
ECONOMICS
FINANCES
REVENUE
INFLATION
LEASING
DUMPING
ANALYST
DEVALUATION
DEPOSIT
LAW
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CURRENCY
VALORIZATION
GROSS DOMESTIC PRODUCT
EXPENDITURE
WORLD ECONOMY
MACROECONOMICS
MODEL
DEAL
CALCULATION
BUDGET
CAPM
WORLD
MONEY
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ECONOMY
ECONOMIC
PROFIT
REVENUE
SCIENCE
DEBIT
CLOSING
QUOTE
CALCULATING
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LIQUIDITY
DEFAULT
ANALYST
ACCOUNT
MICROECONOMICS
BARTER
BACKING
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GROSS
PROFIT
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NETTING
INFLATION
BACKING
VALUE
REVENUE
SCIENCE
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The Production Possibilities Model

The production possibilities curve (production possibilities frontier) model may be used to show the concept of scarcity, choice, opportunity cost and a situation of unemployed resources and inefficiency.

A graph that shows the combinations of output that the economy can possibly produce given the available factors of production and the available production technology.

Conditions

Two conditions must be met to produce the maximum goods/services.

1. All resources must be fully employed.
2. All resources must be used efficiently. (productive efficiency)
   - ✓Efficiency: resources are being used in the best possible way to avoid waste.

A simple economy

- Producing one computer consumes 100 hours of labour
- Producing one iPhone consumes 20 hours of labour.
- Total available labour resources: 10,000 hours.
- Fixed quantity and quality of resources
- Fixed technology

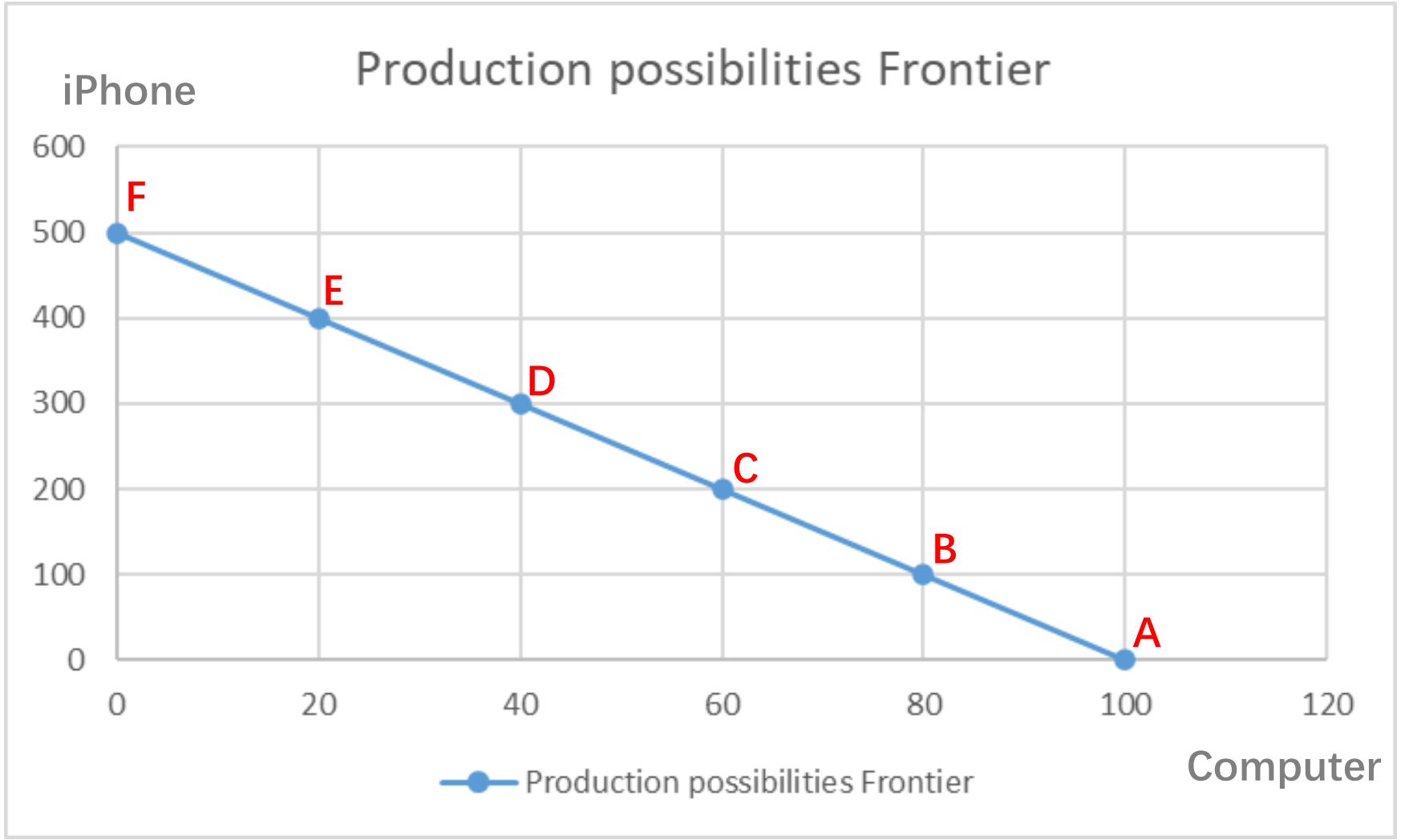
	Labour hour		Production output	
	Computer	iPhone	Computer	iPhone
A	10,000	0	100	0
B	8,000	2,000	80	100
C	6,000	4,000	60	200
D	4,000	6,000	40	300
E	2,000	8,000	20	400
F	0	10,000	0	500

