

## Section I: Theory Note

### Production Possibility Model

- Production possibility model is the model that shows the **choices** that an economy has when production is carried out with **scarce resources those have alternative benefits**.
- Production possibility model can be presented as a **graph, mathematical equation or as a production schedule**.

### Production Possibility

- Production possibility is the **maximum output** that an economy can produce, with its **given endowment of resources and state of technology**, when it utilizes its **resources fully and efficiently**.
- Therefore, in order to reach its production possibility there is 2 main goals for an economy.
  - **Full employment**  
Utilizing all available productive resources for production.
  - **Full Production**  
Getting maximum out from available productive resources. In other words all resources most efficiently utilized for the production.

### Production Possibility Curve/ Production Possibility Frontier

- PPC is a curve that depicts all possible combinations of maximum output that a simple economic entity (**that only produces two products or services**) can produce with its given endowment of resources and state of technology, when it utilizes its resources fully and efficiently.

OR

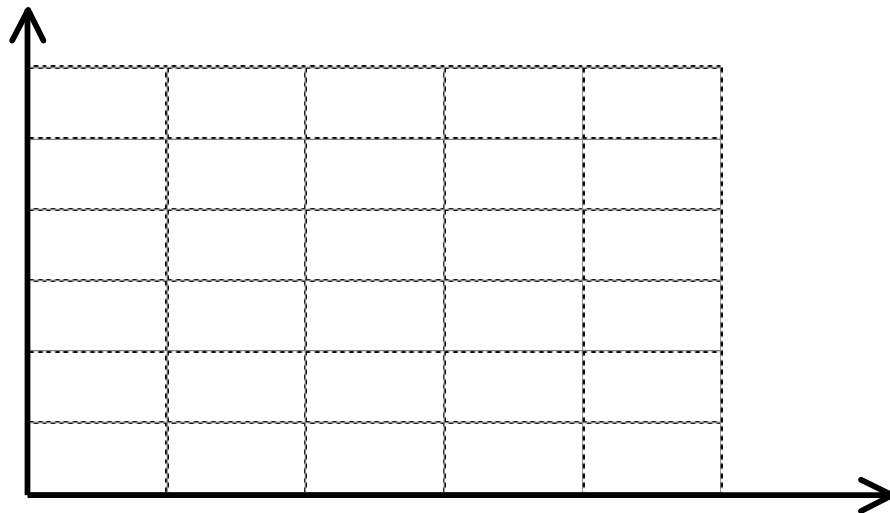
- Curve that depicts all maximum output combinations those can be attained by a simple economic entity (**that only produces two products or services**) that achieves both goals of full employment and full production.

## Example

- Following table shows maximum production combinations of a hypothetical economy that only produces two products, namely: X & Y.

Production Combination	Good X (units in '000)	Good Y (units in '000)
A	0	25
B	10	20
C	20	15
D	30	10
E	40	5
F	50	0

- This schedule is known as **production possibility schedule**.
- In the above schedule, **if the multiple production combinations of Good X and Good Y (Production point A, B, C, D, E, F) are connected through a line**, production possibility curve can be derived.



- If all resources are used for Good X, economy produces \_\_\_\_\_ combination and \_\_\_\_\_ from Good X and \_\_\_\_\_ from Good Y.
- If all resources are used for Good Y, economy produces \_\_\_\_\_ combination and \_\_\_\_\_ from Good Y and \_\_\_\_\_ from Good X.
- When economy employ resources to produce both products \_\_\_\_\_ combinations can be produced.

## Assumptions Used in Constructing a Production Possibilities Frontier:

1. **Two Goods.**

Production possibility curve assumes that economy only produces two goods/services.

2. **Common Resources.**

PPC assumes that resources in the economy can be transferred among two goods so, same resources can be used to produce either of the two goods/services.

3. **Fixed Resources.**

PPC assumes resource endowment is constant. This assumption excludes an increase in output from the discovery of additional resources

4. **Fixed Technology.**

PPC assumes that technology is fixed.

5. **Full Employment & Full production.**

PPC assumes that both full employment and full production is achieved by an economy.

- Given fixed technology, this assumption is to prevent the possibility of increasing the output of one good without decreasing the output of another good. In other words, it is not possible to get more of one good without giving up some of another good. Therefore inherently PPC contains an opportunity cost.

## Importance of Production Possibility Curve

**a. Helps to allocate resources effectively**

The production possibility frontier (PPF) represents the point at which an economy is most efficiently producing its goods and services and, therefore, PPC helps in allocating resources of the economy in the best way possible.

**b. Indicates whether the economy is operated inefficiently**

If the economy is not producing the quantities indicated by the PPF, resources are being managed inefficiently and the production of society will decline.

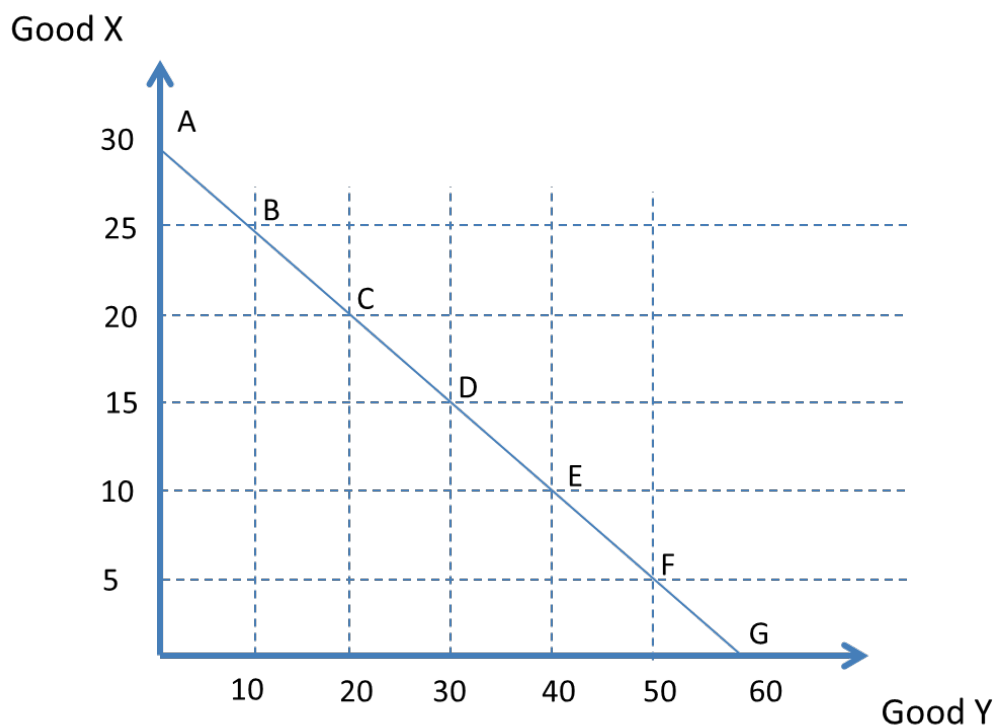
**c. Helps to understand many economy concepts that are important to an economy.**

Economic concepts such as opportunity cost, full employment of resources etc. can be well understood using a PPC.

### Marginal Opportunity cost (Slope of PPC)

- At a given time if economy has achieved full employment and full production, output of one good cannot be increased without decreasing the output of another good.
- In other words, it is not possible to get more of one good without giving up some of another good.
- Thus, in order to increase one unit from a particular good, number of units that has to be sacrificed from the other good is known as marginal opportunity cost.
- This same concept is also known as marginal substitution ratio and marginal conversion ratio.
- This ratio represents the slop of production possibility curve.

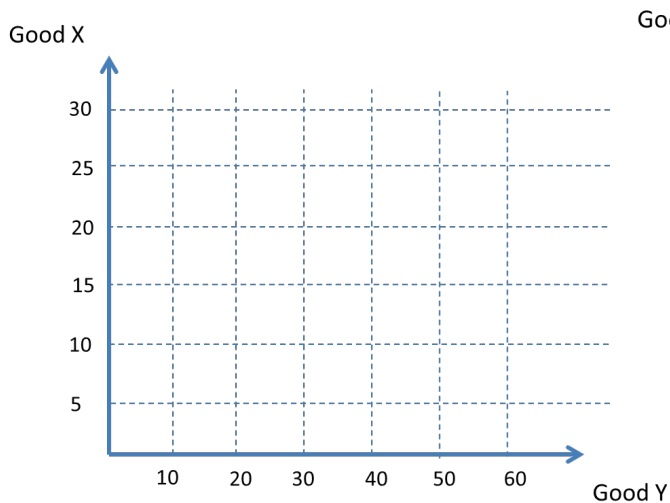
Marginal opportunity cost =	$\frac{\text{Scarified output}}{\text{Increased output}}$
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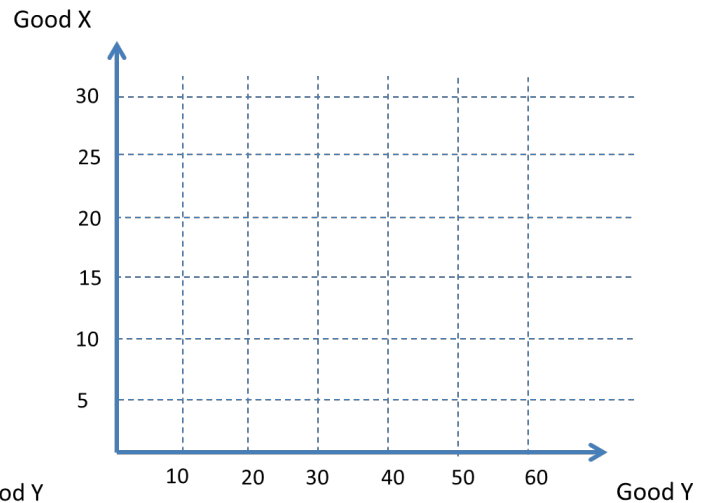
Movement	Equation		Marginal Opportunity cost
A to B	Scarified Output		
	Increased Output		
C to D	Scarified Output		
	Increased Output		
B to E	Scarified Output		
	Increased Output		
F to E	Scarified Output		
	Increased Output		
E to C	Scarified Output		
	Increased Output		
G to A	Scarified Output		
	Increased Output		

