

Econ-Hub **Rapid Revision Classes**

Production Possibilities Frontier (PPF)

BOOK [3]

Theory Recap Material [TRM]

2027 A/L Edition





Achieve your 'A' Grade



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Distinguishing ‘Potential Output’, ‘Actual Output’ and ‘Maximum Output’:

Potential output or Full employment level of output is the output level an economy can produce when all its presently available resources are fully employed, at their normal rate of usage or productivity, within a given period (i.e., when the economy’s available resource endowment is used at productive efficiency, at present).

Alternatively: potential output is the maximum sustainable output that can be produced without triggering rising inflation or inflationary pressure. It is not necessarily the absolute maximum output that an economy can produce.

Potential output is determined by factors such as:

- Stock or endowment of resources (quantity of resources)
- Productivity of resources (quality of resources)
- State of technology

Actual output is the output level that has been achieved in reality by a country, by using its production potential or capacity, during a given period of time.

All economies represent certain ‘Potential Output’, the actual output achieved by a given economy may either equal their potential output, be below the potential output or in certain situations may even be above the potential output for a short period of time.

Actual output is determined by factors such as:

- Stock or endowment of resources (quantity of resources)
- Productivity of resources (quality of resources)
- State of technology
- **State of Resource Utilization**

If an economy’s actual output is equal to their potential output within a given period of time, that means the economy is fully utilizing their stock of resources or their producing at productive efficiency.

Maximum Output: the **absolute maximum** output that an economy can or can produce. Production **above potential** is **not indefinitely sustainable**, while attempting to produce at maximum, **triggers rising inflationary pressures** (i.e., leading to inflationary output gap).



Also Relevant [1]:

Potential output is not an economy's absolute maximum output, while producing at a production combination outside the PPC (beyond potential output) may technically reflect maximum output and is temporarily possible. It's a practical impossibility for production to take place at the point of maximum output on a sustainable basis, in principle due to relative scarcity of productive resources, and inability to sustain abnormal (exploitive) rates of resource utilization.

Accordingly, there can be an **output gap** or **lag** within an economy during a given period of time. An output lag refers to a **difference between the potential output** and the **actual level** of output of a country within a given period of time. This is also referred to as the gross domestic product lag.

Positive Output Gap

- ✓ The actual output level of the economy is higher than the potential output level which represents the full employment level of output [**Actual > Potential**].
- ✓ When an economy attempts to sustain an output level above the potential level, there is an **excessive rate of resource utilization** than the average rate of resource utilization and the outcome of this is high wages, high profits and '**high inflation (demand pull inflation)**'
- ✓ AKA: **Inflationary or Expansionary Output Gap**

Deflationary Output Gap

- ✓ The actual output level of the economy is lower than the potential output level which represents the full employment level of output [**Actual < Potential**].
- ✓ At a phase of recession in a business cycle, an economy's resources cannot be fully utilized and become unemployed. The economy reports a negative output gap.
- ✓ AKA: **Deflationary, Recessionary or Unemployment Output Gap**

A 'Production Possibilities Frontier (PPF)

A PPF represents a line drawn by connecting the optimum (or maximum) alternative output combinations of two products (or product categories), which can be produced during a given period, when the given economy's total resource endowment (or total stock of resources), at the existing level of production technologies, which is used at productive efficiency (i.e., when using all available resources in production at their productivity).

Alternatively:

A production possibilities curve (PPC) shows the maximum possible output an economy can achieve during a given period, when all its currently available resources are fully and efficiently employed at the given technology.

[Source: P. Perera, 2020, p45]

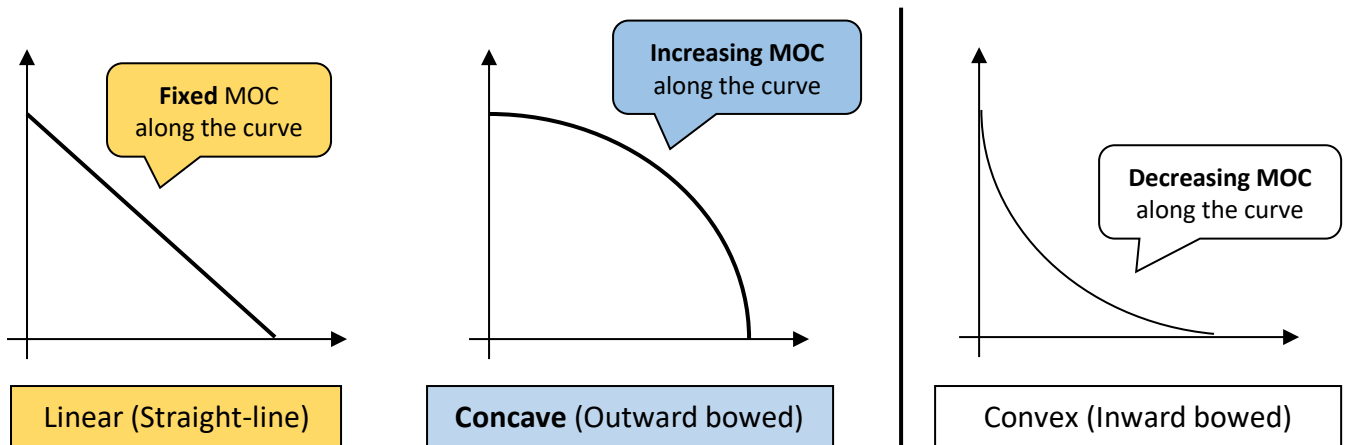
Principal assumptions used in constructing a PPF

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PPM Summary Illustration [Graphical Approach]

Potential Output → **PPC** it self

Actual Output → **A point** (An Alternative Product Combination)



AKA: Production Possibilities Boundary (PPB), Production Possibilities Frontier (PPF)

MOC: Marginal Opportunity Cost

Justifying the Assumptions of a PPF:

