RAFFLES INSTITUTION

YEAR 5 H1 ECONOMICS

LECTURE NOTES (MICROECONOMICS)

ECONOMICS

MICROECONOMICS

CONTENTS

This section provides an introduction to the basic terminology and concepts of economics. It enables candidates to consider what markets and governments can and cannot do. It provides candidates with the opportunity to explain economic phenomena through the use of diagrams, data analysis and the evaluation of economic materials. It is intended to make candidates aware of the role of economics in real-world situations. It is expected that these concepts and principles are applied throughout the syllabus.

H1 Economics 8823 Syllabus Guide
(For your reference)

Economics

Singapore-Cambridge General Certificate of Education Advanced Level Higher 1 (2018)

(Syllabus 8823)

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Singapore Examinations and Assessment Board
CAMBRIDGE International Examinations

8823 ECONOMICS GCE ADVANCED LEVEL H1 SYLLABUS (2018)

INTRODUCTION

Desired Outcomes of Education and Learning of Economics in Singapore

The Desired Outcomes of Education (DOE) are attributes that educators aspire for every Singaporean to possess upon the completion of his formal education. These outcomes establish a common purpose for educators, and drive the Ministry of Education's policies and programmes.

The person who is schooled in the Singapore Education system embodies the Desired Outcomes of Education. He has a good sense of self-awareness, a sound moral compass, and the necessary skills and knowledge to take on challenges of the future. He is responsible to his family, community and nation. He appreciates the beauty of the world around him, possesses a healthy mind and body, and has a zest for life. In sum, he is

- a **confident person** who has a strong sense of right and wrong, is adaptable and resilient, knows himself, is discerning in judgment, thinks independently and critically, and communicates effectively
- a **self-directed learner** who questions, reflects, perseveres and takes responsibility for his own learning
- an **active contributor** who is able to work effectively in teams, is innovative, exercises initiative, takes calculated risks and strives for excellence
- a **concerned citizen** who is rooted to Singapore, has a strong sense of civic responsibility, is informed about Singapore and the world, and takes an active part in bettering the lives of others around him.

The learning of Economics is aligned with the Desired Outcomes of Education. Through the application of economic concepts, theories and principles, candidates develop the capacity to assess the role of economic agents in the allocation of scarce resources and adopt multiple perspectives in understanding real-world economic issues. Candidates recognise trade-offs and consequences that result from decision-making, to arrive at well-reasoned decisions. Candidates thus develop a set of knowledge, skills and values that will encourage them to take an active interest in the domestic and global economy as contributing and concerned citizens.

Disciplinary Thinking in A-Level Economics

Globalisation, changing demographics and technological advancements are some of the key driving forces of the future. To help candidates thrive in a fast-changing world, one of the key 21st Century Competencies emphasised in the Economics Curriculum is Sound Reasoning and Decision Making, under the domain of Critical and Inventive Thinking.

Given the importance of decision-making skills, the decision-making approach through an economic lens will be used to front disciplinary thinking in A-Level Economics, with the visual representation and outline as follows.

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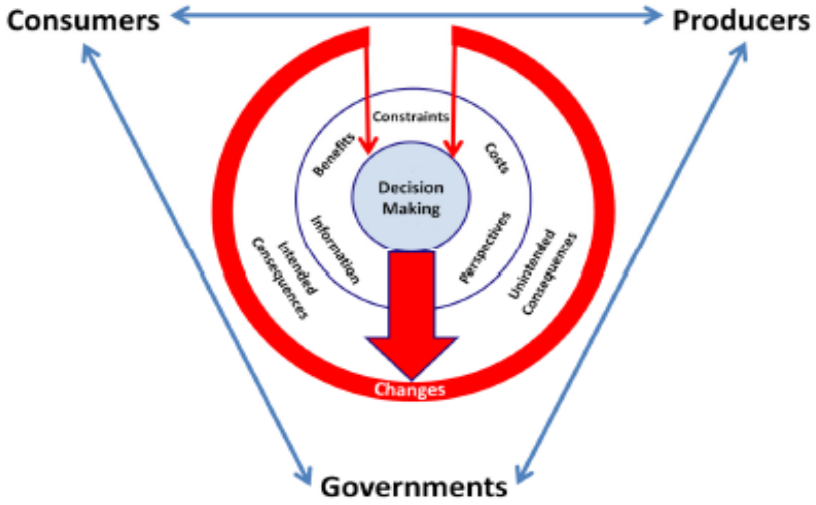
A Framework for Disciplinary Thinking in A-Level Economics



In light of the central economic problem of scarcity, decision-making is fundamental. Scarcity leads to the inevitability of choices and trade-offs. In the context of the Economics syllabus, decision-making is framed as a process where candidates analyse how decisions are made from the perspectives of different economic agents (consumers, producers and governments), adjusting for dynamic changes where appropriate. Candidates will have to take account of the benefits, constraints, costs, perspectives and other necessary information, while recognising the impact of the intended and unintended consequences arising from the decisions made and the corresponding trade-offs. Candidates will also recognise that decision-making by economic agents can have multifaceted implications, where decisions made by an economic agent can have an impact on other economic agents.

