

VIDYA BHAWAN BALIKA VIDYA PITH

शक्तिउत्थानआश्रमलखीसरायबिहार

Class 11 commerce Sub. ECO/A Date 6.9.2020

Teacher name – Ajay Kumar Sharma

Introduction to Economics

1.5.5 Shifts in Production Possibility Curve

With discovery of new stock of resources or an advancement in technology, the productive capacity of an economy increases. The economy can produce more good X or more good Y or more of both goods. The effect of economic growth on the production possibility curve to a country is illustrated in Fig. 1.5, Fig. 1.6 and Fig. 1.7.

PPC will shift to the right when:

- (a) New stock of resources are discovered.
- (b) There is an advancement in technology. **For example:** Government policy of 'Make in India'.

Look at this example: When training institutes come up, they provide training which raises efficiency of workers. PPC shifts outside.

PPC will shift to the left when:

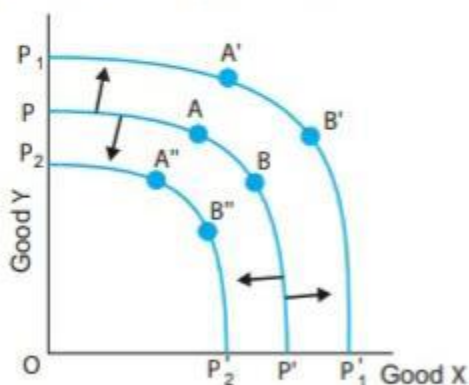


Fig. 1.6 $P_1P'_1$ shows Economic Growth

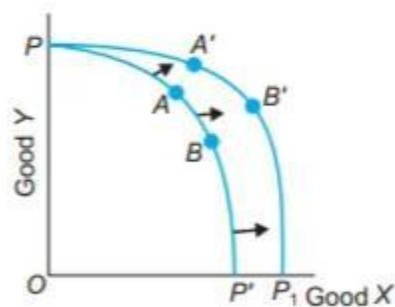


Fig. 1.7 PP_1 shows Economic Growth

(a) Resources are destroyed because of national calamity like earthquake, fire, war, etc.

For example: When maggi product was destroyed.

(b) There is use of outdated technology.

In Fig. 1.6, there is an outward shift of the production possibility curve from PP' to $P_1P'_1$. It shows economic growth of an economy. Economic growth has shifted the production possibility curve outwards and made it possible for an economy to **produce more of both the goods**. The economy has **not stagnated** but has developed over a period of time. In a reverse situation, if due to earthquake and floods mass destruction takes place then the country will stagnate. The PPC curve will shift inwards as $P_2P'_2$.

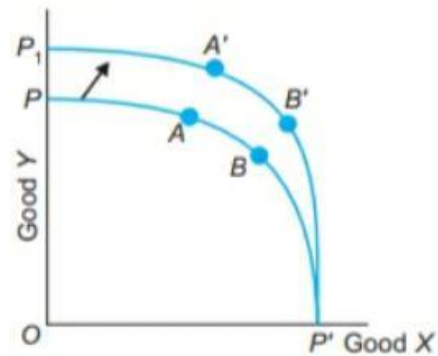


Fig. 1.8 $P_1P'_1$ shows Economic Growth

In Fig. 1.7, improvement in technology takes place only in one good, good X . There is no improvement in the technology of producing good Y . Thus, **more of good X** can be produced. Production possibility curve PP' expands to PP_1 , showing economic growth.

In Fig. 1.8, improvement in technology takes place only in good Y . Thus, economy produces **more of good Y** . Production of good X remains the same. Production possibility curve PP' expands outward to $P_1P'_1$, showing economic growth.

1.6 OPPORTUNITY COST

In economic analysis, the concept of opportunity cost is widely used. **Opportunity cost is defined as the cost of alternative opportunity given up or surrendered.** For example, on a piece of land both wheat and sugarcane can be grown with the same resources. If wheat is grown then opportunity cost of producing wheat is the quantity of sugarcane given up.

It is clear that question of opportunity cost arises whenever resources have alternative uses. These resources are not always physical resources, they may be monetary resources or time. **For example,** the opportunity cost of spending in a restaurant, may be a book that you could have purchased by spending the same amount. Also, opportunity cost of time devoted to studies, effort or work is the leisure or play that could have been enjoyed. In terms of production possibility curve, the slope of the curve at every point measures the opportunity cost of producing more units of good X in terms of good Y given up.

