CHAPTER 1

The Central Economic Problem

1. SCARCITY, CHOICE & OPPORTUNITY COST

Learning Objectives

- ✳ Explain the problem of limited resources and unlimited wants
- ✳ Identify and provide examples for the factors of production
- ✳ Distinguish between the term financial capital and physical capital
- ✳ Explain the concept of opportunity costs and trade-offs

1.1 WHAT IS ECONOMICS

Economics is a social science that studies the allocation of scarce resources to the production of goods and services used to satisfy consumers' unlimited wants.

- ✳ Wants refer to all goods and services people would consume if they had unlimited incomes.

- ✳ Resources are inputs used to produce goods and services.

Wants of people are unlimited. The resources used to satisfy these wants are, on the other hand, limited. Economists study how people make use of the scarce resources to satisfy their wants. They study how individuals and society maximise their level of satisfaction, given the problem of scarcity.

DEFINITION:

Scarcity is the problem arising from limited resources and unlimited wants. That is, it is the excess of human wants over what can actually be produced with limited resources to fulfill these wants.

1.1.1 WHAT ARE RESOURCES?

Resources (Factors of Production)

Resources or factors of production can be divided into four broad categories: land, labour, capital and entrepreneurship.

a. Land

This includes all those productive resources supplied by nature. This means that it includes not only land in the conventional sense in terms of plots of land but all those resources freely supplied by nature such as rivers, trees and minerals. Land resources can be renewable e.g. forests or non-renewable such as oil and natural gas.

b. Labour

Labour is the human effort – both physical and mental – directed to the production of goods and services. Labour resources are often made more productive through education or training.

c. Capital

NOTE:
The productivity of capital is limited by the state of technology.

Capital refers to physical capital which is man-made resource used in the further production of other goods and services rather than being consumed for their own sake. Common examples of capital include machines, buildings, factories, offices, tools and equipment. Capital does not mean money to an economist.

THINK ABOUT IT:

1. **What is the difference between financial capital and physical capital?**

d. Entrepreneurship

Entrepreneurship refers to the managerial ability that involves the organising of factors of production and entrepreneurs are rewarded in the form of profits by taking the risks related to the production of goods and services. It is a human resource which is separate from labour. Without entrepreneurship, virtually no business organisation can exist.

1.1.2 POSITIVE AND NORMATIVE ECONOMICS

NOTE:

Positive Economics provides the facts and basis for which Normative Economics based on one's values and judgment is considered.

Positive Economics (value-free arguments)

Seeks to describe and explain economic facts and events observed objectively

- A statement that in principle, is capable of being refuted by reference to evidence.

Example: *More people will own cars when the government subsidies the purchase of cars.*

Normative Economics

A statement of value or subjective opinion that cannot be proved or disproved by an appeal to facts

- Looks at the outcomes of economic behaviour and questions whether they are good or bad

Example: *The government should subsidise the purchase of cars.*

1.2 THE TWO MAIN BRANCHES OF ECONOMICS

NOTE:

In Senior High 1, the focus will be on Microeconomics which will be covered in Chapters 1 to 4 for H2 and Chapters 1 to 3 for H1.

In Senior High 2, the focus will be on Macroeconomics that will be covered in Chapters 5 to15 for H2 and Chapters 5 to 14 for H1.

Economics is traditionally divided into two main branches – microeconomics and macroeconomics. The economist studies the real world at both the micro and macro level. The study of both microeconomics and macroeconomics centre on the problem of scarcity and the maximisation of welfare of society.

Microeconomics is the branch of economics that studies the individual parts of the economy, such as markets of specific goods and services or the behaviour of individual economic agents. It is concerned with the demand and supply of particular goods and services and resources. In microeconomics, economists analyse how individual consumers and producers behave, examining how they interact with one another in markets. Some examples of microeconomic questions are: Why are people buying more smart phones? How would the removal of subsidies on rice crops affect rice production?

Macroeconomics is the branch of economics that studies the entire economy. As such, it is concerned with economy-wide phenomena such as changes in unemployment, the general price level and national income.

1.3 SCARCITY, CHOICE AND RESOURCE ALLOCATION

All countries face the central economic problem of scarcity. Since human wants are virtually unlimited, whereas the resources available to satisfy these wants are limited, scarcity makes it necessary for us to make decisions on how the limited resources should be utilised. In trying to obtain the highest level of consumer satisfaction from the available resources, choices have to be made. In any society, in order to allocate scarce resources, 3 key questions need to be addressed:

- **What to produce, and how much to produce?**

Since there are insufficient resources to produce everything that people want, the society has to decide which goods and services are to be produced and how much of each good/service should be produced.

- **How to produce?**

Once the society has decided what goods and services to produce and how much of each good / service to produce, it has to decide how to produce each of them. What resources are to be used in the production of the good/service and in what quantities? Will labour be used to produce cars or will car manufacturing be automated? Will electricity be generated by coal, oil or natural gas, or a combination of these?