## Shape of the Production Possibility Curve

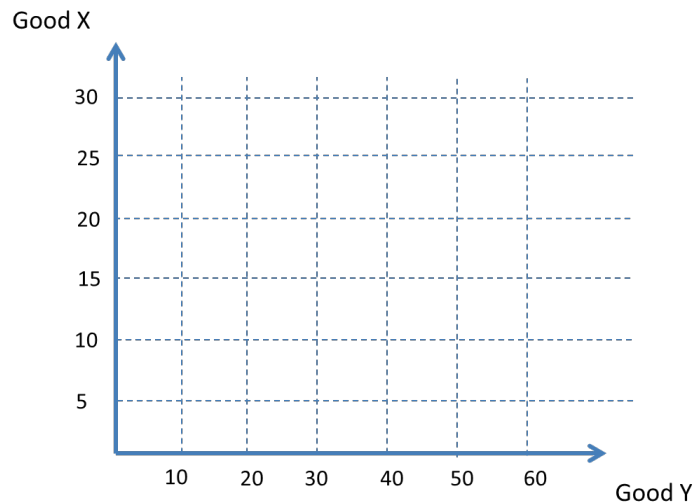
- Shape of the production possibility curve depends on the **marginal opportunity cost**. (In other words slope of the production possibility curve)
- Therefore there are 3 shapes of production possibility curves.
  - Straight line production possibility curve with constant opportunity cost (Slope of the PPC is constant)
  - Concave to origin production possibility curve with increasing opportunity cost (Slope of the PPC is increasing)
  - Convex to origin production possibility curve with decreasing opportunity cost (Slope of the PPC is decreasing)



**Constant Opportunity Cost**



**Increasing Opportunity Cost**



**Decreasing Opportunity Cost**

### Constant Opportunity Cost

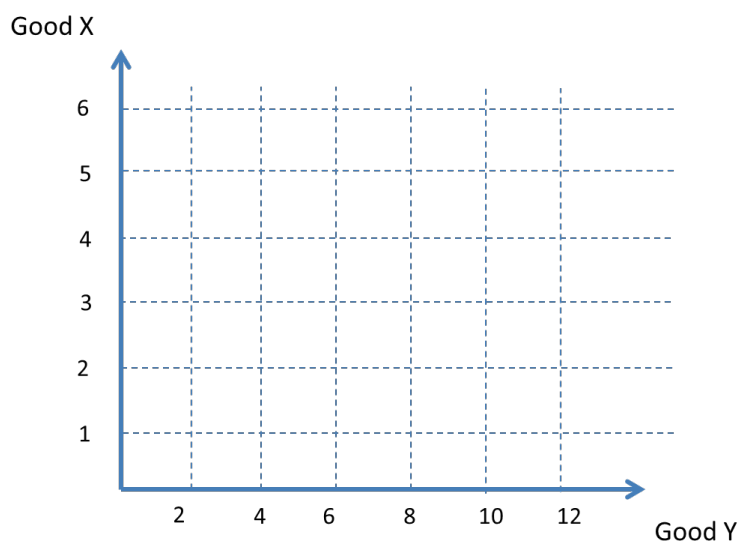
- Constant opportunity cost is the model that shows opportunity cost (the value of foregone production) remains constant as the quantity of good produced increases.
- In other words, on PPC when one good is increased by equal quantities, output sacrificed from the other good remains constant.
- Therefore in this PPC model slope of the curve (marginal opportunity cost) always remain same. Thus, shape of the PPC becomes a straight line.
- At any given point on the straight line PPC, opportunity cost remains constant.

## Reasons for Constant Opportunity Cost

- All factors of production are *homogeneous*
  - Homogeneous means factors of production are identical in their use and ability to produce goods and services. Ex;- All workers are equal in their production ability, speed, skill etc.
  - Therefore all factors of production become perfect substitutes. Ex;- Two workers produce exactly the same output.
  - Hence, when production of a particular good is increased on equal quantity, each time it requires same amount of additional factors of production are to be extracted from the other good. Ex:- If all workers can produce either 3 units of paddy or 4 units of tea, every time one worker is employed in paddy production output goes up by 3 units. At the same time since that extra worker is taken out from tea production tea output drops by 4 units.

## Example

Opportunity cost of increasing Good X				Opportunity cost of increasing Good Y			
Production Combination	Good X (units)	Good Y (units)	$\Delta Y / \Delta X$	Production Combination	Good Y (units)	Good X (units)	$\Delta X / \Delta Y$
A	0	10		F	0	5	
B	1	8		E	2	4	
C	2	6		D	4	3	
D	3	4		C	6	2	
E	4	2		B	8	1	
F	5	0		A	10	0	



- Opportunity cost of producing one unit of X is \_\_\_\_\_
- Opportunity cost of producing one unit of Y is \_\_\_\_\_

### Increasing Opportunity Cost

- Increasing opportunity cost is the model that shows opportunity cost (the value of foregone production) increases as the quantity of good produced increases.
- In other words, on PPC when one good is increased by equal quantities, output sacrificed from the other good gradually increases.
- Therefore in this PPC model slope of the curve (marginal opportunity cost) rises. Thus, shape of the PPC becomes concave to the origin.

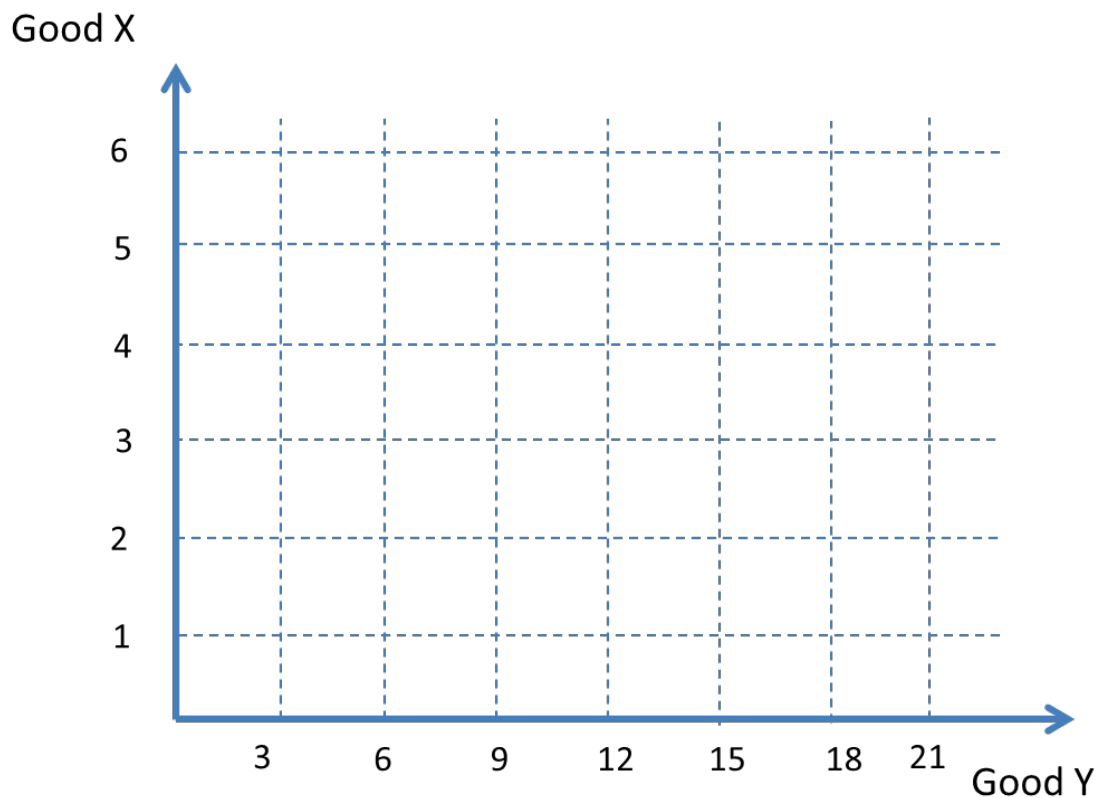
### Reasons for Increasing Opportunity Cost

1. All factors of production are *heterogeneous*
  - Heterogeneous means all resources are not the same but each resource having its specialized field of use or ability. Ex;- Even though two workers are capable of producing both tea and paddy, first worker is better than the second worker in the production of paddy whereas the second worker is better than the first worker in the production of tea
  - Therefore all factors of production are not perfect substitutes. Ex;- Two workers do not produce exactly the same output.
  - Thus, productivity of factors of production differs.
  - Hence, when production of a particular good is increased on equal quantity, each time it requires increasing amount of additional factors of production are to be extracted from the other good since heterogeneity rises as production rises.
2. Different goods use different technology/ production techniques.



### Example

Opportunity cost of increasing Good X				Opportunity cost of increasing Good Y			
Production Combination	Good X (units)	Good Y (units)	$\Delta Y / \Delta X$	Production Combination	Good Y (units)	Good X (units)	$\Delta X / \Delta Y$
A	0	20		F	0	5	
B	1	18		E	6	4	
C	2	15		D	11	3	
D	3	11		C	15	2	
E	4	6		B	18	1	
F	5	0		A	20	0	



- When Production of X is increased opportunity cost rises.

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- When Production of Y is increased opportunity cost rises.