- [1] **The stock of resources available within the economy during the given period of time is expected to remain fixed, both in terms of quality and quantity**
 - A PPC is graphical representation of a country's potential output.
 - A change in stock or resources and productivity of resources shall change the country's potential output.
 - Therefore, when estimating potential output (to construct a country's PPC) at a given point of time, quality and quantity of resources is held constant
- [2] **The technology which is used to produce goods and services is held constant during the given period of time under consideration.**
 - A PPC is graphical representation of a country's potential output.
 - A change in technology, shall change the country's potential output.
 - Therefore, when estimating potential output (to construct a country's PPC) at a given point of time, technology is held constant
- [3] **The economy shall function at 'productive efficiency' (a combination of full employment of resources and full production)**
 - A PPC is graphical representation of a country's potential output.
 - An economy can only produce at its potential if its resource is utilized is at productive efficiency (through a combination of full employment of resources and full production).
- [4] **The economy shall produce alternative combinations of only two goods (two types or categories of goods), within a given period of time.**
 - A PPC is a simplified method (model) of representing a country's potential output, using a two-axis diagram.
 - Therefore, a PPC can only represent the alternative potential output combinations of two product categories at a given period of time.

Marginal Opportunity Cost [MOC] & PPF

- The rate between the quantity of one product which is foregone and the quantity of the other product of which the output is increased by an equal number of units, when moving along the PPC.
- MOC is indicated by the slope or gradient of the PPC, when moving downwards along the PPC from top to bottom (i.e., when increasing the output of the product shown on the horizontal axis).

- Marginal opportunity cost (MOC) along the PPC tends to behave in three main forms:
 - **Fixed Opportunity Cost**
 - **Increasing Opportunity Cost**
 - Decreasing Opportunity Cost

Formula: Marginal Opportunity Cost



Note: Total Opportunity Cost (TOC) is the absolute amount of one product which is foregone, when producing an increasing amount of the other product.

Fixed Opportunity Cost & Reasons:

The Concept (Behavior):

Fixed opportunity cost behavior is a situation where when moving along a PPC, increasing the output of one of the product categories by an equal number of units, the output of the other product is foregone or decreasing by a fixed or consistent number of units

A linear (straight line) PPC implies fixed marginal opportunity cost, upwards or downwards along the curve.

The Principal Reasons (Assumptions):

- ✓ The **Homogeneous** nature of **production factors** used within both industries [Perfect mobility and perfectly substitutable resources among industries]
- ✓ The similarity in production methodology and techniques used in both industries.
- ✓ The productivity of production factors used in both industries is consistent or similar, leading to a constant resource combination rate, among the production of the two product categories under consideration.

Increasing Opportunity Cost & Reasons:

The Concept (Behavior):

Increasing opportunity cost behavior is a situation where when moving along a PPC, increasing the output of one of the product categories by an equal number of units, the output of the other product is foregone or decreasing by an increasing or rising number of units.

A concave (outward bowed) PPC implies increasing marginal opportunity cost, upwards or downwards along the curve.

The Principal Reasons (Assumptions):

- ✓ The Non-homogeneous nature of production factors used within both industries [Relatively immobile and job specific nature of resources among industries]
- ✓ The differences in production methodology and techniques used in both industries.
- ✓ The productivity of production factors used in both industries is inconsistent or different, leading to an increasing resource combination rate, among the production of the two product categories under consideration.
- ✓ The impact on the production process due to the 'Law of Diminishing Returns'

Specific Definition: Law of Increasing Opportunity Cost [PPC Context]

The law of increasing opportunity cost refers to a consistent behavior (an **identity** or **inherent behavior**), where when gradually increasing the output of one product category by an equal number of units along a given economy's **PPC**, the quantity of output with regards to the other product category which has to be foregone or the opportunity cost trends, to gradually increase.

Decreasing Opportunity Cost & Reasons:

The Concept (Behavior):

Decreasing opportunity cost behavior is a situation where when moving along a PPC, increasing the output of one of the product categories by an equal number of units, the output of the other product is foregone or decreasing by a decreasing or falling number of units.

A convex (inwards bowed) PPC implies diminishing marginal opportunity cost, upwards or downwards along the curve.

The Principal Reasons (Assumptions):

- Economies of scale, i.e., economies of large-scale production
- There is different type of economies of scale which lower opportunity cost, and gradually decrease MOC.

Essentials

[5]

[TRQ: 19] **Outline the principal Macroeconomic and Microeconomic applications of a Production Possibilities Frontier (PPF)**

[04 marks]

Principal Microeconomic Applications

- [1] **Basic Economic Problems**
 - Scarcity (the problem of relative scarcity)
 - Alternative uses of resources and the problem of choice
 - Opportunity cost, resulting from unavoidable choices
- [2] Changes in technology, efficiency levels (productivity); affecting a specific product category (industry).

Generic Macroeconomic Applications

- [1] Economic Efficiency:
Productive & Allocative Efficiency
- [2] **Economic growth**
- [3] Economic downturn (mild **recession**)
- [4] Economic depression (sever economic recession, bust)
- [5] Economic Decline
- [6] Economic discrimination
- [7] Economic embargos
- [8] **Present resource allocation decisions & future growth potential**



Also Relevant [2]:

Practical Applications of the PPM:

- ✓ An economic model is a simplification of a complex reality, with controlled variables, and required assumptions.
- ✓ In the same token the PPM is commonly used to graphically represent and illustrate a range of different real-world macro and micro economic issues and concepts.
- ✓ Generally a concave PPC is used for this purpose, as it is considered to be the most realistic model.
- ✓ It is also important to recall and apply all assumptions pertaining to the PPM, in its application.