AIMS

The syllabus is intended to provide the basis for a broad understanding of economics, within half the curriculum time of the H2 Economics syllabus. Candidates will acquire a broad understanding of basic economic concepts and tools of analysis so that they are able to appreciate Economics from the perspectives of different economic agents. Candidates will also better appreciate the economic issues and policy considerations which they encounter in their everyday life. Specifically, the syllabus aims to develop in candidates:

1. an understanding of fundamental economic concepts, theories and principles, and of the tools and methods of analysis used by economists
2. the ability to use the tools and methods of economic reasoning to explain and analyse economic issues, and to evaluate perspectives and decisions of economic agents
3. the habit of reading critically, from a variety of sources, to gain information about the changing economic activities and policies at the national and international levels
4. the ability to use evidence in making well-reasoned economic arguments to arrive at rational and considered decisions.

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ASSESSMENT OBJECTIVES

Candidates are expected to:

AO1: Knowledge and Understanding
- Demonstrate knowledge and understanding of economic concepts, theories and principles.

AO2: Interpretation and Evaluation of Information
- Interpret economic information presented in textual, numerical or graphical form.
- Make valid inferences from information presented and evaluate the reliability of information given.

AO3: Application and Analysis
- Apply relevant economic concepts, theories and principles to analyse contemporary issues, perspectives and policy choices.
- Construct coherent economic arguments.

AO4: Evaluation
- Evaluate critically contemporary issues, perspectives and policy choices.
- Recognise unstated assumptions and evaluate their relevance.
- Synthesise economic arguments to arrive at well-reasoned judgements and decisions

SCHEME OF ASSESSMENT

Specification grid

The assessment comprises one compulsory written examination paper: Paper 1 (Case Studies).

H1 Economics	Description	Overall Marks (Weighting)	Duration
Paper 1 **Case Studies**	There will be two compulsory case studies. Candidates are required to answer all questions for each case study. Each case study carries 45 marks and constitutes 50% of the total marks. About 18 marks of each set of case study questions will be for data response questions, and about 27 marks will be for higher-order questions.	90 marks (100%)	3 hours

Description of Component

Paper 1 (Case Studies)
The paper will include two case studies. Each of these will consist of two to three pages of data presented in textual, numerical or graphical form. Each will present contemporary multifaceted economic issues or policies, which may be from one or more themes in the syllabus.

The data for each case study will be followed by six to eight part-questions, including sub-parts. These questions will require candidates to apply relevant economic concepts, theories and principles in analysing, synthesising and evaluating economic issues, perspectives or policies, with reference to the data provided.

About 18 marks of each set of case study questions will be for data response questions, and about 27 marks will be for higher-order questions.

Use of calculators
The use of a calculator as approved by the Singapore Examinations and Assessment Board is allowed.

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SYLLABUS CONTENT

The syllabus content comprises three core themes:
- Theme 1: The Central Economic Problem
- Theme 2: Markets
- Theme 3: The National Economy

Using the disciplinary thinking framework in A-Level Economics which focuses on decision-making, candidates will have the opportunity to explain, analyse and apply economic concepts, theories and principles through the above themes. Candidates will also evaluate economic issues and policy choices in a real-world context and appreciate the interconnectedness across the themes.

Theme 1: The Central Economic Problem
Theme 1 introduces candidates to the Central Economic Problem of unlimited wants and limited resources. Scarcity of resources necessitates choice and leads to decision-making. Through examining how the concepts of scarcity, choice and opportunity cost are faced by economic agents (consumers, producers and governments), candidates will be able to understand the Central Economic Problem facing societies, and how economic agents use available information, consider perspectives, constraints, costs and benefits in their decision-making. Candidates will also understand that decisions made by economic agents often have both intended and unintended consequences. This theme provides the foundation for the study of microeconomic and macroeconomic topics in Markets (Theme 2) and The National Economy (Theme 3) respectively where the decision-making approach and concepts of scarcity, choice and opportunity cost recur.
Theme 1.1 Scarcity as the Central Economic Problem
Economics Content
1.1 Scarcity as the Central Economic Problem 1.1.1 Scarcity, choice and resource allocation a. Concept of scarcity and the inevitability of choices by economic agents (consumers, producers and governments) b. Concept of opportunity cost and the nature of trade-offs in the allocation of resources 1.1.2 Rational decision-making process by economic agents a. Understanding objectives of economic agents • Consumers – maximisation of utility • Producers – maximisation of profits • Governments – maximisation of social welfare b. Recognising constraints c. Gathering information and considering perspectives d. Weighing costs and benefits in decision-making* e. Recognising trade-offs f. Recognising intended and unintended consequences *Note:* **A marginalist approach to weighing costs and benefits is the expected approach. Cost-Benefit Analysis (CBA) is not required.*