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### Decreasing Opportunity Cost

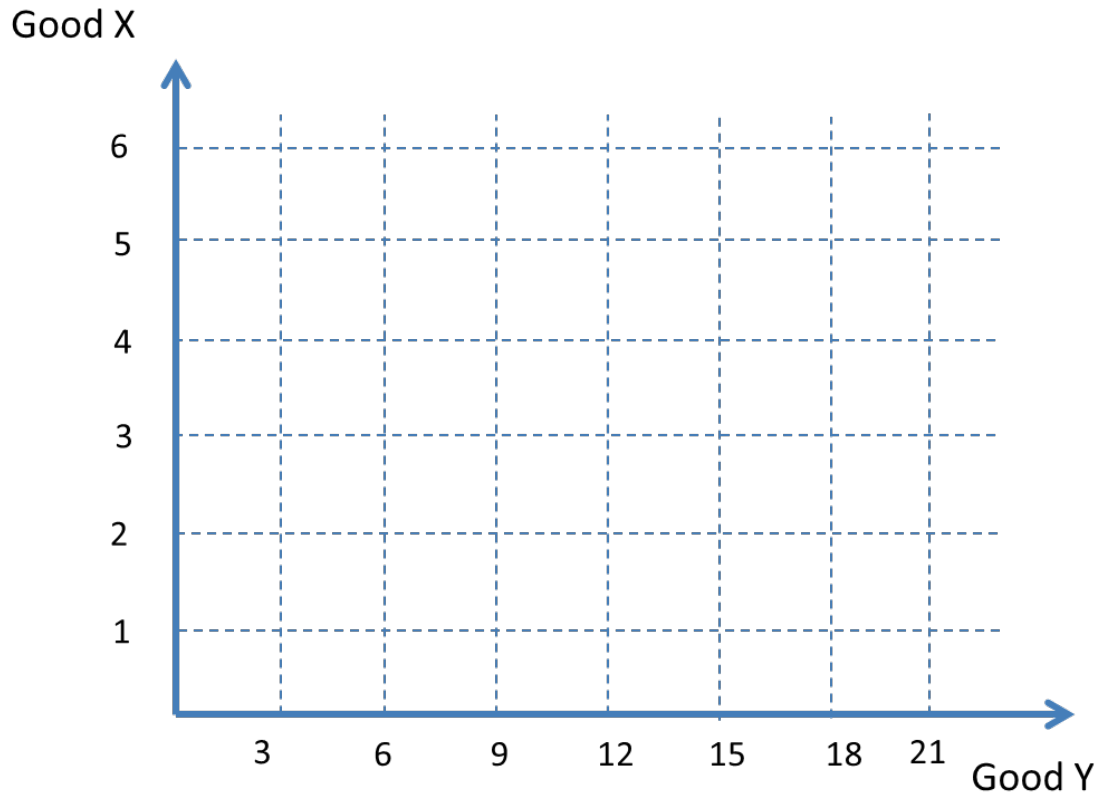
- Decreasing opportunity cost is the model that shows opportunity cost (the value of foregone production) decreases as the quantity of good produced increases.
- In other words, on PPC when one good is increased by equal quantities, output sacrificed from the other good gradually decreases.
- Therefore in this PPC model slope of the curve (marginal opportunity cost) falls. Thus, shape of the PPC becomes convex to the origin.

### Reasons for Decreasing Opportunity Cost

- Due to *Increasing returns to scale*
  - Increasing returns to scale means the drop in resource cost of production due to the rise of efficiency in production with the increase of scale (large volume production). Ex;- When large amount of paper is print, per unit cost drops
  - Due to returns to scale output rises more than proportionate times to the rise in input.
  - As a result the amount that has to be sacrificed from the other good to produce one unit of a particular good gradually drops.

### Example

Opportunity cost of increasing Good X				Opportunity cost of increasing Good Y			
Production Combination	Good X (units)	Good Y (units)	$\Delta Y / \Delta X$	Production Combination	Good Y (units)	Good X (units)	$\Delta X / \Delta Y$
A	0	20		F	0	5	
B	1	14		E	2	4	
C	2	9		D	5	3	
D	3	5		C	9	2	
E	4	2		B	14	1	
F	5	0		A	20	0	



- When Production of X is increased opportunity cost falls.

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- When Production of Y is increased opportunity cost falls.

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## Mixed Opportunity Cost

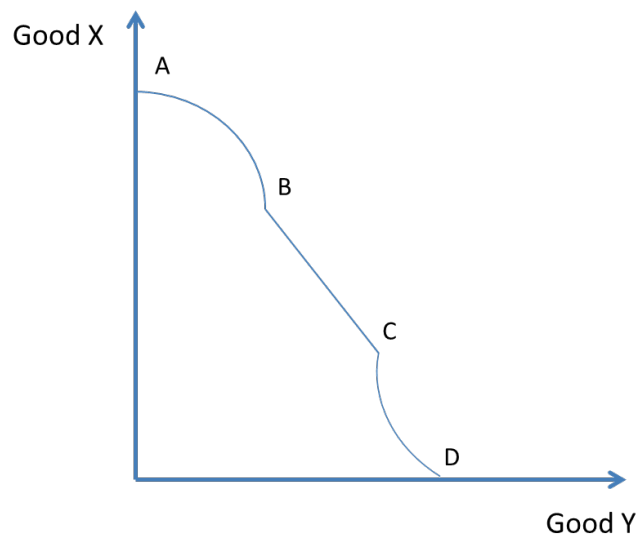
- Even though constant, increasing and decreasing opportunity cost models are discussed separately in the real world it can be seen a mixture of these 3 opportunity costs.

### Example

A - B \_\_\_\_\_

B - C \_\_\_\_\_

C - D \_\_\_\_\_



## Shift of production possibility curves

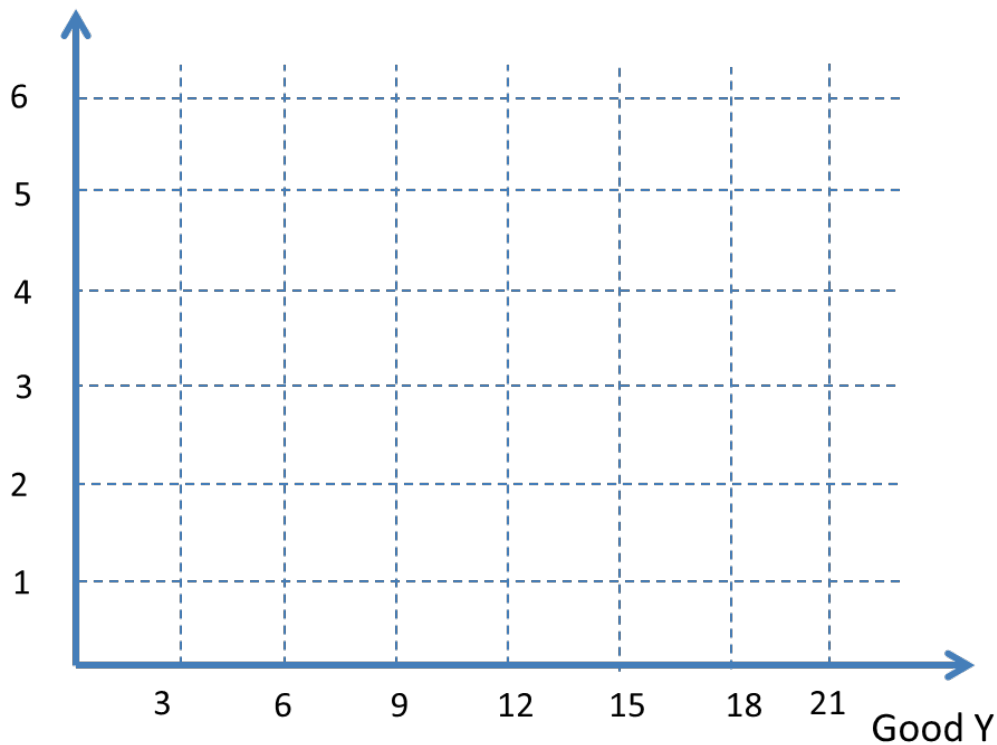
- A production possibility curve can get shifted either,
  - a. To right (outward shift)
  - b. To left (inward shift)

## Outward shift of production possibility curves (PPC shifting to right)

- A production possibility curve shifting to right means the economy can reach a higher production possibility.
- In other words maximum output capacity of the economy has been increased.
- Rise of maximum output capacity of an economy is considered as an **economic growth**. Further it is an effect of **long term process**. (long term is defined as 10 year or more)
- Thus, **outward shift of PPC takes place mainly due to a long term economic growth of the economy.**

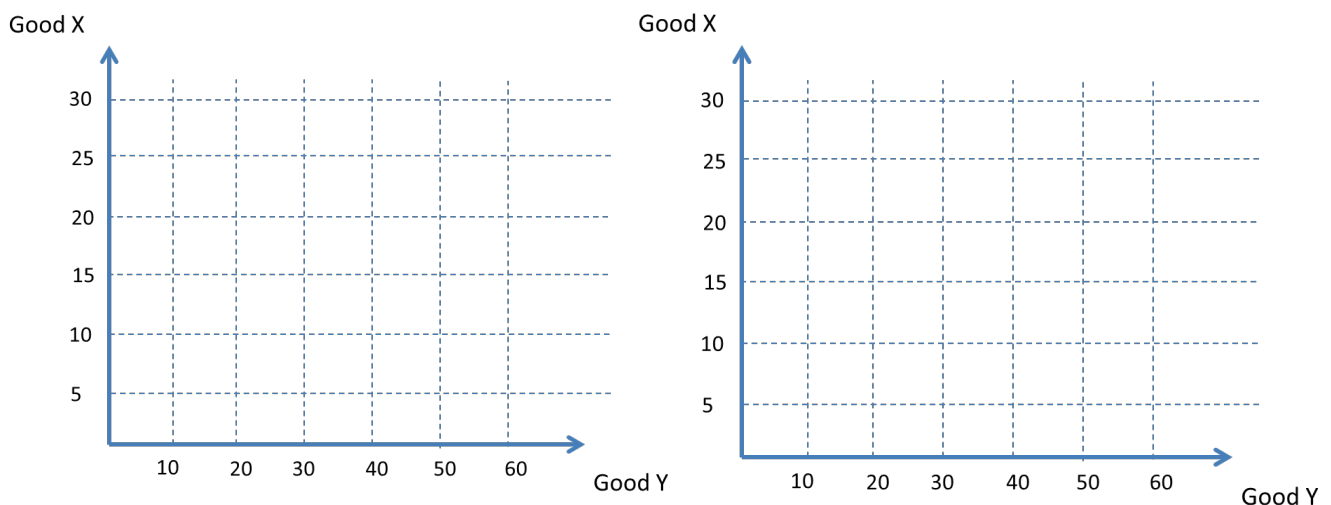
- PPC rightward shift can happen due to 3 main reasons.
  - a. **Increase of resource supply (Increase of productive resource availability)**
    - Due to population growth labour supply of the economy rises
    - Discovery of natural resources such as minerals, oil, natural gas
    - Due to the development of technology converting unproductive resources to productive resources.
  - b. **Increase of productivity & quality of resources.**
    - Due to education & training labour force become more competent and skillful
  - c. **Technological improvement**
    - Due to technology economy will be able to reach a higher output from the same resource availability (improvement in productivity)