Key Technical Note

PPF Applications

- Key: a PPF (i.e. the curve or frontier itself) represents a country's present level of '**Potential Output**' (in terms of two product categories)
- PPF is applied to represent economic issues in two main methods:
 - 1) Using a shift of the PPF
 - 2) Using an Alternative Product Combination (or a Point)

[1] Shift of PPF

Background:

- The PPF shall shift only if a country's present 'Potential Output' changes.
- Potential output shall only change if one or more of three main factors change (determinants of potential output)
 - 1) Δ Stock or Endowment of Resources
 - 2) Δ Productivity of Resources
 - 3) Δ State of Technology

Specific Reasons:

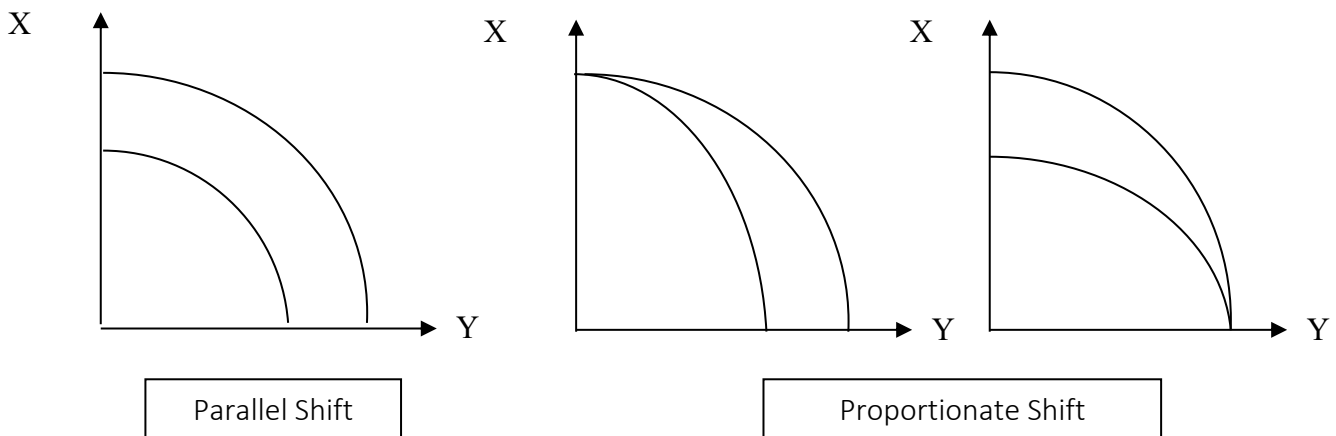
- Δ Stock of resources [Change in **quantity** of resources]
 - ✓ Investment [Capital formulation]
 - ✓ Finding new resources
 - ✓ Labour Force growth
 - ✓ Natural and manmade disasters [Economic decline]
 - ✓ Macroeconomic breakdowns [Economic depression]
- Δ Productivity of Resources [Change in **quality** of resources]
 - ✓ Improved human capital [training, professional education, experience sharing]
 - ✓ Improved management methods
 - ✓ Division of labour and specialization
- Δ State of Technology
Advancement or obsolescence (or outdated) production technology
- Economic growth (caused by same reasons as growth in potential output)

[1] Shift of PPF [Continued...]

PPF - Graphical Representation:

Depending on the issue the shift of the PPF can be in two directions and in two forms (nature of shift):

- Directions of Shift
 - ✓ Inwards or leftwards shift
 - ✓ Outwards or rightwards shift
- Nature of Shift
 - ✓ Parallel shift (shift from both axis)
 - ✓ Proportionate shift (shift only from one axis)



[2] Using a Point

Background:

- If a given situation does not represent a change or impact on any of the determinants of potential output (i.e. the economy's potential output or productive capacity is not affected), a point (or Alternative Product Combination) is used to represent a given issue or situation.
- Basically this is a situation where **Actual Output** (which is represented by a point) is represented in comparison to the economy's potential output.
- Actual Output (AO) Vs. Potential Output (PO) Comparison:
 - ✓ Actual Output < Potential Output [A point located within the PPF]
 - ✓ Actual Output = Potential Output [A point located on the PPF]

[2] Using a Point [Continued...]

Specific Reasons:

- A point (or an alternative product combination) tends to be located or marked inside a country's PPF (in the area left of the PPF), due to a number of reasons:
- Productive Inefficiency [Resource Underutilization]
 - The presence of general 'unemployment' of resources
 - ✓ Reduction in demand (fall in Aggregate Demand*)
 - ✓ Manmade disruptions (e.g. civil conflicts/riots, security issues)
 - ✓ Natural disruptions (e.g. droughts/water shortages, bad weather)
 - The presence of less than full production
 - ✓ Breakdown in workplace discipline
 - ✓ Work to rule, go-slow and other trade union actions
 - ✓ Inefficient management
 - ✓ Regressive work and corporate attitudes
 - ✓ Inefficient decision making due to political influence
 - ✓ Any other reason making it difficult to use resources at their productivity
- Economic recession* (downturn)
- Economic discrimination
- Bilateral trade embargoes

PPF – Graphical Presentation:

- Depending on the issue or situation a point (or an alternative product combination) based representation, using a PPF diagram is of three main forms:
 - [1] A point located (or marked) on the PPF
 - A specific point on the curve
 - Any point on the curve
 - [2] A point located within (or left of) the PPF
 - A specific point within the curve
 - Any point inside the curve
 - [3] A point moving along or within the PPF, where the direction of movement is indicated with an arrow.

Economic Efficiency & Conditions

- Most desired bundle of goods, produced at optimum efficiency.
- If an economy has achieved economic efficiency, then such an economy will have to always give up or trade off the welfare of one person or party to make another party better-off.
- Essential Conditions:
 - ✓ Allocative Efficiency
 - ✓ Productive Efficiency

Productive Efficiency

Definition (Concept):

Productive efficiency is said to be achieved when **either**, the **maximum** possible **output** is produced, using a **given** amount of scarce resource **inputs** OR a **given** level of **output** is produced, using the **minimum** possible level of scarce resource **inputs**. Accordingly producing a unit of output at the lowest resource cost.

Alternatively:

Productive efficiency is said to be created in a situation where an economy is unable to increase the output of a given product category, without decreasing or foregoing the output of another product category. Such a situation infers the economy is operating on its PPC.

Conditions for Productive Efficiency: 'Use resources Fully & Efficiently'

[1] Full Employment

This is the process of using all resources, which are presently available and suitable within the production process, during the period of time under consideration. Full employment should be observed with a view on sustainability (i.e., emphasis on sustainable growth and development).