PPF illustration:

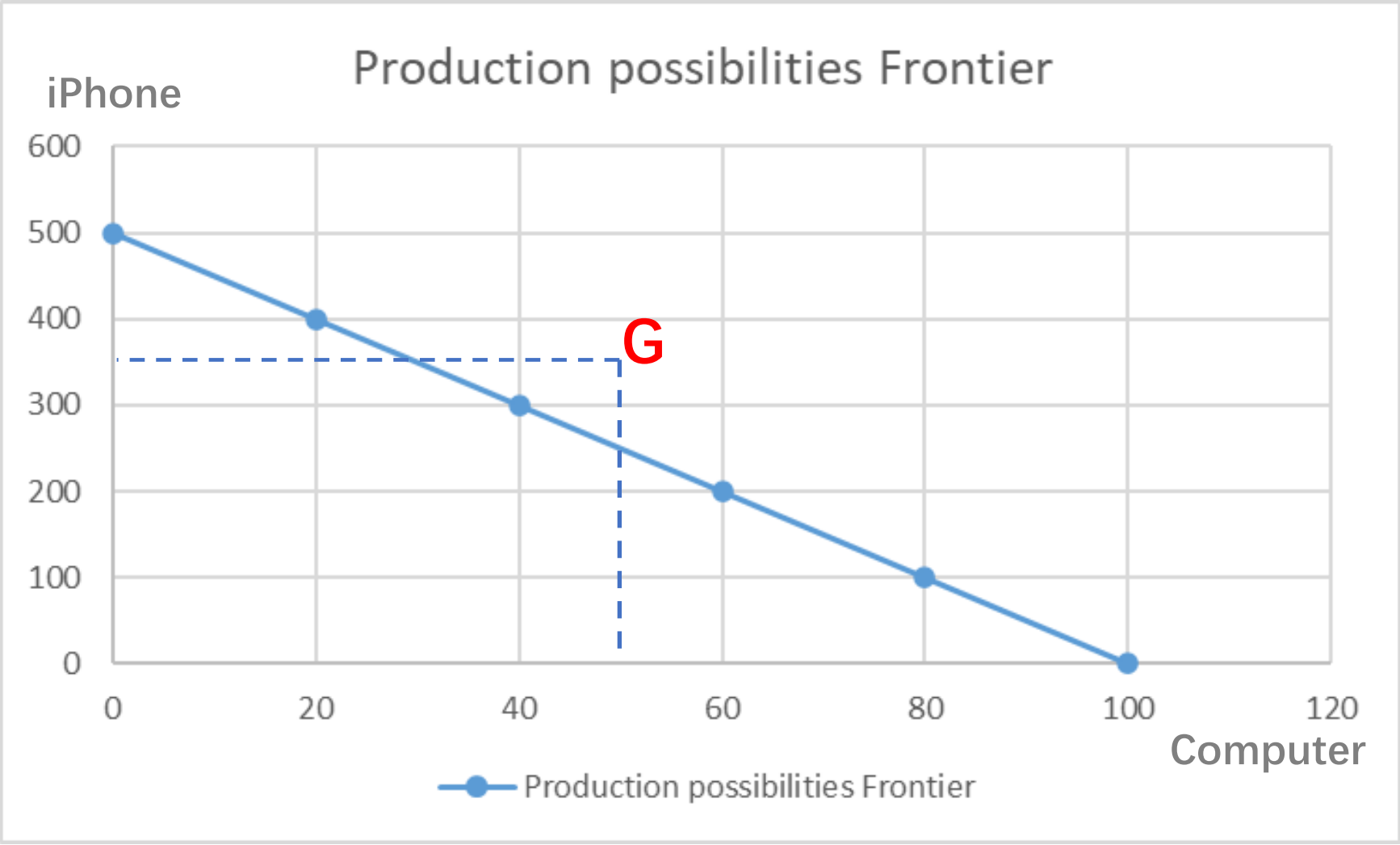
It represents all combinations of the maximum amounts of two goods that can be produced by an economy.