Good X



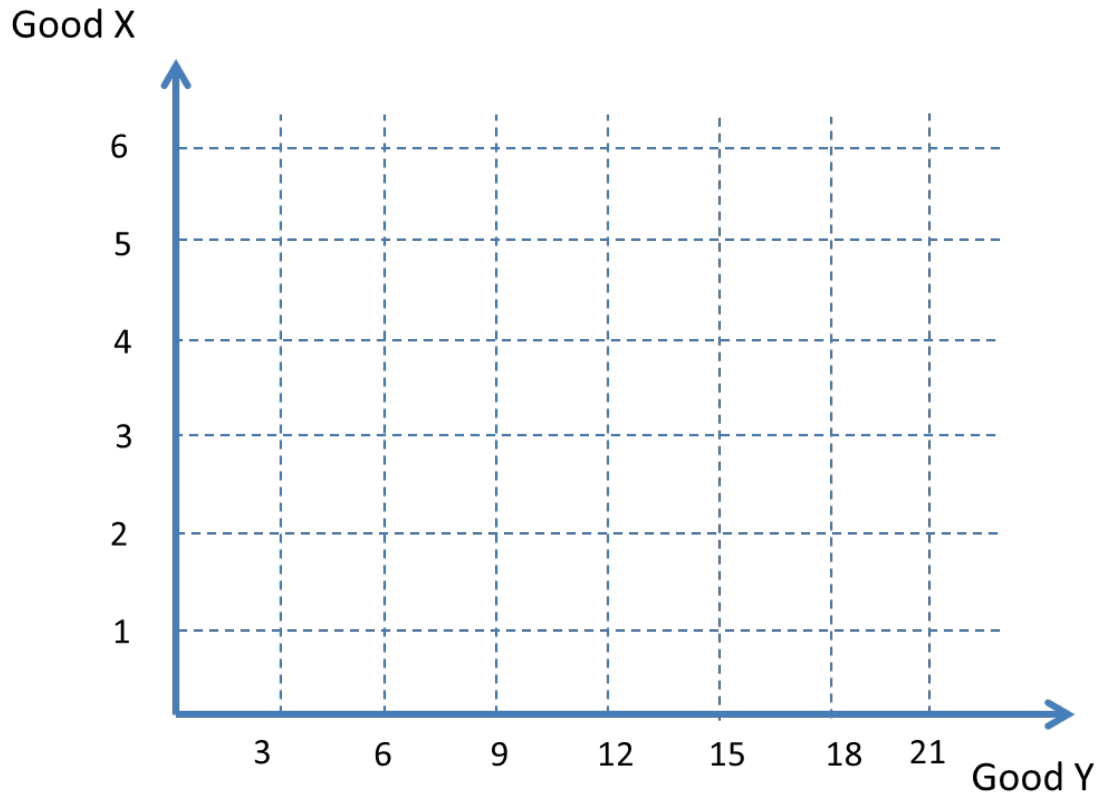
### Outward shift of production possibility curves from one axis

- During an economic development process maximum output capacity of all goods might not get increased proportionally.
- If maximum production capacity is increased in all goods (both goods considered in the PPC) PPC shift outwards from both ends. It is known as a balanced economic growth.
- However if maximum production capacity has only risen in one good/industry PPC curve shifts outwards only from that axis.
- This is known as an **unbalanced economic growth**.



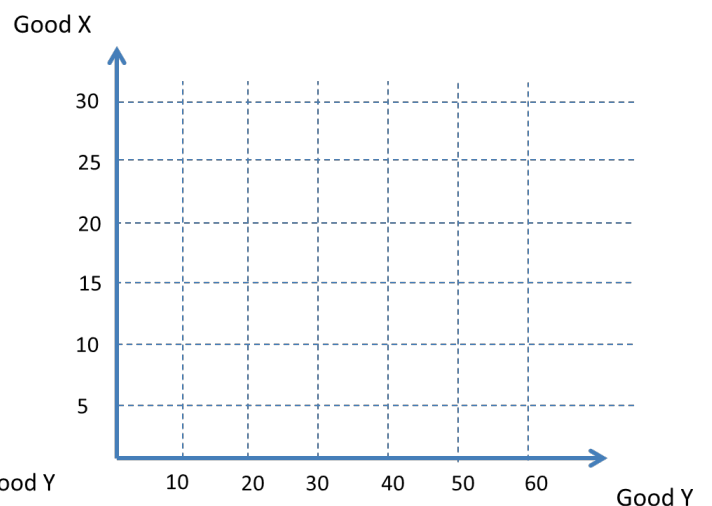
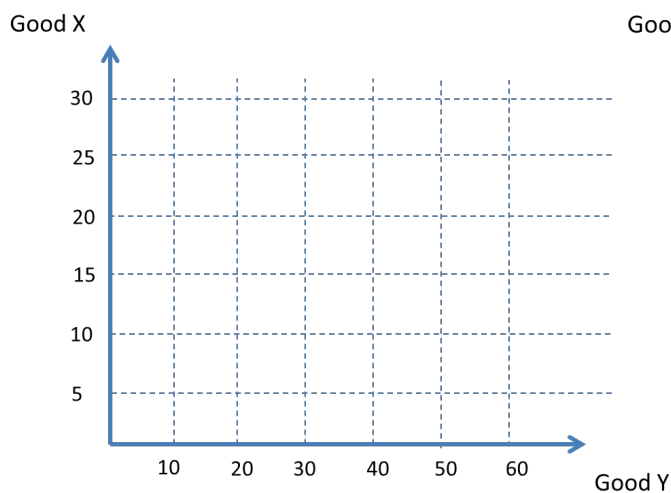
### Inward shift of production possibility curves (PPC shifting to left)

- A production possibility curve shifting to left means the economy can only reach a lesser production possibility than earlier.
- In other words maximum output capacity of the economy has been decreased.
- Fall of maximum output capacity of an economy is considered as an **economic depression**
- Thus, **inward shift of PPC takes place mainly due to a economic depression of the economy.**
- PPC can shift inwards due to following reasons:
  - Labour force has been reduced due to reasons such as a civil war, epidemic, permanent migration, natural disaster etc.
  - Capital goods (factories, buildings) and economic infrastructure (roads, bridges) has been destroyed by events such as civil war, natural disaster etc.
  - Reduction in labour productivity (break down of education, vocational training) and reduction in land productivity ( farms lands becoming unproductive due to over fertilization)
  - Deterioration of technology



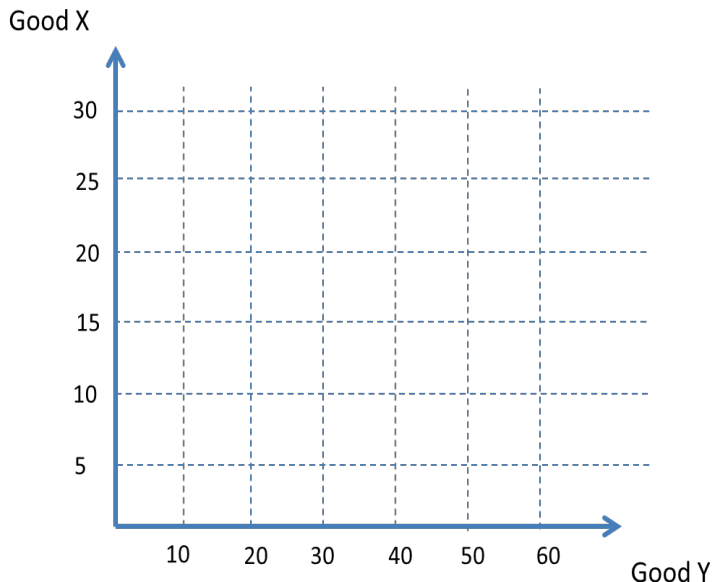
### Outward shift of production possibility curves from one axis

- During an economic devastation maximum output capacity of the entire economy can get reduced or economic devastation can only applicable to few industries.
- If maximum production capacity is decreased in all goods (both goods considered in the PPC) PPC shift inwards from both ends.
- However if maximum production capacity has only fallen in one good/industry PPC curve shifts inwards only from that axis.



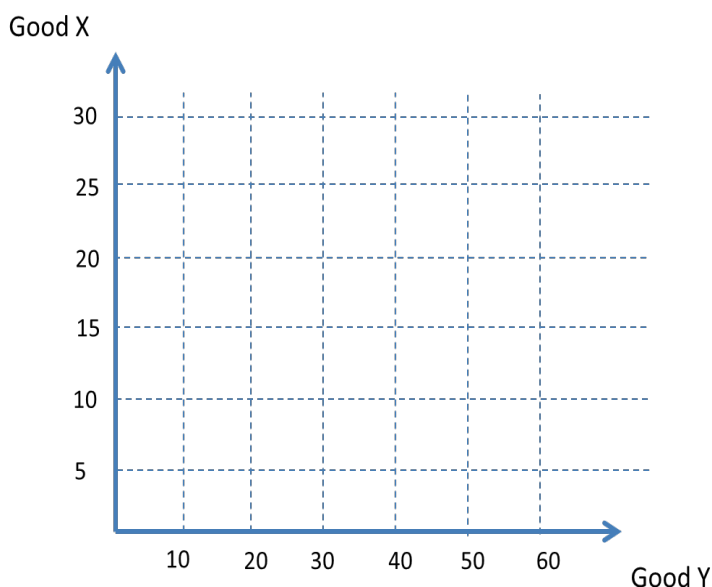
## Practical Usage of Production Possibility Curve

### 01. Concept of “Scarcity” depicted on PPC



- Scarcity is the limitation or the shortage of productive resources compared to unlimited physical human needs.
- Though PPC concept of scarcity can be depicted **from any point beyond PPC curve.**
- Even if the economy reaches to its full employment and full production, due to scarcity of resources there is a limit of production that the economy can achieve.
- This maximum output is depicted from the PPC.
- Therefore any point beyond the PPC becomes unattainable with the current supply of resources and current state of technology. Hence any point beyond PPC represents scarcity of the economy.