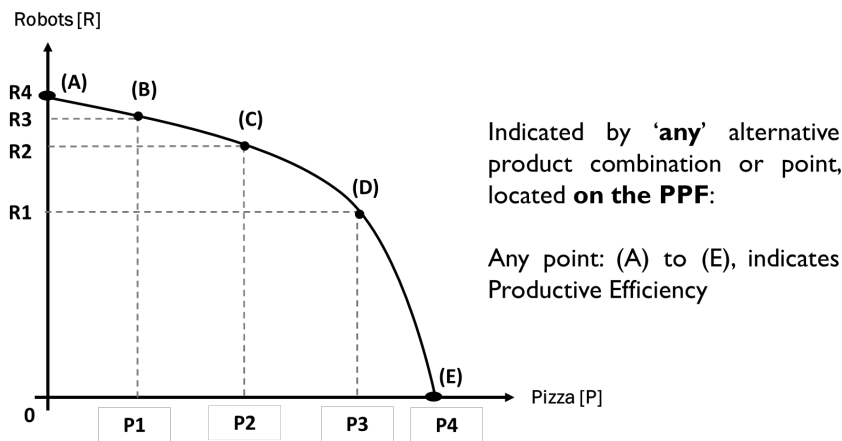
[2] Full Production

This is where all resources employed in production, provide their maximum productive contribution towards the process of satisfy material needs of a society. This is done by ensuring a full production or output is generated from all resources employed.

Resources will be utilized at full production, if all resource used in production perform at their maximum productive efficiency (i.e., using all production factors at their normal productivity).

In order to attain productive efficiency, it's also important to use the optimum production methodology or technology within the production process.

PPF Representation [Implications]:



Allocative Efficiency

Definition (Concept):

The process of allocating limited resources of a society, towards the production of a combination of goods and services, **most desired** or **needed** by the given **society**.

Condition Allocative Efficiency:

Such an optimum product combination is arrived at when the **Marginal Cost (MC)** is **equal** to the **Marginal Benefit (MB)** or **Price (P)**, i.e., when **MB = MC** or **P = MC**.

PPF Representation [Implications]:

If an economy has attained a state of allocative efficiency, it implies the given economy is operating on a **specific optimum point of output on its PPF**.

'Marginal Benefit (MB)'

The benefit received by consuming an incremental or additional unit of a certain product, which is technically equal to the price.

Basically, this is the value in consumption, placed by buyers on an extra unit of output.

'The linear **marginal benefit (or utility) curve** drawn for a product, where number of units consumed (or demanded) is shown on the horizontal axis and the MB (P or MU) is on vertical axis, tends to be **downwards sloping from left to right**'.

- Which implies the negative or indirect relationship between the number of units demanded and marginal benefit.
- The main reason for this relationship is the 'Law of Diminishing Marginal Utility'.

'Marginal Cost (MC)'

The cost or opportunity cost that is created when producing an incremental or additional unit of output.

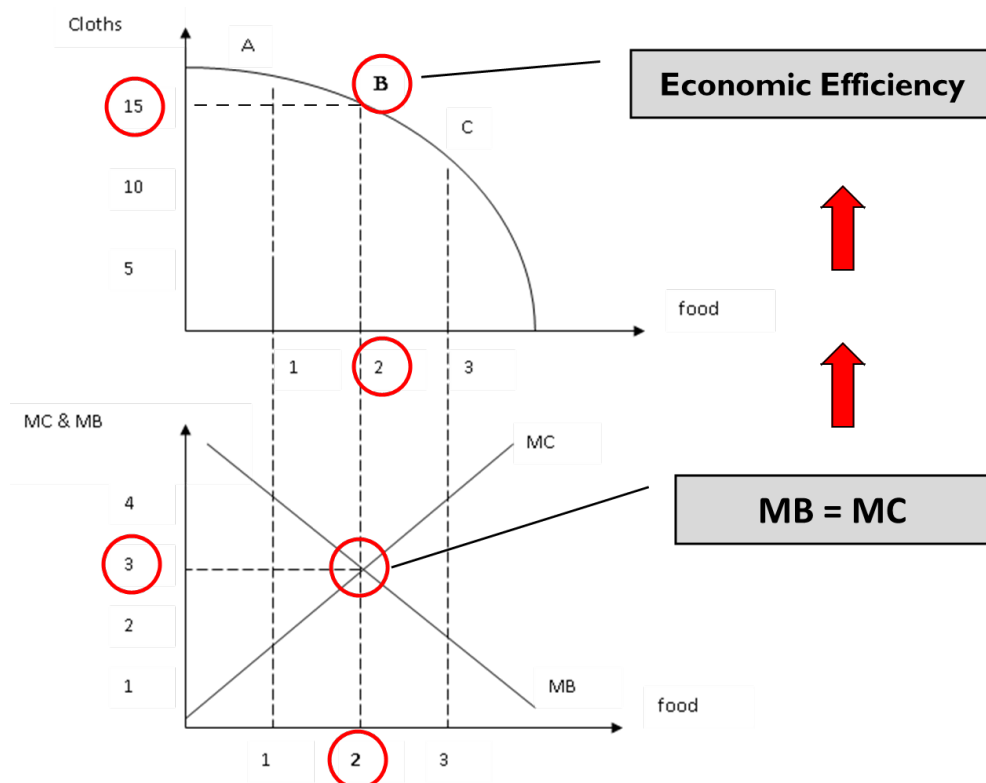
Basically, this is the value in production of the resource needed to produce the extra unit of output.

'The linear marginal cost (or MOC) curve drawn for a product, where number of units produced (or supplied) is shown on the horizontal axis and the MC on vertical axis, tends to be upwards sloping from left to right'.

- Which implies the positive or direct relationship between the number of units supplied and marginal cost.
- The main reason for this relationship is the 'Law Increasing (marginal) Opportunity Cost'.

$P = MC$ [$MB = MC$]:

- ✓ The optimum product mix (2 units of food and 15 units of cloths) derived based on the output level at the interception point between the MB and MC curves for food.
- ✓ The maximum output of clothes that can be attained while producing (2) units of food at productive efficiency (i.e., while producing on the PPF).
- ✓ This optimum product mix is indicated by point or combination (B) on the economy's PPC.