→ Production possibilities A to F

	Computer	iPhone
A	100	0
B	80	100
C	60	200
D	40	300
E	20	400
F	0	500



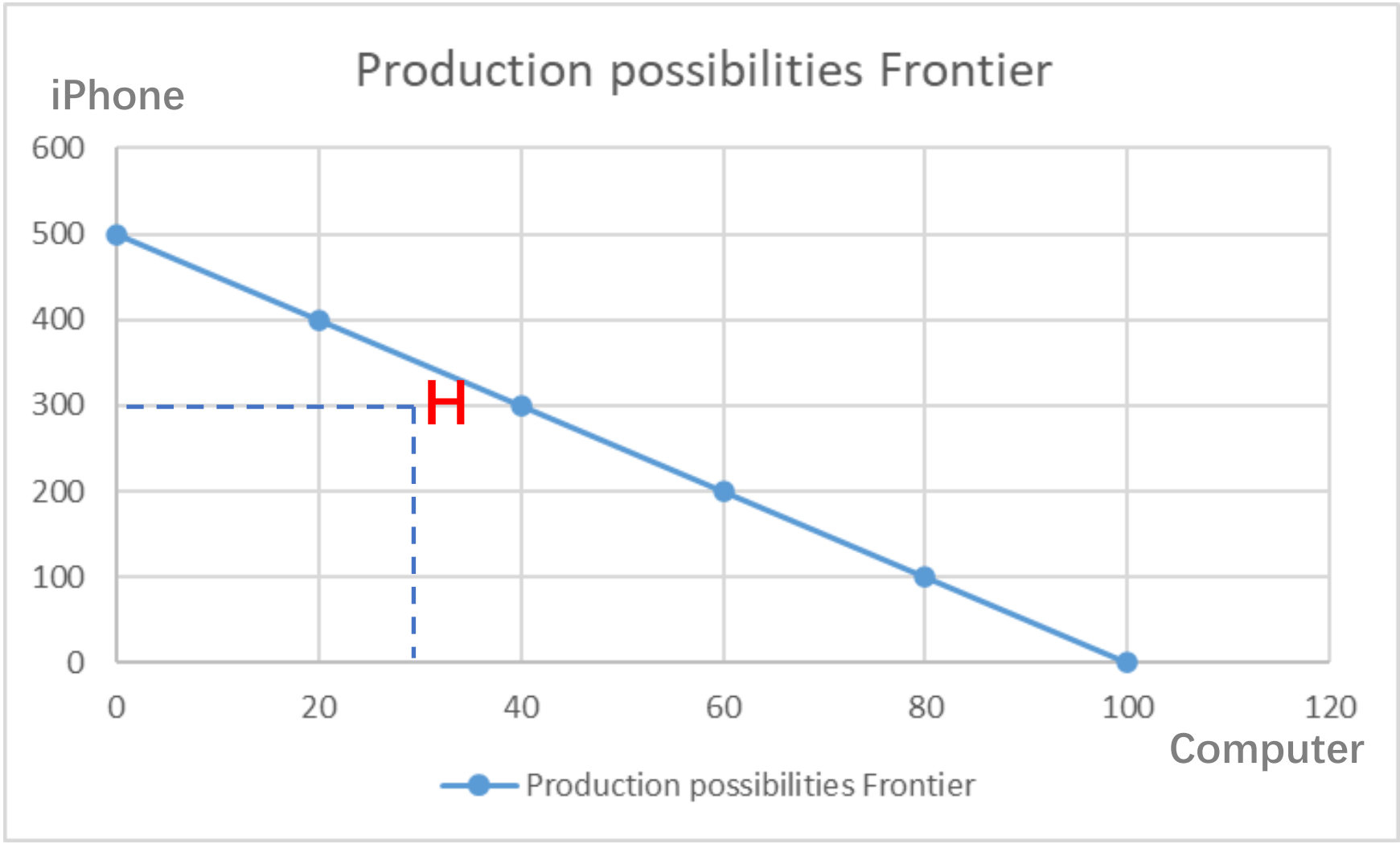
Points outside the PPF



Please find the production possibility of 50 computers and 350 iPhone in the graph, mark it as G. Is this production combination possible to achieve? Why or why not?

- Point G represents 50 computers and 350 iPhones. It cost 12,000 labour hours.
- It is impossible to achieve, because it exceed the total available labour hours.

Points inside the PPF



Please find the production possibility of 30 computers and 300 iPhone in the graph, mark it as H. Is this production combination possible to achieve? Why or why not?

- Point H represents 30 computers and 300 iPhones. It cost 9,000 labour hours.
- It is possible to achieve, but it is not efficient. The economy can increase more of either goods without sacrificing the others.

Sum up

Points	Possible?	Efficient?	Trade-off?
On the PPF: A to F	☑	☑	☑
Inside the PPF, like H	☑	☒	☒
Outside the PPF, like G	☒	☐	☐

The PPF illustrating the concepts of scarcity, choice and opportunity cost

- Because of **scarcity**, the economy cannot produce outside its PPC.
- Because of scarcity, the economy must make a **choice** about what particular combination of goods will be produced.
- Because of scarcity, choices involve **opportunity costs**.
  - Points on the curve, increase the production of A will sacrifice the production B.
  - Points inside the curve, it can increase production of both goods with no sacrifice, hence no opportunity cost.