- **For whom to produce?**

Once the goods and services are produced, who will get to enjoy these goods and services? In other words, how will the goods and services be distributed among the population? Is it based on the ability to pay for the good? Will the goods and services be enjoyed only by those who have the means? What about the retirees, handicapped, and the young? Or is it rationed by the government?

In order to answer these 3 key questions, there are three distinct types of economic systems that societies could adopt to determine how scarce resources are allocated between competing uses: the command economy, the mixed economy and free market economy. (Refer to Appendix for more details on how the different types of market allocate resources.) Whichever economic system is adopted, the economic problem remains and choices must be made.

Choice is the act of selecting among alternatives. By making a choice, alternatives have to be foregone. Due to the problem of scarcity, a choice has to be made on what goods are to be produced and how much of each should be produced, thus determining how resources are allocated. However, resources have alternative uses, and choosing to produce one good would mean forgoing another good which the resources could be used to produce.

DEFINITION:

Opportunity cost is the value of the next best alternative forgone when a choice is made.

The opportunity cost of any choice is therefore the sacrifice of the value of the next best alternative. For example, suppose you choose to spend an extra hour on studying economics. What is your opportunity cost? When you study for one more hour, there are many other things you could have done in that one hour. You could have watched your favourite television show, or you could have gone for a bowling session or you could have taken a nap.

However, you need to understand that your opportunity cost is the next-highest ranked alternative, not all alternatives summed together. If you consider taking a nap to be the next best alternative (ie. it gives you the next highest level of satisfaction) then that would have been your opportunity cost of studying for one hour.

Scarcity necessitates choice
and
Choice involves opportunity cost

Therefore, Economics is also known as the science of decision-making.

2. RATIONAL DECISION-MAKING

Learning Objectives

- ✳ Explain and apply the marginalist principle in terms of rational decision-making for the different economic agents
- ✳ Explain and apply the different elements of the Framework for Disciplinary Thinking for A Level Economics
- ✳ Define and explain economic efficiency, productive efficiency and allocative efficiency
- ✳ Define the production possibility curve
- ✳ Use the production possibility curve to demonstrate the concept of opportunity costs and the nature of trade-offs
- ✳ Explain the implications of the shifts in PPC

2.1 HOW RATIONAL DECISION-MAKING IS USED

2.1.1 RATIONAL DECISION-MAKING AS AN OPTIMISATION PROBLEM

In Economics, a rational decision is one which maximises the self-interest of the economic agent. Economists argue that because economic agents are assumed to be rational in their decision-making and to make choices that maximise their self-interest, society's scarce resources will be allocated efficiently. A choice is in the economic agent's self-interest if he thinks that the choice made is the best one available. Thus, rational decision makers, in the pursuit of their self-interest, determine what and how much goods and services are produced, how these goods and services are produced, and the incomes of the different factors of production that produce them. These outcomes are, arguably, best for society.

2.1.2 DECISION-MAKING FRAMEWORK:

The **process** of decision-making requires every economic agent to deliberate on the various choices available to them. This process takes into account various **considerations**. The process of decision-making in A-Level Economics is captured in the Framework for Disciplinary Thinking in Figure 2.

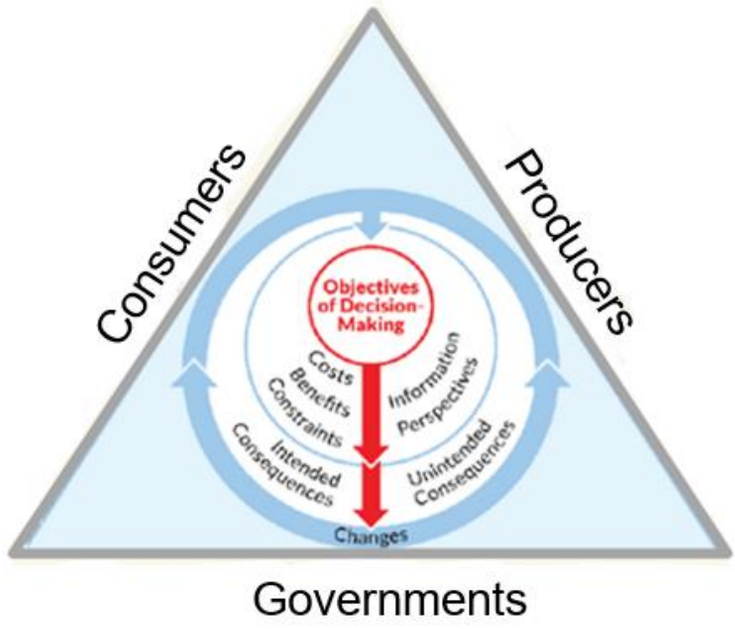


Fig 2: Decision-Making Framework in A-Level Economics

In achieving their objectives, economic agents must be aware of the **constraints** they are operating within. To ensure that the decision made is the best given their constraints, economic agents must also factor in the **costs and benefits** of the decision made. Finally, economic agents must actively consider the **information** needed and different **perspectives of the issue** in weighing the costs and benefits.