[B] PPC & Basic Economic Concepts (Problems)

[1] Relative 'Scarcity':

The implication of relative scarcity of resources is given economies maximum sustainable alternative output combinations (i.e., potential output) with regards to two product categories is restricted its PPC.

Accordingly, any product combination or point located outside (in the area right of the PPC) becomes unattainable and unsustainable (or an impossibility), at the economy's present production potential.

[2] Alternative Uses of Resources:

Alternative uses in production inherently held by majority of resources, implies that an economy is able to move from one product combination to another along its PPC (i.e., substitutability of resources from one industry to another is relatively or moderately possible).

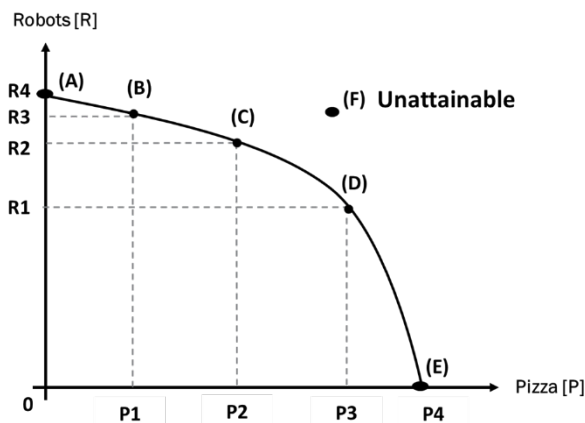
[3] The Problem of Choice:

The fact of relative scarcity of resources and alternative uses makes selecting one amongst many alternative product combinations located on a given economy's PPC unavoidable. Making such a choice inevitably leads to the creation of opportunity cost.

[4] The Problem of Opportunity Cost:

Opportunity cost in general refers to the benefit foregone out of the next best alternative upon which resource could have been allocated on in terms of production or consumption.

In a PPF context the process of measuring the cost of producing an increasing number of goods with regards to a given product, in terms of the forgone units of the other product category will result in the estimation of 'Opportunity Cost'. Opportunity cost on a marginal basis is essentially the slope or gradient of the PPF (when moving downwards along the PPF)



Scarcity (Relative Scarcity):
Combination /APC – (F)

Alternative Uses of Resources:
Ability to move from one combination/APC to another

E.g. (A) to (B)
(B) to (C)
(E) to (D)
(D) to (C)

The Problem of Choice:
Any combination/APC on the PPF: (A), (B), (C), (D) and (E)

Opportunity Cost

From point (C) to (D)

$$\frac{\Delta R}{\Delta P} = \frac{-(R1 - R2)}{+(P3 - P2)}$$

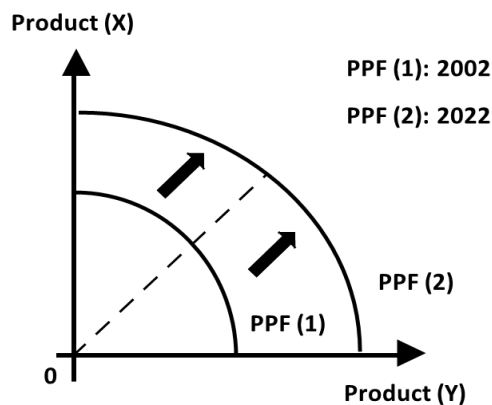
From point (D) to (C)

$$\frac{\Delta P}{\Delta R} = \frac{-(P2 - P3)}{+(R2 - R1)}$$

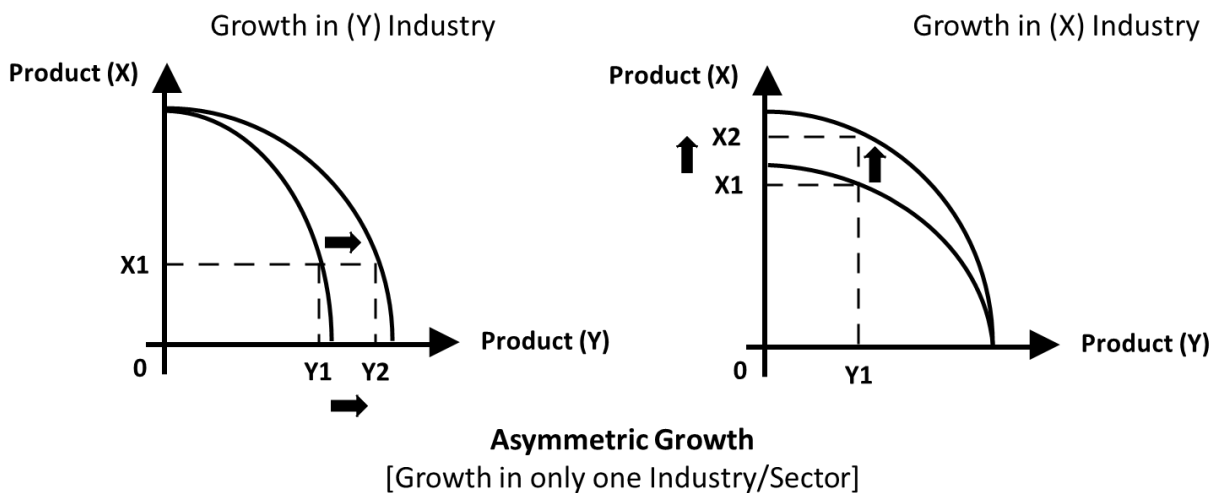
[C] Further Macroeconomic Applications

[1] Economic Growth

- Economic growth is defined as a dynamic process through which an economy's real potential output persistently expands over a long period of time.
- The principal sources of economic growth tend to be:
 - ✓ An increased stock of resources
 - ✓ Improved productivity
 - ✓ Advancement in technology.
- Economic growth is generally indicated using a PPC, by creating an outward or rightward shift of the economies PPC.