PPF in real world

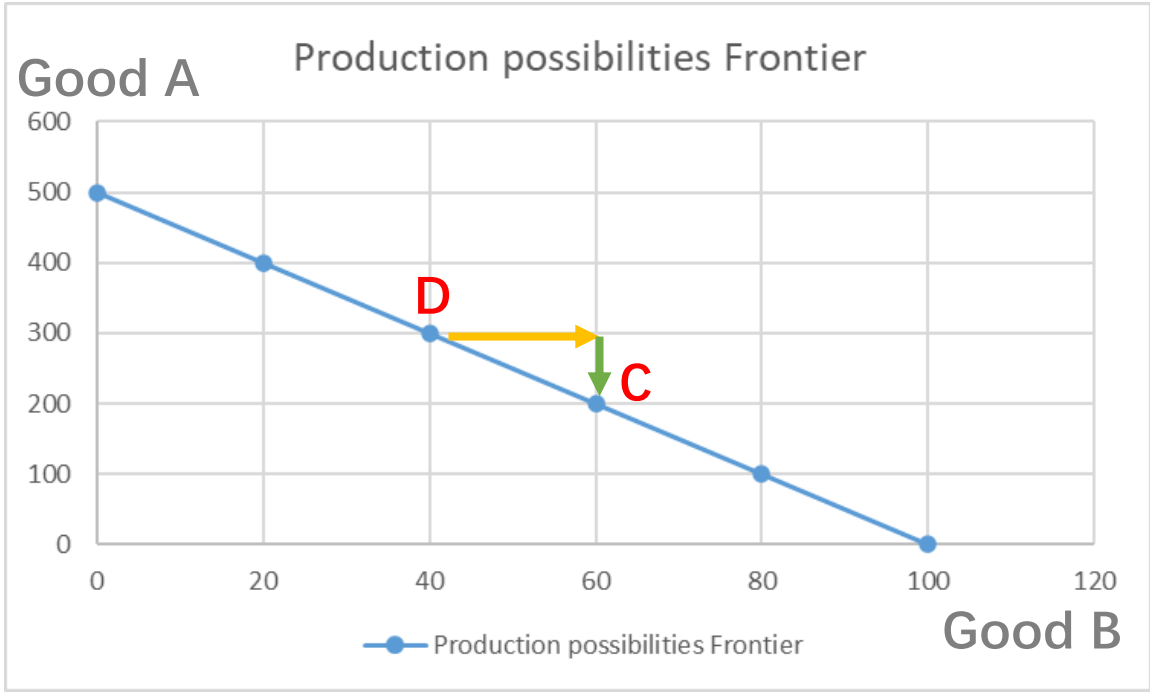
- In the real world, no economy is ever likely to produce on its PPC. An economy's **actual output** is **always at a point inside the PPC**, because in the real world all economies have some unemployment of resources and some productive inefficiency.
- The further away an economy is situated from its PPC, the greater its resource unemployment and inefficiency.

The Slope

- In PPF, The opportunity cost equals to the slope

$$\text{slope} = \frac{\Delta y}{\Delta x}$$

- The slope of a line is the **ratio of the vertical distance** covered to the **horizontal distance** covered as we move along the line.
- Greek letter △(delta) stands for the **change in a variable**. the slope of a line is equal to the "rise" (change in y) divided by the "run" (change in x).
- It shows how much one variable responds to changes in another variable
- When society moves from point D to point C, it gives up 20 computers to get 100 additional bicycles. The slope and the opportunity cost of each computer is 5 bicycles.