Economic decision-making is often made in response to an economic issue, and the **impact** of such decisions can be analysed in terms of intended consequences and unintended consequences. Decision-making by economic agents can have **multi-faceted implications**; for instance, decisions made by an economic agent can have an impact on other economic agents. In addition, it should be highlighted that decisions made

by economic agents at the national level can have an impact at the international level.

Economic agents might need to **review their decisions** should the **intended consequences** not turn out as anticipated or if they decide to take account of **unintended consequences,** or when **changes** occur in either the internal or external environment.

THINK ABOUT IT:

2. **Do economic agents always make rational decisions that maximise their self interest?**

2.1.3 RATIONAL DECISION-MAKING AND THE MARGINALIST PRINCIPLE – WEIGHING COSTS AND BENEFITS

As mentioned above, economic agents must factor in the **costs and benefits** of a decision before making a decision in order to maximise their self-interest. Rational decision-making thus involves weighing the marginal (incremental) benefit against the marginal cost (incremental) of any activity. If the marginal benefit exceeds the marginal cost, it is rational to do more of the activity. If the marginal cost exceeds the marginal benefit, it is rational to do less of the activity. The adjustment process will reach equilibrium the moment marginal benefit equals marginal cost. This principle applies to consumers, firms and governments alike.

DEFINITION:

Marginal benefit refers to the additional benefit gained from consuming or producing one more unit of the good/service.

Marginal cost is the additional cost incurred from consuming or producing one more unit of the good/service.

NOTE:

Marginal Benefit falls as more of the good is consumed due to concept of diminishing marginal utility (for consumers), and marginal cost rises due to diminishing marginal returns (for firms). These will be covered in greater detail in Chapter 2 and 4.

Rational economic agents only consider their own self-interest, and thus only consider their private costs and benefits in their decision making. If the marginal benefit (MB) is greater than marginal cost (MC) from the consumption of an additional unit of good or service, the economic agent will increase consumption (e.g. from Q_1 to Q_e). Conversely, if the marginal cost (MC) is greater than the marginal benefit (MB) from the consumption of an additional unit of good or service, the economic agent will decrease consumption (e.g. from Q_2 to Q_e). Hence the economic agent will consume up to the unit Qe where MB=MC to maximise its self-interest.

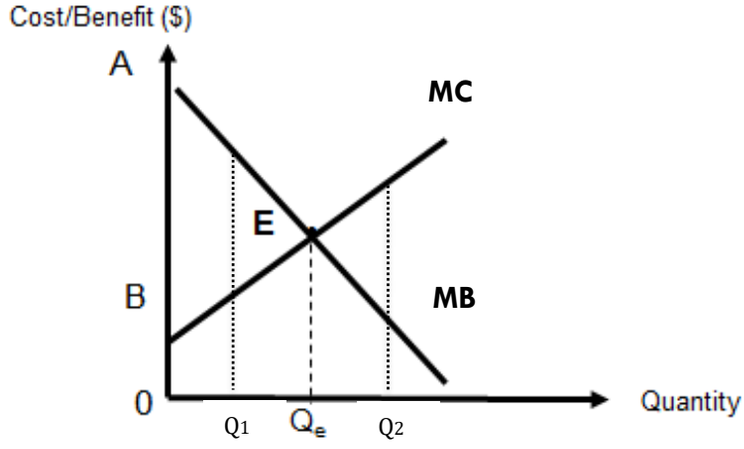


Figure 1: Rational decision making (MB=MC)

Let us consider the self-interest maximising behaviour of the following economic agents, i.e. the different groups in society whose choices influence the allocation of resources.

- Consumers aim to maximise utility, which refers to the benefit or satisfaction consumers receive when they consume a good or service, subject to their budget constraint (amount of money they have to spend). [We will revisit this in Chapter 2.]

- Firms aim to maximise profits, which is the difference between total revenue from selling goods or services and the total cost of producing them, given their limited resources such as labour and capital. Taking the example of a car manufacturer, the marginal benefit to the car manufacturer is the additional revenue earned from the sale of one more car to a car retailer ie. the marginal revenue. The marginal cost would include the additional labour costs, raw material costs etc. of producing one more car. If the additional car adds more to the manufacturer's revenue than to costs, ie. if marginal revenue is greater than marginal cost, the firm's profit will increase by producing the additional car. Hence the firm will produce to the point where its marginal revenue is equal to its marginal cost to maximise profits. [We will revisit this in Chapter 4 (H2 only).]