Theme 1.1 Scarcity as the Central Economic Problem
Concepts and Tools of Analysis
• Positive and normative economics† • Microeconomics and macroeconomics† • Scarcity, choice and opportunity cost • Production possibility curve (PPC) • Marginal cost, marginal benefit and marginalist principle • Maximisation of utility* • Maximisation of profits: Marginal Revenue=Marginal Cost* • Maximisation of social welfare: Marginal Social Benefit=Marginal Social Cost *Notes:* *†An awareness of the meaning of positive and normative economics, microeconomics and macroeconomics will suffice.* **An awareness of how consumers allocate resources to maximise utility and how producers maximise profits will suffice. Technical analyses of utility maximisation and maximisation of profits are not required.*

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Theme 2: Markets

In Theme 2, candidates examine how markets deal with the Central Economic Problem and how decisions are made by economic agents in markets. Theme 2 provides candidates with a microeconomic analysis of how markets function and how markets may fail to achieve efficient and equitable outcomes. Candidates will be able to understand how market forces of demand and supply interact to bring about market equilibrium. In addition, candidates will be able to understand that while decisions made by consumers and producers are necessary for the functioning of markets, these decisions may lead to inefficient and inequitable outcomes. Candidates will be able to discuss how governments may intervene through public policy measures to improve efficiency and equity while recognising limitations, unintended consequences and possible trade-offs of government intervention. This theme provides candidates with insights into real-world microeconomic issues and opportunities to deepen economic reasoning, analysis and application of microeconomic concepts to both Singapore and the global economy.

Microeconomic concepts and theories in Themes 1 and 2 provide the foundation for candidates to extend their understanding of the micro-economy to the macro-economy in Theme 3.

Theme 2.1 Price Mechanism and its Applications

Economics Content

2.1 Price Mechanism and its Applications

2.1.1 Price mechanism and its functions
- a. Resource allocation in a free market

2.1.2 Interaction of demand and supply
- a. Determinants of demand and supply
- b. Equilibrium price and equilibrium quantity
- c. Changes in demand and supply leading to changes in market equilibrium

2.1.3 Applications of demand and supply analysis to real-world markets*
- a. Responsiveness of consumers and/or producers
  - Price elasticity of demand – determinants and significance
  - Price elasticity of supply – determinants and significance
- b. Impact of market outcomes on consumers and producers*
  - Consumer expenditure and producer revenue*
- c. Rationale and impact of government intervention on consumers and producers
  - Taxes and subsidies
  - Price controls – maximum and minimum prices
  - Quantity controls – quotas

Notes:
**The focus is on the application of demand and supply analysis to any market. With reference to labour markets, Marginal Revenue Productivity theory of labour is not required.*
**Knowledge of consumer and producer surpluses is not required.*
**An awareness of how changes in producer revenue may affect producer profits will suffice.*

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Theme 2.1 Price Mechanism and its Applications

Concepts and Tools of Analysis

- Price mechanism
- Consumer sovereignty
- Ceteris paribus
- Effective demand
- Law of diminishing marginal utility*
- Demand curve
- Change in demand vs change in quantity demanded
- Supply curve
- Change in supply vs change in quantity supplied
- Determinants of demand – non-price factors
- Determinants of supply – non-price factors
- Market equilibrium – equilibrium price and quantity
- Market disequilibrium – shortage and surplus
- Price elasticity of demand and supply
- Consumer expenditure and producer revenue
- Taxes and subsidies
- Price controls – maximum and minimum prices
- Quantity controls - quotas

Note:
**Technical analysis of the law of diminishing marginal utility is not required. Knowledge of the law of equi-marginal utility is not required.*

Theme 2.2 Market Failure

Economics Content

2.2 Market Failure

2.2.1 Efficiency and equity in relation to markets

2.2.2 Market failure and its causes
- a. Public goods
  - Characteristics of non-excludability and non-rivalry
- b. Positive and negative externalities in consumption and production
  - Divergence between private cost/benefit and social cost/benefit
- c. Merit and demerit goods