### 02. Concept of “Problem of choice” depicted on PPC

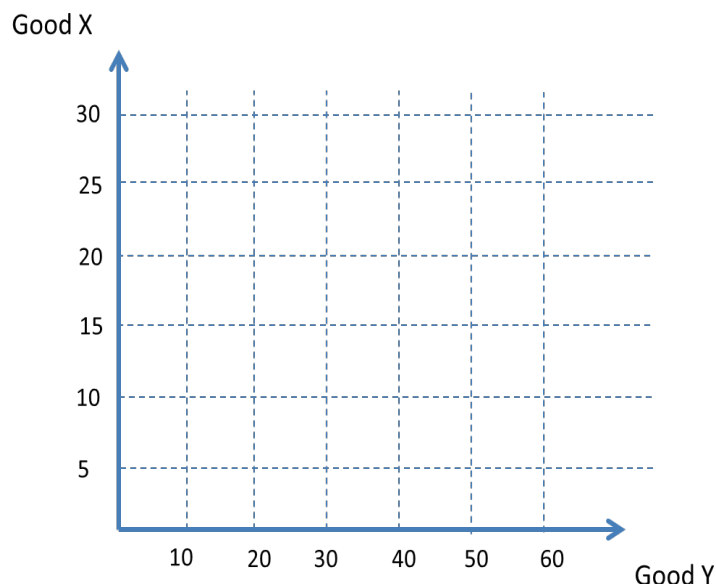
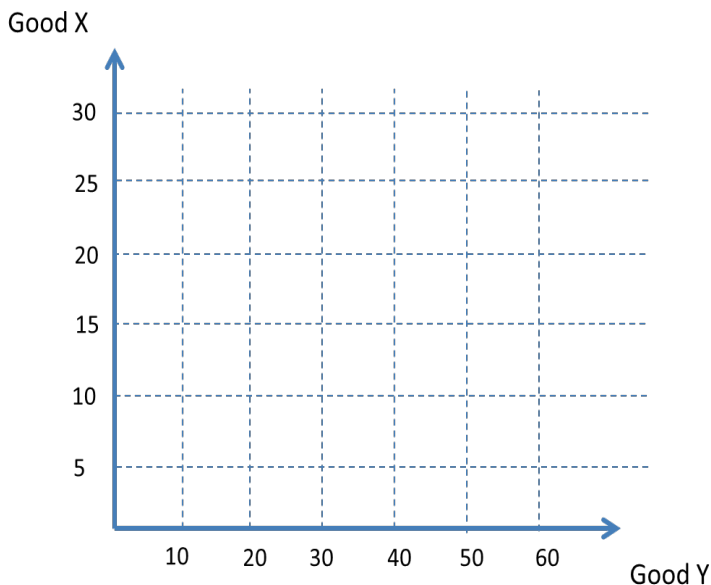


- Due to scarcity of resources and alternative benefits of resources economy has to make choices with regard to the production. This selection problem is known as problem of choice.
- Though PPC, with regard to the problem of choice, “what to produce in which quantities” (problem of resource allocation) can be shown.



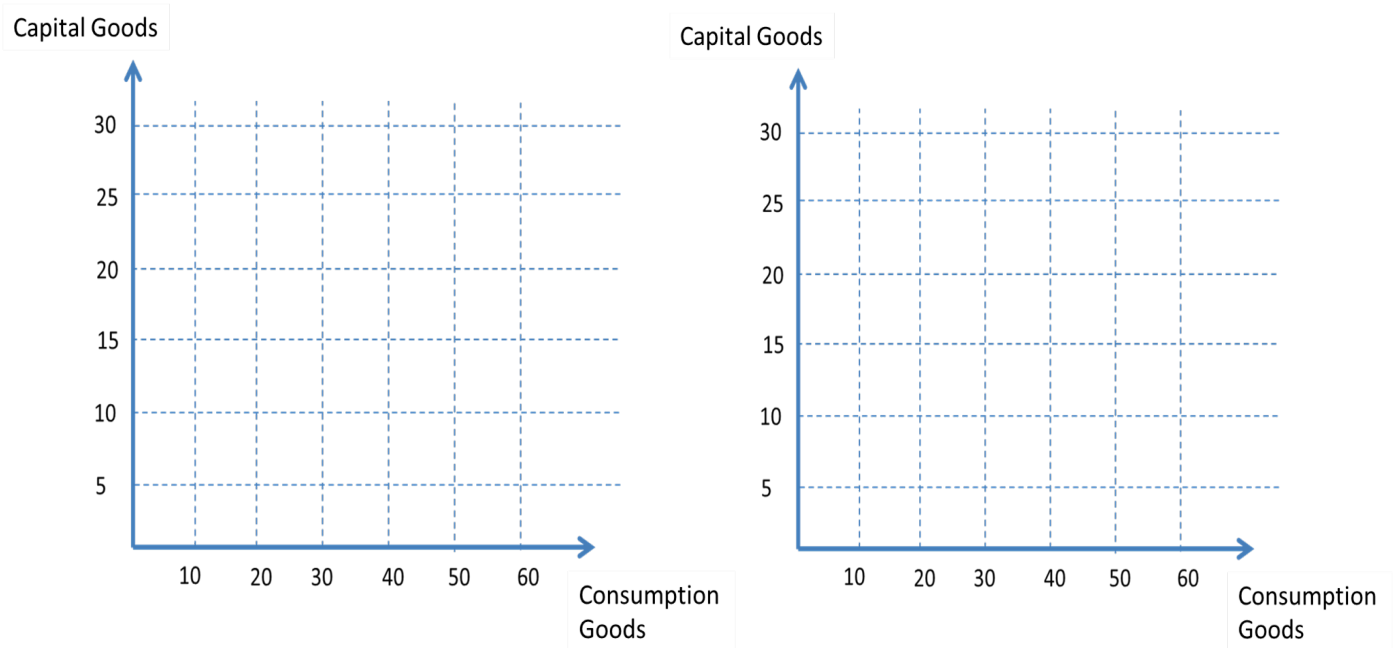
- Thus, Problem of choice of an economy will be predicted through multiple production combinations on PPC
- Economy has the capability of producing all of the production combination on PPC. However for production economy has to decide which product combination that they will produce. Thus, economy faces a problem of choice.

### 03. Concept of “Economic Growth” depicted on PPC



- Economic growth is the increase in production possibility of the economy during a long period of time (10 years or more)
- Economic growth can be depicted on PPC two ways.
  - Total PPC is shifting to the right (Economic growth of the entire economy)
  - PPC curve shifts to the right only from one axis (Sectorial economic growth)
- In an economy that operates at full employed level and full production level, output of one good can only be increased by sacrificing the output of the other output without an economic growth.
- However with an economic growth an economy that operates at full employed level and full production level, output of one good or both goods can be increased without any output sacrifice.

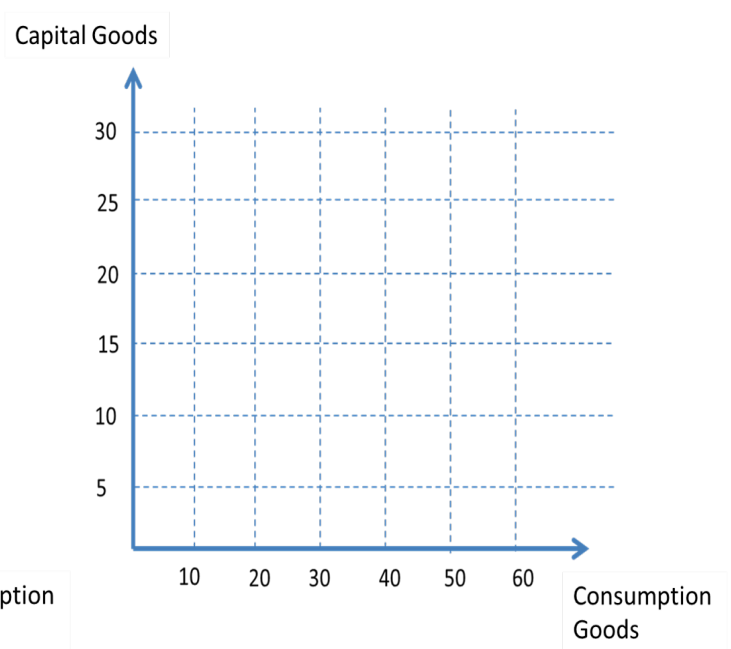
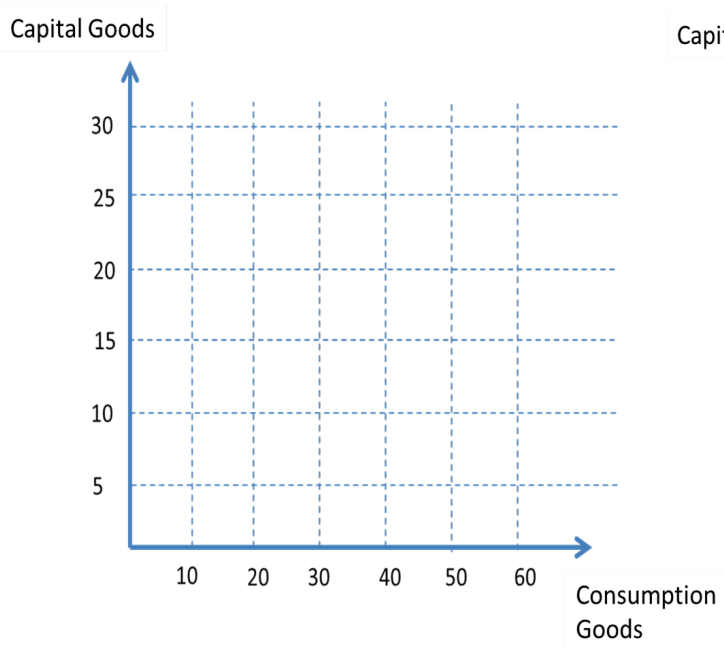
#### 04. Concept of “Opportunity Cost of Economic Growth” depicted on PPC



- Even though output of one good or both goods can be increased without any sacrifice of output it is **incorrect to assume that economic growth has no opportunity cost.**
- Economic growth is a long term process of increasing production possibility (maximum output capacity).
- Therefore an economy has to invest in to capital goods at present to achieve future economic growth.
- So, to achieve economic growth in the future an economy has to allocate more resource for capital goods at present.
- Thus, for economic growth **economy has to sacrifice current consumption at present since they allocate more resources for capital goods.**
- Hence, **opportunity cost of economic growth is the current consumption that is sacrificed by the economy for its future economic growth.**

## 05. Measuring Economic growth through PPC

- By calculating the percentage by which PPC shifted to right, economic growth can be measured.
- If all sectors in the economy have proportionally grown, then by drawing the 45° degree line from the origin, percentage increase can be calculated.
- If all sectors in the economy have not proportionally grown, then by considering the percentage changes of the two axis, economic growth can be measured.