- Governments aim to maximise social welfare, subject to the government budget constraint. This assumption, however, is debatable. For example, governments make rational choices when deciding how much to spend on items such as national defence or education. [We will revisit this in Chapter 3.]

Decision-making in reality is, however, more complex than merely solving an optimisation problem, and weighing costs and benefits may be more complicated than envisaged. It is important for decision makers to gather relevant information and understand different perspectives to make rational choices. The quality of a decision depends on the information that is used in making the decision, as well as the depth of the analysis. The benefits and costs of a decision may not be fully known and there may be different perspectives about the relative importance or weightage of the benefits and costs or even what the objectives should be.

2.2 CONCEPTS OF EFFICIENCY

The allocation of scarce resources among competing wants requires societies to decide what and how much to produce, how to produce and

for whom to produce. The objective of maximising the level of satisfaction involves the attainment of efficiency.

DEFINITION:

Economic efficiency is a situation where each good is produced at the minimum cost (i.e. productive efficient) and where individual people and firms get the maximum benefit from their resources (i.e. allocative efficient).

There are 2 basic concepts of efficiency:

- Productive efficiency
- Allocative efficiency

Productive Efficiency

DEFINITION:

Productive efficiency is achieved when the firms in an economy are producing the maximum output for the given amount of inputs, or producing a given output with the least cost combination of inputs.

The economy achieves productive efficiency when all the available resources are fully employed to achieve the maximum output possible. This is where the firms are producing at the lowest possible long run average cost. [We will revisit the idea of long run average cost in Ch4 (H2 only)]

An economy is therefore not productive efficient if resources are either unemployed or underemployed.

- Unemployment is the situation in which not all the available resources are used in the production of goods and services ie. some resources are not utilised at all.

- Underemployment refers to the case in which resources are engaged in production but are operating below their potential capacity ie the resources are not efficiently utilised.

Allocative Efficiency

DEFINITION:

Allocative efficiency is achieved when the current combination of goods and services produced and consumed allows the society to attain the greatest level of satisfaction.

In other words, allocative efficiency refers to the allocation of resources such that the combination of goods and services produced maximises the welfare or satisfaction of society. The economy achieves allocative efficiency when the value consumers place on a good (reflected in the price they are willing to pay) equals the cost of the resources used up in production of that unit of good; i.e. the condition required for allocative efficiency is when price offered for the last unit of a good equals the additional costs incurred in its production, [P = MC]. If the price consumers are willing to pay is greater than the marginal cost of producing an additional unit, it means that social welfare will still increase with the production of the additional unit. If the price consumers are willing to pay is less than the marginal cost of producing an additional unit of the good, it means that too many resources have been allocated to that good and society's welfare will increase by reducing the output of that good. Hence when P=MC is satisfied, total economic welfare is maximised.

2.3 THE PRODUCTION POSSIBILITY CURVE

DEFINITION:

The **Production Possibility Curve** (PPC) shows the maximum attainable combinations of two goods and services that can be produced in an economy, when all the available resources are used fully and efficiently, at a given state of technology.

Assumptions of the PPC

In drawing the PPC, it is assumed that:

a. the economy only produces two goods or services.

b. production is observed over a specific time period, e.g. one year.

NOTE:

1. *The PPC shows only the production possibilities and capabilities of the economy and not the preferences of the consumers and producers in the economy. The PPC illustrates the problem of scarcity by highlighting the constraints of an economy in terms of the maximum combinations of goods and services it can produce with given resources.*
2. *For SH1 students, we do not take into consideration the possibility of international trade; therefore consumption possibility is limited by the production possibility curve, i.e. no consumption is possible beyond the PPC.*

c. the quantity and quality of the resources used remain the same over the specific time period.

d. resources are fully employed and efficiently utilised.

e. there is no change in the level of technology.