2.2.3 Government intervention in markets
- a. Policy measures including taxes and subsidies, quotas and tradeable permits, joint and direct provision, rules and regulation, and public education in addressing market failure
- b. Effectiveness of policy measures

Note:
**Market dominance, factor immobility and government failure are not required. Knowledge of information failure in relation to merit and demerit goods will suffice. Detailed knowledge of information failure (such as asymmetric information, adverse selection and moral hazard) is not required.*

Theme 2.2 Market Failure

Concepts and Tools of Analysis

- Market failure
- Allocative efficiency
- Equity
- Deadweight loss
- Marginal private benefit and cost
- Marginal external benefit and cost
- Marginal social benefit and cost
- Social versus private (market) optimum
- Over-consumption and production
- Under-consumption and production
- Public goods
  - Non-excludability and non-rivalry
- Positive and negative externalities
- Merit and demerit goods

Theme 3: The National Economy

In Theme 3, candidates will use the concepts, theories and principles from Themes 1 and 2 to examine the problem of scarcity of resources and the concept of trade-offs at the level of the national economy. In particular, candidates will examine how governments make policy choices at the national level in order to improve living standards. In doing so, candidates will discuss how governments consider competing needs, weigh costs and benefits, recognise trade-offs and consequences in order to make policy decisions. Candidates will first gain an understanding of the concepts of aggregate demand and aggregate supply, the basic tools of macroeconomic analysis and an extension of the tools used for economic analysis in Markets (Theme 2). With an understanding of aggregate demand and aggregate supply, Theme 3 provides many opportunities for candidates to apply these concepts to analyse standard of living and government decisions at the national level. Candidates will understand the concept of standard of living and its significance for countries. Candidates will also examine domestic and external factors that influence economic growth, price stability, and employment, with a focus on how these factors affect a country's standard of living. In addition, candidates will also discuss the different policy options available to governments (namely discretionary fiscal policy, monetary policy and supply-side policies) and their effectiveness in achieving higher living standards.

Theme 3.1 Introduction to Macroeconomic Analysis

Economics Content

3.1 Introduction to Macroeconomic Analysis

3.1.1 Aggregate demand (AD) and aggregate supply (AS)*
  a. Factors affecting AD and AS
  b. Equilibrium level of national output and general price level

Note:
** An awareness of an increase in AD having a multiplied effect on national income will suffice.*

Theme 3.1 Introduction to Macroeconomic Analysis

Concepts and Tools of Analysis

- Aggregate demand and factors affecting aggregate demand
- Aggregate supply and factors affecting aggregate supply
- National output
- General price level

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Theme 3.2 Standard of Living

Economics Content

3.2 Standard of Living

3.2.1 Standard of living and its indicators*
- a. Material and non-material aspects

3.2.2 Factors affecting standard of living
- a. Economic growth
  - Sustainable growth
  - Inclusive growth (case of Singapore)
- b. Price stability
  - Inflation and deflation
- c. Employment
  - Full employment and unemployment

3.2.3 Macroeconomic policies to improve standard of living
- a. Discretionary fiscal policy
  - Government expenditure and revenue*
- b. Monetary policy
  - Centred on interest rates*
  - Centred on exchange rates (case of Singapore)
- c. Supply-side policies
  - Policies to improve quantity, quality and mobility of factors of production

Notes:
**Interpretation of economic information presented in textual, numerical or graphical form is required. Derivation of index numbers and computation of national income is not required.*
**National debt and methods of budget deficit financing are not required.*
**Determination of interest rates and exchange rates are not required. A broad understanding of the managed float in the Singapore context and flexible exchange rates will suffice.*

Theme 3.2 Standard of Living

Concepts and Tools of Analysis

- Standard of living
  - Material and non-material well-being
  - Gross Domestic Product (GDP) and Gross National Income (GNI)
  - Human Development Index (HDI)
- Income distribution
  - Income inequality
  - Gini coefficient
- Economic growth
  - Actual and potential growth
  - Sustainable growth
  - Inclusive growth
- Full employment and unemployment
  - Types of unemployment
- Price stability
  - Inflation and deflation
  - Consumer price index (CPI)
- Nominal and real concepts
- Discretionary fiscal policy
- Government budget surplus and deficit
- Monetary policy
  - Interest rates
  - Exchange rates
- Supply-side policies

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CENTRAL PROBLEM OF ECONOMICS

Outline of Contents

Reference

- Gillespie, Andrew. Foundations of Economics, 2nd Edition, New York: Oxford University Press

Lecture Objectives:

After the series of lectures, students should be able to:

- Explain the central economic problem.
- Illustrate the concepts of scarcity, choice and opportunity cost and the nature of trade-offs through the use of examples and production possibility curves.
- Explain that all economic agents facing the problem of scarcity make decisions in identifying their highest-ranked alternative, which aims to maximise their well-being. In the process of making these decisions, they are subjected to constraints and they have to recognise trade-offs of their decisions.
- Understand that economic agents weigh the incremental benefits against incremental costs in decision-making.
- Demonstrate awareness of the price mechanism and resource allocation in a free market economy.