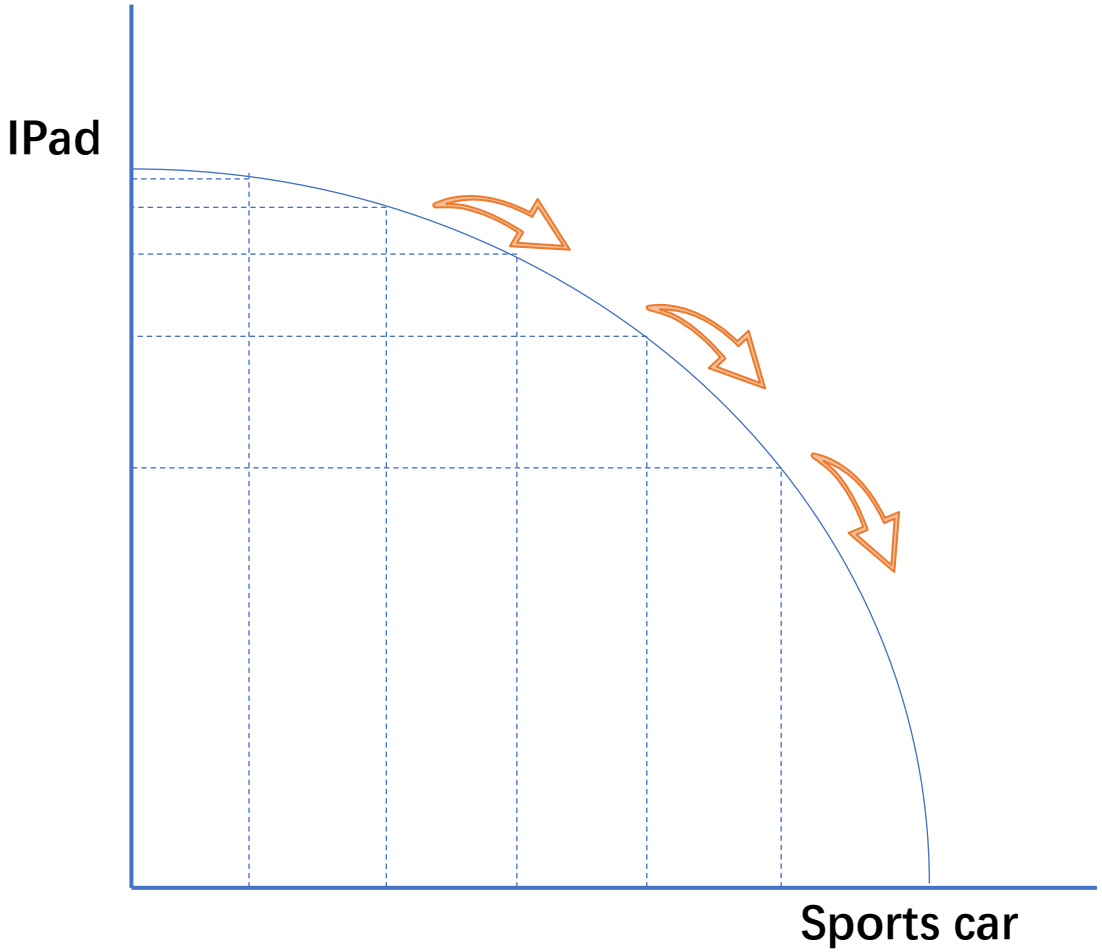


$$\text{Slope} = \frac{-100}{20} = 5$$

The shape of the PPF

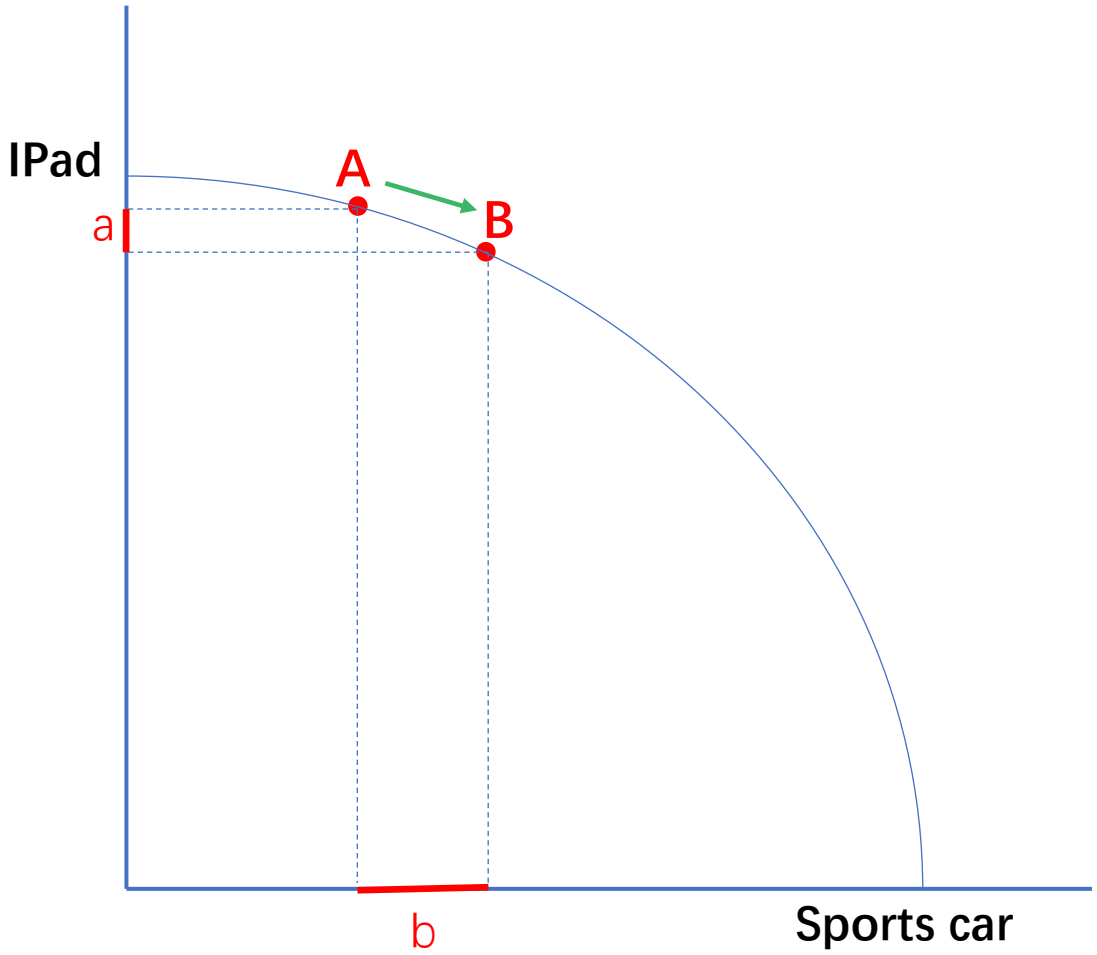
- When the factors of production are equally well suited to the production of both goods, like in our previous case of computer and iPhone, or in the case of basketball and volleyballs, PPF is a **straight line**, each unit change of one product leads to equal change of the other product. **Opportunity cost remains constant.**
- In many other cases, due to specialization of factors of production, which makes them not equally suitable for the production of different goods and services, the opportunity cost is not constant, the PPF will be **bowed shape.**

