Disposable Income.

(1) Gross Domestic Product :

The most important concept of national income is Gross Domestic Product. Gross domestic product is the money value of all final goods and services produced within the domestic territory of a country during a year.

GDP=C+I+G+(X-M)

Where,
C=Consumption
I=Investment
G=Government expenditure
(X-M)=Export minus import

(2) Gross National Product (GNP)

Gross National Product is the total market value of all final goods and services produced annually in a country plus net factor income from abroad. Thus, 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 factor income from abroad.

(3) Net National Product (NNP)

Net National Product is the market value of all final goods and services after allowing for depreciation. It is also called National Income at market price. When charges for depreciation are deducted from the gross national product,

(4) Gross Domestic Product at Market Price (GDP at MP):-

Gross domestic product at market price is the aggregate money value of the final goods and services produced within the country's own territory. So as to calculate GDP at MP all goods and services produced in the domestic territory are multiplied by their respective prices.

Gross Domestic Product at Market Price
= value of gross domestic output - value of intermediate consumption

(5) Gross National Product of Market Price (GNP at MP):-

Gross national product at market price is broad and comprehensive concept. GNP at MP measures the money value of all the final products produced annually in a counter plus net factor income from abroad. In short GNP is GDP plus net factor incomes earned from abroad. Net factor incomes is derived by reducing the factor incomes earned by foreigners from the country, in question from the factor incomes earned by the residents of that country from abroad.

[Gross National Product at Market Price = Gross domestic product at market price + Net factor income from abroad.]

(6) Net Domestic Product at Market Price (NDP at MP):-

Net domestic product- at market price is the difference between Net National Product at market price and net factor income from abroad. Net domestic product at market price is the difference been GNP at market price minus depreciation and net factor incomes from abroad.

[Net Domestic Product at Market Price = GNP at MP - Depreciation - Net factors income form abroad]

(7) Net National Product at Market Price (NNP at MP):-

Net National product measures the net money value of final goods and services at current prices produced in a year in a country. It is the gross national product at market price less depreciation. In production of output capital assets are constantly used up. This fixed capital consumption is called depreciation. Depreciation constitutes loss of value of fixed capital. Thus net national product is the net money value of final goods and services produced in the course of a year. Net money value can be arrived at by excluding depreciation allowance from total output.

[NNP at MP = GNP at MP - Depreciation]

(8) Net Domestic Product at Factor Cost (NDP at FC):-

Net Domestic product of factor cost or domestic income is the income earned by all the factors of production within the domestic territory of a country during a year in the form of wages, interest, profit and rent etc. Thus NDP at FC is a territorial concept. In other words NDP at factor cost is equal to NNP at FC less net factor income from abroad.

[NDP at FC = NNP at FC - Net factor income from abroad]

(9) Net National Product at Factor Cost (NNP at FC)

Net national product at factor cost is the aggregate payments made to the factors of production. NNP at FC is the total incomes earned by all the factors of production in the form of wages, profits, rent, interest etc. plus net factor income from abroad. NNP at FC is the NDP at FC plus net factor income from abroad. NNP at FC can also be derived by excluding depreciation from GNP at FC.

[NNP at FC = NDP at FC + Net Factor Income from abroad]

(10) Gross Domestic Product at Factor Cost (GDP at FC):

Gross Domestic Product at factor cost refers to the value of all the final goods and services produced within the domestic territory of a country. If depreciation or consumption of fixed capital is added to the net domestic product at factor cost, it is called Gross domestic Product at Factor cost.

[GDP at FC = NDP at FC - Depreciation]

(11) Gross National Product at Factor Cost (GNP at FC):-

Gross national product at factor cost is obtained by deducting the indirect tax and adding subsidies to GNP at market price or Gross national Product at factor cost is obtained by adding net factor incomes from abroad to the GDP at factor cost.

[GNP at FC = GNP at MP - Indirect tax + Subsidies] or, [GNP at FC = GDP at FC + Net Factor Income from abroad]

(12) Private Income:-

Private income means the income earned by private individuals from any source whether productive or unproductive. It can be arrived at from NNP at factor cost by making certain additions and deduction. The additions include (a) transfer earnings from Govt, (b) interest on national debt (c) current transfers from rest of the world. The deductions include (a) Income from property and entrepreneurship (b) savings of the non- departmental undertakings (e) social security contributions. In order to arrive at private income the above additions and subtraction are to be made to and from NNP at factor Cost.

[Private Income = NNP at FC + transfer payments + Interest on public debt - social securities - profits and surpluses of public undertakings]

(13) Personal Income:-

Personal Income is the total income received by the individuals of country from all sources before direct taxes. Personal income is not the same as National Income, because personal income includes the transfer payments where as they are not included in national income. Personal income includes the wages, salaries, interest and rent received by the individuals. Personal income is derived by excluding undistributed corporate profit taxes etc. from National Income.

[Personal Income = Private Income - Saving of Private enterprise - Corporate tax]

(14) Disposable Income:-

Disposable income means the actual income which can be spent on consumption by individuals and families. It refers to the purchasing power of the house hold. The whole of disposable income is not spent on consumptions; a part of it is paid in the form of direct

tax. Thus disposable income is that part of income, which is left after the exclusion of direct tax.

[Disposable Income = Personal Income - Direct tax]

MEASUREMENT OF NATIONAL INCOME

Production generate incomes which are again spent on goods and services produced. Therefore, national income can be measured by three methods:

1. Output or Production method
2. Income method, and
3. Expenditure method.

Let us discuss these methods in detail.

1. Output or Production Method: This method is also called the value-added method. This method approaches national income from the output side. Under this method, the economy is divided into different sectors such as agriculture, fishing, mining, construction, manufacturing, trade and commerce, transport, communication and other services. Then, the gross product is found out by adding up the net values of all the production that has taken place in these sectors during a given year.

In order to arrive at the net value of production of a given industry, intermediate goods purchase by the producers of this industry are deducted from the gross value of production of that industry. The aggregate or net values of production of all the industry and sectors of the economy plus the net factor income from abroad will give us the GNP. If we deduct depreciation from the GNP we get NNP at market price. NNP at market price – indirect taxes + subsidies will give us NNP at factor cost or National Income.

The output method can be used where there exists a census of production for the year. The advantage of this method is that it reveals the contributions and relative importance and of the different sectors of the economy.

2. Income Method: This method approaches national income from the distribution side. According to this method, national income is obtained by summing up of the incomes of all individuals in the country. Thus, national income is calculated by adding up the rent of land, wages and salaries of employees, interest on capital, profits of entrepreneurs and income of self-employed people.

This method of estimating national income has the great advantage of indicating the distribution of national income among different income groups such as landlords, capitalists, workers, etc.

3. Expenditure Method: This method arrives at national income by adding up all the expenditure made on goods and services during a year. Thus, the national income is found by adding up the following types of expenditure by households, private business enterprises and the government: -

(a) Expenditure on consumer goods and services by individuals and households denoted by C. This is called personal consumption expenditure denoted by C.

(b) Expenditure by private business enterprises on capital goods and on making additions to inventories or stocks in a year. This is called gross domestic private investment denoted by I.

(c) Government's expenditure on goods and services i.e. government purchases denoted by G.

(d) Expenditure made by foreigners on goods and services of the national economy over and above what this economy spends on the output of the foreign countries i.e. exports – imports denoted by (X – M).

Thus, GDP = C + I + G + (X – M).

Difficulties in the Measurement of National Income

There are many difficulties in measuring national income of a country accurately. The difficulties involved are both conceptual and statistical in nature. Some of these difficulties or problems are discuss below:

1. The first problem relates to the treatment of non-monetary transactions such as the services of housewives and farm output consumed at home. On this point, the general agreement seems to be to exclude the services of housewives while including the value of farm output consumed at home in the estimates of national income.
2. The second difficulty arises with regard to the treatment of the government in national income accounts. On this point the general viewpoint is that as regards the administrative functions of the government like justice, administrative and defense are concerned they should be treated as giving rise to final consumption of such services by the community as a whole so that contribution of general government activities will be equal to the amount of wages and salaries paid by the government. Capital formation by the government is treated as the same as capital formation by any other enterprise.
3. The third major problem arises with regard to the treatment of income arising out of the foreign firm in a country. On this point, the IMF viewpoint is that production and income arising from an enterprise should be ascribed to the territory in which production takes place. However, profits earned by foreign companies are credited to the parent company.

Special Difficulties of Measuring National Income in Under-developed Countries

In under-developed countries like India, we face some special difficulties in estimating national income. Some of these difficulties are:
1. The first difficulty arises because of the prevalence of non-monetised transactions in such countries so that a considerable part of the output does not come into the market at all. Agriculture still being in the nature of subsistence farming in these countries, a major part of output is consumed at the farm itself.
2. Because of illiteracy, most producers have no idea of the quantity and value of their output and do not keep regular accounts. This makes the task of getting reliable information very difficult.
3. Because of under-development, occupational specialization is still incomplete, so that there is lack of differentiation in economic functioning. An individual may receive income partly from farm ownership, partly from manual work in industry in the slack season, etc. This makes the task of estimating national income very difficult.
4. Another difficulty in measuring national income in under-developed countries arises because production, both agriculture and industrial, is unorganized and scattered in these countries. In India, agriculture, household craft, and indigenous banking are the unorganized and scattered sectors. An assessment of output produced by self-employed agriculturist, small producers and owners of household enterprises in the unorganized sectors requires an element of guesswork, which makes the figure of national income unreliable.
5. In under-developed countries there is a general lack of adequate statistical data. Inadequacy, non-availability and unreliability of statistics is a great handicap in measuring national income in these countries.

Multiplier Effect

An initial change in aggregate demand can have a much greater final impact on the level of equilibrium national income. This is known as the multiplier effect

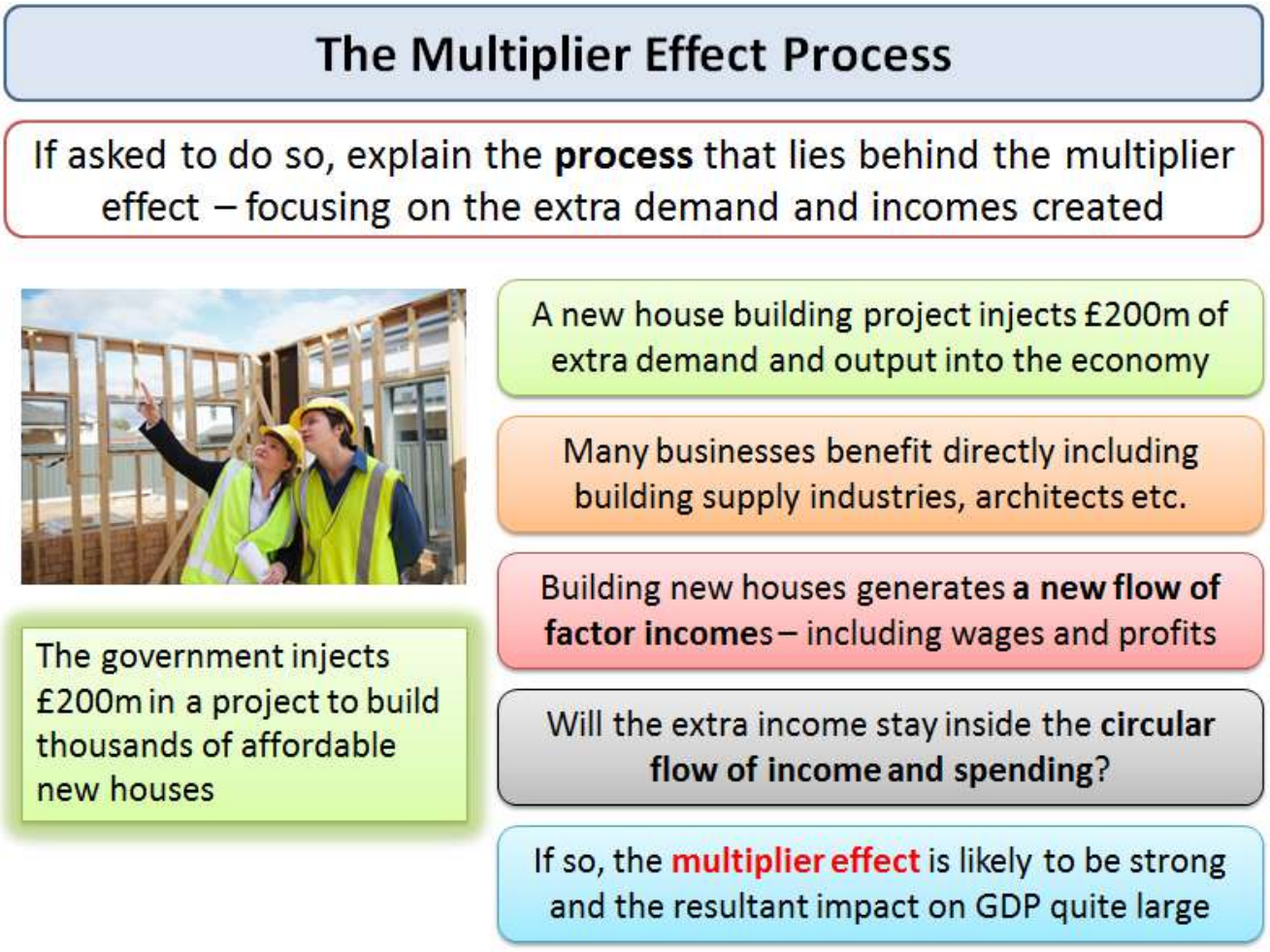
What is a simple definition of the multiplier?

It is the number of times a rise in national income exceeds the rise in injections of demand that caused it

Describing the multiplier process

It comes about because injections of new demand for goods and services into the circular flow of income stimulate further rounds of spending – in other words "one person's spending is another's income"

This can lead to a bigger eventual effect on output and employment



How does Multiplier works?

1. An injection occurs in the economy, such as an increase in government spending.
2. The injection increases the aggregate demand in the economy for goods and services.
3. The increase in demand for goods and services causes firms to employ more workers and expand output.
4. As firms are employing more workers, more people have disposable incomes and subsequently the aggregate demand increases in the economy.
5. The increases in aggregate demand causes firms to employ more workers and the effect continues as before.

The value of the multiplier depends on:

- Propensity to import
- Propensity to save
- Propensity to tax
- Amount of spare capacity
- Avoiding crowding out

- The higher is the **propensity to consume** domestically produced goods and services, the greater is the multiplier effect. The government can influence the size of the multiplier through changes in direct taxes. For example, a cut in the rate of income tax will increase the amount of extra income that can be spent on further goods and services
- Another factor affecting the size of the multiplier effect is the **propensity to purchase imports**. If, out of extra income, people spend their money on imports, this demand is not passed on in the form of fresh spending on domestically produced output. It leaks away from the circular flow of income and spending, reducing the size of the multiplier.
- The multiplier process also requires that there is **sufficient spare capacity** for extra output to be produced. If **short-run aggregate supply is inelastic**, the full multiplier effect is unlikely to occur, because increases in AD will lead to higher prices rather than a full increase in real national output. In contrast, when SRAS is perfectly elastic a rise in aggregate demand causes a large increase in national output.
- **Crowding out** – this is where (for example) increased government spending or lower taxes can lead to a rise in government borrowing and/or inflation which causes interest rates to rise and has the effect of slowing down economic activity.

In short – the multiplier effect will be larger when

1. The propensity to spend extra income on domestic goods and services is high
2. The marginal rate of tax on extra income is low
3. The propensity to spend extra income rather than save is high
4. Consumer confidence is high (this affects willingness to spend gains in income)
5. Businesses in the economy have the capacity to expand production to meet increases in demand

Types of Multiplier

Money Multiplier

- **The Money Multiplier** refers to the amount that commercial banks can increase the supply of money in an economy. This is calculated by:
- Increase in money supply / Increase in monetary base that caused it
- A monetary base and an economy's money supply as a mathematical relationship. It explains increased cash amounts in circulation caused by the banks' use of their depositors' funds to lend money.

$$\text{money multiplier} = \frac{1}{\text{reserve requirement}}$$

Government Expenditure Multiplier

The government expenditure multiplier is the effect of a change in government expenditure on goods and services on aggregate demand. An increase in aggregate expenditure increases aggregate demand, which increases real GDP. The increase in real GDP induces an increase in consumption expenditure, which further increases aggregate demand

The Tax Multiplier The tax multiplier is the effect of a change in taxes on aggregate demand. A decrease in taxes increases disposable income. The increase in disposable income increases consumption expenditure and aggregate demand. With increased aggregate demand, employment and real GDP increase and consumption expenditure increases yet further.

The Balanced Budget Multiplier The balanced budget multiplier is the effect on aggregate demand of a simultaneous change in government expenditure and taxes that leaves the budget balance unchanged. The balanced budget multiplier is not zero—it is positive —because the government expenditure multiplier is larger than the tax multiplier

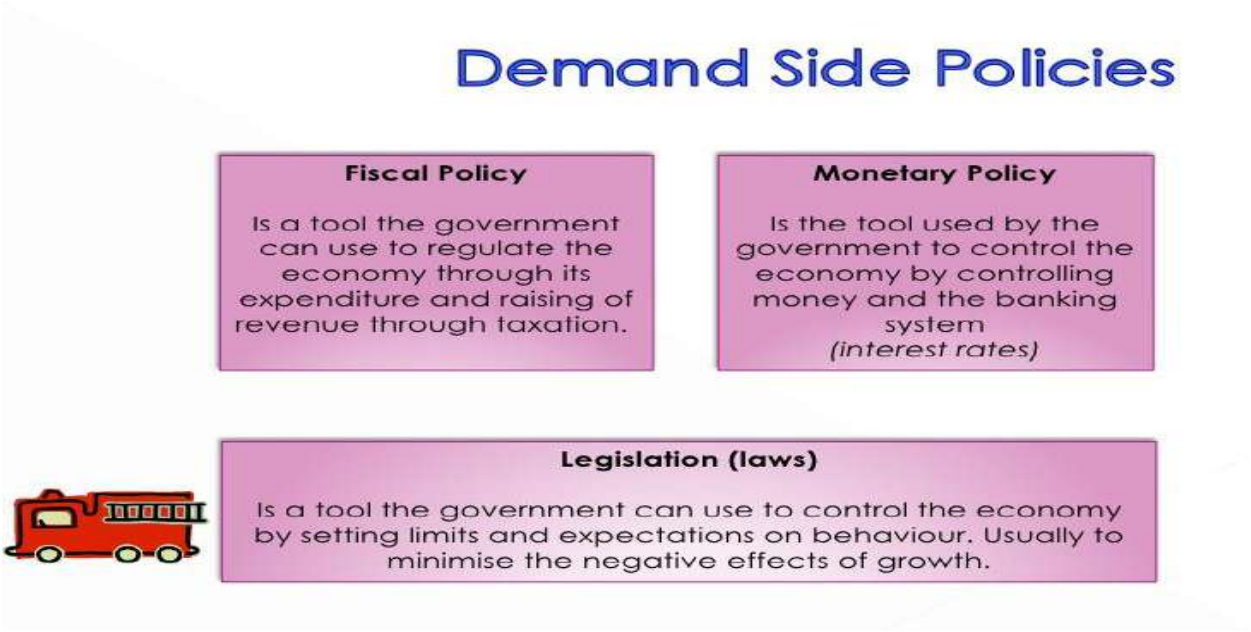
The ratio of change in the equilibrium level of output to a change in government spending where the change in government spending is balanced by a change in taxes so as not to create any deficit.

The balanced-budget multiplier = 1

The change in Y resulting from the change in G and the equal change in T are exactly the same size as the initial change in G or T.

Demand side management

- Demand-side Economics is an economic theory which suggest that economic stimulation comes best from increasing the demand for goods and services. Also called Keynesian Economics.



Demand Side Policies related to growth?
Fiscal Policy - Introduction

- **Fiscal measures for growth include**
  - Specific spending priorities, putting money into areas which the government believes will promote economic growth.
  - Influencing the size of the circular flow with the size of the government budget.
  - Targeting taxation and subsidies.