1 WHAT IS ECONOMICS?

1.1 SOME ECONOMIC ISSUES

The global economy continues to be in a state of flux with the economic growth in China slowing down, the Eurozone economies remaining weak while the U.S is experiencing signs of nascent recovery. Major economies have started to turn insular in response to the negative effects of globalisation. Many people in African countries and other parts of Asia also continue to live below the poverty line. The uncertain effects of global warming and other man-made environmental problems like transboundary haze pollution impact the livelihoods of people in and cost governments affected regions millions of dollars. With the development of technologies that have already begun to disrupt traditional markets, governments around the world have to grapple with and respond to these new developments that are here to stay. Closer back home, economists warn that the economic growth of Singapore will slow down further if labour productivity does not increase.

What do these problems have in common? How can countries overcome these problems? What is the central theme underlying Economics?

1.2 DEFINITIONS AND CLASSIFICATIONS

The study of Economics involves extensive use of economic concepts. It is necessary to be familiar with how economists define economic concepts.

P Samuelson (1915-2009) *Economics is the study of how man and society **choose** to employ **scarce** productive resources which could have **alternative uses**, to **produce** various commodities (goods and services) over time and distribute them for **consumption,** now and in the future.*

"Wants" refer to all those things people would consume if they had unlimited incomes. Wants of people are unlimited. However, the resources used to satisfy these wants are, on the other hand, limited. **Depending on the context**, **"resources"** can refer to factors of production or inputs (e.g. land, labour, physical capital and entrepreneurship), income and time. "**Goods and services"** refer to anything that gives a person satisfaction or utility.

Economists study how people make use of the limited resources to satisfy their unlimited wants. They study the problem of **scarcity**.

What is the distinction between needs and wants?

Needs are finite and must be satisfied for people to survive. Wants, on the other hand, are unlimited and cannot be satisfied fully because of limited resources. Can you think of any examples?

1.2.1 Difference between Microeconomics and Macroeconomics

"*Economics is split between analysis of how the overall economy works (macroeconomics) and how single markets function (microeconomics).*"

- **Microeconomics** is a branch of economics that studies how individuals, households and firms make decisions to allocate limited resources, typically in markets where goods or services are being bought and sold. It further examines how these decisions and behaviour affect the supply and demand for goods and services, which in turn determines prices.
- **Macroeconomics** is the branch of economics that studies the entire economy. As such, it deals with economy-wide phenomenon such as changes in unemployment, the general price level and national income.

1.2.2 The Science of Economic Analysis

- **Positive and Normative Economics**

Positive economics is a branch of economics that describes and explains economic phenomena, focusing on facts and cause-and-effect behavioural relationships and includes the development and testing of economic theories.

A *positive* statement is a statement of fact (value-free). It may be right or wrong. By appealing to the facts, a positive statement **can be tested** for its accuracy.

Examples: The economy grew by 7% last year.