Example of Bowed shape PPF



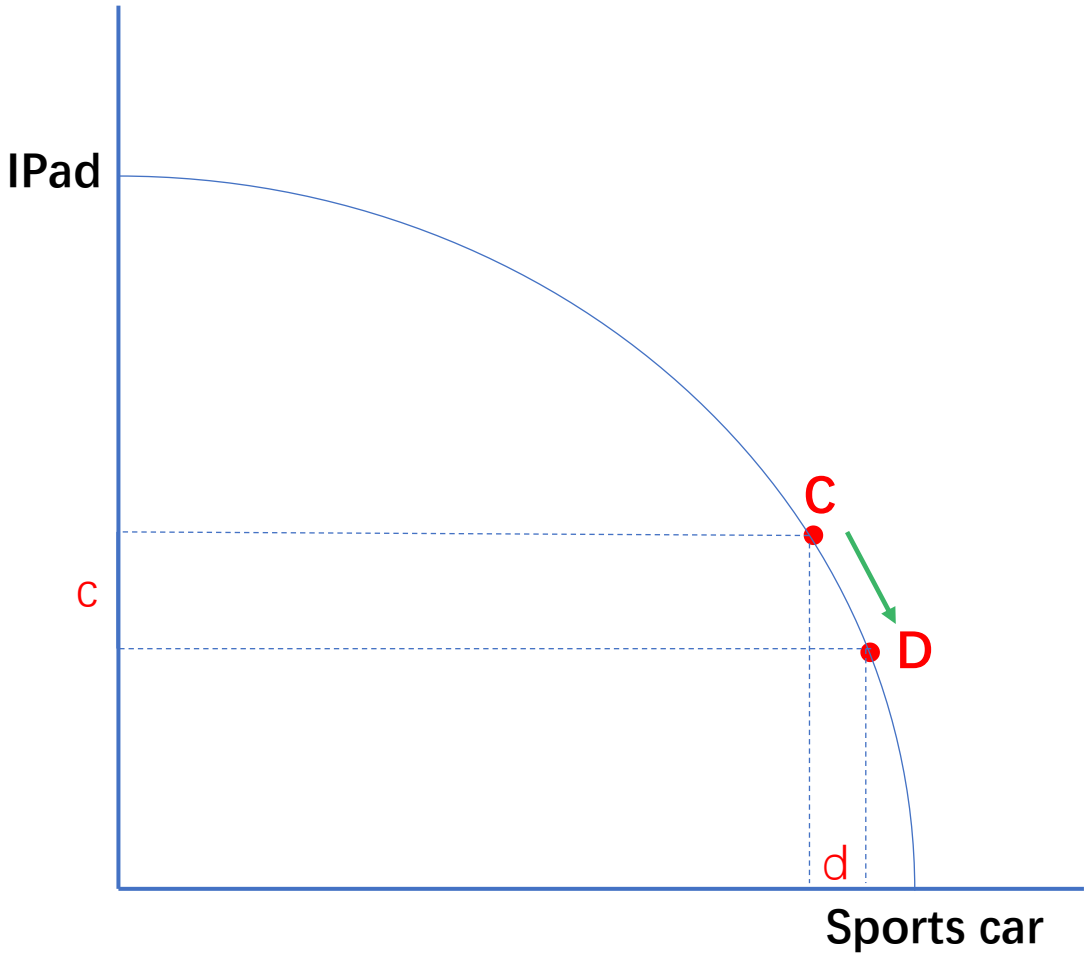
- The specialization of factors of production for IPad and sports car are very different.
- As the economy shift the factors of production from IPad to sports car, the curve become steeper.
- For each additional unit of sports cars produced, the opportunity cost increases as more IPad production will be sacrificed.

Example of Bowed shape PPF cont.



When the economy is using most of its resources to make IPad, such as at point A, the resources best suited to car production, such as skilled autoworkers, are being used in the IPad industry. Because these workers probably aren't very good at making IPad, so move from A to B, the economy will only lose small amount of IPad production (a) to achieve bigger amount of sports car production (b). The opportunity cost of a car in terms of IPad is small, and the frontier is relatively flat.

Example of Bowed shape PPF cont.