- Specific spending priorities are determined by government, in areas where it believes the private sector does not supply adequate quantity or quality of goods or services.

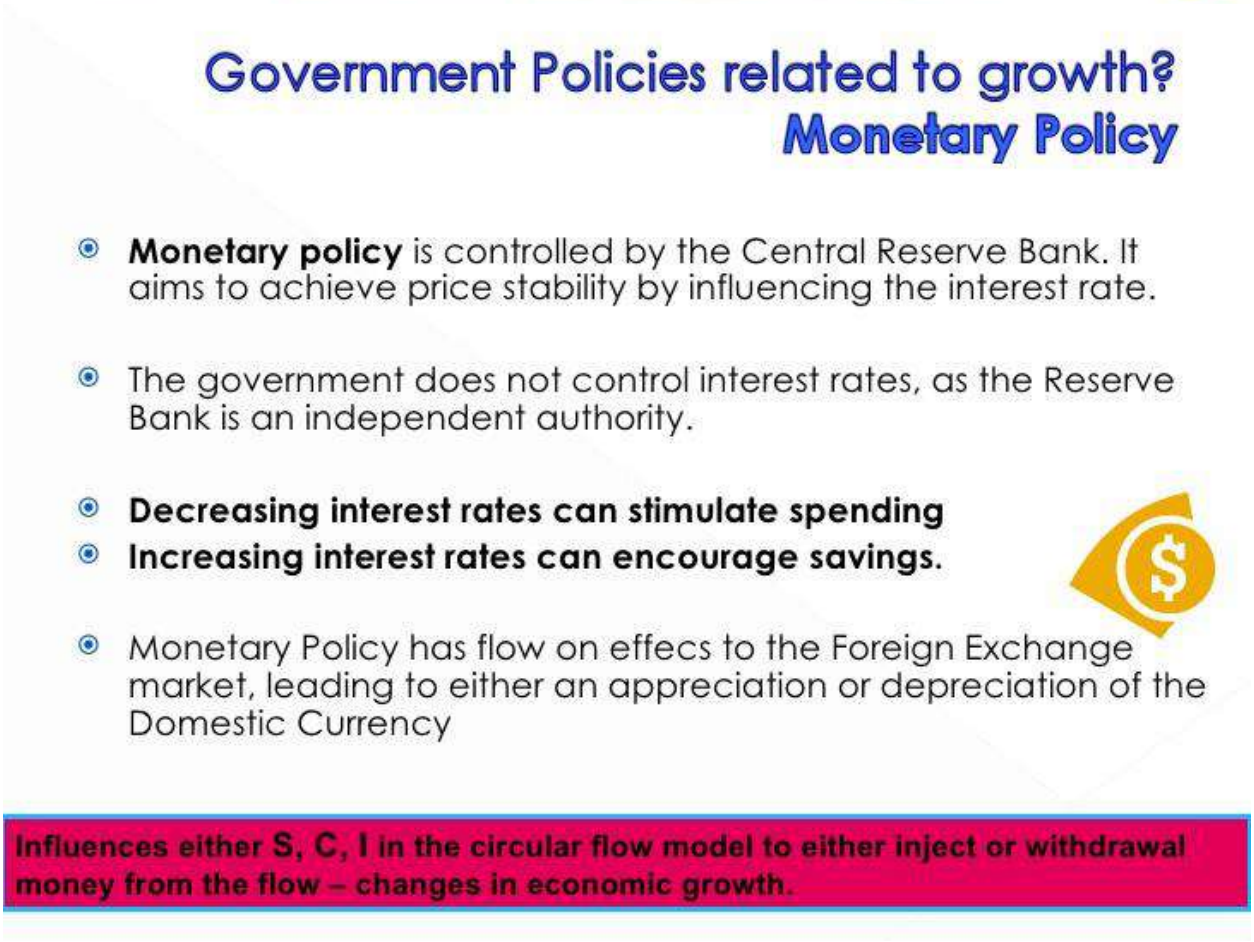
Shown as G, T, Tr in the circular flow model to either inject or withdrawal money from the flow.

Monetary Policy

- This are the decisions, guided by the government to change interest rates to influence the rate of economic growth.

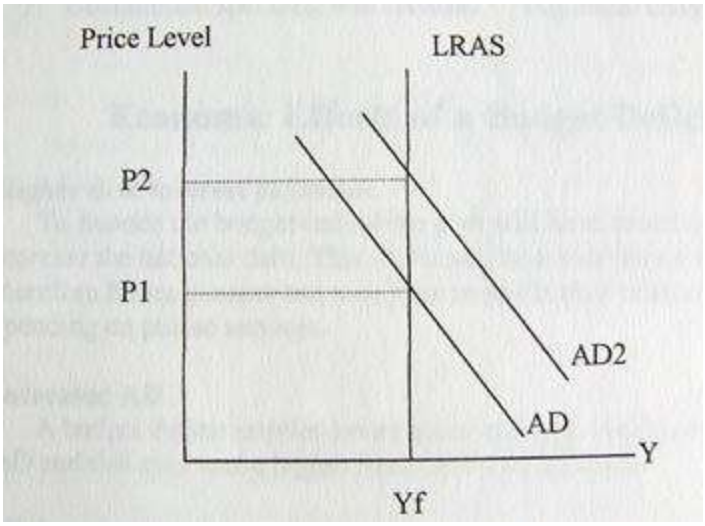
- Remember
  - **Increase in interest rates**, increases savings, withdrawals money from circular flow. Slows economic growth. Also decreases rate of investment in capital assets.

  - **Decrease in interest rates**, decreases savings, increases consumer spending. Increases economic growth. Also increase rate of investment.



Discuss whether demand side policies will be successful in reducing unemployment.

1. Demand side policies include expansionary fiscal and monetary policies.
2. For example the govt could increase Govt spending and lower taxes. G is a component of AD therefore this will cause AD to increase, there may also be a multiplier effect causing AD to increase even more than the initial effect
3. Lower tax rates will increase consumer's disposable income and therefore spending will increase.
4. Also the MPC could cut interest rates, this makes borrowing cheaper and encourages spending rather than saving, this will also have the effect of increasing AD
5. The above diagram shows an increase in AD causing higher real GDP and a higher price level. Note there will only be an increase in real GDP if there is spare capacity in the economy.
6. If real GDP increases then there will be higher demand for workers, as firms need to increase production to meet demand. Therefore, unemployment will fall.
7. The Phillips curve shows the trade off between unemployment and inflation, as demand is increased there is lower unemployment with a trade off of higher inflation.
8. However classical economists disagree with this Keynesian analysis they argue that the LRAS is inelastic therefore an increase in AD will not cause a rise in Real GDP.



8. This diagram shows that an increase in AD will cause an increase in Real GDP in the short run. However as prices increase firms face an increase in their wage bill so the SRAS shifts to the left. This causes Real GDP to return to its original level of output. Therefore any fall in unemployment will only be temporary according to classical economists.

9. Therefore they believe there is no trade off as the Phillips Curve suggests. This Monetarist view gained credence in the 1970s when there appeared to be a breakdown in the relationship between inflation and unemployment

10. It is also possible that demand side policies fail to increase AD, in the Great Depression (and in Japan in the 1990s) cuts in taxes did not increase AD because consumer confidence was very low. Therefore fiscal policy failed to reduce unemployment.

11. Cyclical unemployment is only one cause of unemployment. Over types of unemployment include Real Wage or (classical unemployment) this occurs when trades unions force wages above the equilibrium reducing demand for labour

12. The Natural rate of unemployment refers to the supply side factors such as structural and frictional unemployment. this type of unemployment will occur even when the economy is at full output. Therefore theses types of unemployment will not be reduced by demand side factors Classical economists argue that all unemployment is due to supply side factors such as

Demand side policies can only reduce cyclical unemployment, which will occur during a recession. Classical economists argue that this will only last a short time and the markets will clear of their own accord. However, in practice this often doesn't occur. Govt intervention can shorten a recession and therefore reduce unemployment. Nevertheless it will also be important for the govt to tackle different types of unemployment with supply side policies.

Fiscal policy

Definition

- The fiscal policy is concerned with the raising of government revenue and incurring of government expenditure. To generate revenue and to incur expenditure

- To generate revenue and to incur expenditure, the government frames a policy called **budgetary policy or fiscal policy**. So, the fiscal policy is concerned with government expenditure and government revenue
- Fiscal policy has to decide on the size and **pattern of flow of expenditure from the government to the economy and from the economy back to the government**.

In broad term fiscal policy refers to "that segment of national economic policy which is primarily concerned with the receipts and expenditure of central government

Objectives of Fiscal Policy

The following are some of the important objectives of fiscal policy

The principal objective of fiscal policy is to ensure rapid economic growth and development. This objective of economic growth and development can be achieved by Mobilization of Financial Resources

The central and the state governments in India have used fiscal policy to mobilize resources.

1. **Mobilization of financial resources**
   - Taxation: Through effective fiscal policies, the government aims to mobilize resources by way of direct taxes as well as indirect taxes because most important source of resource mobilization in India is taxation.
   - Public Savings : The resources can be mobilized through public savings by reducing government expenditure and increasing surpluses of public sector enterprises
   - Private Savings : Through effective fiscal measures such as tax benefits, the government can raise resources from private sector and households

2. **Efficient allocation of Financial Resources**
   - The central and state governments have tried to make efficient allocation of financial resources.
   - These resources are allocated for Development Activities which includes expenditure on railways, infrastructure, etc
   - But generally the fiscal policy should ensure that the resources are allocated for generation of goods and services which are socially desirable.
   - India's fiscal policy is designed in such a manner so as to encourage production of desirable goods and discourage those goods which are socially undesirable.

3. **Reduction in inequalities of Income and Wealth**
   - Fiscal policy aims at achieving equity or social justice by reducing income inequalities among different sections of the society. The direct taxes such as income tax are charged more on the rich people as compared to lower income groups
   - Indirect taxes are also more in the case of semi-luxury and luxury items, which are mostly consumed by the upper middle class and the upper class

4. **Price Stability and Control of Inflation**
   One of the main objectives of fiscal policy is to control inflation and stabilize price. Therefore, the government always aims to control the inflation by Reducing fiscal deficits, introducing tax savings schemes, Productive use of financial resources, etc
5. **Employment Generation:**
   One of the important objectives of fiscal policy in a developing country is to increase the employment was regarded as the most important objective. The government through her

fiscal policy can help in creating and promoting an atmosphere where people may get employment opportunities.

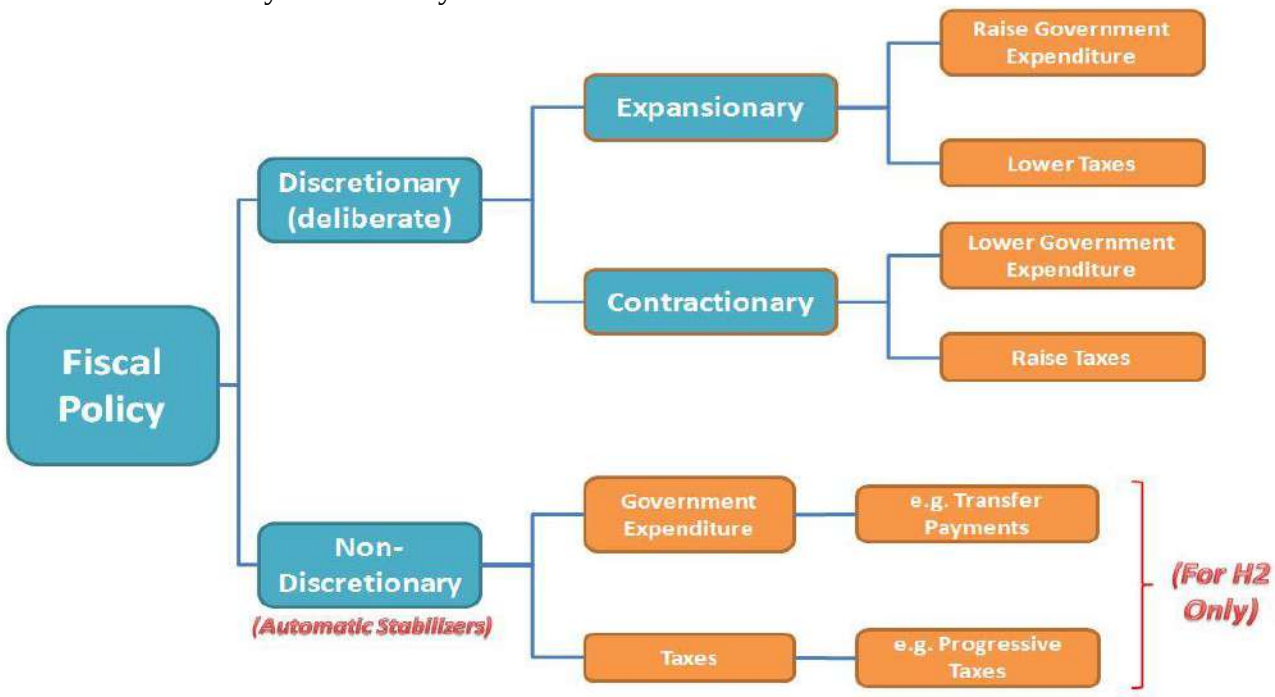
6. **Capital Formation**
   - The objective of fiscal policy in India is also to increase the rate of capital formation so as to accelerate the rate of economic growth
   - In order to increase the rate of capital formation, the fiscal policy must be efficiently designed to encourage savings and discourage and reduce spending
7. **Development of Infrastructure :**

   Government has placed emphasis on the infrastructure development for the purpose of achieving economic growth. The fiscal policy measure such as taxation generates revenue to the government. A part of the government's revenue is invested in the infrastructure development. Due to this, all sectors of the economy get a boost

8. **Increasing the National Income**
   - The fiscal policy aims to increase the national income of a country.
   - This is because fiscal policy facilitates the capital formation.
   - This results in economic growth, which in turn increases the GDP, per capita income and national income of the country.

Types of Fiscal policy:

- Expansionary Fiscal Policy
- Contractionary Fiscal Policy

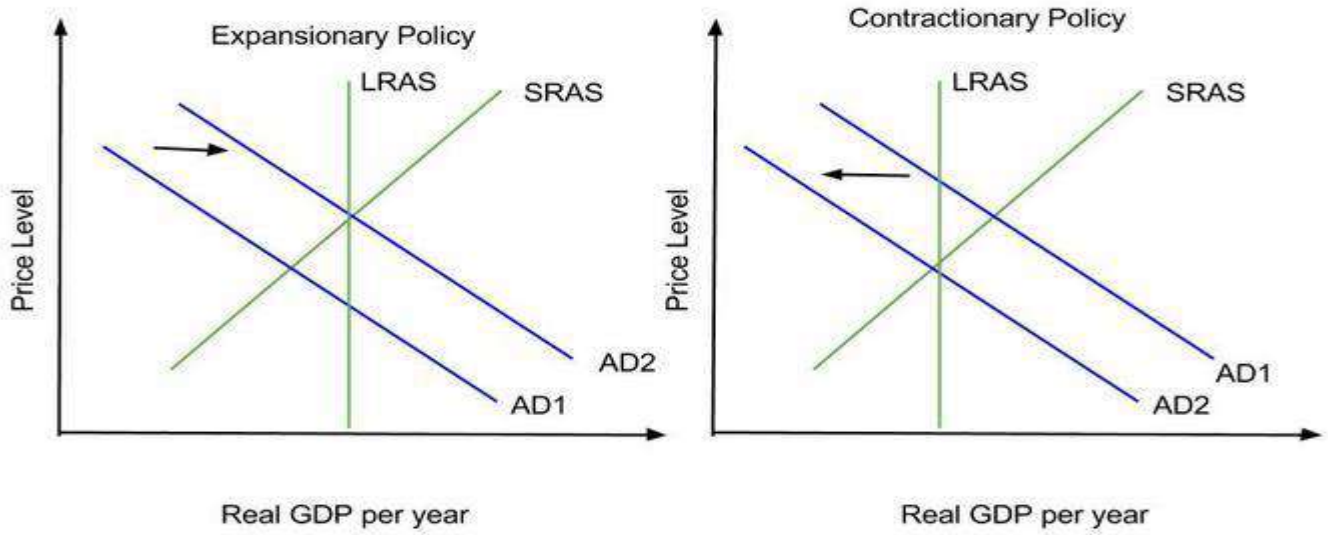


Expansionary Fiscal Policy:

When an economy is operating below its potential output, the Keynesian model suggests that the government should institute *expansionary fiscal policy*, by increasing the government's purchases of goods & services and cutting taxes.

- This involves increasing AD.

- Therefore the government will increase spending (G) and / or cut taxes (T). Lower taxes will increase consumers spending because they have more disposable income (C)
- This will tend worsen the government budget deficit and the government will need to increase borrowing.



Contractionary Fiscal Policy:

Contractionary fiscal policy is defined as a decrease in government expenditures, an increase in taxes, or a decrease in government expenditures and an increase in taxes, which causes the government's budget deficit to decrease and its budget surplus to increase.

- This involves decreasing AD.
- Therefore the government will cut government spending (G) and / or increase taxes. Higher taxes will reduce consumer spending (C)
- Tight fiscal policy will tend to cause an improvement in the government budget deficit.

Techniques of fiscal policy:

The following are the four important techniques of fiscal policy of India:

1. **Public expenditure policy:**
   Public expenditure influences the economic activities of a country very much. It can be of 2 types i.e. developmental and non-developmental. Developmental expenditure is of great importance to the economic growth of the country. It requires huge amount of capital. So much capital cannot be made available by private sector alone. It requires increase in public expenditure. Public expenditure may be made in the following ways:
   a) **Development of public enterprises**:
      Underdeveloped countries lack basic and heavy industries. Establishment of these industries requires huge capital investment. They involve great deal of risk. Also private sector cannot set up these industries because of more risk and huge capital investment.
   b) **Support to Private Sector:**

In order to accelerate the rate of economic growth in the country, government should encourage private sector. For this government gives various subsidies, concessional loans etc.

c) Development of infrastructure:

Government spends huge amount for development of infrastructure, which is must for economic development of any nation. Infrastructure of a country mainly includes power projects, railways, roads, airports, hospitals, dams, etc.

d) Social Welfare:

Government spends huge amount on public health, education, safedrinking water, sanitation, welfare of weaker sections of society, etc.

2. Taxation Policy:

Taxes are the main sources of revenue of government. Government levies both direct and indirect taxes in India. Direct taxes are those that are paid directly by the assessee to the government e.g.: income tax, wealth tax etc. Indirect taxes are paid indirectly by the public to the government, i.e., these taxes are charged by trader/manufacturer from the public and then paid to the government e.g., excise duty, custom duty, VAT, etc. Main objectives of taxation policy in India are as follows:

a) Mobilization of Resources:

Taxes are the major sources of government revenue. Tax revenue in India has been rising every year. Government mobilizes resources through taxation for economic development.

b) To promote savings:

One of the important objectives of taxation policy is to promote savings. For this purpose various tax concessions, tax deductions are given on savings e.g.:savings in provident funds, savings in national saving certificate, etc.

c) To promote Investment:

To promote investment in remote and backward areas, rural areas, various tax rebates, tax concessions, tax deductions are given for investment in these areas.

d) To bring Equality of Income and Wealth:

To achieve this objective different kinds of progressive direct taxes are levied e.g.: income tax, wealth tax, etc., rate of tax is increase with the increase in income.

3. Public Debt Policy:

Government needs lot of funds for the economic development of country. No government can mobilize so many funds by way of taxes alone. Public debt is obtained from2 kinds of sources

a) Internal debt:

It should be mobilized in a manner that it has no adverse effect on private investment. It is more beneficial to collect small savings as it encourages the people to save more.

b) External debt:

When funds are borrowed from abroad it is called external debt. The main advantage of this is that foreign loans are received in foreign currency.