### Proportional economic growth

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### Disproportional economic growth

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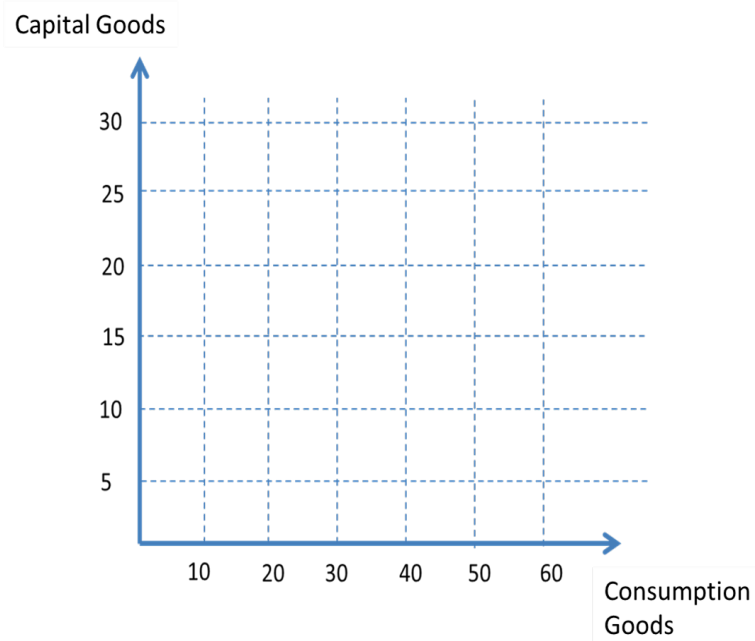
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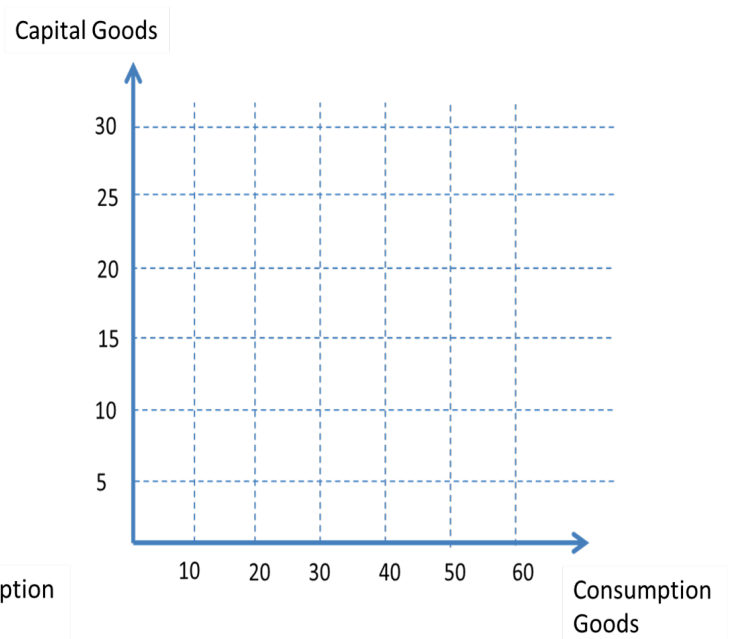
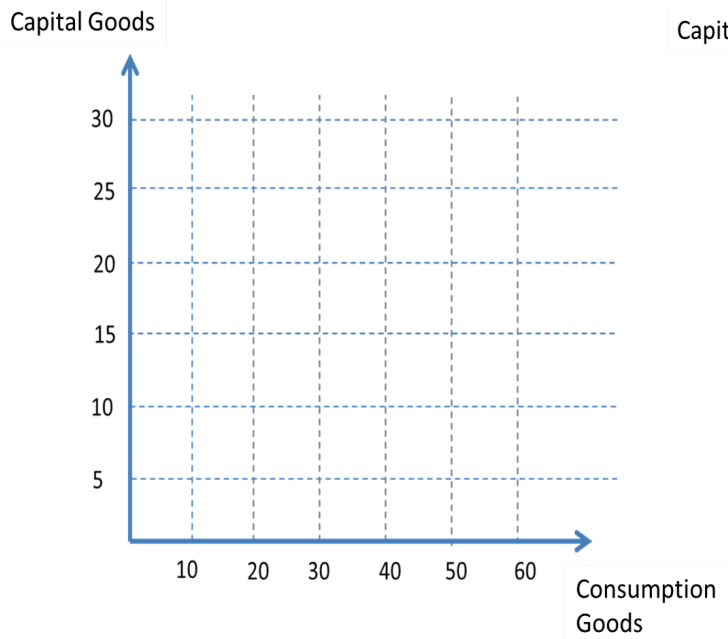
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## 06. Concepts relating to “a point inside PPC”



- A situation that depicts a point inside the PPC can take place due to two reasons
  1. Unemployment & Underemployment of Resources (not achieving full employment)  
Ex:-
    - a. Unutilized farm lands due to reasons such as land disputes, drought
    - b. Underutilization of labour due to strikes and other labour related issues
    - c. Unutilized capital due to management issues
    - d. Underutilization of production capacity due to reduction in consumer demand
    - e. Economic recession
  2. Inefficiencies in resource utilization (not achieving full production)  
Ex:-
    - a. Management inefficiencies and resource wastage
    - b. Not using best available technology
    - c. Inefficiencies due to political interferences
    - d. Capable workers are not contributing to production due to reasons such as racial discrimination, religious discrimination, gender discrimination etc.

### 07. Difference between 'a point below PPC' and 'a point moving inside to PPC'



### A Point Below PPC

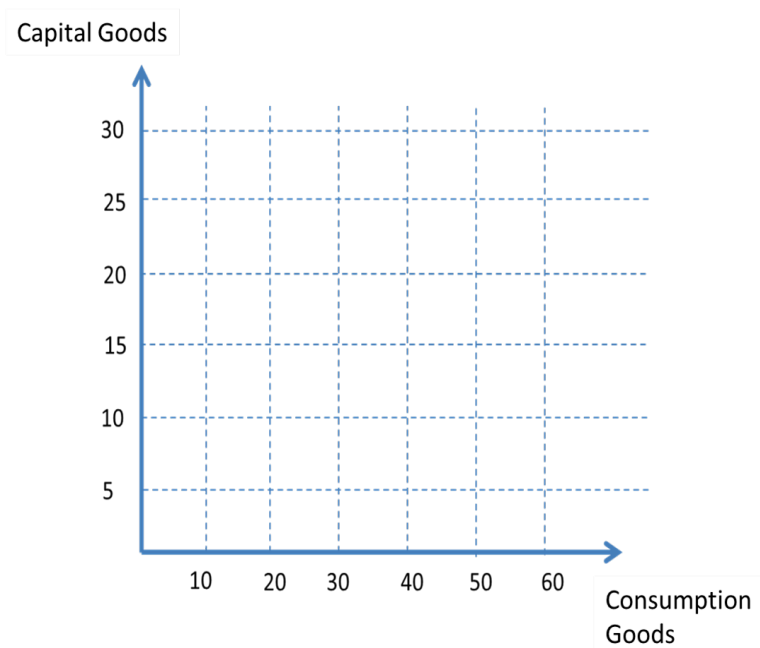
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### A Point moving inside to PPC

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## 08. Concept of “Zero opportunity cost”

- Zero opportunity cost is the situation that a production can be carried out (selection can be made) without sacrificing from any other product (without sacrificing any other choice)
- There are several situations that an economy will experience zero opportunity cost.
  - a. Utilizing unemployed resources in to the production.
  - b. Utilizing free resources (non-economic resources) to production.
  - c. Utilizing resources those have no alternative benefits to production.