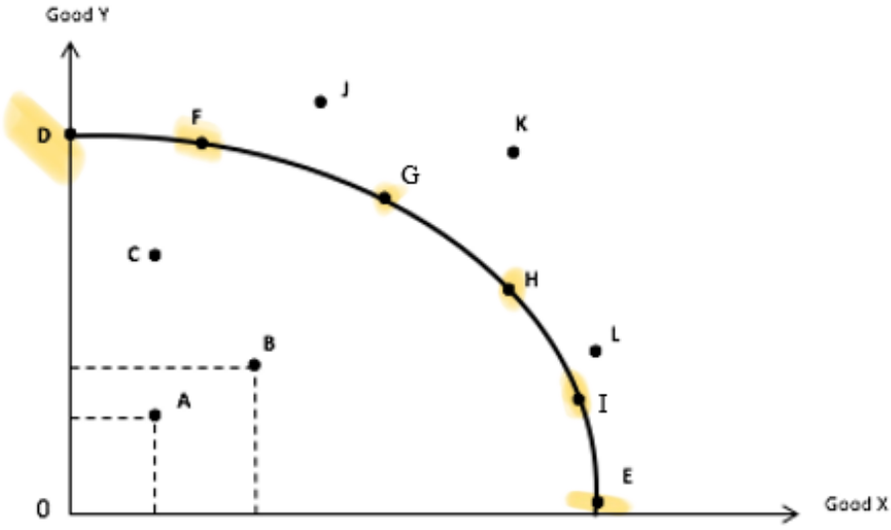


Figure 3: The PPC for Two Goods

2.3.1 WHAT DOES THE PPC ILLUSTRATE?

Scarcity

Scarcity is illustrated by the unattainable combinations outside the PPC.

Constraint:

The economy can only produce any combination of goods and services that is within or on the PPC. Hence production points J, K and L cannot be achieved even if society desires them, because the economy has limited resources.

Choice

Choice is also illustrated by the fact that society has to choose among the attainable combinations of the two goods. The economy can only be producing at one point at any given time. For example, the economy cannot be producing both points G and H at the same time. Thus, there

is a need for the society to choose which production point it wishes to be at.

Opportunity Cost

The concept of opportunity cost is illustrated by the downward (negative) slope of the PPC. Assuming that the limited amount of resources have been fully and efficiently employed, if the society chooses to have more of one good, it has to give up some of the other good.

Productive efficiency

points outside
→ underemployed
→ unattainable.

Productive efficiency is illustrated by production points D, E, F, G, H and I, where all the available resources are fully employed (i.e. no unemployment or underemployment) to achieve the maximum output possible.

Unemployment and Underemployment

Production points inside the PPC (for example, production points A, B and C) are inefficient because resources are either unemployed or underemployed – the economy is not producing the maximum output possible with the given resources.

NOTE:

To be allocative efficient, an economy must first be productive efficient because to be allocative efficient, the economy must produce on the PPC which suggests that all resources are fully employed i.e. the economy is productive efficient.

At production point B, it is possible to use the unemployed and underemployed resources to increase the production of one good without decreasing the production of the other good, that is, opportunity cost incurred is zero (for example, movement from production point B to G).

Allocative efficiency

Allocative efficiency is illustrated by one of the production points along the PPC. Different combinations of goods along the PPC would yield different levels of satisfaction, depending on the tastes and preferences of the society. The production point that achieves allocative efficiency for the society is the combination of goods and services which maximises its welfare. It is possible that different societies may have different allocative efficient production points. A society's allocative efficient production point may also change over time, as taste and preferences change or as distribution of income changes.

2.3.2 THE CONCEPT OF INCREASING OPPORTUNITY COST

The PPC below is concave to the origin (not that it is concave mathematically). This means that as more of a good is produced; larger and larger quantities of the alternative good must be sacrificed.

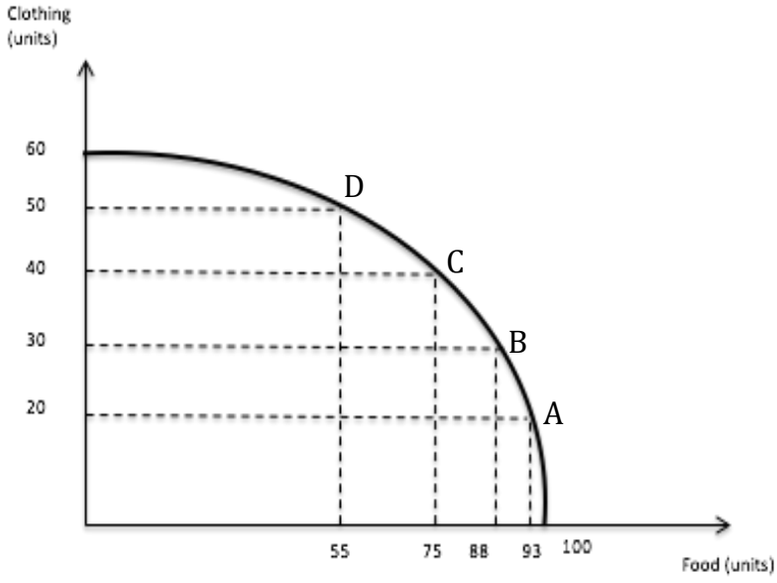


Figure 4: The Concept of Increasing Opportunity Cost

Production points on PPC	Change in units of clothing	Change in units of food
From A to B	+ 10	- 5
From B to C	+ 10	-13
From C to D	+ 10	-20

With reference to Figure 4, there is increasing opportunity cost in the production of clothing in terms of food foregone. This is because the resources in the economy are usually not perfectly suitable to the production of both goods. As the economy concentrates on the production of one good, it has to start using resources that are less and less suitable – resources that would have been better at producing other goods. To produce an additional unit of a good means having to move increasingly greater amounts of resources from the alternative good, and hence, the greater the amount of alternative good that has to be sacrificed.

re-do switching use of resources → training [skillsfuture, psbacademy] → redeployment of resources.