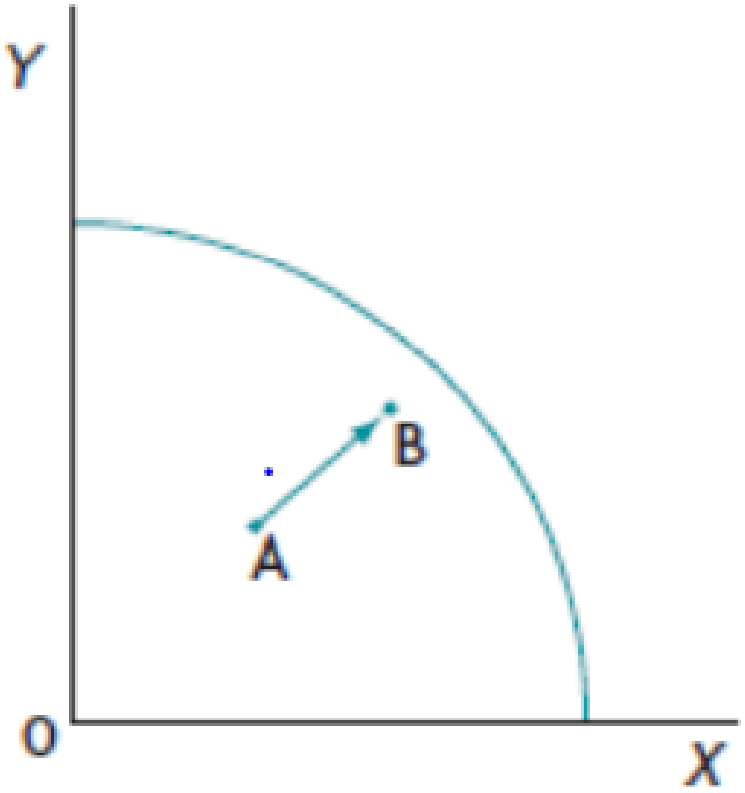


When the economy is using most of its resources to make sports car, such as at point C, the resources best suited to IPad industry, are being used in the car industry. Those resources are not that suitable for making sports car, so move from C to D, the economy will sacrifice a bigger amount of IPad(c) to achieve smaller amount of sports car (d). The opportunity cost of a car in terms of IPad is big, and the frontier is relatively steep.

Using PPC to illustrate economic growth

Economic growth: increases in the quantity of output produced in an economy over a period of time.

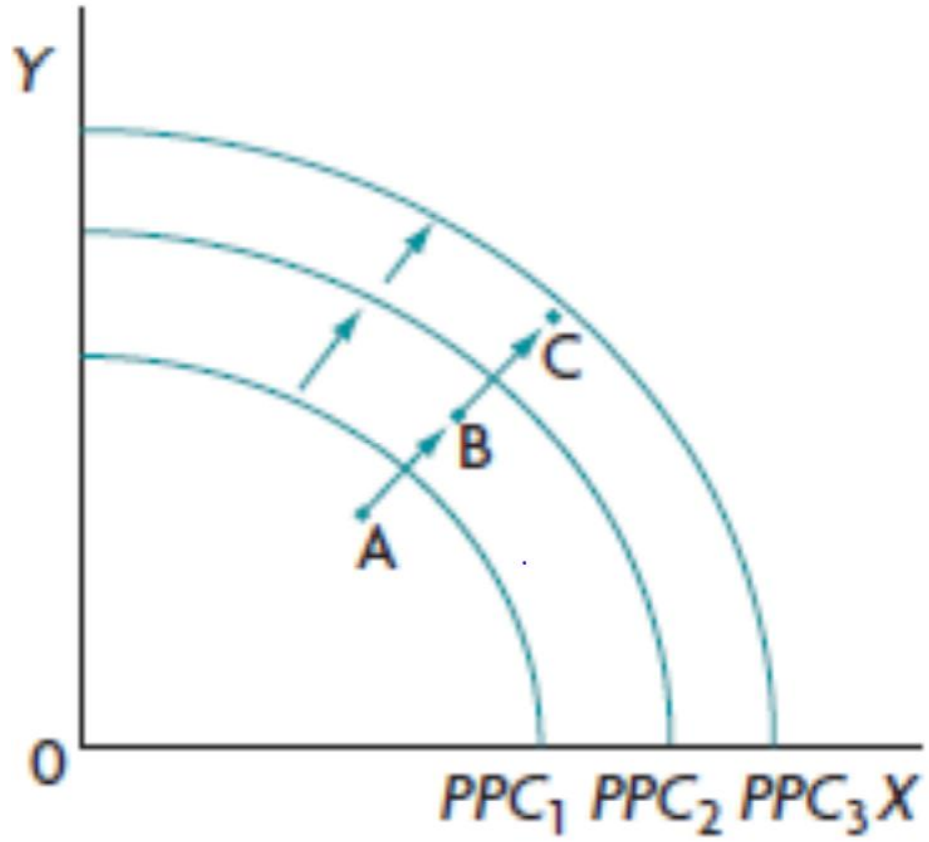
1. **Economic growth as an increase in actual output** by:
   - reduction in unemployment
   - Reduce inefficiency in production.



