**Production Possibility Frontiers**

|  |  |
| --- | --- |
| **Short Run (SR)** |  |
| **Long Run (LR)** |  |
| **Production Possibility Frontier (PPF)** |  |

PPFs show **the maximum combination** of goods and services. It is **in a given period of time** where some factors of production will be fixed (i.e. the short-run). Finally it is with **all resources used efficiently** i.e. resources are working at their highest potential in order to achieve the maximum combination of goods and services.

**The Production Possibility Frontier showing Efficiency / Inefficiency**

**Consumer**

**Goods (C)**

**Capital**

**Goods (K)**

PPF

**\*Activity 1\***

Mark on this PPF (showing the trade-off between Consumer Goods and Capital Goods, the following points:   
  
**A:** an efficient allocation but producing only C **B:** an efficient allocation producing the same amount of C and K  
**C:** an efficient allocation but producing only K  
**D:** an inefficient allocation with **unemployed resources**   
**E:** an impossible allocation

**Extension**

What combination of goods is likely to increase the PPF in the long run?

**The Production Possibility Frontier and Opportunity Cost**

* When an allocation is inside the PPF there is no opportunity cost involved as there are unemployed resources which were previously not in use.
* However, when an economy is operating efficiently on the frontier there are opportunity costs involved.

**An example:**

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**The Shape of the PPF and Opportunity Cost**

* If the PPF is a straight line then the opportunity cost will be the same along the length of the line (like the one below).
* However, if the PPF is not a straight line and is bowed then the opportunity cost will vary. The nearer to the extremes the higher the opportunity cost.
* We will consider reasons for this later in the handout (law of increasing costs)

Good X

40

30

20

10

**\*Activity 2\***

The economy is currently producing at point A on the PPF

**What is the opportunity cost of producing 5 more units of Good Y?**

**C**

**A**

**B**

PPF

0

5 10 15 20

Good Y

**Shifts in the Production Possibility Frontier & Economic Growth**

* If the PPF shifts outwards then this shows an increase in the productive potential of the economy or **economic growth**
* **Economic growth** means that the economy has grown in size in terms of what it can produce i.e. its productive potential has increased.
* Economic growth occurs if there is an increase in the quantity or quality of an economy’s factors of production (land, labour, capital and enterprise)
* PPFs can also shift inwards if there is a reduction in the quantity or quality of factors of production e.g. natural disasters.

**\*Activity 3\***

Illustrate economic growth using a PPF and give three reasons why this may have occurred:

|  |  |  |
| --- | --- | --- |
| **Cause of Growth** | **Impact on Factors of Production** | **Any downsides?** |
| 1. Education |  |  |
| 2. Healthcare |  |  |
| 3. Investment (capital goods) |  |  |
| 4. Competition (e.g. privatisation, free trade) |  |  |
| 5. Population increases |  |  |

**Movement along the PPF**

* As we have just seen the PPF can shift outwards illustrating economic growth and can also shift inwards when resources in an economy are depleted e.g. through natural disasters.
* However, in order to move along the PPF there is no need for a change in the amount of resources (or factors of production).
* Instead, there is just a need for a **reallocation of resource,** with resources put to different resources. Governments or policymakers may reallocate resources to try and increase the welfare of citizens by meeting their needs more precisely.
* Remember, there will be an **opportunity cost** associated with any movement along the PPF.

**The Shape of the PPFs & the Law of Increasing Costs**

The law of increasing costs states that:

**“The opportunity cost of additional units of a good generally increases as society attempts to produce more of that good.”**

##### Why is this so?

This is because some resources are better suited for the production of some things than others. Many economic resources are not easily adaptable to other uses, nor are workers skills perfectly transferable. Therefore as you approach the extremes of the PPF the opportunity cost increases (you lose more of the other good).

Think of a society with only rugby players and snooker players trying to win as many points as possible. As more and more rugby players take up snooker they will hopefully score some points at snooker but they are now unable to do what they do best and score *a lot more* points at rugby. It will take a lot of rugby players giving up rugby to gain more snooker points (the opportunity cost increases).

##### How does this concept explain the shape of the PPF?

The PPF is bowed; it is concave to the origin. Its shape represents the law of increasing costs graphically. Generally, the more specialised resources are, the more bowed society’s PPF will be. Alternatively, if all resources are equally suited to all forms of production, then the PPF would be a straight-line curve

**Efficiency:**

**Pareto efficiency** is achieved in an economy when it is not possible to make anyone better off without making someone else worse off **OR** you cannot produce more of one good without making less of another.

**Allocative efficiency** is concerned with whether resources are being used to produce the goods and services that people want to buy.

Consolidation Activity

Cars

Motorcycles

A

B

C

D

E

F

G

H

I

J

K

**In the space provided, answer the following questions about the PPF shown above.**

Q1. Describe the allocation of resources at point E. (2 marks)

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Q2. Explain why point D is unachievable. (2 marks) ………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

Q3. Describe the allocation of resources at point B. (2 mark)

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Q4 Explain the difference between K and E? (2 marks)

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**Extension activity**

Q5 Can you think of any reasons why point C might not be as beneficial for society as point E?

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(Hint: Think about the amount of resources being used up at each point)

Q6. New technology has been invented, which makes rubber 10x cheaper to produce. This greatly decreases the costs of tyres and speeds up the productions process of all motor vehicles. Which two points would you join up to best show the impact of the advance in technology on the PPF? Explain your answer (2 mark)

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Q7. An explosion at the largest Car manufacturing plant has negatively affected the amount of cars which are able to be produced. Which two points would you join up together to best show the impact of the explosion on the PPF?Explain your answer (2 mark)

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Q8. Of all the positions to be in (A-K)which do you think is best? Explain your answer?

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