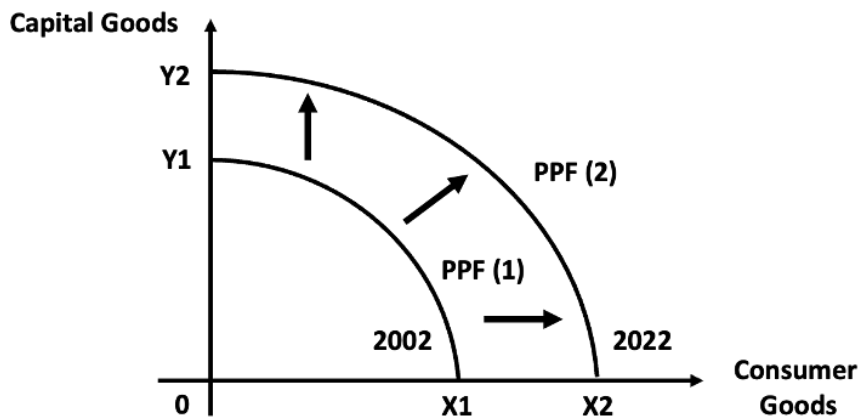


Parallel Outwards Shift
[Growth in both (X) and (Y) Industry]

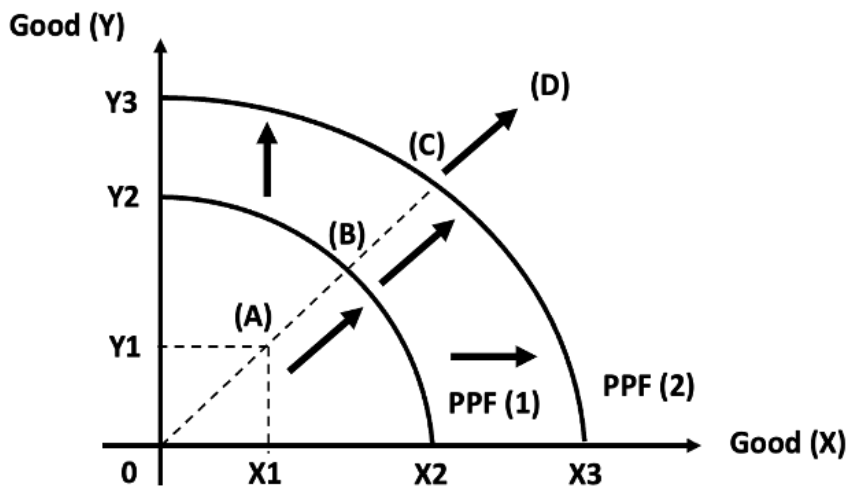


Asymmetric Growth
[Growth in only one Industry/Sector]

Economic Growth Dynamics



- ✓ Ideally shown by the outwards or rightwards **shift** of the economy's PPF (PPF₁ to PPF₂)
- ✓ A country's PPF represents **potential output**.
- ✓ Generally illustrated using a concave PPF, at times shown as multiple outwards shifts over several decades, indicating **growth as a long-term; persistent process**.



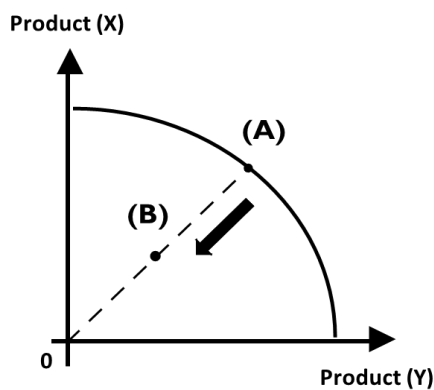
Analysis:

- **Economic growth** is shown by the **shift** from PPF (1) to PPF (2) ← Increase in **potential output**
- The **movement** from point (B) to (C) is technically or ideally depicting the **positive economic growth rate** or increase in real actual output which occurs with economic growth.
- **Movement** from point (A) to (B) is **not economic growth**, it's a mere expansion of actual output, using previously unutilized capacity or **recovering** from **recession** or **negative output gap**
- **Movement** from point (C) to (D) is also **not economic growth**, it's merely an **Economic Boom**, where actual output increasing at a faster rate than general growth rate

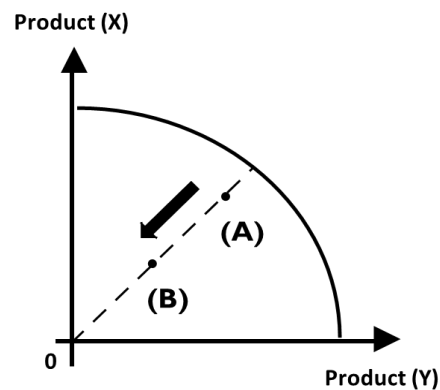
[3] Economic Recession (Downturn)

- ✓ Real actual GDP decreases, and unemployment rate increases persistently for a short period of time (generally for a period of two or more quarters).
- ✓ A downturn is generally characterized:
 - A short-term phenomenon
 - A reduction in actual real output and increase in unemployment.
 - Generally caused due to a deficiency or reduction in Aggregate Demand (AD)

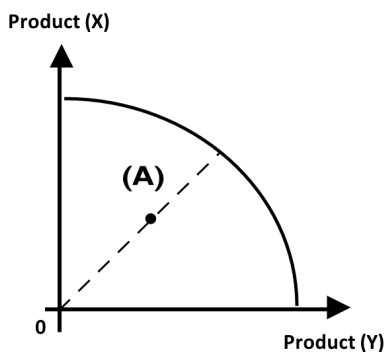
Specific PPC Representations



□ A **downturn** (beginning of a recession) generally is shown by a **point moving from the curve to another point located inside the curve**, using an indicative arrow



□ An **economy** in a downturn or **experiencing** a mild **recession** generally, is shown by a **point located inside the curve**



[4] Economic Depression (severer, prolonged economic recession or bust)

- ✓ Generally known as a severer and prolonged period of recession, with long term contractionary consequences.
- ✓ A prolonged recession or depression is generally characterized:
 - A long-term (prolonged) phenomenon
 - Contraction in real potential output
 - Results in reducing in AD and Long-run Aggregate Supply (LRAS)
- ✓ An economy in a depression (i.e. a severe, prolonged recession) shall generally experience an **'inward or leftward parallel shift'** of its production possibility curve (PPC), since the economy's production capacity is generally negatively affected or reduced.