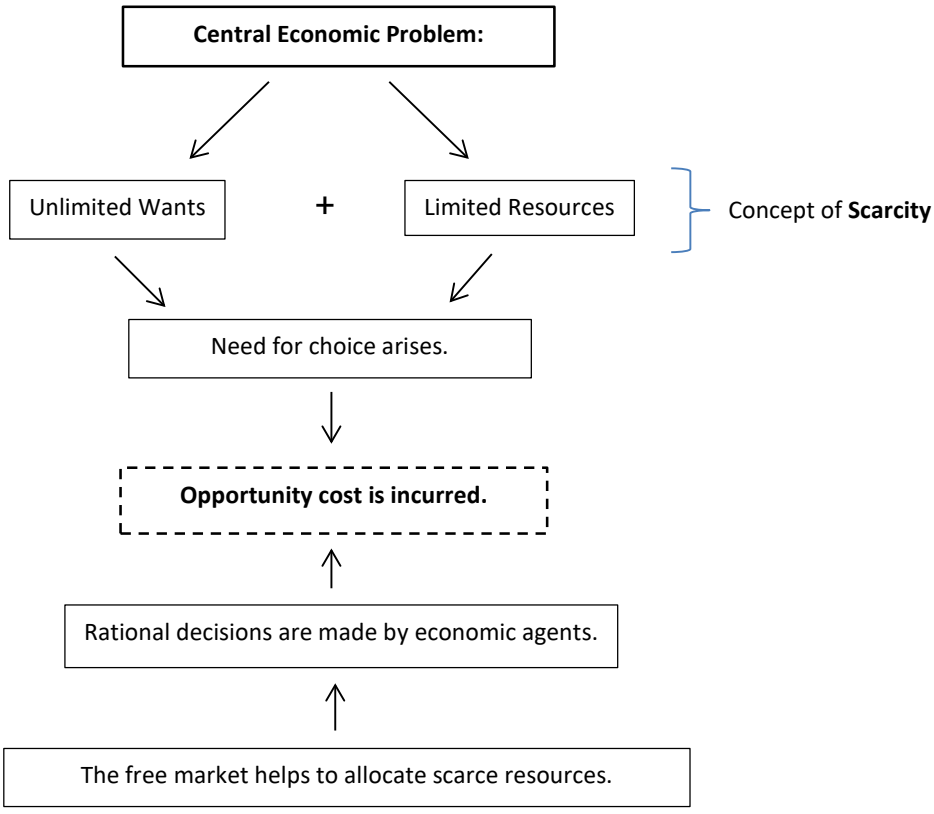
If GST is raised from 5% to 7%, the price of most goods will rise.

Normative economics is a branch of economics that expresses value judgements about economic fairness or what the outcome of the economy or policy measure(s) ought to be. They question whether they are good or bad and deal with what ought to be.

A normative statement is a statement of value: it is about what ought or ought not to be, about whether something is desirable or undesirable. Such statements cannot be proved or disproved. Often, they have their origin in positive statement but they **cannot be proven true or false by referring to objective data**.

Examples: The GST should not be increased from 5% to 7%. The rich ought to be taxed more than the poor.

1.3 OVERVIEW OF TOPIC



2 SCARCITY, CHOICE AND OPPORTUNITY COST

2.1 SCARCITY OF RESOURCES

All societies face the basic problem of **scarcity** due to **limited resources and unlimited wants.** Scarcity makes it necessary for us to make the most of what we have.

Resources here refer to **factors of production or inputs into the production process** and they are divided into four broad categories: land, labour, capital and entrepreneurship.

1. **Land**
   This includes all those **productive resources supplied by nature**. This means that it includes not only land in the conventional sense of plots of land but all those resources freely supplied by nature such as rivers, trees, minerals.

2. **Labour**
   Labour is **human effort** – physical and mental – which is directed to the production of goods and services. The labour force in a country includes those employed (those who have a job) and unemployed (those who are actively seeking for a job).

3. **Capital**
   Capital as a factor of production, otherwise also known as **physical capital**, refers to **man-made resources like machines, tools and factories**. Infrastructure such as roads, airports and telecommunication networks are essential forms of capital.

   We need to interpret the term "capital" in its given context.

Study Tip: The acronym **CELL** is a good way to remember the 4 factors of production:

C-Capital
E-Entrepreneurship
L-Land
L-Labour

Would you consider money, stocks and shares as factors of production?

No. Money, stocks and shares are paper assets, which are merely claims on physical assets. Hence, money, stocks and shares are not factors of production.

4. **Entrepreneurship**
   An entrepreneur is one that performs the functions of **organising and managing** the factors of production, **innovating** new products and ways of production and **taking the risks** of being in business. Entrepreneurs supply products into the market in order to make a profit.

2.2 INEVITABILITY OF CHOICES

- **Economy:** An economy has to make choices regarding the use of scarce resources to produce goods and services. There are 3 questions that an economy has to address:

1. What and how much to produce?
Since there are not enough resources to produce all the things that people desire, choices need to be made on what goods and services get to be produced and in what quantities. Society needs to choose the composition of total output to be produced. For instance, should the economy devote more of its scarce resources to the production of consumer goods or capital goods?

Study Tip: It is important to remember these 3 fundamental questions and discuss how well the free market addresses and solves these problems in the following topics.

2. How to produce?

Most goods can be produced by a variety of methods. Choices need to be made on the composition of resources used and the technology that is to be adopted. For example, should an economy adopt labour intensive or capital intensive methods of production?

3. For whom to produce?

The total output needs to be distributed among members of the society. How should this distribution be carried out? Should the good be made available for all regardless of a person's ability to pay or should its consumption be restricted only to those with the ability to pay?