Using PPC to illustrate economic growth

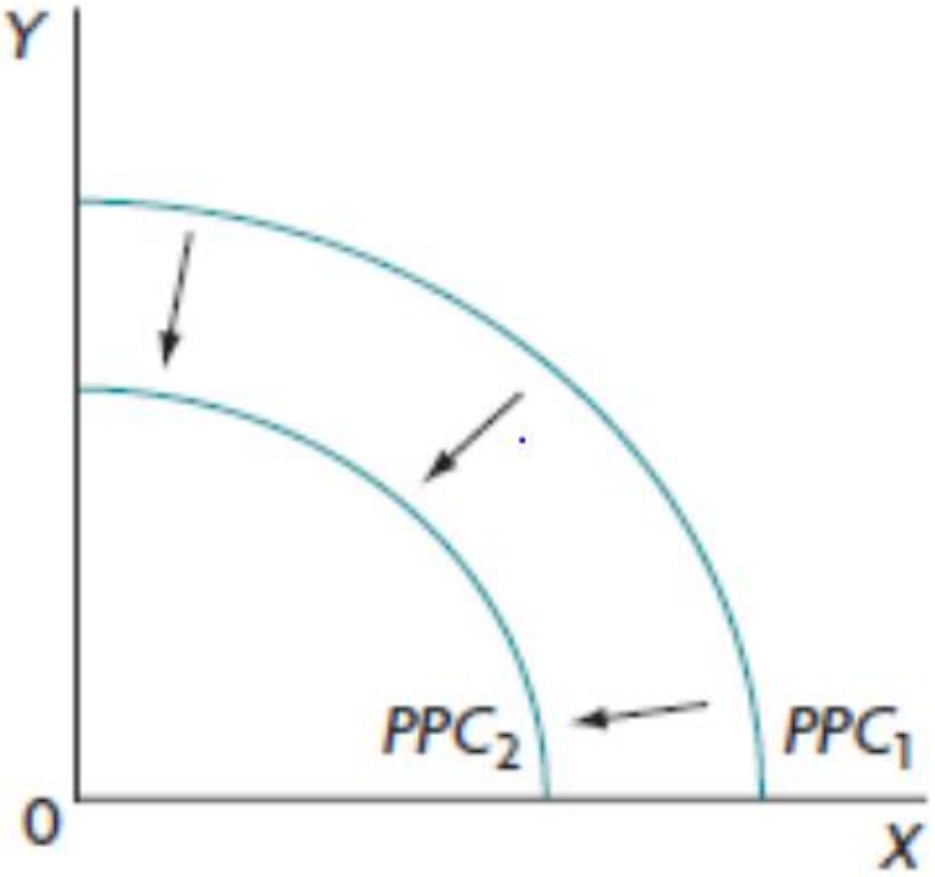
2. **Economic growth as an increase in production possibilities** by:
   - Increases in the quantity of resources
   - Improvements in the quality of resources
   - Technological improvements

* Scarcity and Opportunity cost still exist.



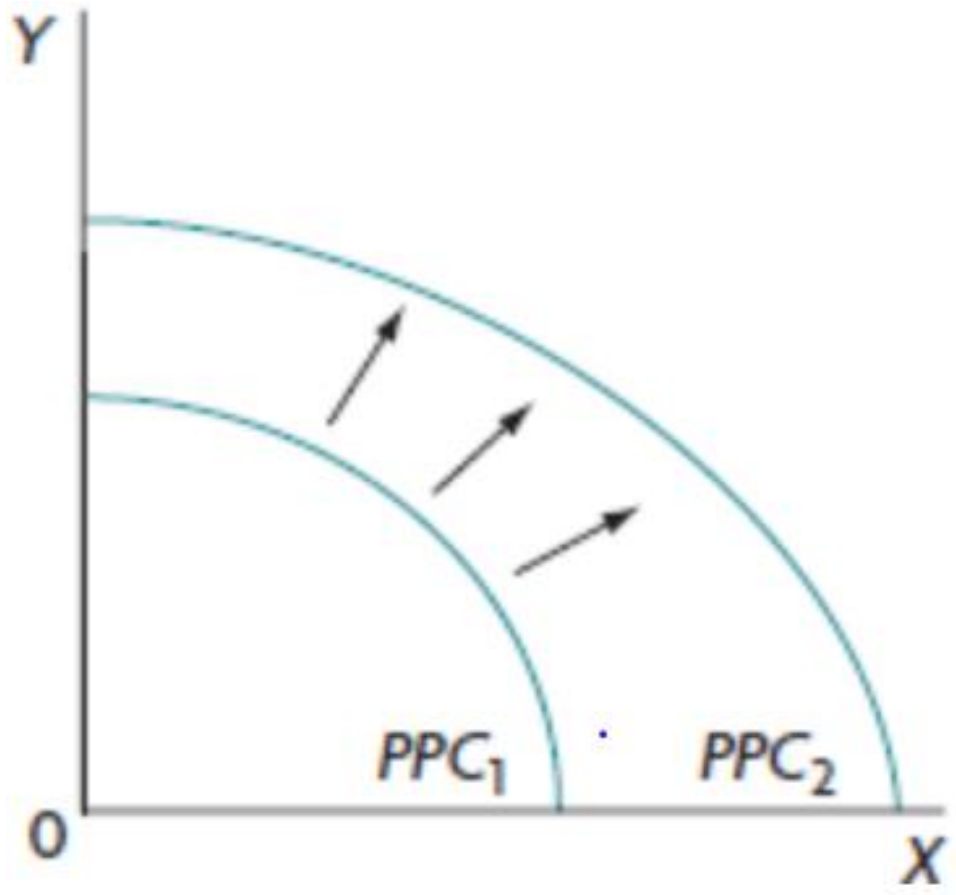
Using PPC to illustrate economic growth

3. When there is **decrease in production possibilities, the PPC shifts inward**. It caused by:
   - Decrease in the quantity of resources
   - Deterioration in resource quality



Using PPC to illustrate economic growth

4. **Non-parallel shifts of the PPC** (can be outward or inward)
   - Increases in the quantity of resources favouring the production of X good.
   - Improvements in the quality of resources or Technological improvements favouring the production of X good.



Actual growth V.S growth in production possibilities

- **Actual growth** is caused by reduction in unemployment and increases in efficiency in production. (movement inside or on the PPC)
- **Growth in production possibilities** is caused by increases in the quantity of resources, improvements in the quality of resources and technological improvements. (outward shift of the PPC)