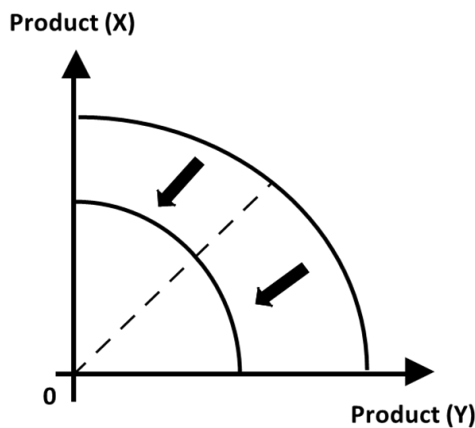
[5] Economic Decline

In an economic decline generally refers to a significant reduction in an economy's production potential, due to losses or damages caused by certain manmade (e.g., war or nuclear disasters) or natural disasters. (Tsunami, earthquakes, prolonged droughts), epidemics, pandemics.

The economy shall require a relatively long time to recover from an economic decline and regain its former production capacity.

Accordingly, a situation of 'Economic Decline or Breakdown' shall create an **inwards (leftwards) shift** of a country's PPC.

Economic Depression Vs. Decline



Outcome/Effect [PPF Implication]:

The PPF outcome of an economic depression and decline is the same, and both have long-term impact on the economy.

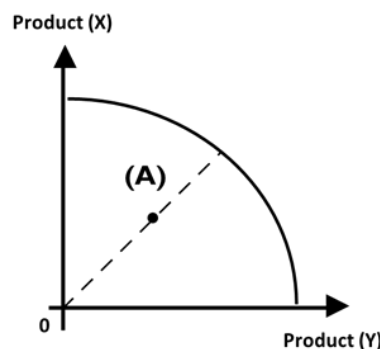
Reasons/Causes:

The principal difference between a depression and decline tends to be that a depression is a result of a persistent and drastic reduction in AD and Long-run Aggregate Supply (LRAS) or Potential Output, while a decline is caused by non-macroeconomic man-made and natural disasters, and epidemics (pandemics)

[6] Presence of Economic Discrimination

The presence of discrimination within a country in the form of racial, religious, gender or on any other basis specially within the workplace or production process, leads to less than full production (inefficiencies within the production process or lack of optimum efficiency), since due to discriminatory policies parties who are the most skilled and competent are unable contribute at an optimum level within the production process.

Due to discrimination the actual output of an economy shall be restricted to a **product combination within the PPC** (area to the left of the PPC).

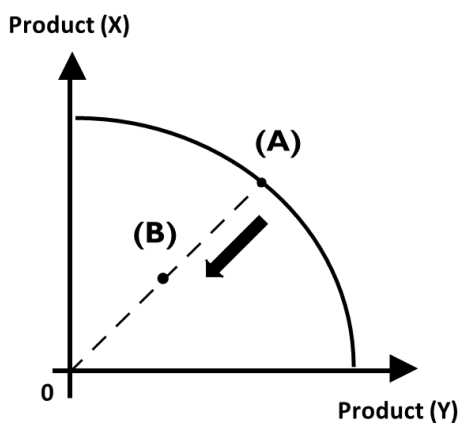


[7] Economic Embargos

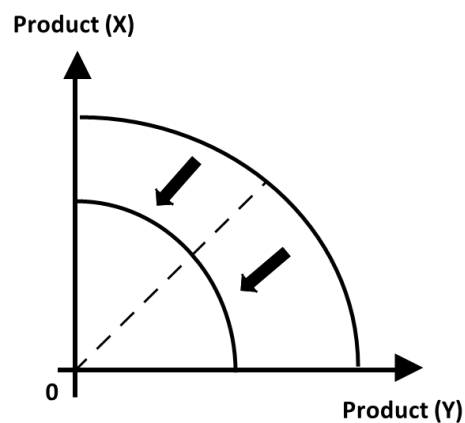
- ✓ International organizations and foreign governments enforce economic embargoes in order to restrict international trade activities and reduce the production capacity of a country.
- ✓ Embargoes are enforced on countries that are not cooperating with or violating internationally accepted best practices, trade regulations, intellectual property rights, human rights, political and ethical values.
- ✓ Also, for supporting international terrorism and engaging in international trade or maintaining economic relations with other countries subject to such international embargoes.

The main forms of such embargoes

- 1) The restriction of exports from the given country
- 2) The restriction of imports to the given country
- 3) Restricting the inflow of foreign investments
- 4) Restricting the inflow of foreign loans and grants



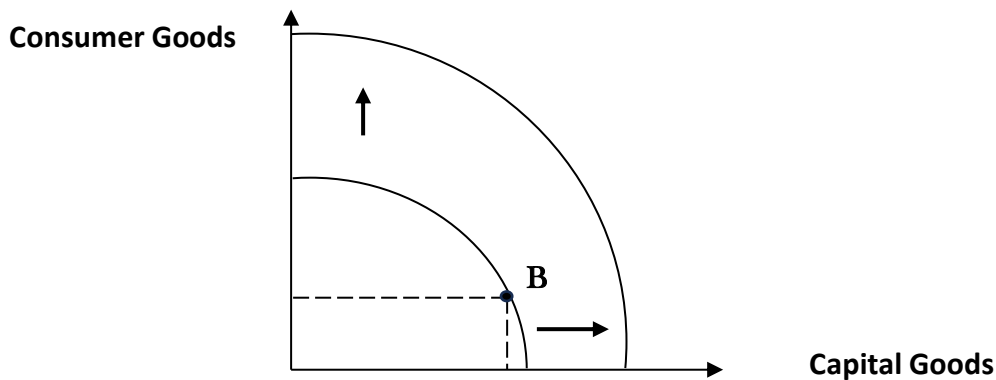
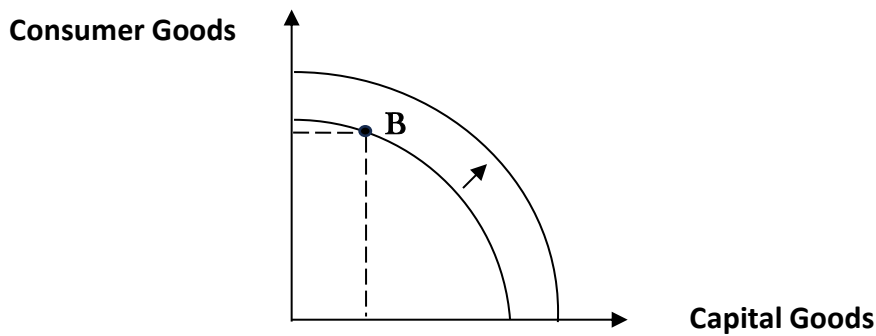
Scenario [A]