4. Deficit Financing:

It refers to financing the budgetary deficit. Budgetary deficit here means excess of government expenditure over government income. Deficit financing in India means, "Taking loans from RBI by the government to meet the budgetary deficit". RBI gives this loan by issuing new currency notes. Consequently, money supply increases. Increase in money supply leads to fall in the value of money. Fall in the value of money in turn leads to increase

in price level. So deficit financing should be kept as low as possible as it leads to price rise in the economy.

Advantages & Disadvantages Fiscal Policy:

Advantages	**Disadvantages**
If use Government spending, can direct spending towards areas in need (e.g. infrastructure, education, etc.), and make investments for the future.	Knowledge problems (regarding the current state of the economy; regarding the amount of an expansion or contraction needed, etc.)
Using a balanced budget can provide a stimulus without adding to the government budget deficit.	Government budget deficits (though there's disagreement regarding the extent to which deficits are a problem)
While fiscal policy may lead to government deficits/debt, we should look at debt/GDP ratio. As only as GDP grows, it can bring down the debt/GDP ratio.	Time lags (particularly on the front end of the process)
Can use "green" taxes to discourage polluting activities.	Some crowding out (extent depends on how close the economy is to full employment)
	Tax rebates may be spent on imports, thus leaking out of the circular flow.
	Actions of state and local governments may counteract the federal fiscal stimulus (or contraction).
	Growing the GDP to bring down the debt/GDP ratio can compromise environmental sustainability.
	What if we have stagnation + inflation? Could exacerbate inflation

Unit-V

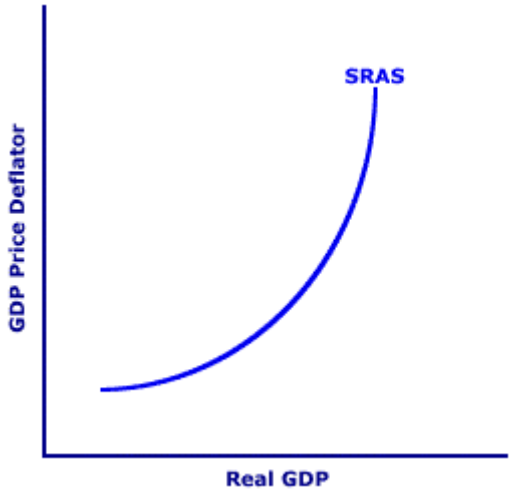
Aggregate Supply and the Role of Money

A definition of aggregate supply

Aggregate supply (AS) measures the volume of goods and services produced within the economy at a given price level. In simple terms, aggregate supply represents the ability of an economy to produce goods and services either in the short-term or in the long-term. It tells us the quantity of real GDP that will be supplied at various price levels. The nature of this relationship will differ between the long run and the short run

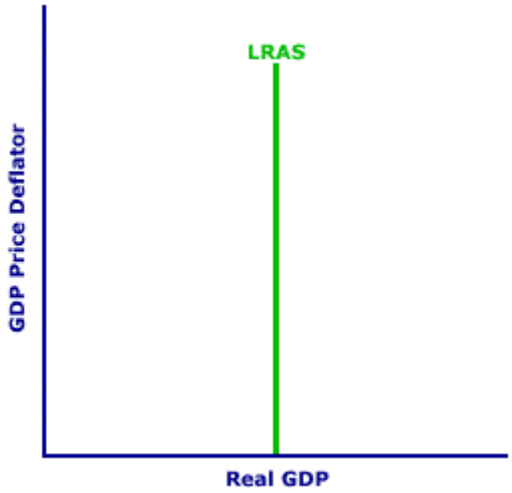
- **In the long run**, the aggregate-supply curve is assumed to be vertical
- **In the short run**, the aggregate-supply curve is assumed to be upward sloping

Short run aggregate supply (SRAS) shows total planned output when prices in the economy can change but the prices and productivity of all factor inputs e.g. wage rates and the state of technology are assumed to be held constant.



The short run is characterized by inflexible prices and disequilibrium in resource markets, either surplus or shortage. This means that resources, especially labor, have either cyclical unemployment or over employment. Inflexible prices mean that real production is responsive to the price level. A higher price level induces an increase in real production, as employment increases, and a lower price level induces a decrease in real production, as employment decreases. As a result, the short-run aggregate supply curve is positively sloped

Long run aggregate supply (LRAS): In the long run all prices are flexible. Price flexibility ensures that all markets are in equilibrium. Prices rise to eliminate market shortages and fall to eliminate market surpluses. The end result is equilibrium--FOR ALL MARKETS. This conclusion is particularly important for resource markets, especially labor. No surplus in the labor market, means that no workers are seeking jobs that do not exist. There is no cyclical unemployment. And no cyclical unemployment means full employment. The long run is characterized by both flexible prices and full employment.



The long run is characterized by flexible prices and equilibrium in production, financial, and resource markets. This means that resources, especially labor, have full employment. Flexible prices mean that full employment is achieved and maintained, regardless of the price level. **As a result, the long-run aggregate supply curve is vertical at the quantity of real production generated at full employment.**

Determinants of Aggregate supply:

Changes in any of the aggregate supply determinants cause the short-run and/or long-run aggregate supply curves to shift.

(1**) Resource quantity**--the amounts of labor, capital, land, and entrepreneurship available,

(2**) Resource quality**--the productivity of the four factors of production, and

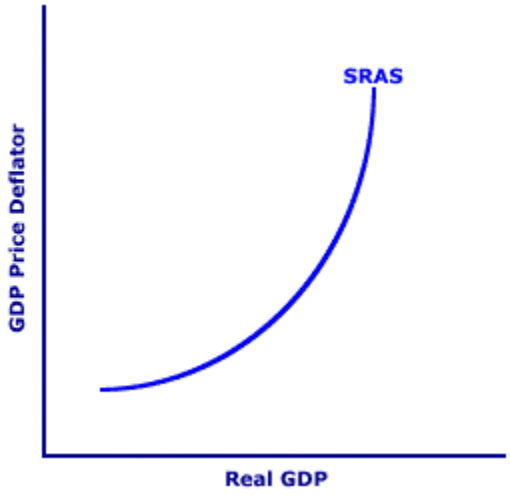
(3**) Resource price**--the prices of the inputs used in production.

1. Resource Quantity: The first major determinant is the quantity of resources--labor, capital, land, and entrepreneurship--that the economy has available for production. This determinant causes shifts of both the SRAS and LRAS curves. Quite simply, if the economy has more resources, then aggregate supply increases and both aggregate supply curves shift rightward. With fewer resources, aggregate supply decreases and both curves shift leftward.
2. **Resource Quality**: The second major determinant of the aggregate supply curves is the quality of resources. If the quality of labor, capital, land, and entrepreneurship changes, then the SRAS and LRAS curves shift. An improved quality increases aggregate supply and a decline in quality decreases aggregate supply.
3. **Resource Price**: The third major aggregate supply determinant is resource price. The prices of resource affect the cost of producing output and thus the price level charged for an existing quantity of real production. This determinant ONLY affects the short-run aggregate supply. Because the long-run aggregate supply is independent of the price level it is also unaffected by changes in resource prices and production cost.

.

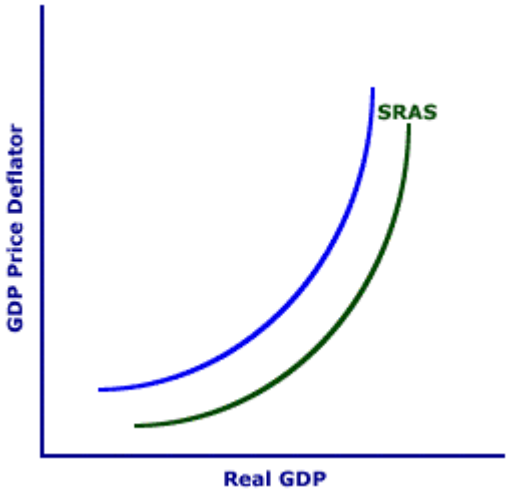
Short run and long run supply curve:

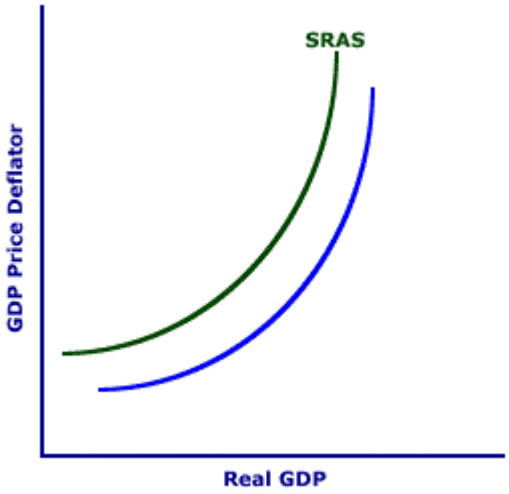
The aggregate supply determinants shift the short-run aggregate supply curve, abbreviated SRAS, and the long-run aggregate supply curve, abbreviated LRAS.



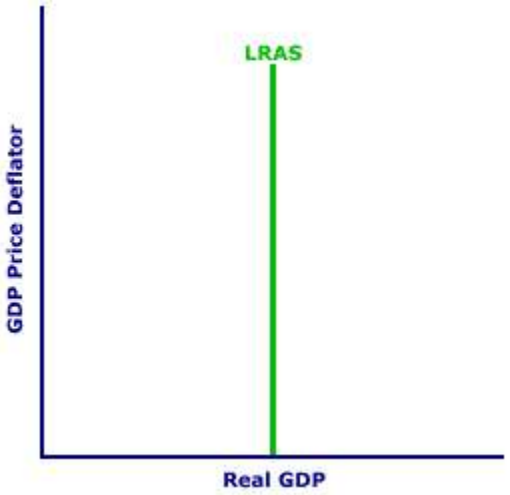
The short-run aggregate supply curve is positively sloped and captures the specific one-to-one relationship between the *price level* and real production

Shifting the Aggregate Supply Curves: Consider first the short-run aggregate supply curve. An increase in short-run aggregate supply is illustrated by a rightward shift in the SRAS curve .A decrease in short-run aggregate supply is illustrated by a leftward shift



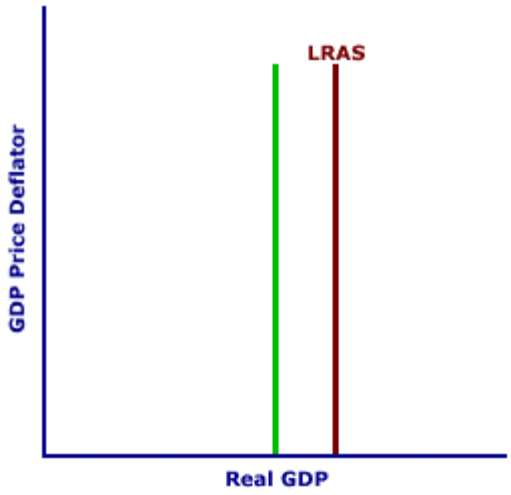


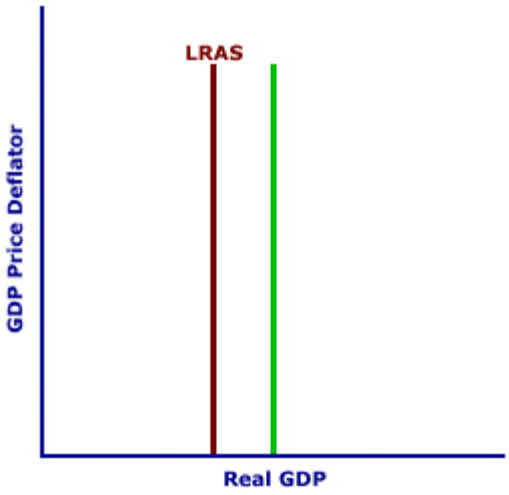
Shifts in the Long run supply curve:



The long-run aggregate supply curve *is vertical at the full-employment level of production, indicating that real production is independent of the price level.*

Shifts in Long-Run Aggregate Supply: *An increase in long-run aggregate supply is illustrated by a rightward shift in the LRAS curve .A decrease in long-run aggregate supply is illustrated by a leftward shift.*



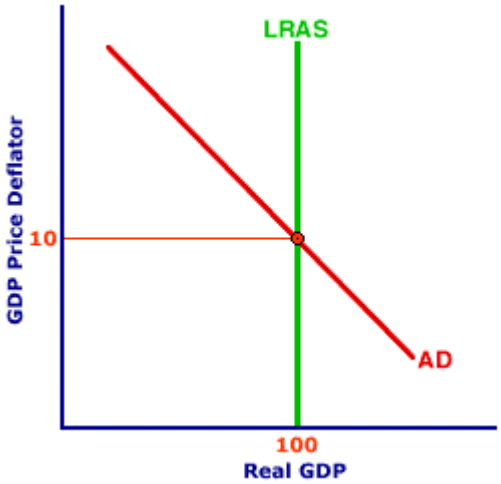


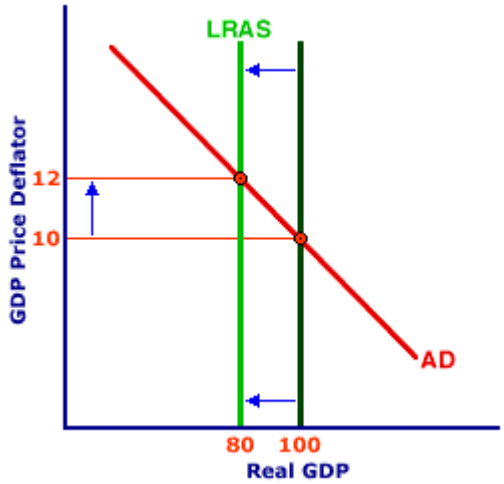
AGGREGATE SUPPLY DECREASE, LONG-RUN AGGREGATE MARKET:

A shock to the long-run aggregate market caused by a decrease in aggregate supply, resulting in and illustrated by a leftward shift of the long-run aggregate supply curve. A decrease in aggregate supply in the long-run aggregate market results in an increase in the price level and a decrease in real production. The level of real production resulting from the shock is a smaller level of full-employment real production.

While a wide range of specific aggregate supply determinants can cause a decrease in aggregate supply, the following rank among the more important:

- *A decline in the size of the population or a decrease in the labor force participation rate, both of which decrease the quantity of labor available for production.*
- *Depreciation of capital goods, which decreases the quantity of capital available for production.*
- *The depletion of existing mineral deposits or fossil fuels, both of which decrease the quantity of land resources available for production.*
- *A decrease in education which decreases the quality of labor resources.*
- *A decrease in technology which decreases the quality of capital resources.*



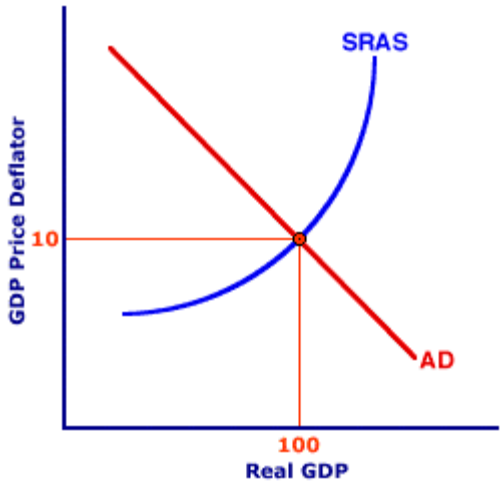


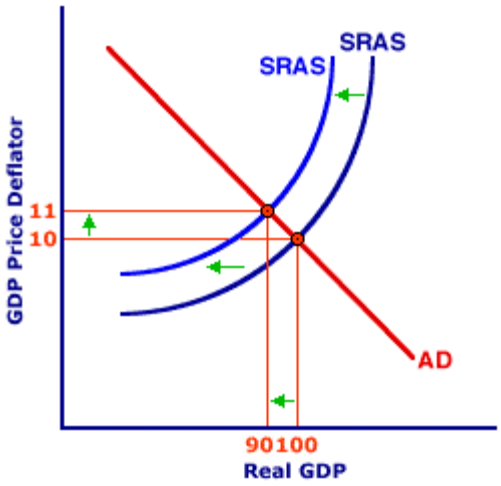
AGGREGATE SUPPLY DECREASE, SHORT-RUN AGGREGATE MARKET:

A shock to the short-run aggregate market caused by a decrease in aggregate supply, resulting in and illustrated by a leftward shift of the short-run aggregate supply curve. A decrease in aggregate supply in the short-run aggregate market results in an increase in the price level and a decrease in real production. The level of real production resulting from the shock can be greater or less than full-employment real production.

While a wide range of specific aggregate supply determinants can cause a decrease in aggregate supply, the following rank among the more important:

- *A decline in the size of the population or a decrease in the labor force participation rate, both of which decrease the quantity of labor available for production.*
- *Depreciation of capital goods, which decreases the quantity of capital available for production.*
- *The depletion of existing mineral deposits or fossil fuels, both of which decrease the quantity of land resources available for production.*
- *A decrease in education which decreases the quality of labor resources.*
- *A decrease in technology which decreases the quality of capital resources.*
- *An increase in wages or energy prices, both of which raise economy-wide production cost.*



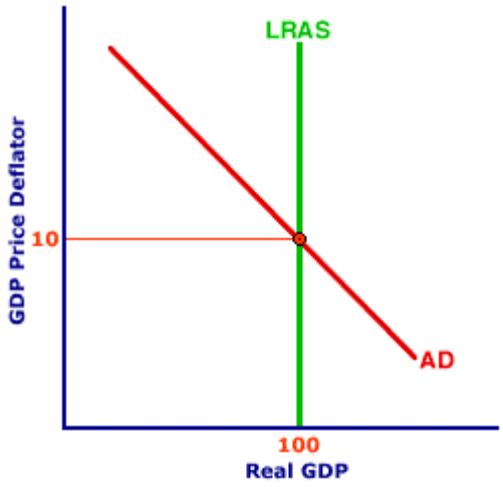


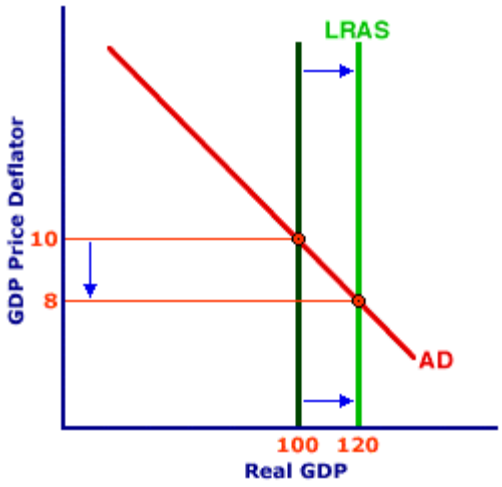
AGGREGATE SUPPLY INCREASE, LONG-RUN AGGREGATE MARKET:

A shock to the long-run aggregate market caused by an increase in aggregate supply, resulting in and illustrated by a rightward shift of the long-run aggregate supply curve. An increase in aggregate supply in the long-run aggregate market results in a decrease in the price level and an increase in real production. The level of real production resulting from the shock is a greater level of full-employment real production.