2.3 OPPORTUNITY COST

Scarcity forces us to **choose** between our wants and in the process, **prioritise** our wants. Every time a choice is made, an ***opportunity cost*** is incurred. **Opportunity cost** measures the cost of any economic choice in terms of the **next best alternative that has to be forgone.** Opportunity cost measures choices in real terms (quantity of physical goods given up). Many examples of opportunity costs exist at the level of the economy and its economic agents.

Example 1 – Economy: As resources (or factors of production) are scarce, the opportunity cost of an economy devoting more of its resources to the production of new capital goods is the forgoing of production of new consumer goods.

Example 2 – Producer (e.g. Farmer): The opportunity cost of using arable farm land to produce wheat is that the land cannot be used for the cultivation of potatoes in the same production time period.

Example 3 – Student: 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, your opportunity cost is forgoing the **next-highest ranked alternative**, and **not** forgoing the sum of *all* alternatives. If you consider taking a nap to be the next best alternative, a nap would have been your opportunity cost of studying for one hour.

Example 4 – Consumer: With limited income, we cannot buy everything that we want. Assume that you were given S$500. Assume also that with the S$500, you can either buy a handphone or go on an overseas trip to Hong Kong or buy a new bicycle. Assume that your preferences are ordered as follows: (1) a new handphone; (2) an overseas trip to Bangkok; (3) a new bicycle. Based on your preferences, you will buy the new handphone. By doing so, you give up your second highest preference which is the overseas trip to Hong Kong. Hence your opportunity cost of buying the new Iphone X is forgoing the overseas trip to Hong Kong.

Example 5 – Government: The US government has limited financial resources. By choosing to increase spending on new military equipment, there will be less money available to improve the healthcare sector. The opportunity cost of increasing spending on new military equipment is forgoing improvement in some areas in the healthcare sector.

When education is provided free of charge, does it mean that no opportunity cost is involved?

Zero price does not mean zero opportunity cost. Even if education is provided free of charge, the provision of education still involves an opportunity cost. Providing education requires resources that could be used to produce other things like medical care services, parks or street lighting. Some things have to be given up so that other things can be produced, hence the popular saying by Milton Friedman, "There is no such thing as a free lunch."

Goods can be classified into economic goods and free goods.

Economic goods are those that use scarce resources in their production and hence production of economic goods involves an opportunity cost. Economic goods are also limited in supply relative to demand. Most goods are economic goods. On the other hand, free goods are those which take no resources to make them. Hence, free goods do not involve an opportunity cost. Can you think of examples of economic goods and free goods?

Evaluating the Concept "Opportunity Cost"

Economists assume that people rationally choose the most valued alternative. This does not mean we exhaustively assess the values of all possibilities as it takes time and effort to gather all that information. On top of that, the concept of opportunity cost is subjective and difficult to calculate.

- **Opportunity cost is subjective.**
  Opportunity cost differs between individuals and between societies. Only the individual making the choice can identify the most attractive alternative.

- **Calculating the value of opportunity cost is difficult.**
  Firstly, we often face difficulties ranking our preferences and putting an exact value on each one of them. When choosing one option over another, we seldom know the actual value of what was forgone because the next best alternative is "the road not taken". We only know what we expected to give up but not what we actually gave up.

  Secondly, acquiring information about alternatives is often costly and time consuming. Some choices are based on limited or even wrong information and hence, some choices turn out to be poor ones. However, at the time we made the choice, we thought we were making the best use of all our scarce resources, including the time required to gather information about your alternatives.

- **Opportunity cost may vary with circumstance.**
  Since opportunity cost depends on the alternatives, the opportunity cost of consuming a particular good or undertaking a certain activity will vary with circumstance. This is why you are less likely to study on a Saturday night than on a Wednesday night. On a Saturday night the opportunity cost of studying is greater because you have more alternative activities, and usually the expected benefit of at least one of these alternatives exceeds the expected benefit from studying.

Sectional Summary

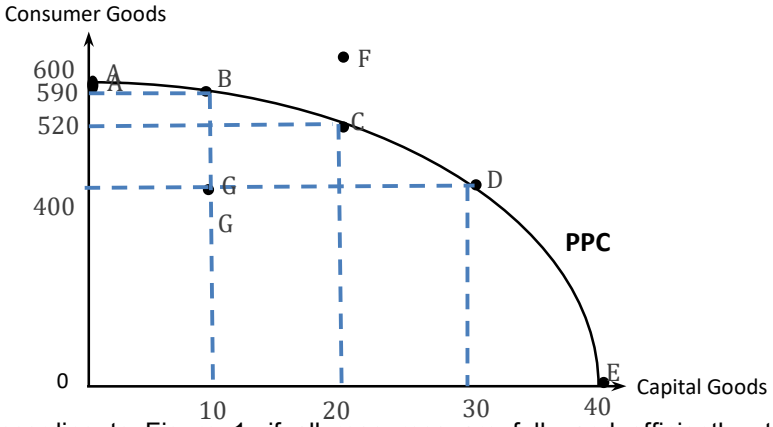
- Central economic problem all economies face is the problem of scarcity. Because of scarcity, choices need to be made and with those choices, opportunity cost is incurred.
- In the process of choosing how to make use of the resources, governments need to answer these 3 questions. 1) What and how much to produce, 2) How to produce and 3) For whom to produce.
- Resources or factors of production are Land, Labour, Capital and Entrepreneurship.