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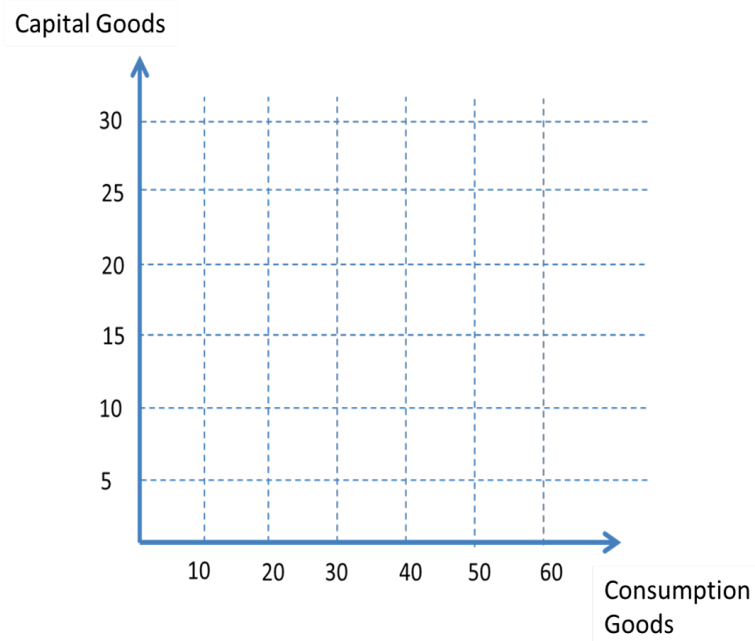
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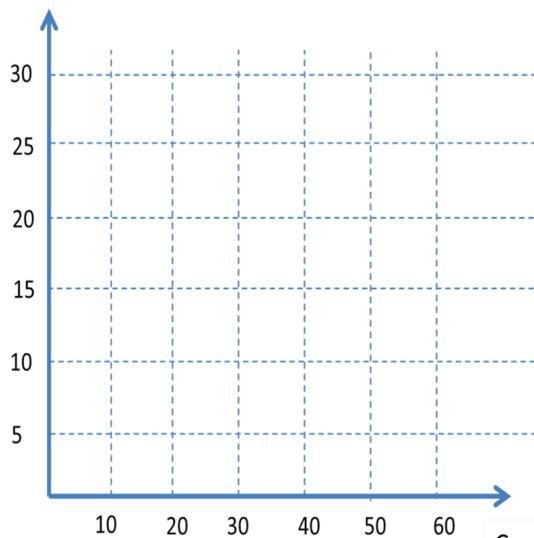
**08. Increasing Production without opportunity cost**

- In situation where when,
  - a. There is unemployment or under employment of resources or
  - b. There is inefficiency in the economyproduction of one product or production of both products can be increased without incurring an opportunity cost.
- Therefore when the current production point lies below PPC, production can be increased without an opportunity cost.

## 09. Difference between economic “recession” & “depression”

- Economic recession is a situation where real output, employment and real income of an economy falls for more than few months (at least 2 quarters).
- Even though output of the economy falls during a recession potential output (production possibility) does not get affected. Hence during **a recession production will be below PPC whilst having no change in PPC.**
- A prolonged recession for a long period of time (several years) creates depression. Thus, depression is the peak of recessionary situation.
- During a depression real output of the economy falls for several years. As a result capital stock of the economy can get depleted and technology can get outdated. As a result total **PPC will get shifted to left.**

Capital Goods



Consumption Goods

### Economic Recession

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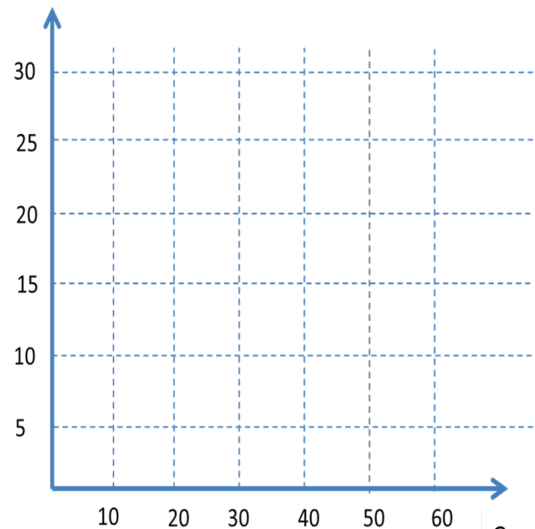
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Capital Goods



Consumption Goods

### Economic Depression

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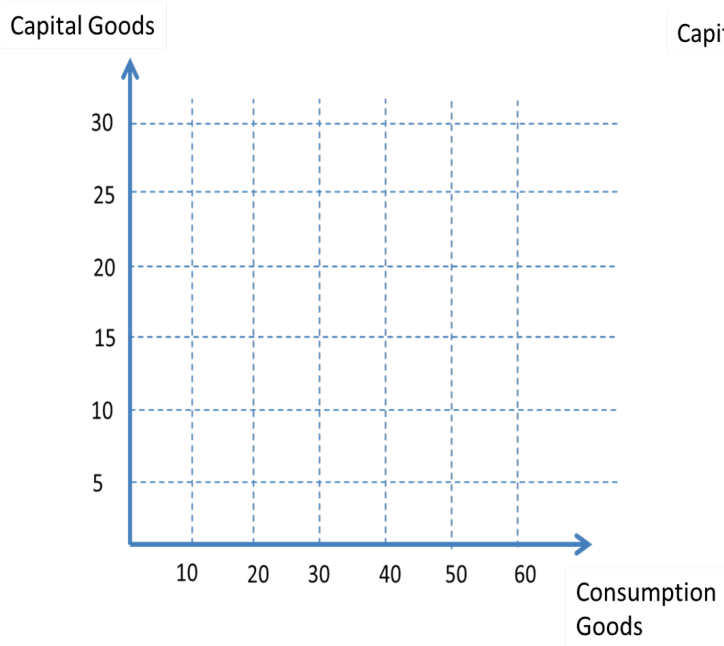
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## 10. Imposing economic embargo to a country

- In order to protest policies of another country a government or international organization orders to restrict commerce or exchange with that country.
- Due embargo it can either affect the production possibility of the economy on which embargo is imposed (if investment & technology is restricted) or it might not affect the production possibility of that economy ( if only foreign trade is restricted).



**Embargo affect Production Possibility**

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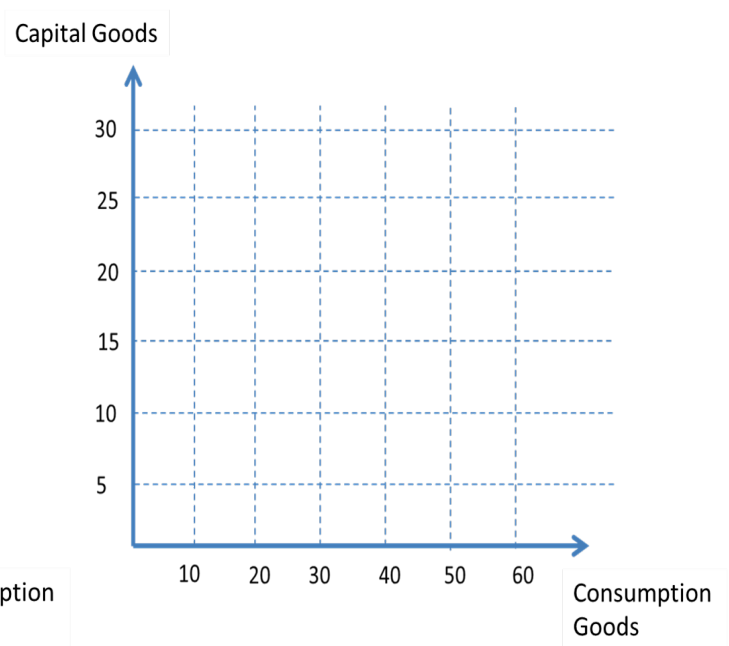
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**Embargo does not affect Production Possibility**

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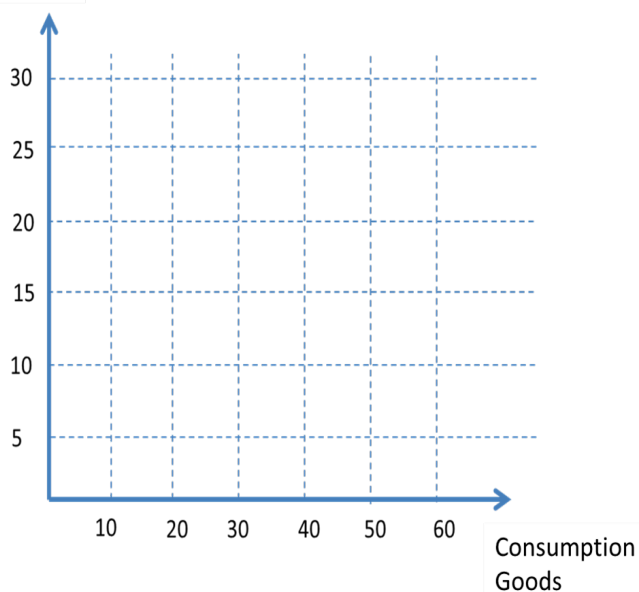
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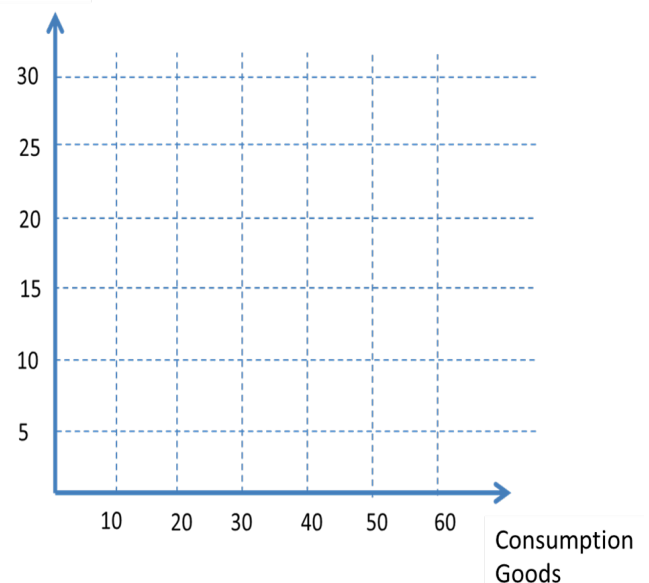
## 11. Productive Efficiency & Allocative Efficiency

- Productive efficiency means an economy is achieving maximum resource efficiency and thereby producing its output at lowest resource cost. By any point on PPC productive efficiency can be depicted.
- Allocative efficiency means an economy is producing an output combination which is best suited for that particular economy. Best interest of the economy is reflected from demand and supply for each product. Thus, in order to achieve allocative efficiency economy has to pick one of the production combinations on PPC based on demand and supply for each product that they produce.