While a wide range of specific aggregate supply determinants can cause an increase in aggregate supply, the following rank among the more important:

- *Growth of the population or an increase in the labor force participation rate, both of which increase the quantity of labor available for production.*
- *Investment in capital goods prompted by lower interest rates, lower capital good prices, or technological advances, which increases the quantity of capital available for production.*
- *The discovery of new mineral deposits or fossil fuels, both of which increase the quantity of land resources available for production.*
- *An increase in education which increases the quality of labor resources.*
- *An increase in technology which increases the quality of capital resources.*





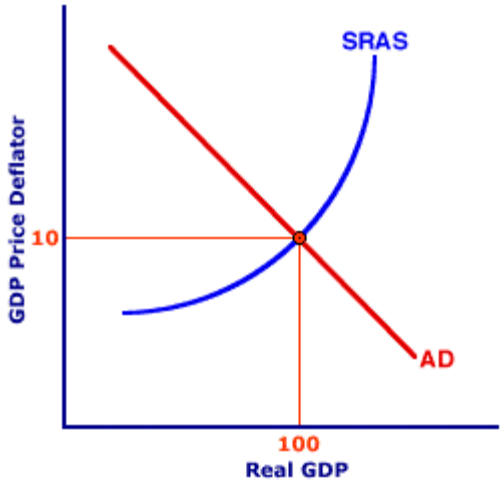
AGGREGATE SUPPLY INCREASE, SHORT-RUN AGGREGATE MARKET:

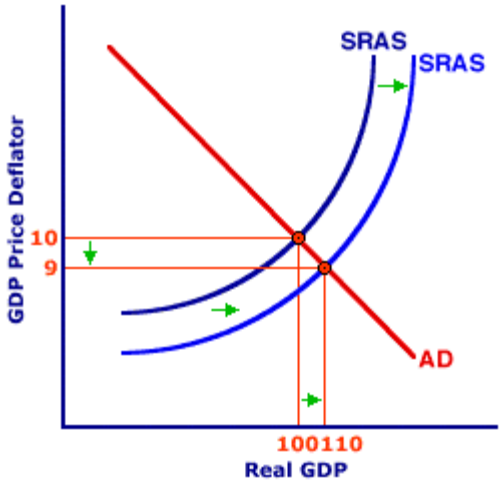
A shock to the short-run aggregate market caused by an increase in aggregate supply, resulting in and illustrated by a rightward shift of the short-run aggregate supply curve. An increase in aggregate supply in the short-run aggregate market results in a decrease in the price level and an increase in real production. The level of real production resulting from the shock can be greater or less than full-employment real production.

While a wide range of specific aggregate supply determinants can cause an increase in aggregate supply, the following rank among the more important:

- *Growth of the population or an increase in the labor force participation rate, both of which increase the quantity of labor available for production.*
- *Investment in capital goods prompted by lower interest rates, lower capital good prices, or technological advances, which increases the quantity of capital available for production.*
- *The discovery of new mineral deposits or fossil fuels, both of which increase the quantity of land resources available for production.*
- *An increase in education which increases the quality of labor resources.*
- *An increase in technology which increases the quality of capital resources.*
- *A reduction in wages or energy prices, both of which reduce economy-wide production cost.*

.





Unemployment and its impact

Defining unemployment

Unemployment describes the state of a worker who is able and willing to take work but cannot find it. As indicated by the unemployment rate and other yardsticks, unemployment is an important measure of the economy's strength.

Labour Force:

- Employed: A person is considered employed if he or she has spent most of the previous week working at a paid job.
- Unemployed: A person is unemployed if he or she is on temporary layoff, is looking for a job, or is waiting for the start date of a new job.
- Not in the Labor Force: A person who fits neither of these categories, such as a full-time student, homemaker, or retiree, is not in the labor force.
- Labor Force: The *labor force* is the total number of workers and the BLS defines the it as the sum of the employed and the unemployed.

Unemployment rate

- The Unemployment rate is the number of unemployed divided by the total labour force

$$Unemployment\ Rate = \left(\frac{Unemployed}{Labour\ Force}\right) * 100$$

Causes of Unemployment

1. Economic Inflation

Inflation is one of the oldest causes of unemployment. A state's economy faces a steep rise in prices as compared to other economies of the world. This leads to failure in exports as companies are not able to compete with others due to rise in price. Incomes suffer, people's savings fall and gradually companies start firing people, being unable to pay them on due time. Thus, the rate of unemployment increases.

2. Economic Recession

A severe financial crisis hit almost all countries throughout the world. Rise in unemployment. People remained unemployed till the economies regained stability.

3. Welfare Payments

The aids given by government to the unemployed people actually reduce their willingness to work. This is an indirect negative impact of extended unemployment benefits because people become more dependent on the grants they receive.

4. Changing Technology

Since technology keeps advancing with passing days, most companies look for a change in workforce. Although, they do not fire people randomly, they hire people having specialization in the advanced techniques

5. Job Dissatisfaction

There are many people who take up jobs on temporary basis. The reasons being family pressure, financial crisis and for experience. Thus, job dissatisfaction becomes one of the primary cause behind unemployment.

6. Racial Discrimination

People who are not citizens of that particular country remain unemployed due to discrimination on grounds of race, religion, caste and ethnicity.

In the set up of a modern market economy, there are many factors, which contribute to unemployment. Causes of unemployment are varied and it may be due to the following factors:

- Rapid changes in technology
- Recessions
- Inflation

- Disability
- Undulating business cycles
- Changes in tastes as well as alterations in the climatic conditions. This may in turn lead to decline in demand for certain services as well as products.
- Attitude towards employers
- Willingness to work
- Perception of employees
- Employee values
- Discriminating factors in the place of work (may include discrimination on the basis of age, class, ethnicity, color and race).
- Ability to look for employment

Types of Unemployment:

1. Voluntary Unemployment:

Voluntary unemployment occurs when a working persons willingly withdraws himself from work. This type of unemployment may be caused due to a number of reasons

2. Involuntary unemployment:

Involuntary unemployment occurs when at a particular time the number of worker is more than the number of jobs.

3. **Frictional Unemployment**

Frictional unemployment is transitional unemployment due to people moving between jobs. It occurs when a worker moves from one job to another

4. Structural Unemployment:

It arises when the qualification of a person is not enough to meet his job responsibilities.It is a well-known fact that everyday new products are being launched in the market. As a result, the demand for certain goods and services also changes.

5. Cyclical Unemployment or Keynesian "demand deficient" unemployment:

Cyclical unemployment in caused by the trade or business cycles. unemployment that relates to the cyclical trends in growth and production that occur within the business cycle

6.Real wage unemployment or classical unemployment:

It occurs when the real wages for workers in an economy are too high, meaning that firms are unwilling to employ every person looking for a job.

7. Seasonal unemployment:

Seasonal unemployment occurs at certain seasons of the year. It is a widespread phenomenon of Indian villages basically associated with agriculture. Since agricultural work depends upon Nature, therefore, in a certain period of the year there is heavy work, while in the rest, the work is lean. For example, in the sowing and harvesting period, the agriculturists may to engage themselves day and night.

Cost of Unemployment:

The economic and social costs of unemployment

High unemployment is widely recognized to create substantial costs for individuals and for the economy as a whole. Some of these costs are difficult to measure, especially the longer-term social costs of a high level of unemployment. Some of the costs are summarized below:

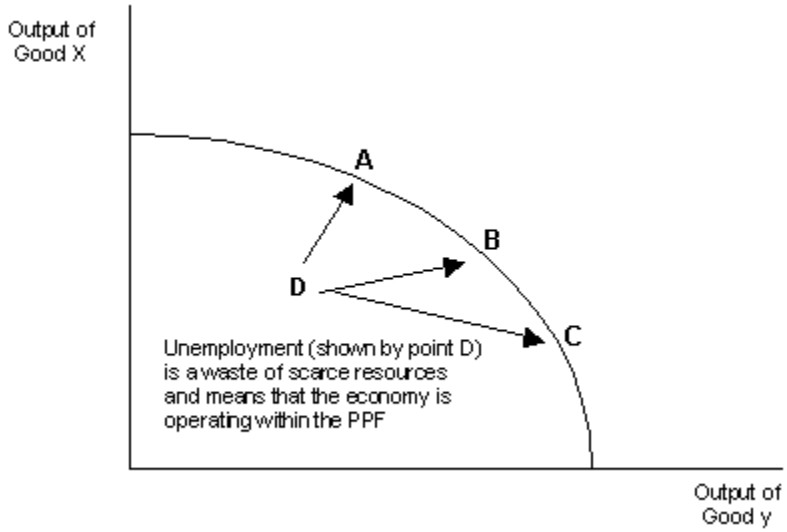
1. **Loss of income**: Unemployment normally results in a loss of income. The majority of the unemployed experience a decline in their living standards and are worse off out of work.
2. **Negative multiplier effects**: The closure of a local factory with the loss of hundreds of jobs can have a large negative multiplier effect on both the local and regional economy. One person's spending is

another's income so to lose well-paid jobs can lead to a drop in demand for local services, downward pressure on house prices and 'second-round employment effects' for businesses supplying the factor or plant that closed down

3. **Fiscal costs**: The government loses out because of a fall in tax revenues and higher spending on welfare payments for families with people out of work. The result can be an increase in the budget deficit which then increases the risk that the government will have to raise taxation or scale back plans for public spending on public and merit goods.
4. **Loss of national output**: Unemployment involves a loss of potential national output (i.e. GDP operating below potential) and represents an inefficient use of scarce resources. If some people choose to leave the labour market permanently because they have lost the motivation to search for work, this can have a negative effect on long run aggregate supply (LRAS) and thereby damage the economy's growth potential

Lost output of goods and services

Unemployment causes a waste of scarce economic resources and reduces the long run growth potential of the economy. An economy with high unemployment is producing within its production possibility frontier. The hours that the unemployed do not work can never be recovered.



But if unemployment can be reduced, total national output can rise leading to an improvement in economic welfare.

5. **Social costs**: Rising unemployment is linked to social deprivation. There is a relationship with crime, and social dislocation (increased divorce rates, worsening health and lower life expectancy). Areas of high unemployment see falling real incomes and a worsening in inequalities of income and wealth

Areas of high unemployment will also see a decline in real income and spending together with a rising scale of relative poverty and income inequality. As younger workers are more geographically mobile than older employees, there is a risk that areas with above average unemployment will suffer from an ageing potential workforce - making them less attractive as investment locations for new businesses.

6. **Deadweight loss of investment in human capital**

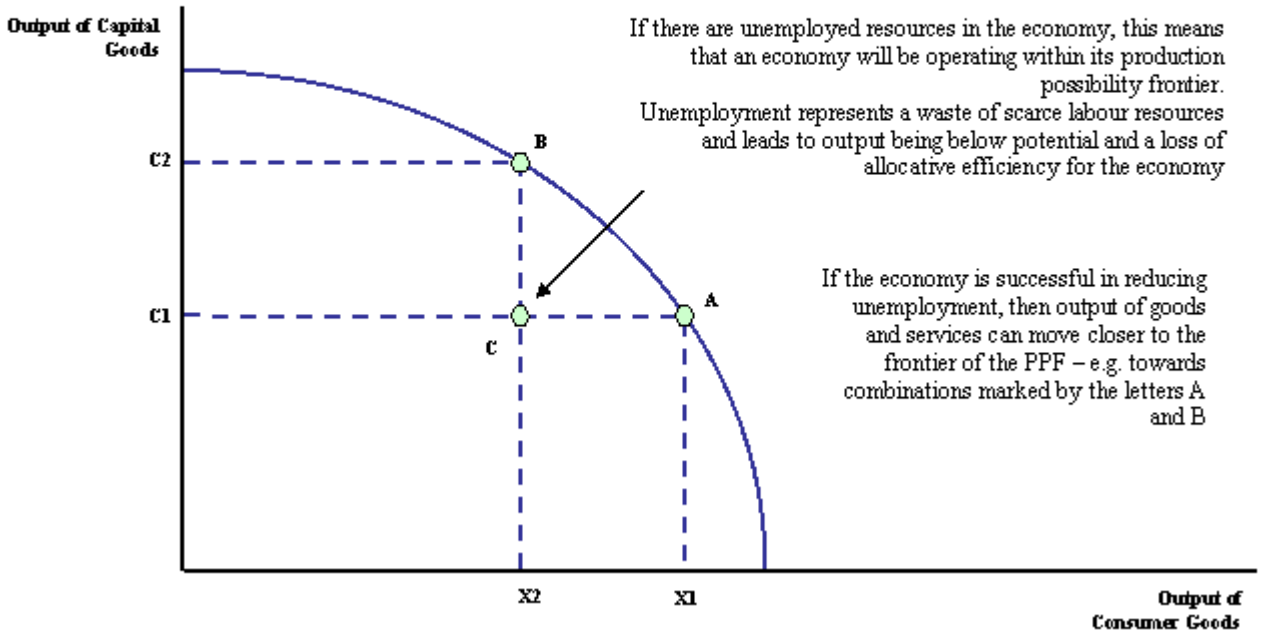
Unemployment wastes some of the scarce resources used in training workers. Furthermore, workers who are unemployed for long periods become de-skilled as their skills become increasingly dated in a rapidly changing job market. This reduces their chances of gaining employment in the future, which in turn increases the economic burden on government and society. See the revision page on long term unemployment

7. **The duration of unemployment affects the economic and social costs**

It is clear therefore that unemployment carries substantial economic and social costs. These costs are greatest when long-term structural unemployment is high. Indeed many governments focus their labour market policies on improving the employment prospects of the long-term unemployed.

Unemployment and the production possibility frontier

The production possibility frontier shows the combinations of output that can be produced using all available factor resources efficiently. Any point on the PPF represents a productively efficient allocation of resources. Points that lie within the curve represent an under-utilisation of scarce resources – including labour



Impact of Unemployment:

The main impact unemployment has on society and the economy is the productive power that it witholds - i.e. any person who is unemployed could be doing something productive and thus contributing to the economy as a whole.

Unemployment also has a direct cost to the government in the form of any unemployment benefits paid to the unemployed and in lost tax earnings. Unemployment in an economy has many impacts on the government, firms and, of course, the unemployed people themselves.

On the government:

- **Fewer tax revenues** – Because fewer people are working, there will be fewer people earning enough income to pay tax. As a result, the government will receive less tax revenue and this will have a large impact on the government's finances.
- **Lower economic growth** (GDP) – As fewer people have jobs, firms won't be able to produce as many goods and services. As a result, the output of goods and services in the economy, GDP, will be lower. This also has an impact on government taxation and spending and will negatively affect their finances.
- **Higher welfare costs** – Unemployment in an economy means that fewer people will be working and more people will be claiming benefits. More people claiming benefits creates a drain on the government's finances and means they have to spend more on benefit payments and less on other areas of the economy – so there is an opportunity cost.

- **Higher supply-side costs** – With unemployment in an economy, more people won't be working. These people need to be taught skills in order for them to be employable by firms. The government will have to spend more money on training the unemployed so that they have the right skills to be employed in a modern economy. This is also a drain on government finances and this money could also be spent elsewhere.

On firms:

- **Lower wage costs** – Unemployment in an economy increases the supply of labour available for firms to employ. This creates a downward pressure on wages as labour is less scarce and more people are willing to get a job at a slightly lower wage. This will have a positive effect on firms as their variable costs will fall.
- **Larger pool of labour** – Unemployment creates a large pool of labour which gives firms more choice of who to employ. This allows them to employ workers with higher skills and more experience.
- **Less demand for goods and services** – Unemployment in an economy means that a lot more people will have less disposable income. Therefore spending on most goods and services will fall. As a result, firms will experience lower sales revenue and will likely see a fall in profits.
- **Increase in demand for inferior goods** – There are some goods in an economy that people buy more off when their incomes are lower – these are known as inferior goods. When unemployment increases in an economy more people start buying inferior goods because they have lower incomes. As a result, sellers of inferior goods will see an increase in sales revenue and potentially an increase in profits.
- **Higher training costs** – As we have seen, many firms will benefit from lower wage costs as a result of unemployment. However, many firms may also have to spend more resources on training new employees because they have been out of work for so long. Training new employees uses up a firm's time and resources and as a result most firms will see an increase in employment costs.

On people:

- **Lower standard of living** – The people who are unemployed will suffer a loss of income and will either have to survive on private savings or on benefits. As a result, they will be able to buy fewer goods and services and will see a fall in their standard of living.
- **Loss of skills** – When someone becomes unemployed they will stop working and will start losing their skills and ability to work. The longer someone stays unemployed, the less employable they will be to firms because firms will need to spend money on retraining them.
- **Loss of confidence/depression** – People who are unemployed will also suffer a loss of confidence in their ability. Many people who become unemployed will also suffer stress related illnesses and depression.

MEASURES TO REDUCE UNEMPLOYMENT:

Government policies to reduce unemployment

The government does not have a specific target for any particular rate of unemployment. Instead its objective for the labour market is expressed in terms of a broad ambition to keep employment high and provide employment opportunities for all.

Distinction can be made between demand-side and supply-side policies to improve the working of the labour market in matching people to the available jobs and to the changing demands and requirements of different industries. There are inevitably limits to what the government can do to achieve sustainable reductions in unemployment. And often the policies that are introduced to boost employment can be costly and involve an opportunity cost.

Some countries are more successful than others in reducing the scale of unemployment. In the long term, effective policies are required for both the demand and the supply side of the economy so that enough new jobs are created and that people possess the skills and incentives to take those jobs.

In general the most effective policies are those that:

1. Stimulate an improvement in the human capital of the workforce – so that more of the unemployed have the skills to take up the available jobs. Policies normally concentrate on improving the occupational mobility of labour. The pattern of employment in any modern economy is always changing, so people need to have sufficient flexibility to adapt to structural changes in industries over the years
2. Improve incentives for people to search and then accept paid work – this may require reforms of the tax and benefits system for example a reduction in the starting rate of income tax (an incentive for people in lower paid jobs). Or perhaps a change in welfare benefits such that people who find work do not experience a sharp withdrawal of benefits because they are now earning more. The reality is that simply cutting welfare benefits across the board makes little difference to the unemployment figures – because of the complex nature of most unemployment. But targeted measures to improve incentives, including the linking of welfare benefits to participation in work experience programmes which is part of the New Deal programme or lower tax rates for people on low incomes might have an impact.
3. Achieve a sustained period of economic growth – this requires that aggregate demand is sufficiently high for businesses to be looking to expand their workforce. The Keynesian theory of unemployment emphasizes the argument that if monetary and fiscal policy does not keep demand at a high enough level, then the economy is less likely to be able to sustain a high rate of employment. However, not every increase in aggregate demand and production has to be met by employing more labour. Each year we expect to see a rise in labour productivity (more output per worker employed). And, businesses may decide to increase production by making greater use of capital inputs such as extra units of machinery. A growing economy creates jobs for people entering the labour market for the first time. And, it provides employment opportunities for people unemployed and looking for work.
4. Reducing occupational immobility of labour (supply-side policy)

   Immobility of labour is a cause of labour market failure and structural unemployment. Policies aimed at reducing this problem aim to provide the unemployed with the skills they need to find re-employment and also to improve the incentives to find work. Improvements in the availability and quality of education and work-place training will increase the human capital of unemployed workers and help to ensure that more of the unemployed have the right skills to take up the available job opportunities. For many years the relative paucity of work-place training has been seen as a weakness in the UK labour market. Both employers and employees may actually underestimate the long-term value of training in terms of the potential benefit to a business and the long term gains to a worker. The free-rider problem may also contribute to a sub-optimal level of training from society's point of view.
5. Benefit and tax reforms (supply-side policy)

   To some economists, a policy that reduces the value of welfare benefits might increase the incentive for the unemployed to take a job. The evidence drawn from recent experience in the UK is that simply cutting the value of state welfare payments in reality makes little difference to the level of unemployment in the long run. It is rare that the root cause of someone staying out of work is the prospect of generous out of work welfare handouts. Instead, targeted measures to improve people's incentives, including the linking of welfare benefits to participation in genuine work experience programmes which is part of the New Deal programme or the introduction of lower marginal income tax rates for people on low incomes might by contrast have a noticeable impact.
6. Reflating aggregate demand (demand-side policy)

Reflationary policy: Fiscal or monetary policy aimed at boosting the level of economic activity, usually through inflationary means such as public spending or reduction in the taxation level.

The government can use the traditional weapon of macro-economic policies designed to increase AD and thereby generate a higher level of national income and employment. Reflationary policies can help to mitigate the effects of an economic recession but there are risks involved in using both fiscal and monetary policy simply to boost demand when output is low.

The government might also make more active use of regional policies to encourage inflows of foreign investment from multinational companies particularly to those areas and regions where unemployment is persistently above the national average. The main weakness of relying too heavily on demand-management policies to reduce unemployment is that much unemployment is not cyclical; rather it is frictional and structural in origin and cannot be solved simply by injecting vast amounts of money into the circular flow of income and spending.