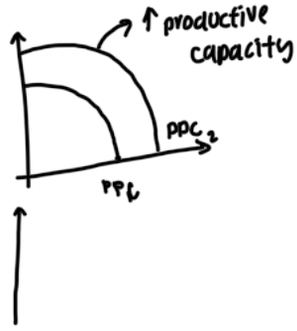
2.3.3 ECONOMIC GROWTH AND SHIFTS OF THE PPC

There are 2 distinct concepts of economic growth: actual and potential economic growth.

inside the ppc to closer to graph → ↓ unemployment → ↓ employment of resources

Actual economic growth is defined as an increase in the output actually produced in the economy and is measured by the percentage annual change in national output actually produced. It is related to the concept of short-run growth. On the PPC diagram, it can be illustrated by an outward movement from a production point within the PPC to a production point closer to or on the PPC.

Potential economic growth, otherwise known as long-run economic growth, is defined as an increase in the productive capacity of the economy. It is illustrated by an outward shift of the PPC. The main sources of long run economic growth are:



a. **Increases in the quantity of resources**

b. **Improvements in the quality of resources**

c. **Technological advancement**

sustain economy growth → continue increasing PPC.
↳ ↑ quantity of resources
↳ ↑ quality of resources
↳ high level of technology.

THINK ABOUT IT:

1. **Can an economy's PPC shift inwards?**

2. **How might an economy's PPC be affected by a recession (negative economic growth)?**

a & b. Increases in the Quantity and Quality of Resources

An increase in the quantity or quality of resources enables the economy to produce more than before; hence the PPC shifts outwards. It may be an increase in the size of the labour force, an increase in the skills and educational levels of the labour force, an increase in the amount of land or an increase in the size of the capital stock.

The shift in Figure 5(a) appears to be parallel indicating that the resource, whose availability is changed, is perfectly or equally suited to the production of both goods. If that resource – say, farmers – is better suited to the production of one good – say, food – then the shift on the food axis will be greater than the shift on the clothing axis. The shift of the PPC will be skewed more towards food. Notice that the opportunity cost of producing food in terms of clothing has fallen with this shift [refer to Figure 5(b)].

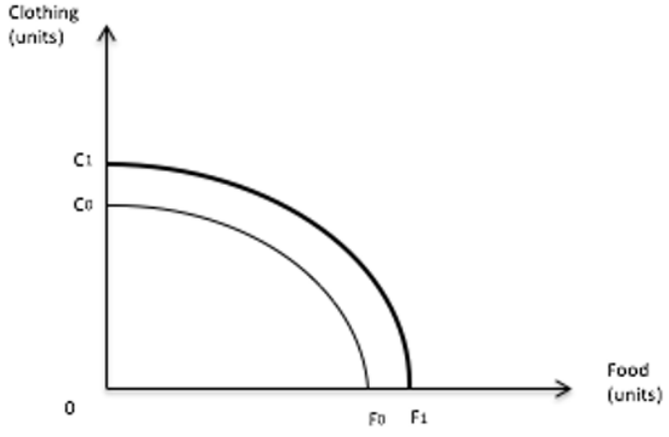


Figure 5(a): Outward Parallel shift of the PPC

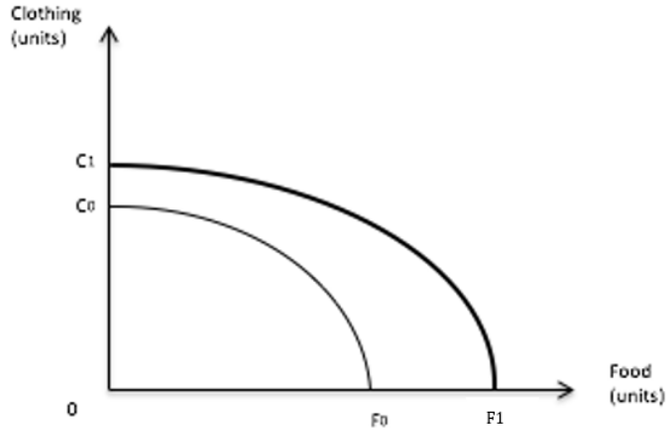


Figure 5(b): An outward skewed shift of the PPC

Since capital goods (eg. machinery) are goods used in the production of other goods and services, the more capital goods an economy produces in one period, the more output it will be able to produce in the next period i.e. in the future. To produce more capital goods in this period, an economy must reduce current consumption. An economy typically must decide between producing goods for current consumption and producing goods for future consumption.