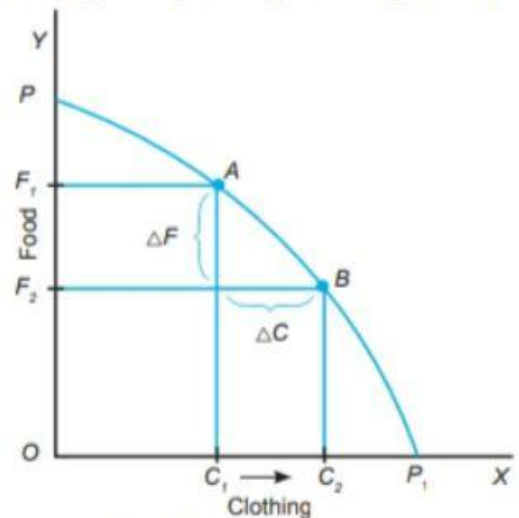


Fig. 1.9 Opportunity Cost

The concept of opportunity cost can be shown with the help of alternative options given by *PPC*.

In Fig 1.9, **movement** along production possibilities frontier, PP_1 , shows a decrease in the output of food and increase in output of clothing. For example, movement from point A to point B shows decrease in food production from F_1 to F_2 (ΔF) and increase in the production of clothing from C_1 to C_2 (ΔC). It implies that ΔC amount of clothing can be produced only by sacrificing ΔF amount of production of food. It means that ΔF amount of food becomes an opportunity cost for ΔC amount of clothing.

Illustration 1. Suppose you choose Science stream. You had two other options: the Arts stream (A) or the Commerce stream (C). If you would have chosen (A), you would have expected a career offering you ₹ 3 lakhs annually. If you would have chosen (C), you would have expected a career giving you ₹ 4 lakhs annually. What is your opportunity cost of choosing the Science stream?

Solution. The opportunity cost of choosing the Science stream is the alternative opportunity given up. There are two alternative opportunities: choosing Arts stream or the Commerce stream. The opportunity cost of choosing Science stream is ₹ 4 lakhs (next best alternative use).

Marginal Opportunity Cost

Production possibility curve is also called **transformation curve** because looking at it, it appears as if one good is being transformed into another. A movement along *PPC* implies that more of good X is produced by sacrificing the production of a certain amount of good Y .

PPC is also called **opportunity cost curve** because slope of the curve at each and every point measures opportunity cost of one commodity in terms of alternative commodity given up. The rate of this sacrifice is called the **Marginal Opportunity Cost**.

Marginal Rate of Transformation (MRT). It is defined as the ratio of number of units of good sacrificed to produce one additional unit of other good. *MRT* measures the slope of *PP* curve. $MRT = \text{slope of } PPC$. Actually *MRT* is the rate at which the transfer of resources from production of one good to production of other good takes place.

Shape of *PP* curve depends upon the *MRT* or *MOC*. Let us see some numerical illustrations and their respective *PP* curves.

Table 1.4 shows how marginal opportunity cost is calculated in a hypothetical example of two goods X and Y with their production values.

Table 1.4 Marginal Opportunity Cost along a PPC

Production of Good X	Production of Good Y	$MRT = \frac{\Delta Y}{\Delta X}$	MOC
0	20	—	—
1	19	1Y : 1X	1
2	17	2Y : 1X	2
3	14	3Y : 1X	3
4	10	4Y : 1X	4
5	5	5Y : 1X	5

The table shows that, if the production of good X increases from 1 unit to 2 units, then two units of good Y (19 – 17) have to be foregone. Thus, marginal opportunity cost of good X is equal to 2 units of good Y. In the same way, marginal opportunity cost for other situations can be worked out. It is clear from the table that marginal opportunity cost increases from 1 to 2, 2 to 3, 3 to 4 and 4 to 5. **It shows the law of increasing marginal opportunity cost. Its economic meaning is that to produce one more unit of good X, increasing units of good Y have to be sacrificed.**

Illustration 2. An economy produces two goods, T-shirts and Cellphones. The following table summarises its production possibilities. Calculate the marginal opportunity cost of T-shirt at various combinations.

T-shirts (in millions)	Cellphones (in thousands)
0	90,000
1	80,000
2	68,000
3	52,000
4	34,000
5	10,000

Solution.

Marginal Opportunity Cost

T-shirts (in millions) (T)	Cellphones (in thousands) (C)	Marginal Opportunity Cost of T-shirts (in Cellphones) = MRT $\frac{\Delta \text{ in good given up}}{\Delta \text{ in good gained}} = \frac{\Delta \text{ in Cellphones}}{\Delta \text{ in T-shirts}}$
0	90,000	—
1	80,000	10,000 C : 1T
2	68,000	12,000 C : 1T
3	52,000	16,000 C : 1T
4	34,000	18,000 C : 1T
5	10,000	24,000 C : 1T