7. Employment subsidies (demand-side policy)

Firms could be given tax breaks or subsidies for taking on long term unemployed. This helps give them new confidence and on the job training. However, it will be quite expensive and it may encourage firms to simply replace current workers with the long term unemployment in order to benefit from the tax breaks.

Supply side policies to reduce Unemployment:

1**. Education and Training**. The aim is to give the long term unemployed new skills which enable them to find jobs in developing industries, e.g. retrain unemployed steel workers to have basic I.T. skills which helps them find work in service sector. – However, despite providing education and training schemes, the unemployed may be unable or unwilling to learn new skills. At best it will take several years to reduce unemployment.

2**. Reduce Power of trades unions**. If unions are able to bargain for wages above the market clearing level, they will cause real wage unemployment. In this case reducing influence of trades unions (or reducing Minimum wages) will help solve this real wage unemployment.

3. **Improve Labour Market Flexibility**. It is argued that higher structural rates of unemployment in Europe is due to restrictive labour markets which discourages firms from employing workers in the first place. For example, abolishing maximum working weeks and making it easier to hire and fire workers may encourage more job creation. However, increased labour market flexibility could cause a rise in temporary employment and greater job insecurity.

4. **Stricter Benefit requirements**. Governments could take a more pro-active role in making the unemployed accept a job or risk losing benefits. After a certain time period the government could guarantee some kind of public sector job (e.g. cleaning streets). This could significantly reduce unemployment. However, it may mean the government end up employing thousands of people in un-productive tasks which is very expensive. Also, if you make it difficult to claim benefits, you may reduce the claimant count, but not the International Labour force survey.

5**. Improved Geographical Mobility**. Often unemployed is more concentrated in certain regions. To overcome this geographical unemployment, the government could give tax breaks to firms who set up in depressed areas. Alternatively, they can give financial assistance to unemployed workers who move to areas with high employment. (e.g. help with renting in London)

Policies used to reduce unemployment

Demand side policies	Supply-side policies
Employment subsidies for employers who take on the long-term unemployed (New Deal)	Welfare reforms – including lower starting rates of income tax and the introduction of tax credits
Financial assistance for inward investment from overseas	Policies to promote entrepreneurship and the growth of small-medium size enterprises
Monetary policy – low interest rates has allowed aggregate demand to grow despite a global economic slowdown. Fiscal policy is also boosting AD as the budget deficit increases	Increased spending on education and attempts to increase private sector spending on training

Okun's law:

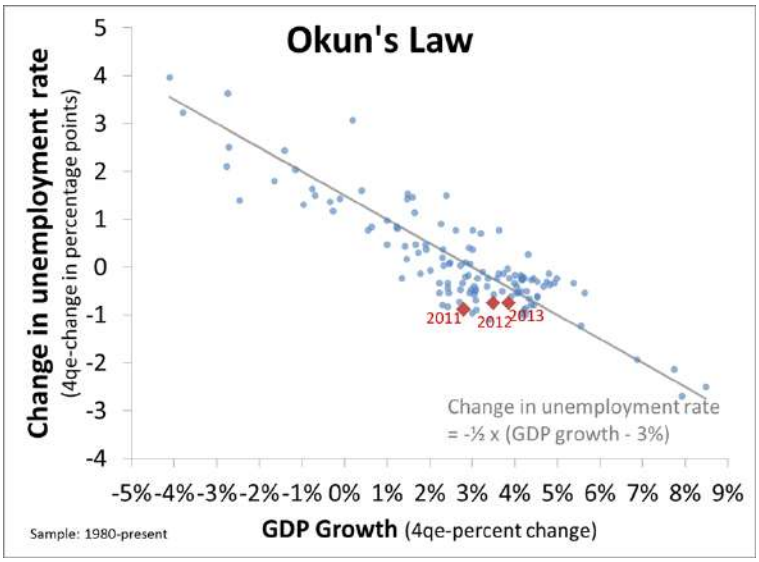
Okun's law refers to the relationship between increases in unemployment and decreases in a country's gross domestic product (GDP). It states that for every one percent increase in unemployment above a "natural" level, that GDP will decrease by anywhere from two to four percent from its potential.

% change in real GDP = 3% - 2 x (change in unemployment rate)

This equation basically says that real GDP grows at about 3% per year when unemployment is normal. For every point above normal that unemployment moves, GDP growth falls by 2%. Similarly, for every point below normal that unemployment moves, GDP growth rises by 2%. This equation, while not exact, provides a good estimate of the effects of unemployment upon output.

Okun's Law describes the negative relationship between GDP and unemployment. As GDP rises above its natural rate, unemployment falls. As GDP falls below its natural rate, unemployment rises.

- If the economy is producing above its natural rate (as a result of economic fluctuations), firms are producing more than their long-run aggregate supply curve indicates they should. One of the ways firms temporarily produce above their natural rate is to hire more workers. As firms do this, there are less people looking for work and the unemployment rate falls.
- If the economy is producing below its natural rate (as a result of economic fluctuations), firms are producing less than their long-run aggregate supply curve indicates they should. Because firms are producing less, some of their workers are standing idle. Instead of paying these workers to stand around, the firm could lay them off. These workers start looking for work elsewhere, causing the unemployment rate to increase.



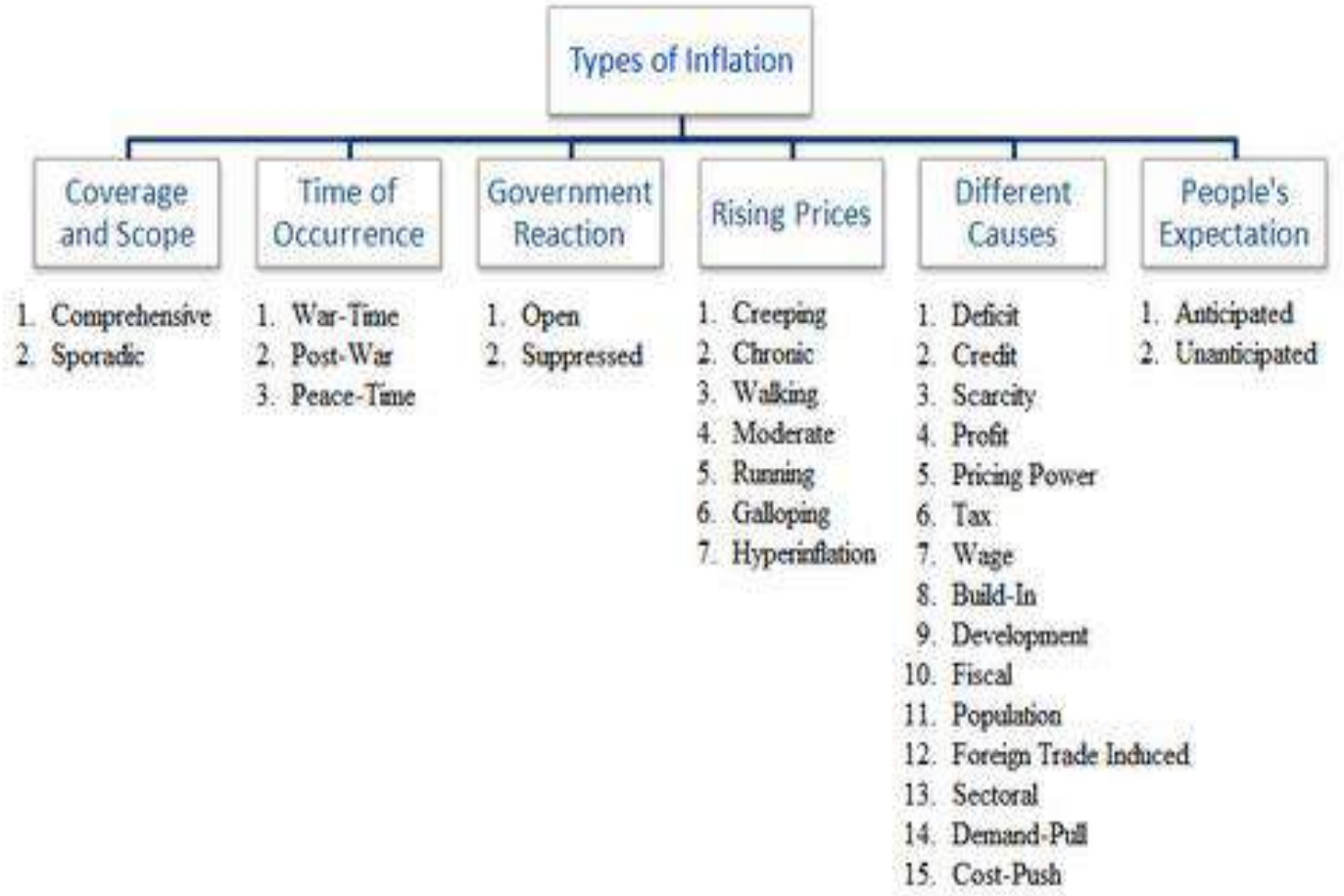
Inflation:

Definition:

"An increase in the amount of currency in circulation, resulting in a relatively sharp and sudden fall in its value and rise in prices: it may be caused by an increase in the volume of paper money issued or of gold mined, or a relative increase in expenditures as when the supply of goods fails to meet the demand.

"A persistent increase in the level of consumer prices or a persistent decline in the purchasing power of money, caused by an increase in available currency and credit beyond the proportion of available goods and services."

Types of Inflation:



I. Types of Inflation on Coverage: Types of inflation on the basis of coverage and scope point of view:-

1. **Comprehensive Inflation**: When the prices of all commodities rise throughout the economy it is known as Comprehensive Inflation. Another name for comprehensive inflation is Economy Wide Inflation.
2. **Sporadic Inflation**: When prices of only few commodities in few regions (areas) rise, it is known as Sporadic Inflation. It is sectional in nature. For example, rise in food prices due to bad monsoon (winds bringing seasonal rains in India).

II. Types of Inflation on Time of Occurrence: Types of inflation on the basis of time (period) of occurrence:-

1. **War-Time Inflation**: Inflation that takes place during the period of a war-like situation is known as War-Time inflation. During a war, scare productive resources are all diverted and prioritized to produce military goods and equipments. This overall result in very limited supply or extreme shortage (low availability) of resources (raw materials) to produce essential commodities. Production and supply of basic goods slow down and can no longer meet the soaring demand from people. Consequently, prices of essential goods keep on rising in the market resulting in War-Time Inflation.
2. **Post-War Inflation**: Inflation that takes place soon after a war is known as Post-War Inflation. After the war, government controls are relaxed, resulting in a faster hike in prices than what experienced during the war.
3. **Peace-Time Inflation**: When prices rise during a normal period of peace, it is known as Peace-Time Inflation. It is due to huge government expenditure or spending on capital projects of a long gestation (development) period.

III. Types of Inflation on Government Reaction: Types of inflation on basis of Government's reaction or its degree of control:-

1. **Open Inflation**: When government does not attempt to restrict inflation, it is known as Open Inflation. In a free market economy, where prices are allowed to take its own course, open inflation occurs.
2. **Suppressed Inflation**: When government prevents price rise through price controls, rationing, etc., it is known as Suppressed Inflation. It is also referred as Repressed Inflation. However, when government controls are removed, Suppressed inflation becomes Open Inflation. Suppressed Inflation leads to corruption, black marketing, artificial scarcity, etc.

IV. Types of Inflation on Rising Prices: Types of inflation on the basis of rising prices or rate of inflation:-

1. **Creeping Inflation**: When prices are gently rising, it is referred as Creeping Inflation. It is the mildest form of inflation and also known as a Mild Inflation or Low Inflation. According to R.P. Kent, when prices rise by not more than (upto) 3% per annum (year), it is called Creeping Inflation.
2. **Chronic Inflation**: If creeping inflation persist (continues to increase) for a longer period of time then it is often called as Chronic or Secular Inflation. Chronic Creeping Inflation can be either Continuous (which remains consistent without any downward movement) or Intermittent (which occurs at regular intervals). It is called chronic because if an inflation rate continues to grow for a longer period without any downturn, then it possibly leads to Hyperinflation.
3. **Walking Inflation**: When the rate of rising prices is more than the Creeping Inflation, it is known as Walking Inflation. When prices rise by more than 3% but less than 10% per annum (i.e between 3% and 10% per annum), it is called as Walking Inflation. According to some economists, walking inflation must be taken seriously as it gives a cautionary signal for the occurrence of Running inflation. Furthermore, if walking inflation is not checked in due time it can eventually result in Galloping inflation.
4. **Moderate Inflation**: Prof. Samuelson clubbed together concept of Creeping and Walking inflation into Moderate Inflation. When prices rise by less than 10% per annum (single digit inflation rate), it is known as Moderate Inflation. According to Prof. Samuelson, it is a stable inflation and not a serious economic problem.
5. **Running Inflation**: A rapid acceleration in the rate of rising prices is referred as Running Inflation. When prices rise by more than 10% per annum, running inflation occurs. Though economists have not suggested a fixed range for measuring running inflation, we may consider price rise between 10% to 20% per annum (double digit inflation rate) as a running inflation.
6. **Galloping Inflation**: According to Prof. Samuelson, if prices rise by double or triple digit inflation rates like 30% or 400% or 999% per annum, then the situation can be termed as Galloping Inflation. When prices rise by more than 20% but less than 1000% per annum (i.e. between 20% to 1000% per annum), galloping inflation occurs. It is also referred as Jumping inflation. India has been witnessing galloping inflation since the second five year plan period.
7. **Hyperinflation**: Hyperinflation refers to a situation where the prices rise at an alarming high rate. The prices rise so fast that it becomes very difficult to measure its magnitude. However, in quantitative terms, when prices rise above 1000% per annum (quadruple or four digit inflation rate), it is termed as Hyperinflation. During a worst case scenario of hyperinflation, value of national currency (money) of an affected country reduces almost to zero. Paper money becomes worthless and people start trading either in gold and silver or sometimes even use the old barter system of commerce. Two worst examples of hyperinflation recorded in world history are of those experienced by Hungary in year 1946 and Zimbabwe during 2004-2009 under Robert Mugabe's regime.

V. Types of Inflation on Causes: Types of inflation on the basis of different causes:-

1. **Deficit Inflation**: Deficit inflation takes place due to deficit financing. The Planned expenditure by a government to put more money into the economy than it takes out by taxation, with the expectation that

increased business activity will bring enough additional revenue to cover the shortfall. Also called deficit spending.

2. **Credit Inflation**: Credit inflation takes place due to excessive bank credit or money supply in the economy.
3. **Scarcity Inflation**: Scarcity inflation occurs due to hoarding. Hoarding is an excess accumulation of basic commodities by unscrupulous traders and black marketers. It is practised to create an artificial shortage of essential goods like food grains, kerosene, etc. with an intension to sell them only at higher prices to make huge profits during scarcity inflation. Though hoarding is an unfair trade practice and a punishable criminal offence still some crooked merchants often get themselves engaged in it.
4. **Profit Inflation**: When entrepreneurs are interested in boosting their profit margins, prices rise.
5. **Pricing Power Inflation**: It is often referred as Administered Price inflation. It occurs when industries and business houses increase the price of their goods and services with an objective to boost their profit margins. It does not occur during a financial crisis and economic depression, and is not seen when there is a downturn in the economy. As Oligopolies have the ability to set prices of their goods and services it is also called as Oligopolistic Inflation.
6. **Tax Inflation**: Due to rise in indirect taxes, sellers charge high price to the consumers.
7. **Wage Inflation**: If the rise in wages in not accompanied by a rise in output, prices rise.
8. **Build-In Inflation**: Vicious cycle of Build-in inflation is induced by adaptive expectations of workers or employees who try to keep their wages or salaries high in anticipation of inflation. Employers and Organizations raise the prices of their respective goods and services in anticipation of the workers or employees' demands. This overall builds a vicious cycle of rising wages followed by an increase in general prices of commodities. This cycle, if continues, keeps on accumulating inflation at each round turn and thereby results into what is called as Build-in inflation.
9. **Development Inflation**: During the process of development of economy, incomes increases, causing an increase in demand and rise in prices.
10. **Fiscal Inflation**: It occurs due to excess government expenditure or spending when there is a budget deficit.
11. **Population Inflation**: Prices rise due to a rapid increase in population.
12. Foreign Trade Induced Inflation: It is divided into two categories, viz., (a) Export-Boom Inflation, and (b) Import Price-Hike Inflation.

    Export-Boom Inflation: Considerable increase in exports may cause a shortage at home (within exporting country) and results in price rise (within exporting country). This is known as Export-Boom Inflation.

    Import Price-Hike Inflation: If a country imports goods from a foreign country, and the prices of imported goods increases due to inflation abroad, then the prices of domestic products using imported goods also rises. This is known as Import Price-Hike Inflation. For e.g. India imports oil from Iran at $100 per barrel. Oil prices in the international market suddenly increases to $150 per barrel. Now India to continue its oil imports from Iran has to pay $50 more per barrel to get the same amount of crude oil. When the imported expensive oil reaches India, the indian consumers also have to pay more and bear the economic burden. Manufacturing and transportation costs also increase due to hike in oil prices. This, consequently, results in a rise in the prices of domestic goods being manufactured and transported. It is the end-consumer in India, who finally pays and experiences the ultimate pinch of Import Price-Hike Inflation. If the oil prices in the international market fall down then the import price-hike inflation also slows down, and vice-versa.
13. **Sectoral Inflation**: It occurs when there is a rise in the prices of goods and services produced by certain sector of the industries. For instance, if prices of crude oil increases then it will also affect all other sectors (like aviation, road transportation, etc.) which are directly related to the oil industry. For e.g. If oil prices are hiked, air ticket fares and road transportation cost will increase.

14. **Demand-Pull Inflation** : Inflation which arises due to various factors like rising income, exploding population, etc., leads to aggregate demand and exceeds aggregate supply, and tends to raise prices of goods and services. This is known as Demand-Pull or Excess Demand Inflation.
15. **Cost-Push Inflation**: When prices rise due to growing cost of production of goods and services, it is known as Cost-Push (Supply-side) Inflation. For e.g. If wages of workers are raised then the unit cost of production also increases. As a result, the prices of end-products or end-services being produced and supplied are consequently hiked.

VI. **Types of Inflation on Expectation**: Types of inflation on the basis of expectation or predictability:-

1. **Anticipated Inflation**: If the rate of inflation corresponds to what the majority of people are expecting or predicting, then is called Anticipated Inflation. It is also referred as Expected Inflation.
2. **Unanticipated Inflation**: If the rate of inflation corresponds to what the majority of people are not expecting or predicting, then is called Unanticipated Inflation. It is also referred as Unexpected Inflation.

REASONS FOR INFLATION: For causes of inflation refer Types of inflation on the basis of different causes

INFLATION AND THE IMPACT:

Inflation affects different people in different ways. It also depends on whether inflation is anticipated or unanticipated. If the inflation rate corresponds to what the majority of people are expecting (anticipated inflation), then we can compensate and the cost isn't high. For example, banks can vary their interest rates and workers can negotiate contracts that include automatic wage hikes as the price level goes up.

Inflation effects the different sectors of the economy (Effects on the distribution of income and wealth, Effects on production, Effects on the Government, Effects on the Balance of Payment, Effects on Monetary Policy, Effects on Social Sector, Effects on Political environment) and different classes of the people (Debtors & Creditors, Salaried Class, Wages earners, Fixed income group, Investors and shareholders, Businessmen, Agriculturists).

Higher rates of inflation may destabilize the economy by inhibiting growth through discouraging of swamps and hence investments. This will thus have long run effects of growth.

Inflation worsens the balance of payments (BOP) problem. It makes domestic products expensive in international markets hence rendering them less competitive and many countries would not be willing to buy from a country hit by inflation. On the other hand, imports continue flowing into the country and as a result this worsens the BOP problem.

Inflation may cause social and political disorders because it reduces people's standard of living (SOL) and their purchasing power.

The effect of inflation and economic growth is manifested in the following cases:

I) Investment:

If the prices of goods increases and people have to compensate for the increase in price, they usually make use of their savings. In the event when savings are depleted, fund for investment is no longer available. An individual tends to invest, only if savings of an individual is strong and has sufficient money to meet his daily needs.