In Figure 6, if the economy chooses to produce more consumer goods at point A as compared to point B, it will experience a relatively smaller increase in its productive capacity. This is illustrated by the shift of the PPC from PPC to PPC_A, the economy's choice to produce more consumer goods means a higher level of consumption in the current time period.

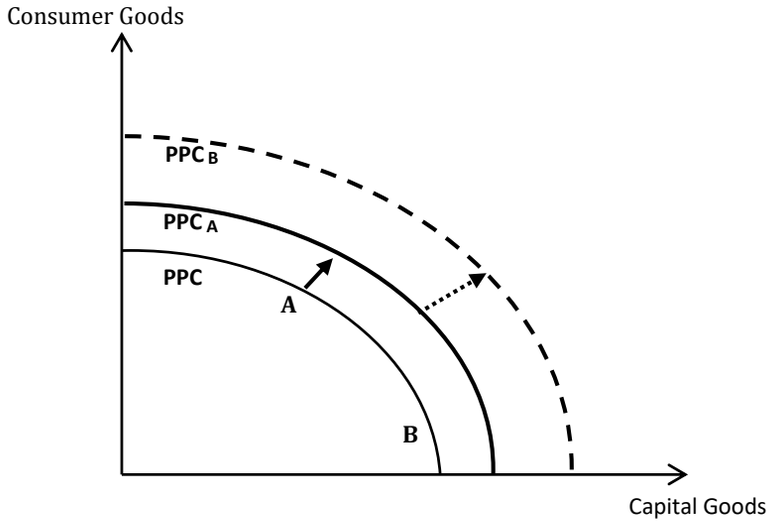


Figure 6: Effects of the Size of Capital Stock on Economic Growth

If the economy chooses to produce more capital goods at point B, it will experience a relatively greater increase in its productive capacity, as illustrated by the shift of the PPC from PPC to PPC_B. This allocation of resources to the production of more capital goods in the current time period can increase the level of future consumption (due to the higher possible output that can be produced in future), although it means sacrificing a certain amount of current consumption.

c. Technological Advancements

Technology consists of the use of tools, machines and materials, as well as plans and procedures that aid in the production of goods and services. Technological advancements can lead to new and better methods of producing goods. If the technological improvement is in the food industry e.g. fertilisers with higher yield, the PPC will shift in a skewed manner more towards food. If the technological change can enhance the production of both goods equally, the entire PPC will shift outwards in a parallel manner.

NOTE:

The PPC is a useful tool when explaining the concepts of scarcity, choice and opportunity cost. In addition, the PPC can be used to help students better understand the benefits of international trade in Theme 3.3 (Globalisation and the International Economy) / Chapter 15 (H2 only).

THINK ABOUT IT:

On 14 September 2019, oil processing facilities in Saudi Arabia were destroyed by a drone strike, shutting down half of Saudi Arabia's oil production.

With the aid of a diagram, explain how the drone strike might affect Saudi Arabia's Production Possibility Curve.

negative economical growth
epidemic / war
natural disaster
or climate change

3. CONCLUSION

Economics studies the process of how society allocates its scarce resources to satisfy human wants. It studies the rational decision-making process of how choices are made and how the self-interest maximising behaviour of economic agents influences the allocation of scarce resources. It studies how scarce resources are, or are not, efficiently allocated to satisfy the consumer wants that yield the greatest level of satisfaction

All societies are faced with the problem of scarcity. Different economies adopt different allocative mechanisms to tackle this problem, organising themselves into one of three distinct types of economic systems in the allocation of scarce resources. Every type of economy, whether command, free market or mixed economy, seeks to achieve economic efficiency.

4. DECISION-MAKING EXAMPLE

1. Key Concepts

- ✳ Scarcity, Choice and Opportunity Cost
- ✳ Resource Allocation
- ✳ Economic Efficiency, Productive Efficiency and Allocative Efficiency
- ✳ Production Possibility Curve (PPC)
- ✳ Actual and Potential Growth

2. Decision to be made (by consumer in this example)

Prospective students (consumers), producers (universities) and the governments each make decisions which will affect the scarce resources that are devoted to university education.

- ✳ Should a student pursue a university education upon his graduation from the Junior College/Polytechnic?

3. Perspectives on the Decision/Issue

- ✳ Consumer's Viewpoint (Student): Consideration of his family's need for financial support or the need to pursue an undergraduate education to achieve his career goals.
- ✳ Consumer's Viewpoint (Parents): Parents may not be able to afford the cost of university education and would want their child to go to work and support the family. On the other hand, the parents may want the child to pursue university education so that he can get a better job and also support them financially in future.
- ✳ Government's Viewpoint: Students should pursue university education as long as they are able, so that they can get better jobs and are better able to contribute to the economy.
- ✳ University's Viewpoint: Students should pursue university education as far as possible so that the university can earn higher revenue and produce more graduates for the society.