Capital Goods

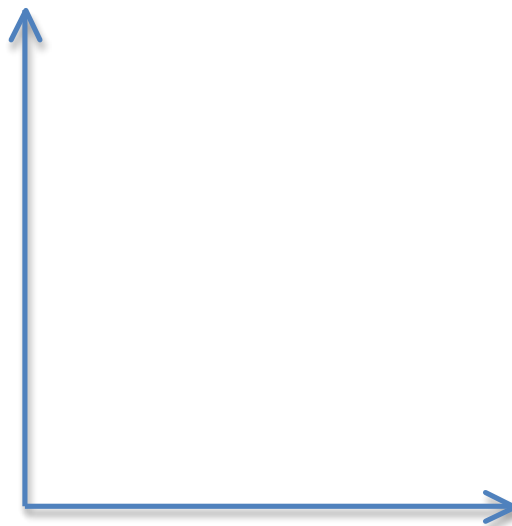


Capital Goods



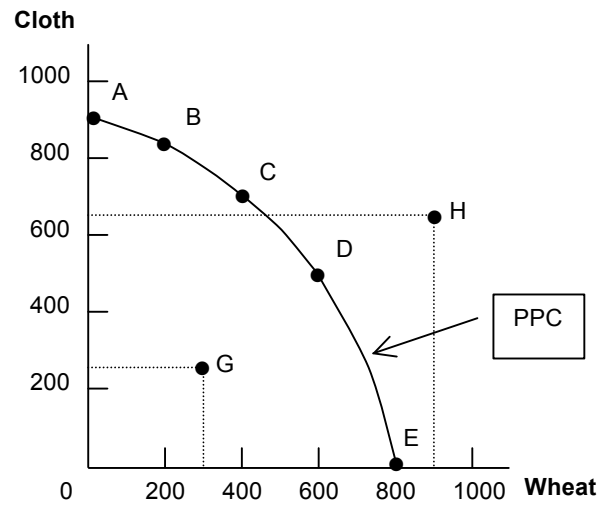
## 11. Benefits of International Trade

- If a country has not gone in to international trade such country can only consume all that they can produce.
- However, through international trade there is a possibility that a country can consume beyond its maximum production.
- In order to get this advantage from international trade, country should specialize in what they can best at producing and generate an excess production (specialization benefit).
- This excess production can be traded with another country for goods that the former country is bad at producing and former country will be able to consume higher amount than what they could produce in their country. (Exchange benefit)
- Latter country can follow the same and both countries will be able to enjoy mutually beneficial trade and both countries will be able to consume beyond their PPC.



1. The following table and diagram describes the production possibilities curve for a society.

	Wheat	Cloth
A	0	900
B	200	850
C	400	700
D	600	500
E	800	0



If society is at point B, what is the opportunity cost of producing 200 additional units of wheat?

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What is the opportunity cost of wheat if production is changed from exclusive production of cloth (A) to producing 400 units of wheat (C)?

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Why should society not produce at point G? Is there a possibility of society ever producing this combination?

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Can society produce at point H? Will it ever be possible to produce this combination?

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As society moves from point A to E, what is happening to the opportunity costs of wheat production?

Calculate the opportunity costs as you move from one combination to the next, beginning with A?

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2. Following details are regarding output combinations of 2 goods that can be produced in a particular economy when all resources have been utilized at the maximum efficiency level, where technology will be constant.

Output combination	Motor Vehicles (Units)	Computers (Units)
A	200	0
B	150	200
C	100	400
D	50	600
E	0	800

- a) Based on above data, draw the P.P.C for the above economy by taking motor vehicles in the vertical axis and computers in the horizontal axis.



- b) Calculate the opportunity cost of motor vehicles (in terms of computers) and computers (in terms of motor vehicles) when moving from the product combinations B to C.

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- c) Calculate the opportunity cost of motor vehicles (in terms of computers) and computers (in terms of motor vehicles) when moving from the product combinations A to D.

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3. The product combinations of simple economy which produces only two goods namely food and cloth area as follows.

Product Contribution	A	B	C	D	E	F
Food Production	0	10	20	30	40	50
Opportunity cost of food	-	1	2	3	4	5
Cloth production	150	—	—	—	—	—

- a) Fill in the blanks relevant for cloth production

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b) Draw the PPC which indicates food in horizontal axis and cloth in vertical axis.



4. In a hypothetical economy where tea and coffee is produced following equation shows its production possibility. It is assumed that there is a identical resource compatibility between these two industries.

$$\text{Coffee} = 1000 - 5 (\text{Tea})$$

a. Construct production possibility schedule

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b. Draw Production possibility curve (Horizontal Axis –Tea & Vertical Axis –Coffee)



c. What is the opportunity cost of producing tea?

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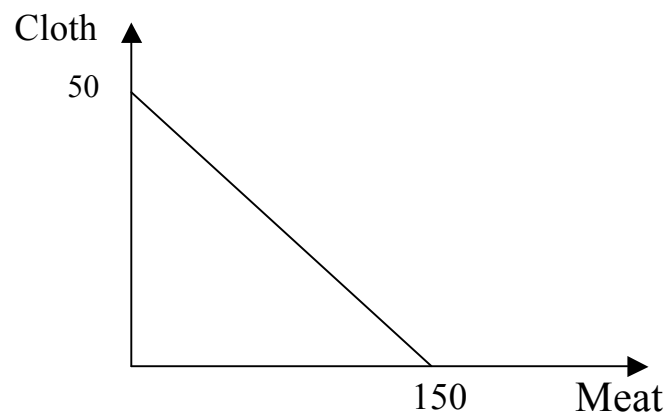
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d. What is the opportunity cost of producing coffee?

5. Following graph show production possibility of a hypothetical economy.



- a. What is the opportunity cost of producing cloth?

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- b. What is the opportunity cost of producing meat?

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c. How much of cloth is produced when 100 units of meat is produced?

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d. How much of meat is produced when 10 units of cloth is produced?

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## Section II: Past Paper Questions (Essay)

### AL 2015

- (I) Describe, using production possibilities curves, how economies can grow faster if they are willing to cut back on current consumption.
- (II) Are all point along a production possibilities frontier equal in terms of economic efficiency? Explain your answer.

### AL 2014

- (i) Explain production possibility curve using a diagram.
- (ii) Explain the reasons for increasing opportunity cost when resources are utilized in production
- (iii) Explain the following events by using production possibility curve diagrams.
- Returning of a significant number of professionals who hand been in foreign countries
  - Destruction of capital resources of a country due to a natural disaster.
  - Use of unutilized rural resources in production due to the expansion of road network
  - A rapid expansion of the tourism industry in comparison to the garment indus
- (iv) The combinations of goods X and Y which can be produced in an economy under the given technology with the full utilization of existing resources are given in the following table.

Product Combinations	Units of X	Units of Y
A	0	150
B	20	140
C	40	125
D	60	105
E	80	70
F	100	0

- Calculate the opportunity costs between different product combinations (A-B, B-C, C-D, D-E AND E-F) of this economy.
- According to the information given in the above table, will there be an opportunity cost when the economy shifts from producing 40 units of X and 60 units of Y to 60 units of X and 80 units of Y? Give reasons for your answer.

**AL 2013**

- (1) How does the production possibility frontier help to illustrate the microeconomic and macroeconomic issues in the economy?

**AL 2010**

- (i) What are the assumptions on which the production possibilities curve is based?
- (ii) What factors or events could cause an inward shift of the production possibilities curve?
- (iii) Construct a production possibilities curve (PPC) for a country facing increasing opportunity costs and show how the following events can be represented in a PPC framework.
- a large number of skilled workers emigrating to other countries
  - a recession
  - a new and better fertilizer is invented
  - economic growth
- (iv) Using economic analysis examine the implications of a relocation of resources from consumer goods to capital goods in an economy.

**AL 2008**

- (i) What are the assumptions for a given production possibilities curve?
- (ii) How does the production possibilities curve illustrate production efficiency?
- (iii) Explain how production possibilities curve might be used in assessing a country's economic performance.

**AL 2006**

(A) Draw a production possibilities curve reflecting increasing opportunity costs or an economy producing two goods. Public sector goods (vertical axis) and private sector goods (horizontal axis). The economy is currently producing at point A which is located on the midpoint of the production possibilities curve and show it on the diagram.

(B) Mark the following points on your diagram:

- Point B which shows production following the election of a new government which privatizes many public sector services but maintains full and efficient employment.
- Point C where unemployment is present in the economy.
- Point D where the economy is in a recession
- Point E where the state takes over production of all goods and services in the economy.

- (C) Now draw two new production possibilities curves on the same diagram to show the following
- (i) The position after a devastating war has hit the economy.
  - (ii) There is an increase in productivity by 50% in the public sector goods and by 100% in the private sector goods

**AL 2004**

1. Assume that a country producing a combination of automobiles and computers is at a point on the production possibilities curve with increasing opportunity cost. Draw separate diagrams representing automobiles in the horizontal axis and computers in the vertical axis to show how the following events affect the production possibilities curve. Give an explanatory note on each of your diagrams.
  - (i) There is a substantial net out-migration of skilled computer workers.
  - (ii) There is a decrease in the productivity of computer workers, but no change in employment within either industry.
  - (iii) Technological progress causes some workers in the automobile industry to become unemployed, but this has no effect on the computer industry.
  - (iv) There is a decrease in the demand for automobiles causing unemployment in that sector but no change in the demand for computers.
  - (v) The demand for computers increases and the demand for automobiles decreases, but there is no change in employment within either industry.

**AL 2003**

- (i) How does the production possibility frontier illustrate scarcity? Explain your answer with a diagram.
- (ii) What does the concave shape of the production possibility frontier indicate about resources and opportunity costs?

**AL 2002**

1. Briefly state the economic effects of the following developments using production possibility boundary diagram.
  - (i) Drop in agricultural production as a result of a drought
  - (ii) Power crisis leading to a cut in electricity supply every day
  - (iii) Destruction of infrastructure facilities as a result of war
  - (iv) Output increases following the privatisation of state enterprises
  - (v) Implementation of a skill development programme for workers in both industries.

















**Rule of 3 X 10**

**Plot a Point**

**Move a point**

**Move the curve**