II) Interest rates:

Whenever inflation reigns supreme, it is a well known fact that the value of money goes down. This leads to decline in the purchasing power. In the event, when the rate of inflation is high, the interest rates also rise. With increase in both parameters, cost of goods will not remain the same and consequently people will have to shell out more money for the same goods.

III) Exchange rates:

Inflation and economic growth are affected by exchange rates as well. Exchange rates denote the value of money prevailing in different countries. High rate of inflation causes severe fluctuations in exchange rates. This adversely affects trade (export and import), important business transaction across borders, value of money also changes.

IV) Unemployment:

Growth of a nation depends to a large extent on employment. If rate of inflation is high, unemployment rate is low and vice versa. This theory is propounded by economist William Philips and this gave rise to the Philips Curve.

V) Stocks:

The returns a company offer, on investment fully depend on the performance of the company. Past performance, current position of the company and future trends decide how much(money, in form of bonus or dividend) is to be returned to the investors. Owing to inflation, several monetary as well as fiscal policies are impacted.

VI) Rise in Production cost:

Another common reason of inflation is a rise in production costs, which leads to an increase in the price of the final product. For example, if raw materials increase in price, this leads to the cost of production increasing, this in turn leads to the company increasing prices to maintain their profits. Inflation can also be caused by federal taxes put on consumer products. As the taxes rise, suppliers often pass on the burden to the consumer

Some effects of Inflation:

1. Hardships for poor people and fixed income salaried households
2. Business Profits tend to go up in times of inflation
3. Demand for pay hikes and wage increases
4. Value on money lent out falls in purchasing power - value of money to be repaid falls in terms of purchasing power falls.
6. Interest may rise.
7. Exchange rate may fall
8. Central Bank my try to control money supply growth through hike in cas reservecration, raising discount rates (lending interest rate) and conduct open market sale of securities.

The effects of inflation

Inflation can be very damaging for a number of reasons. First, people may be left worse off if prices rise faster than their incomes. Second, inflation can reduce the value of an investment if the returns prove insufficient to compensate them for inflation. Third, since bouts of inflation often go hand in hand with an overheated economy, they can accentuate boom-bust cycles in the economy.

Sustained inflation also has longer-term effects. If money is losing its value, businesses and investors are less likely to make long-term contracts. This discourages long-term investment in the nation's productive capacity. The flip-side of inflation is deflation. This occurs when average prices are falling, and can also result in various economic effects. For example, people will put off spending if they expect prices to fall. Sustained deflation can cause a rapid economic slow-down.

Deflation:

Deflation is a decrease in the general price level over a period of time. Deflation is the opposite of inflation. For economists especially, the term has been and is sometimes used to refer to a decrease in the size of the money supply (as a proximate cause of the decrease in the general price level). The latter is now more often referred to as a 'contraction' of the money supply. During deflation the demand for liquidity goes up, in preference to goods or interest. During deflation the purchasing power of money increases.

Reasons for Deflation:

- In economic theory deflation is a general reduction in the level of prices, or of the prices of an entire kind of asset or commodity. Deflation should not be confused with temporarily falling prices; instead, it is a sustained fall in general prices.
- Deflation is caused by a shift in the supply and demand curve for goods and interest, particularly a fall in the aggregate level of demand. That is, there is a fall in how much the whole economy is willing to buy, and the going price for goods. Since this idles capacity, investment also falls, leading to further reductions in aggregate demand. This is the deflationary spiral. The solution to falling aggregate demand is stimulus either from the central bank, by expanding the money supply, or by the fiscal authority to increase demand, and borrow at interest rates which are below those available to private entities.
- Deflation is, however, the natural condition of hard currency economies when the rate of increase in the supply of money is not maintained at a rate commensurate to positive population (and general economic) growth. When this happens, the available amount of hard currency per person falls, in effect making money scarcer; and consequently, the purchasing power of each unit of currency increases.
- Deflation also occurs when improvements in production efficiency lowers the overall price of goods. Improvements in production efficiency generally happen because economic producers of goods and services are motivated by a promise of increased profit margins, resulting from the production improvements that they make. But despite their profit motive, competition in the marketplace often prompts those producers to apply at least some portion of these cost savings into reducing the asking price for their goods. When this happens, consumers pay less for those goods; and consequently deflation has occurred, since purchasing power has increased.

Some effects of Deflation

1. Company profits may fall
2. Private domestic capital investment may fall
3. Unemployment may increase.
4. Real value of lands to be repaid may rise,

INFLATION VS UNEMPLOYMENT TRADEOFF:

The Tradeoff between Inflation and Unemployment

A. W. Phillips, discovered a relationship between unemployment and inflation. Phillips showed that unemployment and inflation shared an inverse relationship: inflation rose as unemployment fell, and inflation fell as unemployment rose. Since two major goals for economic policy makers are to keep *both* inflation and unemployment low.

The Phillips Curve

Phillips' discovery can be represented in a curve, called, aptly, a Phillips curve.

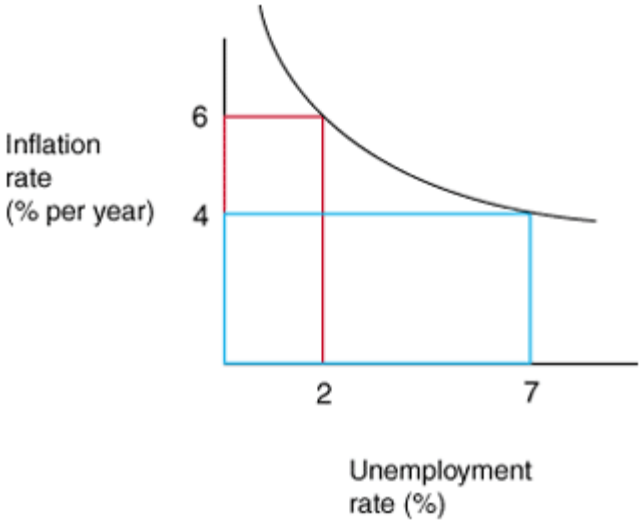
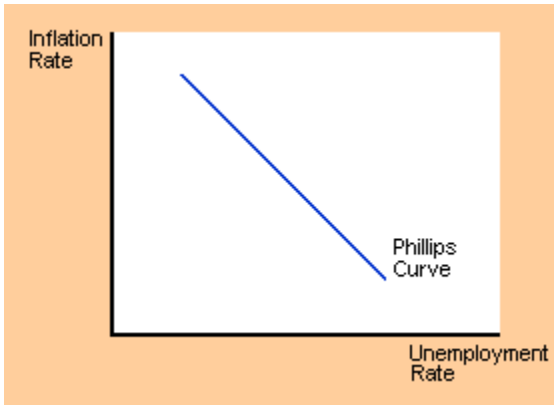


Figure %: The Phillips Curve

The Phillips Curve - What is it?

The Phillips Curve is a graph depicting a relationship between the unemployment rate and the inflation rate. The figure at right shows a typical **SHORT-RUN Phillips Curve.**

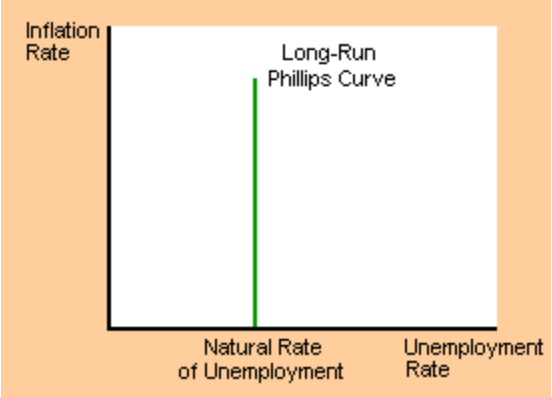


The fact that the short-run Phillips Curve has a negative slope IS the focus of this chapter. The implication of the negative slope is that the unemployment rate and the inflation rate are inversely related - in other words, there is a tradeoff between the two. In the first chapter, one of the ten principles of economics was that society faces a short-run tradeoff between inflation and unemployment. This tradeoff is embodied in the short-run Phillips Curve.

Since inflation and unemployment are BOTH things we don't like, the relationship between the AD-AS (short-run) macroeconomic model and the Phillips Curve are important. Understanding the relationship between economic policy and the inflation-unemployment tradeoff is key to your understanding of macroeconomics.

The Long-Run Phillips Curve

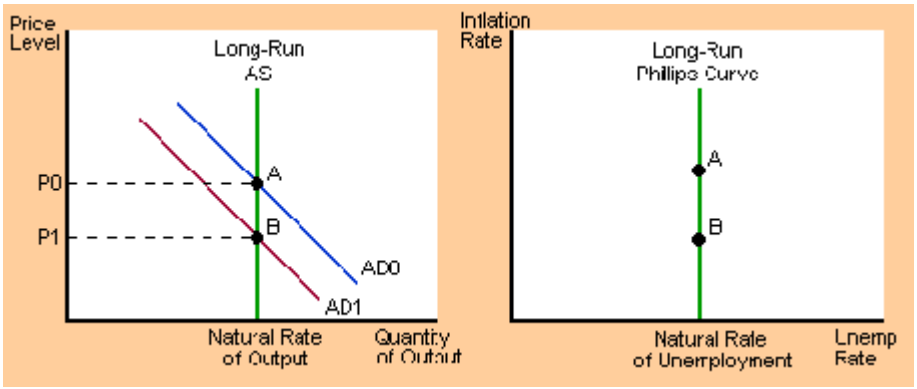
The figure at right depicts the long-run Phillips Curve. Earlier, you spent a chapter studying the **natural rate of unemployment**. This was defined to be about 6% in the long-run, and it was shown that the economy tends to automatically return to this level on its own. If this is true, then the long-run Phillips Curve is quite easy to draw - it MUST be a vertical line at 6% unemployment!



If the long-run Phillips Curve is vertical at 6%, then policymakers must be able to choose any inflation rate they desire along this line.

Q: What is the cost of reducing inflation in the long-run?

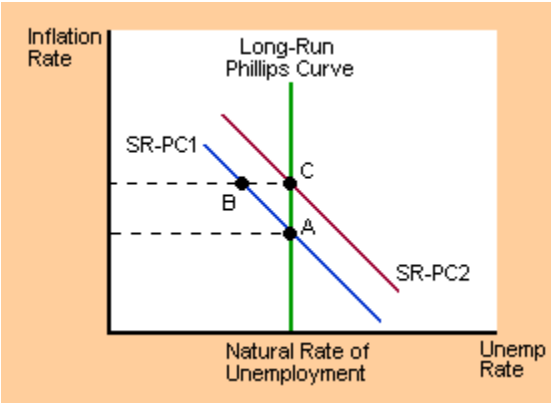
A: In the long-run, there is NO cost to reducing inflation. This is demonstrated in the figures below. On the left, if the Fed reduces the growth of the money supply in the long-run, the AD curve will shift to the left, causing the price level to fall from P0 to P1. However, output is NOT affected by changes in the money supply in the long-run (because of monetary neutrality). Since output remains at the natural rate of output, unemployment remains at the natural rate of unemployment. On the right, the reduction in the growth of the money supply has lowered the long-run rate of inflation and has NOT affected the long-run unemployment rate.



The Short-Run Phillips Curve and Expectations

While there is not a tradeoff between inflation and unemployment in the long-run, there IS a short-run tradeoff. From the work of Milton Friedman and Edmund Phelps, we know that expectations of future inflation play an important role in the short-run tradeoff.

The figure at right demonstrates the relationship between the short-run Phillips Curve and inflationary expectations. Suppose the economy is initially at point "A". Earlier in this chapter, you learned that a shift in the AD curve will cause a movement along the short-run Phillips Curve. An increase in the money supply, an increase in government spending or a tax cut could all shift the AD curve to the right - suppose one of these three occurs. The rightward shift in AD is associated with rising output and a rising price level. The rising price level IS an increase in the rate of inflation. Rising output goes



along with rising employment (and falling unemployment). For these reasons, the rightward shift in AD will cause a movement to point "B" in this figure (higher inflation and lower unemployment than point "A").

Now, according to Friedman and Phelps, the higher ACTUAL inflation will eventually cause EXPECTED inflation to rise as well. The increase in EXPECTED inflation shifts the short-run Phillips Curve to the right (to SR-PC2), and the economy ends up at point "C". In your textbook, SR-PC2 was described as a "short-run Phillips Curve with high expected inflation", while the original curve, SR-PC1 was described as a "short-run Phillips Curve with low expected inflation".

The result you should take from the previous figure is that government policies attempting to EXPAND aggregate demand are likely to cause permanently HIGHER rates of inflation, without affecting the long-run unemployment rate. The relationship between the short-run Phillips Curve and inflationary expectations described by Friedman and Phelps is stated in the following formula from your textbook:

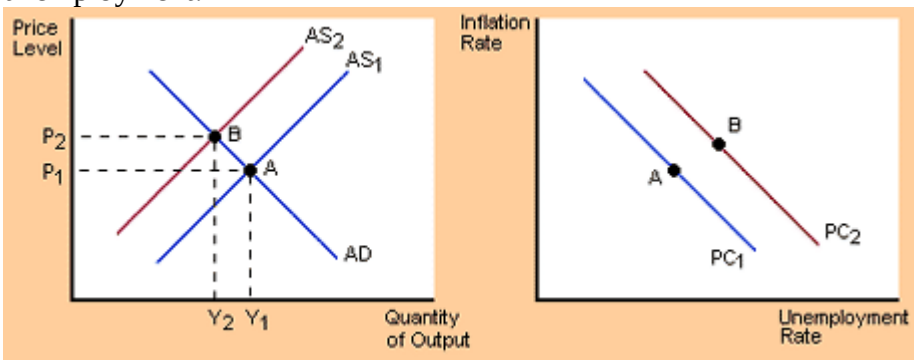
$$\text{Unemployment Rate} = \text{Natural Rate of Unemployment} - a(\text{Actual Inflation} - \text{Expected Inflation})$$

In the previous example, when ACTUAL inflation exceed EXPECTED inflation (at point "B"), unemployment was LESS THAN the natural rate. In the long-run, actual and expected inflation will be equal, and unemployment will equal the natural rate (and the economy will be back on the long-run Phillips Curve).

Supply Shocks, and the Phillips Curve

Q: What happens in the Phillips Curve diagram when the AS curve shifts?

A: The short-run Phillips Curve shifts, changing the attractiveness of the tradeoff between inflation and unemployment.

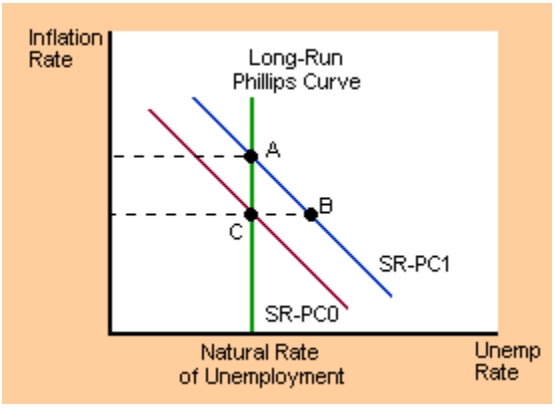


The figure above (on the left) depicts a typical supply shock in the economy (like the OPEC shocks in the 1970's). As the AS curve shifts to the left, the equilibrium in the marcoeconomy moves from point A to point B. As with a shift in the AD curve, there are two things you should watch for when AS shifts. First, notice that the equilibrium price level rises (from P1 to P2), indicating that the level of inflation in the economy has risen. Second, notice that the level of output produced has FALLEN from Y1 to Y2. As output falls the number of laborers required to produce this output also falls. When these workers get laid off, the unemployment rate RISES.

In the figure at right, point B MUST be a point with a higher inflation rate AND a higher unemployment rate. Point B MUST be up and to the right of point A. Because of this, economists say that the short-run Phillips

Curve must have shifted to the right. This means that the tradeoff between inflation and unemployment is LESS attractive, because BOTH rates have risen.

The Costs of Reducing Inflation in the Short-Run



The figure at right will illustrate the cost of reducing inflation in the short-run. To reduce inflation, the Fed will run a contractionary monetary policy. The reduction in the money supply will shift AD to the left. Recall that a leftward shift in AD will cause falling output and a falling price level. The falling price level means a falling rate of inflation, while falling output means falling employment (which, in turn, means rising unemployment).

The contractionary monetary policy has the effect of moving the economy from point "A" to point "B" in the figure. You should think of SR-PC1 as the "short-run Phillips Curve with HIGH inflationary expectations". At point "B" inflation is lower and, in the long-run, inflationary expectations will adjust downwards to match the lower ACTUAL inflation. When this occurs, the short-run Phillips Curve will shift INWARD to SR-PC0 (think of SR-PC0 as the "short-run Phillips Curve with low inflationary expectations".

Measurement of Inflation:

Inflation plays an important role in the macroeconomic economy by changing the value of a dollar across time. This section on inflation will deal with three important aspects of inflation. First, it will cover how to calculate inflation. Second, it will cover the effects of inflation calculations using the CPI and GDP measures,WPI,PPI

Calculating inflation

Inflation is the change in the price level from one year to the next. The change in inflation can be calculated by using whatever price index is most applicable to the given situation. The two most common price indices used in calculating inflation are CPI and the GDP deflator. Know, though, that the inflation rates derived from different price indices will themselves be different.

1. Calculating Inflation Using CPI

The price level most commonly used in the United States is the CPI, or consumer price index. Thus, the simplest and most common method of calculating inflation is to calculate the percentage change in the CPI from one year to the next. The CPI is calculated using a fixed basket of goods and services; the percentage change in the CPI therefore tells how much more or less expensive the fixed basket of goods and services in the CPI is from one year to the next. The percentage change in the CPI is also known as the percentage change in the price level or as the inflation rate.

Fortunately, once the CPI has been calculated, the percentage change in the price level is very easy to find. Let us look at the following example of "Country B."

Year	Price of bananas	Quantity of bananas	Price of backrubs	Quantity of backrubs
1	$1.00	5	$6.00	5
2	$1.00	5	$6.00	7
3	$2.00	10	$6.00	9

Figure %: Goods and Services Consumed in Country B

While it is simple to calculate the inflation rate between the base year and a comparison year, it is a bit more difficult to calculate the rate of inflation between two comparison years. To make this calculation, first check that both comparison years use the same base year. This is necessary to ensure that the same fixed basket of goods and services is used. Next, to calculate the percentage change in the level of the CPI, subtract the CPI for the later year from the CPI for the earlier year and then divide by the CPI for the earlier year.

2. The **Wholesale Price Index** (**WPI**) is the price of a representative basket of wholesale goods. Some countries (like India and The Philippines) use WPI changes as a central measure of inflation. However, United States now report a **producer price index** instead.

The Wholesale Price Index or WPI is "the price of a representative basket of wholesale goods. Some countries use the changes in this index to measure inflation in their economies, in particular India . The Wholesale Price Index focuses on the price of goods traded between corporations, rather than goods bought by consumers, which is measured by the Consumer Price Index. The purpose of the WPI is to monitor price movements that reflect supply and demand in industry, manufacturing and construction. This helps in analyzing both macroeconomic and microeconomic conditions.

WPI is the index that is used to measure the change in the average price level of goods traded in wholesale market. **The characteristics of Wholesale Price Index are as follows:-**

- A new WPI series with 2004-05 base was released on 14th Sep 2010 with **676** items in the commodity basket. Previously, WPI used a sample set of 435 commodities as an indicator of movement in prices of commodities in all trade and transactions.
- The prices are taken from wholesale market.
- It is also the price index which is available on a weekly basis.
- It has the shortest possible time lag of only two weeks ie the data available in the current week is calculated on the basis of prices two weeks back.

Calculation of WPI

WPI is calculated on a base year. The WPI for the base year is pinned at 100.

Let's assume the base year to be 2004. The data of wholesale prices of all the 435 commodities in the base year and the time for which WPI is to be calculated is gathered.