Scenario [B]

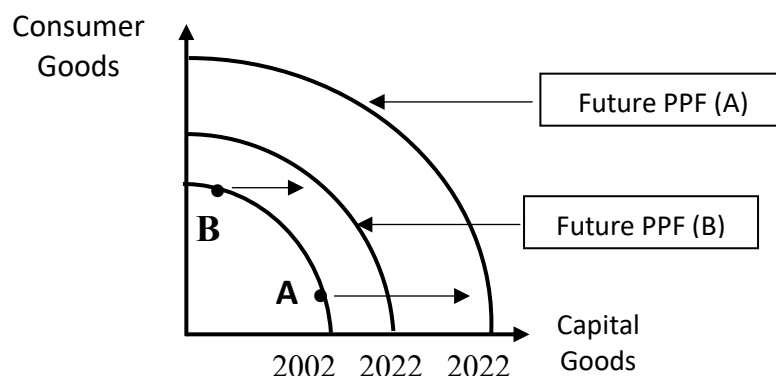
- [A] Short-term or **temporary bilateral trade restrictions** or embargoes, which **may not** directly affect the economies production potential, will only result a **production point** (actual output) functioning **within** the or towards the **left of the economy's PPC**.
- [B] **Broad ranging** (full or comprehensive) trade and economic embargoes, specially implemented by multilateral international organizations such as the UNO, WTO etc, if the **production capacity or potential** of the economy subject such embargoes is **directly affected**, the **PPC tends to shift leftwards**.

[8] Present resource allocation decisions & future growth potential

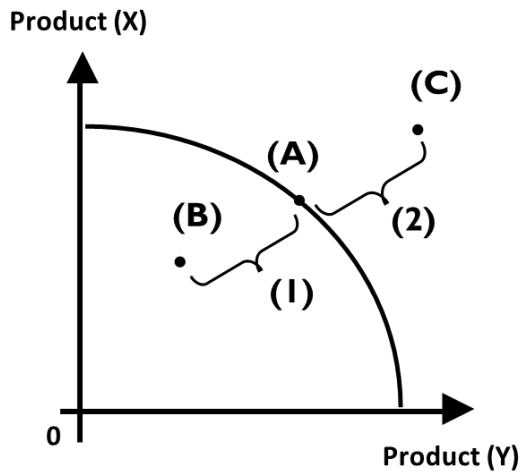


- ✓ The future rate of economic growth of an economy is largely determined by the amount of current consumption, sacrificed for current capital formulation of the economy.
- ✓ If the economy currently utilizes most of its resources in the production of capital goods, relative to consumer goods, its production capacity will increase and hence the future potential output will grow at a substantial rate.
- ✓ If the economy currently does not allocate substantial number of resources to the production of capital goods and spend most of its resources on current consumption, the growth of its future production possibility will be very limited. Even if the future PPC of this economy may shift to the right, it would be a marginal increase.

Alternatively:



[9] Output Gaps: Negative Vs. Positive



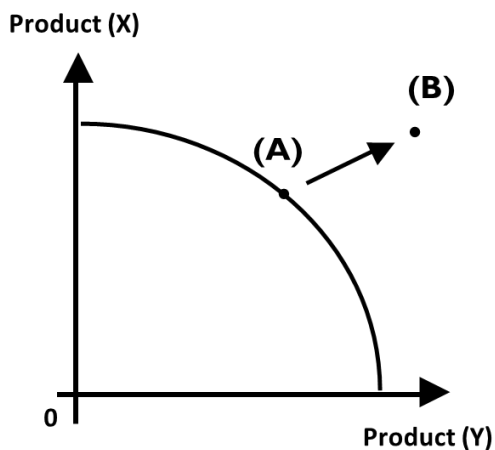
[1] Negative Output Gap:

- Actual output is below potential output.
- Contractionary phase of the business cycle
- AKA: Recessionary gap

[2] Positive Output Gap:

- Actual output is above potential output.
- Expansionary phase of the business cycle
- AKA: Inflationary gap

[10] Economic Boom



Economic boom occurs when an economy's actual real output is increasing at a higher rate than the general growth trend.

It is the expansionary phase of the business cycle, leading the peak.

Special Illustration: Opportunity Cost & PPM

A production possibilities curve represents an alternative product combination of two product categories that can be produced under conditions of productive efficiency at the given state of technology, at a given point of time. In such a situation the output of both product categories under consideration cannot be increased at the same time [i.e., the economy cannot produce at two alternative product combinations on the PPC simultaneously]

The production of one product category can only be increased by decreasing output of the other product category under consideration, while engaging in production at productive efficiency (i.e. when producing on the PPC or when producing, subject to all assumptions of the PPM). This is where a certain number of production factors used to produce one product category or good has to be shifted or substituted towards the other product category, in order to increase its output even by one unit.

The process of measuring the cost of producing an increasing number of goods with regards to a given product, in terms of the forgone units of the other product category will result in the estimation of 'Opportunity Cost'.

Such Opportunity Cost can be estimated on a marginal basis (Marginal Opportunity Cost: MOC) or on a total basis (Total Opportunity Cost: TOC), along the PPC with regards to the next best alternative product combination forgone.

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