4. Relevant information to support consumer's decision making

- ✳ Tuition fees
- ✳ Costs of the transportation expenses
- ✳ Cost of books
- ✳ Average wages of a graduate
- ✳ Career prospects

5. Constraints

- ✳ Household income
- ✳ Personal interests
- ✳ A-level or Diploma Qualifications

6. Benefits and Costs (Consumer's perspective)

- ✳ The costs of pursuing a university education are the costs of tuition fees, books and transportation expenses.
- ✳ The opportunity cost: The value of his next best alternative forgone could be the wages forgone from working.
- ✳ The benefits of pursuing a university education would be the higher future wages upon completion of the course, the knowledge gained and the acquisition of skills.

7. Decision made (based on weighing of benefits and costs)

- ✳ After weighing the benefits and costs, the student decides to pursue a university education (as the expected benefits outweigh the expected costs).

8. Intended Consequences

- ✳ The benefits and costs of an undergraduate education.

9. Unintended Consequences

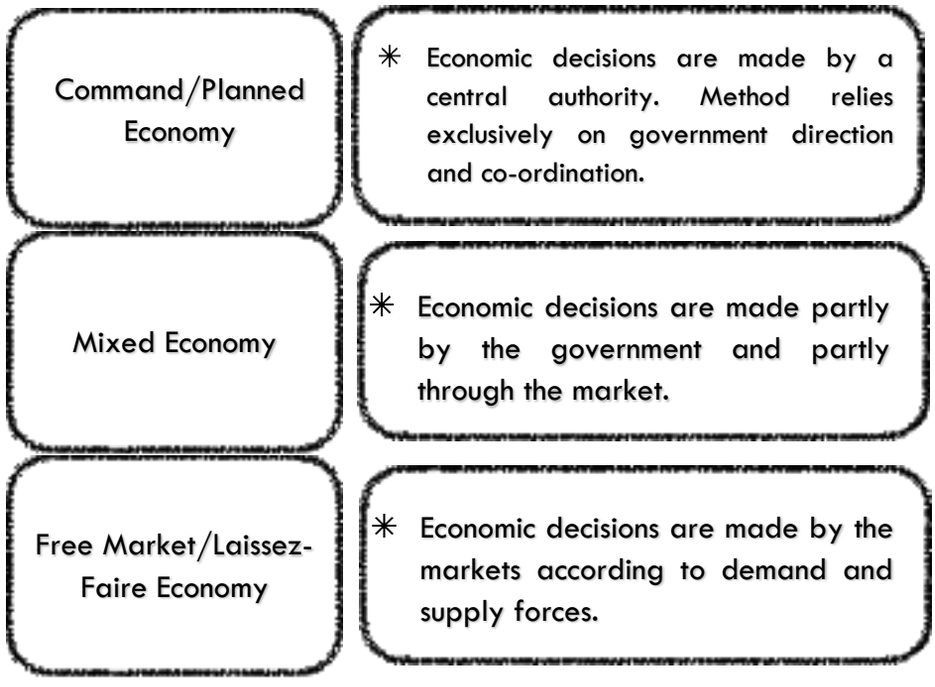
- ✳ The stress from the study.
- ✳ Leisure and family time forgone when he spends more time on his projects.
- ✳ Additional costs incurred due to failure to obtain a pass in certain modules and having to repeat the modules.
- ✳ Income earned from the internship during his university summer vacation.

10. Review of the decision made

*Subsequently, **the consumer** might review his decision (on whether to continue to pursue a second year of education in the university) after taking into account **changes** that have occurred over time (such as the changing needs of the family during the midst of a recession and the changing prerequisite of many jobs towards the need for a degree education) and the **unintended consequences** of pursuing an undergraduate education.*

Decisions made by students to pursue a university education can have **effects on others** – left to market forces, as the demand for university educations rises, the university tuition fees would increase, signalling **producers** (the universities) to increase the quantity supplied and, hence, the number of the intake would increase. The increase in the number of students enrolled in the university would have an impact on the economic growth of the country and a higher productivity of the future labour would have a positive impact on the firm's profits. The unintended consequences would be a rise in potential economic growth from the higher quality of its labour workforce and greater income inequality between the graduates and non-graduates. The **government** may intervene by subsidising the university tuition fees for Singaporean students to encourage students to pursue a university education and the government might also choose to intervene to address the rising income inequality between the graduates and non-graduates.

5. APPENDIX: HOW DIFFERENT TYPES OF MARKET ALLOCATE RESOURCES



In a free market economy, the allocation of resources is determined by the market forces of demand and supply based on the decisions of consumers and producers operating through the price mechanism. Most economies in the world tend to lie along the spectrum between these two extremes, with these economies mixed to some degree but varying the extent to which its government intervenes. Whichever economic system is adopted, the economic problem remains and choices must be made.