Let's calculate WPI for the year 2010 for a particular commodity, say wheat. Assume that the price of a kilogram of wheat in 2004 = Rs 6.00 and in 1980 = Rs 6.50

The WPI of wheat for the year 2010 is calculated as follows:-

First calculate,

((Price of Wheat in 2010 – Price of Wheat in 2004)/ Price of Wheat in 2004) x 100

i.e. *(6.50 – 6.00)/6.00 x 100 = 8.33*

Since WPI for the base year is assumed as 100, WPI for 2010 will become 100 + 8.33 = 108.33.

In this way individual WPI values for the remaining 675 commodities are calculated and then the weighted average of individual WPI figures are found out to arrive at the overall Wholesale Price Index. It is to be noted that Commodities are given weightage depending upon its influence in the economy. Like weightage of petrol is lesser than that of diesel.

Inflation

Inflation rate of a country is the rate at which prices of goods and services increase in its economy. It is an indication of the rise in the general level of prices over time.

Since it's practically impossible to find out the average change in prices of all the goods and services traded in an economy (which would give comprehensive inflation rate) due to the sheer number of goods and services present, a sample set or a basket of goods and services is used to get an indicative figure of the change in prices, which we call the inflation rate.

Calculation of Inflation

Let us say that we have WPI for the beginning and the end of year.

Inflation rate for the year will be = (WPI of end of year – WPI of beginning of year)/WPI of beginning of year x 100

For example,

Say, WPI on Jan 1st 2010 is 108.33

WPI on Jan 1st 2011 is 112.33

Therefore, inflation rate for the year 2011 = (112.33 – 108.33)/108.33 x 100 = 3.69% .

That is to say that the inflation rate for the year 2011 is 3.69%.

Since WPI figures are available every week, inflation for a particular week (which usually means inflation for a period of one year ended on the given week) is calculated based on the above method using WPI of the given week and WPI of the week one year before. This is how we get weekly inflation rates in India.

3. Calculating Inflation Using the GDP Deflator

The other major price index used to determine the price level is the GDP deflator, a price index that shows how much of the change in the GDP from a base year is reliant on changes in the price level. The GDP deflator is calculated by dividing the nominal GDP by the real GDP

For example, let's calculate, using the table above, the GDP deflator for Country B in period 3 using period 1 as the base year. In order to find the GDP deflator, we first must determine both nominal GDP and real GDP in period 3. Nominal GDP in period 3 is (10 X $2) + (9 X $6) = $74 and real GDP in period 3 using period 1 as the base year is (10 X $1) + (9 X $6) = $64. The ratio of nominal GDP to real GDP is ($74 / $64) - 1 = 16%. This means that the price level rose 16% from period 1, the base year, to period 3, the comparison year. Thus, the inflation rate from period 1 to period 3 was 16%. Notice that it is important to use the earlier year that you want to compare as the base year in the calculation of real GDP.

4. Producer Price Index:

Let's start first with the PPI or the Producer Price Index report. The PPI information is released by the US Department of Labor near the middle of each month--usually around the 9th to the 16th depending on the month--and it shows the amount of inflation or price increases at the production level, not the consumer level.

What that means is that it measures prices that companies pay for commodities, or raw materials, that will then be produced into goods, like televisions, furniture, or other products you would buy in a store.

In this sense, the PPI number is seen as a leading indicator of future inflation that may make its way down to the consumer level at retail and online stores for actual products.

Supply Side Economics

Supply Side economics is the branch of economics that considers how to improve the productive capacity of the economy. It tends to be associated with Monetarist, free market economics. These economists tend to emphasise the benefits of making markets, such as labour markets more flexible. However, some supply side policies can involve government intervention to overcome market failure

Supply Side Policies are government attempts to increase productivity and shift Aggregate Supply (AS) to the right.

Supply-side objectives

Key concepts to focus on are incentives, enterprise, technology, mobility, flexibility and efficiency.

- 1.Improve incentives to look for work and invest in people's skills
- 2.Increase labour and capital productivity
- 3.Increase occupational and geographical mobility of labour to help reduce the rate of unemployment
- 4.Increase investment and research and development spending
- 5.Promoting more competition and stimulate a faster pace of invention and innovation to improve competitiveness

- 6.Provide a platform for sustained non-inflationary growth
- 7.Encourage the start-up and expansion of new businesses / enterprises especially those with export potential
- 8.Improve the trend rate of growth of real GDP

Benefits of Supply Side Policies

1. Lower Inflation.

Shifting AS to the right will cause a lower price level. By making the economy more efficient supply side policies will help reduce cost push inflation.

2. Lower Unemployment

Supply side policies can help reduce structural, frictional and real wage unemployment and therefore help reduce the natural rate of unemployment.

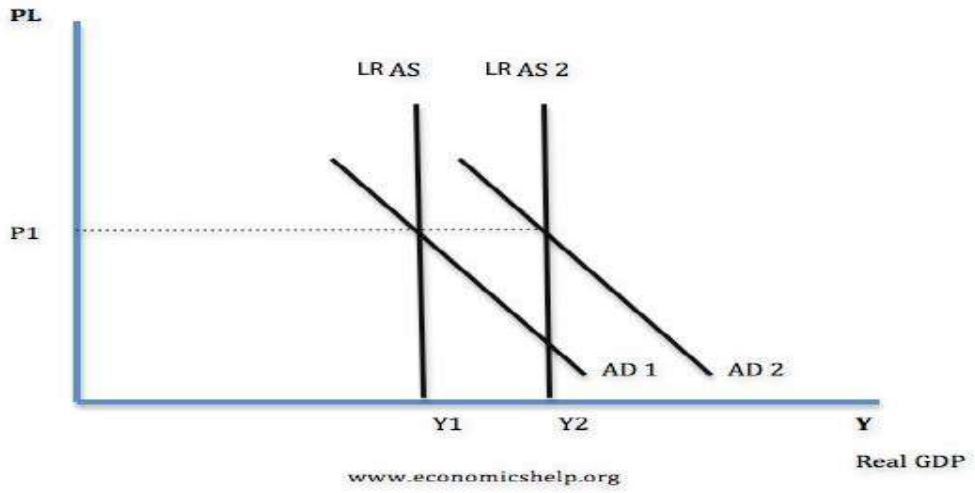
3. Improved economic growth

Supply side policies will increase the sustainable rate of economic growth by increasing AS.

4. Improved trade and Balance of Payments.

By making firms more productive and competitive they will be able to export more. This is important in light of the increased competition from S.E. Asia.

Diagram Showing effect of Supply Side Policies



Supply Side Policies

Most supply side policies aim to enable the free market to work more efficiently by reducing govt interference.

1. Privatisation.

This involves selling state owned assets to the private sector. It is argued that the private sector is more efficient in running business because they have a profit motive to reduce costs and develop better services.

See more on Privatisation

2. Deregulation

This involves reducing barriers to entry in order to make the market more competitive. For example BT used to be a Monopoly but now telecommunications is quite competitive. Competition tends to lead to lower prices and better quality of goods / service.

3. Reducing Income Taxes.

It is argued that lower taxes (income and corporation) increase the incentives for people to work harder, leading to more output.However this is not necessarily true, lower taxes do not always increase work incentives (e.g. if income effect outweighs substitution effect)

4. Increased education and training

Better education can improve labour productivity and increase AS. Often there is under-provision of education in a free market, leading to market failure. Therefore the government may need to subsidies suitable education

and training schemes. However government intervention will cost money, requiring higher taxes, It will take time to have effect and government may subsidies the wrong types of training

5. Reducing the power of Trades Unions

This shoulda) increase efficiency of firms e.g. less time lost to strikes b) reduce unemployment (if labour markets are competitive)

6. Reducing State Welfare Benefits

This may encourage unemployed to take jobs.

7. Providing better information

This may also help reduce frictional unemployment

8. Deregulate financial markets to allow more competition and lower borrowing costs for consumers and firms.

9. Lower Tariff barriers this will increase trade

10. Removing unnecessary red tape and bureaucracy which add to a firms costs

11. Improving Transport and infrastructure.

Due to market failure this is likely to need govt intervention to improve transport and reduce congestion. This will help reduce firms costs.

12 Deregulate Labour Markets

This is said to be an important objective for the EU to increase competitiveness. E.g. Make it easier to hire and fire workers.

Money Market

Definition of Money

What is money? Money is any good that is widely used and accepted in transactions involving the transfer of goods and services from one person to another.

Economists differentiate among three different types of money: commodity money, fiat money, and bank money.

- Commodity money is a good whose value serves as the value of money. Gold coins are an example of commodity money. In most countries, commodity money has been replaced with fiat money.
- Fiat money is a good, the value of which is less than the value it represents as money. Dollar bills are an example of fiat money because their value as slips of printed paper is less than their value as money.
- Bank money consists of the book credit that banks extend to their depositors. Transactions made using checks drawn on deposits held at banks involve the use of bank money.

The money system is a significant improvement over the barter (item for item) system because while the former allowed trading between anyone who cared for money, the latter could only take place between parties with nearly equivalent marginal benefits of all traded goods (or otherwise, one side would be unwilling to make the trade).

Money is in two forms:

- Currency C - circulating money
- Deposits D - placed in banks and other depository institutions
    - Reserves R - the fraction of deposits that banks are required to hold on to

Functions of Money

Money is often defined in terms of the three functions or services that it provides. Money serves as a medium of exchange, as a store of value, and as a unit of account.

- Medium of exchange - as an object that is generally accepted as a form of payment, thereby increasing market flexibility
- Unit of account - a means of keeping track of how much something is worth (in barter systems, it becomes difficult to see how much a traded item is being traded for in terms of worth)
- Store of value - can be held and exchanged later for goods and services, at an approximate (though slowly changing) value

Medium of exchange: Money's most important function is as a medium of exchange to facilitate transactions. Without money, all transactions would have to be conducted by barter, which involves direct exchange of one good or service for another. The difficulty with a barter system is that in order to obtain a particular good or service from a supplier, one has to possess a good or service of equal value, which the supplier also desires. In other words, in a barter system, exchange can take place *only* if there is a double coincidence of wants between two transacting parties. The likelihood of a double coincidence of wants, however, is small and makes the exchange of goods and services rather difficult. Money effectively eliminates the double coincidence of wants problem by serving as a medium of exchange that is accepted in all transactions, by all parties, regardless of whether they desire each others' goods and services.

Store of value: In order to be a medium of exchange, money must hold its value over time; that is, it must be a store of value. If money could not be stored for some period of time and still remain valuable in exchange, it would not solve the double coincidence of wants problem and therefore would not be adopted as a medium of exchange. As a store of value, money is not unique; many other stores of value exist, such as land, works of art, and even baseball cards and stamps. Money may not even be the best store of value because it depreciates with inflation. However, money is more liquid than most other stores of value because as a medium of exchange, it is readily accepted everywhere. Furthermore, money is an easily transported store of value that is available in a number of convenient denominations.

Unit of account: Money also functions as a unit of account, providing a *common measure of the value* of goods and services being exchanged. Knowing the value or price of a good, in terms of money, enables both the supplier and the purchaser of the good to make decisions about how much of the good to supply and how much of the good to purchase.

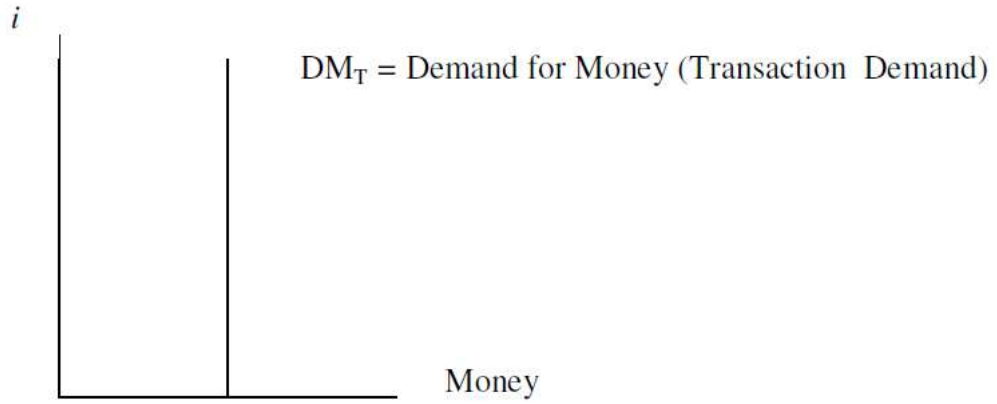
The Demand for Money

The demand for money is affected by several factors, including the level of income, interest rates, and inflation as well as uncertainty about the future. The way in which these factors affect money demand is usually explained in terms of the three motives for demanding money: the transactions, the precautionary, and the speculative motives.

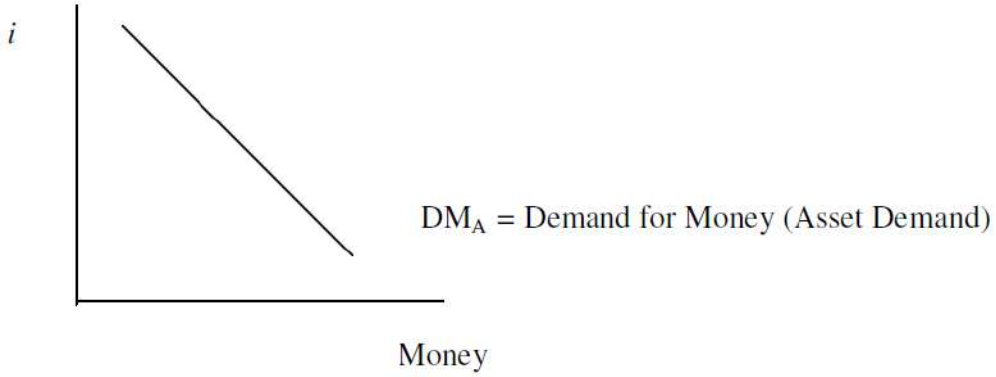
1. **Transactions motive.** The transactions motive for demanding money arises from the fact that most transactions involve an exchange of money. Because it is necessary to have money available for transactions, money will be demanded. The total number of transactions made in an economy tends to increase over time as income rises. Hence, as income or GDP rises, the transactions demand for money also rises.
2. **Precautionary motive**. People often demand money as a *precaution* against an uncertain future. Unexpected expenses, such as medical or car repair bills, often require *immediate payment.* The need to have money available in such situations is referred to as the precautionary motive for demanding money.
3. **Speculative motive.** Money, like other stores of value, is an asset. The demand for an asset depends on both its rate of return and its opportunity cost. Typically, money holdings provide *no* rate of return and often depreciate in value due to inflation. The opportunity cost of holding money is the interest rate that can be earned by lending or investing one's money holdings. The speculative motive for demanding money arises in situations where holding money is perceived to be *less risky* than the alternative of lending the money or investing it in some other asset.

For example, if a stock market crash seemed imminent, the speculative motive for demanding money would come into play; those expecting the market to crash would sell their stocks and hold the proceeds as money. The presence of a speculative motive for demanding money is also affected by *expectations of future interest rates and inflation.* If interest rates are expected to rise, the opportunity cost of holding money will become greater, which in turn diminishes the speculative motive for demanding money. Similarly, expectations of higher inflation presage a greater depreciation in the purchasing power of money and therefore lessen the speculative motive for demanding money.

Transactions Demand: We all require a certain amount of money each day to buy the things we need to buy - like lunch money. Our demand for money for transactions depends on the price level (if lunch costs more – we need more cash), but does not really depend on interest rates (no matter what savings accounts are offering as interest – the Big Mac Meal still costs $4.50 – so we still need $4.50 each day).

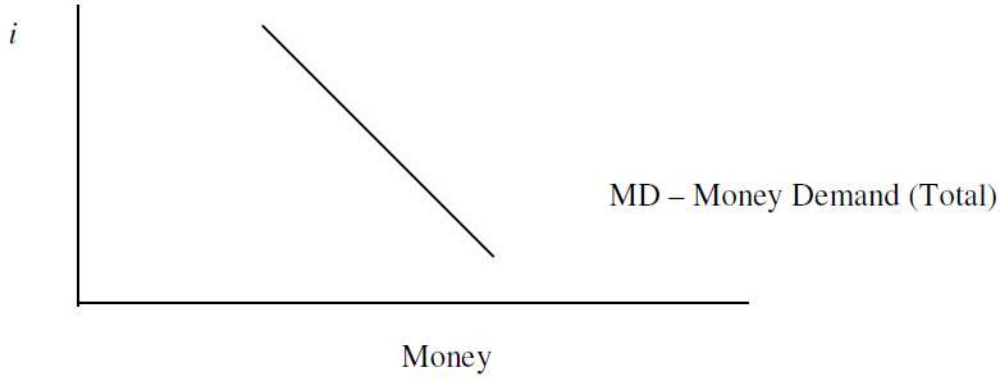


Asset Demand: The demand for money that depends on the interest rate on savings accounts (and other investments). The higher the rate of interest on the investment, the more of our money we want to stay invested (to get the most out of the high rate we want most of our money earning interest). If the interest rates are low – there is less opportunity cost of holding money as cash, so we hold more money as cash.



Asset Demand for Money is also known as the Speculative Demand for Money.

Total Money Demand: Adding the two types of Money Demand you get a curve that looks like the Asset Demand for Money curve – it reacts to the change in the interest rate. It is further to the right than Asset Demand because it also includes the money we demand for transactions.



Supply of Money:

In economics, the money supply or money stock is the total amount of money available in an economy at a specific time. There are several ways to define "money," but standard measures usually include currency in circulation and demand deposits (depositors' easily accessed assets on the books of financial institutions)

M1: Currency in the hands of the public, checking account balances, and travelers' checks
M2: M1 plus savings account deposits, small-denomination time deposits (such as CDs), and money-market mutual fund shares
M3: M2 plus foreign deposits

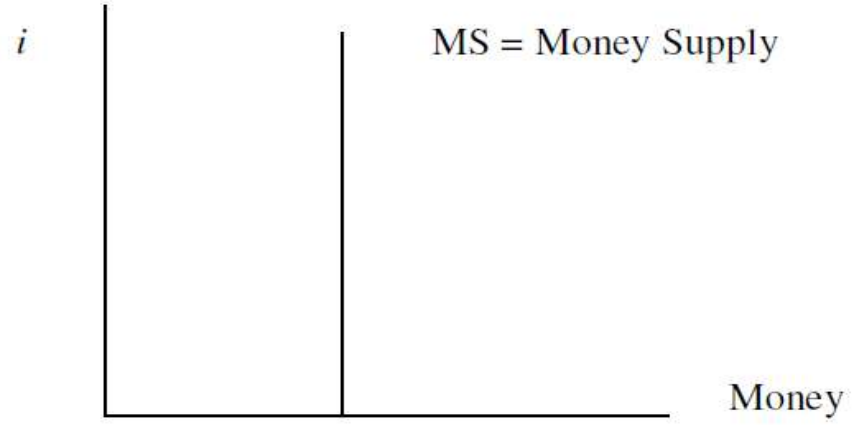
There are several definitions of the supply of money. *M*1 is narrowest and most commonly used. It includes all currency (notes and coins) in circulation, all checkable deposits held at banks (bank money), and all traveler's checks. A somewhat broader measure of the supply of money is *M*2, which includes all of M1 plus savings and time deposits held at banks. An even broader measure of the money supply is *M*3, which includes all of *M*2 plus large denomination, long-term time deposits—for example, certificates of deposit (CDs) in amounts over $100,000. Most discussions of the money supply, however, are in terms of the *M*1 definition of the money supply.

The money supply is the amount of M1 in the economy (the *effective* money). The supply of money is determined by the Central Bank through '*monetary policy*; the economy then has to make do with that set amount of money. Since the economy does not influence the quantity of money, money supply is considered perfectly vertical

Consequences of changing the Money Supply

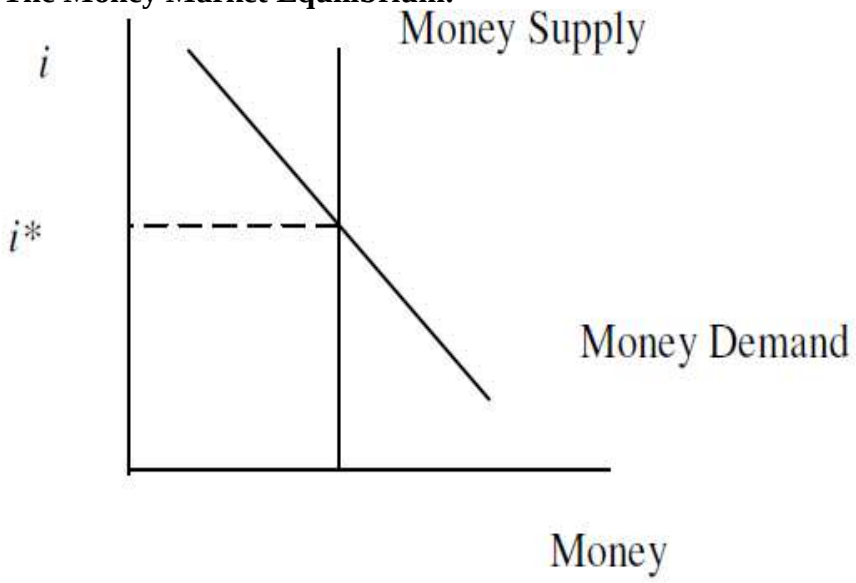
- Since increasing the money supply can affect AD, then ceteris paribus (cp.) inflation in prices will result at the same time as an increase in output, as can be shown on any supply and demand diagram. A central bank must decide whether the benefits of demand-side economic growth outweigh the costs of potential demand-pull inflation.
- This resultant inflation could cause the currency to depreciate against others, as fewer goods and services can be bought for the same nominal amount of money. This means that the exchange rate is lower, increasing the price of imports and increasing the competitiveness of exports with their associated effects on the economy!

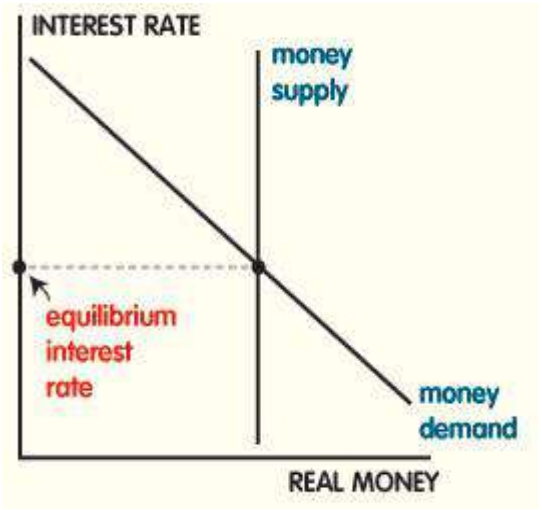
Why is the money supply curve drawn as a vertical straight line?



1. Because money supply is determined by the monetary policy (Federal Reserve System in USA) independent of the interest rate
2. Because it is independent of the money demand decided by the public
3. Because it is a fixed amount at the fixed interest rate
4. Because money supply is negatively related to the intrest rate in USA

The Money Market Equilibrium:

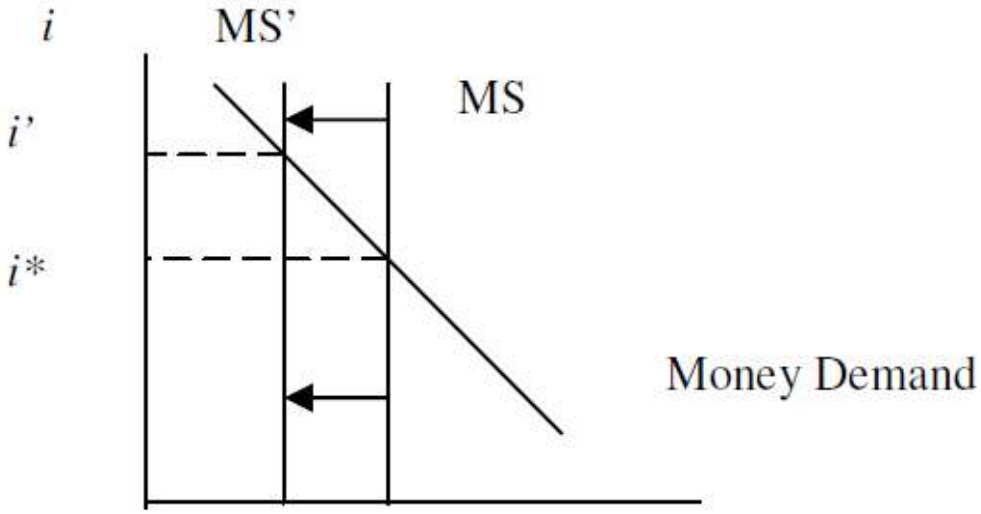




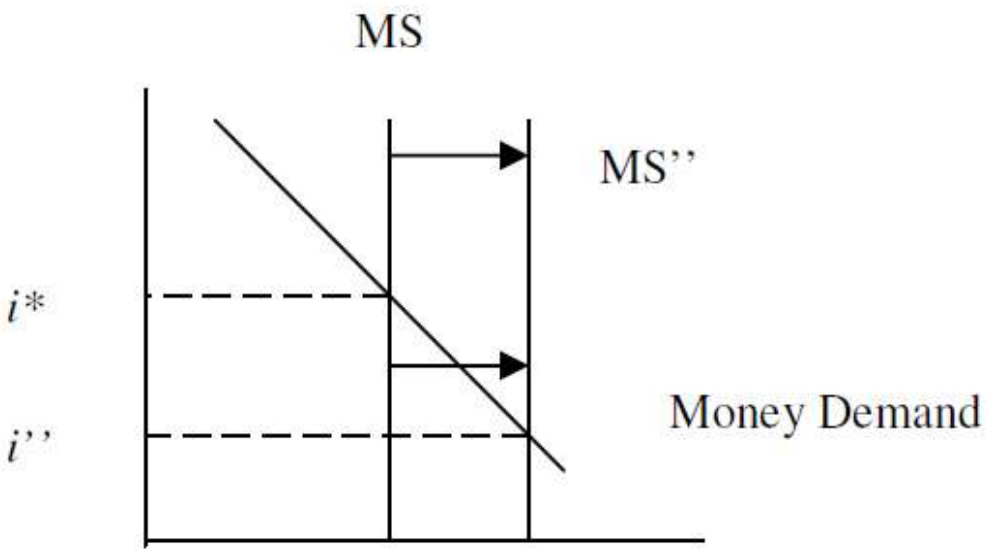
The Money Market equilibrium is the interaction of the Money Demand Curve and the Money Supply Curve. The intersection of these curves is the equilibrium point and determines the interest rate in the economy (i*).

Equilibrium in the money market occurs when the interest rate adjusts so that the quantity of money demanded equals the quantity of money supplied.

Adjustment to a Decline in the Money Supply: If Money Supply decreases then the MS curve shifts left – and the new equilibrium is at a higher interest rate (i'). Why does the interest rate rise? As money becomes scarcer, banks need to attract money to the bank in order to make loans (and earn money). As people keep more money in the bank, they will have less on hand (the level of MD is lower).

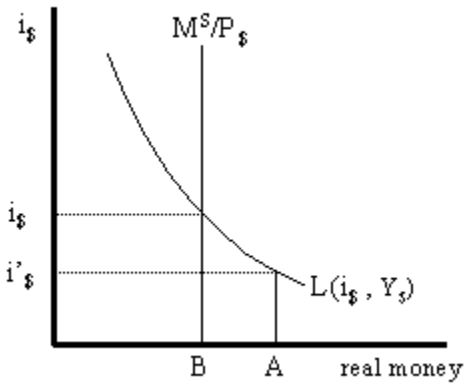


Adjustment to an Increase in the Money Supply: If the money supply increases (from MS to MS'') and the interest rate drops to i''. What happens is that the flood of easy money makes it unnecessary for banks to offer high interest rates to attract money to make loans. They offer lower interest rates on savings and fewer dollars come to the bank (low opportunity cost of holding money).



Interest Rate too Low

Suppose that for some reason the actual interest rate, i'$ lies below the equilibrium interest rate, i$, as shown on the adjoining diagram. At i'$, real money demand is given by the value A along the horizontal axis, while real money supply is given by the value B. Since A is to the right of B, real demand for money exceeds the real money supply. This means that people and businesses wish to be holding more assets in a liquid, spendable form rather than holding assets in a less liquid form, such as in a savings account. This excess demand for money will cause households and businesses to convert assets from less liquid accounts into checking accounts or cash in their pockets. A typical transaction would involve a person who withdraws money from a savings account to hold cash in his wallet. The savings account balance is not considered a part of the M1 money supply, however the currency the person puts into his wallet is a part of the money supply. Millions of conversions such as this will be the behavioral response to an interest rate that is below equilibrium. As a result, the financial sector will experience a decrease in time deposit balances, which in turn will reduce their capacity to make loans. In other words, withdrawals from savings and other type of non-money accounts will reduce the total pool of funds available to be loaned by the financial sector. With fewer funds to lend and the same demand for loans, banks will respond by raising interest rates. Higher interest rates will reduce the demand for loans helping to equalize supply and demand for loans. Finally, as interest rates rise, money demand falls until it equalizes with the actual money supply. Through this mechanism average interest rates will rise, whenever money demand exceeds money supply.



Interest Rate Too High

If the actual interest rate is higher than the equilibrium rate, for some unspecified reason, then the opposite adjustment will occur. In this case, real money supply will exceed real money demand meaning that the amount of assets or wealth people and businesses are holding in a liquid, spendable form is greater than the amount they would like to be holding. The behavioral response would be to convert assets from money into interest bearing non-money deposits. A typical transaction would be if a person deposits some of the cash in their wallet into their savings account. This transaction would reduce money holdings since currency in circulation is reduced, but will increase the amount of funds available to loan out by the banks. The increase in loanable funds, in the face of constant demand for loans, will inspire banks to lower interest rates to stimulate the demand for loans.

However, as interest rates fall, the demand for money will rise until it equalizes again with money supply. Through this mechanism average interest rates will fall, whenever money supply exceeds money demand.

Money Market Instruments:

Money Market Instruments provide the tools by which one can operate in the money market. Money market instrument meets short term requirements of the borrowers and provides liquidity to the lenders. The most common money market instruments are Treasury Bills, Certificate of Deposits, Commercial Papers, Repurchase Agreements and Banker's Acceptance.

Treasury Bills (T-Bills): Treasury Bills are one of the safest money market instruments as they are issued by Central Government. They are zero-risk instruments, and hence returns are not that attractive. T-Bills are circulated by both primary as well as the secondary markets. They come with the maturities of 3-month, 6-month and 1-year. The Central Government issues T-Bills at a price less than their face value and the difference between the buy price and the maturity value is the interest earned by the buyer of the instrument. The buy value of the T-Bill is determined by the bidding process through auctions. At present, the Government of India issues three types of treasury bills through auctions, namely, 91-day, 182-day and 364-day.

Certificate of Deposits (CDs): Certificate of Deposit is like a promissory note issued by a bank in form of a certificate entitling the bearer to receive interest. It is similar to bank term deposit account. The certificate bears the maturity date, fixed rate of interest and the value. These certificates are available in the tenure of 3 months to 5 years. The returns on certificate of deposits are higher than T-Bills because they carry higher level of risk.

Commercial Papers (CPs): Commercial Paper is the short term unsecured promissory note issued by corporates and financial institutions at a discounted value on face value. They come with fixed maturity period ranging from 1 day to 270 days. These are issued for the purpose of financing of accounts receivables, inventories and meeting short term liabilities. The return on commercial papers is is higher as compared to T-Bills so as the risk as they are less secure in comparison to these bills. It is easy to find buyers for the firms with high credit ratings. These securities are actively traded in secondary market.

Repurchase Agreements (Repo): Repurchase Agreements which are also called as Repo or Reverse Repo are short term loans that buyers and sellers agree upon for selling and repurchasing. Repo or Reverse Repo transactions can be done only between the parties approved by RBI and allowed only between RBI-approved securities such as state and central government securities, T-Bills, PSU bonds and corporate bonds. They are usually used for overnight borrowing. Repurchase agreements are sold by sellers with a promise of purchasing them back at a given price and on a given date in future. On the flip side, the buyer will also purchase the securities and other instruments with a promise of selling them back to the seller.

Banker's Acceptance: Banker's Acceptance is like a short term investment plan created by non-financial firm, backed by a guarantee from the bank. It's like a bill of exchange stating a buyer's promise to pay to the seller a certain specified amount at a certain date. And, the bank guarantees that the buyer will pay the seller at a future date. Firm with strong credit rating can draw such bill. These securities come with the maturities between 30 and 180 days and the most common term for these instruments is 90 days. Companies use these negotiable time drafts to finance imports, exports and other trade.

Monetary policy

What is the Monetary Policy?

The Monetary and Credit Policy is the policy statement, traditionally announced twice a year, through which the Reserve Bank of India seeks to ensure price stability for the economy.

These factors include - money supply, interest rates and the inflation. In banking and economic terms money supply is referred to as M3 - which indicates the level (stock) of legal currency in the economy.

Objectives of Monetary Policy

The objectives of a monetary policy in India are similar to the objectives of its five year plans. In a nutshell planning in India aims at growth, stability and social justice. After the **Keynesian revolution** in economics, many people accepted significance of monetary policy in attaining following objectives.

1. Rapid Economic Growth
2. Price Stability
3. Exchange Rate Stability
4. Balance of Payments (BOP) Equilibrium
5. Full Employment
6. Neutrality of Money
7. Equal Income Distribution

These are the general objectives which every central bank of a nation tries to attain by employing certain tools (Instruments) of a monetary policy. In India, the RBI has always aimed at the controlled expansion of bank credit and money supply, with special attention to the seasonal needs of a credit.

Instruments of Monetary Policy used by the RBI

Direct regulation:

Cash Reserve Ratio (CRR): Commercial Banks are required to hold a certain proportion of their deposits in the form of cash with RBI. CRR is the minimum amount of cash that commercial banks have to keep with the RBI at any given point in time. RBI uses CRR either to drain excess liquidity from the economy or to release additional funds needed for the growth of the economy.

For example, if the RBI reduces the CRR from 5% to 4%, it means that commercial banks will now have to keep a lesser proportion of their total deposits with the RBI making more money available for business. Similarly, if RBI decides to increase the CRR, the amount available with the banks goes down.

Statutory Liquidity Ratio (SLR): SLR is the amount that commercial banks are required to maintain in the form of gold or government approved securities before providing credit to the customers. SLR is stated in terms of a percentage of total deposits available with a commercial bank and is determined and maintained by the RBI in order to control the expansion of bank credit. For example, currently, commercial banks have to keep gold or government approved securities of a value equal to 23% of their total deposits.

Indirect regulation:

Repo Rate: The rate at which the RBI is willing to lend to commercial banks is called Repo Rate. Whenever commercial banks have any shortage of funds they can borrow from the RBI, against securities. If the RBI increases the Repo Rate, it makes borrowing expensive for commercial banks and vice versa. As a tool to control inflation, RBI increases the Repo Rate, making it more expensive for the banks to borrow from the RBI with a view to restrict the availability of money. The RBI will do the exact opposite in a deflationary environment when it wants to encourage growth.

Reverse Repo Rate: The rate at which the RBI is willing to borrow from the commercial banks is called reverse repo rate. If the RBI increases the reverse repo rate, it means that the RBI is willing to offer lucrative interest rate to commercial banks to park their money with the RBI. This results in a reduction in the amount of money available for the bank's customers as banks prefer to park their money with the RBI as it

involves higher safety. This naturally leads to a higher rate of interest which the banks will demand from their customers for lending money to them.

The *RBI issues annual and quarterly policy review statements to control the availability and the supply of money in the economy*. The Repo Rate has traditionally been the key **instrument of monetary policy** used by the RBI to fight inflation and to stimulate growth.

Open Market operations:

Monetary policy can be implemented by changing the size of the monetary base. Central banks use open market operations to change the monetary base. The central bank buys or sells reserve assets (usually financial instruments such as bonds) in exchange for money on deposit at the central bank. Those deposits are convertible to currency. Together such currency and deposits constitute the monetary base which is the general liabilities of the central bank in its own monetary unit. Usually other banks can use base money as a fractional reserve and expand the circulating money supply by a larger amount.

Reserve requirements

The monetary authority exerts regulatory control over banks. Monetary policy can be implemented by changing the proportion of total assets that banks must hold in reserve with the central bank. Banks only maintain a small portion of their assets as cash available for immediate withdrawal; the rest is invested in illiquid assets like mortgages and loans. By changing the proportion of total assets to be held as liquid cash, the Federal Reserve changes the availability of loanable funds. This acts as a change in the money supply. Central banks typically do not change the reserve requirements often because it creates very volatile changes in the money supply due to the lending multiplier.

Discount window lending:

Discount window lending is where the commercial banks, and other depository institutions, are able to borrow reserves from the Central Bank at a discount rate. This rate is usually set below short term market rates (T-bills). This enables the institutions to vary credit conditions (i.e., the amount of money they have to loan out), thereby affecting the money supply. It is of note that the Discount Window is the only instrument which the Central Banks do not have total control over.

By affecting the money supply, it is theorized, that monetary policy can establish ranges for inflation, unemployment, interest rates, and economic growth. A stable financial environment is created in which savings and investment can occur, allowing for the growth of the economy as a whole.

Interest rates

The contraction of the monetary supply can be achieved *indirectly* by increasing the nominal interest rates. Monetary authorities in different nations have differing levels of control of economy-wide interest rates. In the United States, the Federal Reserve can set the discount rate, as well as achieve the desired Federal funds rate by open market operations. This rate has significant effect on other market interest rates, but there is no perfect relationship. In the United States open market operations are a relatively small part of the total volume in the bond market. One cannot set independent targets for both the monetary base and the interest rate because they are both modified by a single tool — open market operations; one must choose which one to control.

In other nations, the monetary authority may be able to mandate specific interest rates on loans, savings accounts or other financial assets. By raising the interest rate(s) under its control, a monetary authority can contract the money supply, because higher interest rates encourage savings and discourage borrowing. Both of these effects reduce the size of the money supply.

Currency board

A currency board is a monetary arrangement that pegs the monetary base of one country to another, the anchor nation. As such, it essentially operates as a hard fixed exchange rate, whereby local currency in circulation is backed by foreign currency from the anchor nation at a fixed rate. Thus, to grow the local monetary base an equivalent amount of foreign currency must be held in reserves with the currency board. This limits the

possibility for the local monetary authority to inflate or pursue other objectives. The principal rationales behind a currency board are threefold:

1. To import monetary credibility of the anchor nation;
2. To maintain a fixed exchange rate with the anchor nation;
3. To establish credibility with the exchange rate (the currency board arrangement is the hardest form of fixed exchange rates outside of dollarization).

Pros	Cons
Can be initiated immediately	Knowledge problems (regarding the current state of the economy; regarding the amount of an expansion or contraction needed, etc.)
No government budget deficits	Time lags (particularly response lags)
Expansionary policy leading to depreciating currency can stimulate exports (at least for businesses that do not rely on importing their inputs).	Can't direct the spending (to particular uses, e.g. infrastructure), and spending may be done in wasteful ways, e.g. speculation, mergers and acquisitions.
The Fed is theoretically insulated from the political process	Very low interest rates can foster speculative activities (such as Japan's yen carry trade.)
	Fed's change in interest rate is applied nationally – some areas in the country might not need the stimulus, while states with high unemployment might need the stimulus.
	Reluctant lenders (Banks may be unwilling to lend, especially if overwhelmed by bad loans on the books)
	Reluctant borrowers (pushing on a string) (Firms may be reluctant to borrow, especially if expectations of future sales and profits are low.)
	Limit of r=0%, liquidity trap
	While government doesn't incur debt, the private sector is encouraged to borrow and take on debt.
	What if we have stagnation + inflation? Could exacerbate inflation