2.4 THE PRODUCTION POSSIBILITY CURVE (PPC) MODEL

The **Production Possibility Curve (PPC)** model can be used to illustrate concepts of scarcity, choices and opportunity costs. The **Production Possibility Curve (PPC)** is a graph that shows the maximum attainable combinations of output that can be produced in an economy within a specified period of time, when all the available resources are fully and efficiently employed, at a given state of technology.

When drawing a PPC for any economy, the following **assumptions** need to be made.
1) 2 types of goods produced
2) Fixed amount and quality of resources and all resources are fully and efficiently utilised
3) Fixed state of technology within the specified time period

Figure 1: The Production Possibility Curve Shows Possible/Alternative Combinations of 2 Goods Produced



- According to Figure 1, if all resources are fully and efficiently utilised in the consumer goods industry, the economy would produce a maximum of 600 units of consumer goods and no capital goods (point A). If all resources were fully and efficiently used in the capital goods industry, the economy would produce a maximum of 40 units of capital goods and no consumer goods (point E). If the economy were to divide its resources between the two industries, it could produce various combinations of consumer goods and capital goods, for example, combinations B, C and D. All points **on** the PPC represent **productively efficient levels** of production (for example, points A and C in Figure 1) because resources are **fully and efficiently employed** – the economy is **producing the maximum output possible**.

- Combination F is an example of an **unattainable** combination, given the current amount of resources and the state of technology the economy has. In other words, the economy can produce at any point on or inside the production possibility curve but it cannot produce at points outside the curve.

  Scarcity is illustrated by the unattainable combinations **outside** the PPC as well as the fact that society has to **choose among combinations** of the two goods as resources cannot be used to produce all at the same time.
  For example, if the economy is initially operating at point C and a decision is made to move to point D, the opportunity cost of increasing production of capital goods by 10 units (20 to 30 units) is 120 units of consumer goods forgone (520 to 400).

  The **downward (negative) slope of the PPC** illustrates the concept of **opportunity cost**. To choose to have more of one good means having to give up some of the other good, given that the limited amount of resources have been fully and efficiently employed.

- Combination G is an example of an **attainable but inefficient** combination. Resources have not been fully and efficiently employed. The economy is experiencing **unemployment** (in which not all the available resources are used in the production of goods and services) or **underemployment** (in which resources are engaged in production but are operating below their full capacity). More goods can be produced by increasing the employment of the idle resources or use them more efficiently. At point G, 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 point G to B.) Points **inside** the PPC (for example, point G in Figure 1) are **productively inefficient** because resources are either unemployed or underemployed – **the economy is not producing the maximum output possible**.

2.5 SHIFTS IN THE PPC

1. **Increases in quantity of resources**
   Should there be increases in any of the factors of production (labour, land, capital stock etc.), this will enable the economy to produce more than before. Should the increase in factors of production be equally applicable to both consumer and capital goods, there will be a parallel outward shift of the PPC from C_0F_0 to C_1F_1 (Figure 2). However, if the increase in resources affects the production of consumer or capital goods only, then the PPC will experience a pivoted shift such as from C_0K_0 to C_0K_1, as shown in Figure 3. In other words, as long as the increase in resources applies more to capital than consumer goods, the PPC will shift in a skewed manner, with the shift of the PPC on the capital goods axis being greater than the shift of the PPC on the consumer goods axis. Notice that the opportunity cost of producing capital goods in terms of consumer goods has fallen with this skewed shift in PPC (refer to Figure 3).

2. **Increases in quality of resources**
   Similarly, should the efficiency of the factors of production be improved (for instance due to skills upgrading of workers), the PPC will also shift outwards.

3. **Improvement in technology (tech advancement)**
   Technological improvement represents new and better methods of producing goods, for example, the use of computers. Technology can increase the productivity of resources/inputs such that for a given amount of resources/input, more output can be produced. If the technological change can enhance the production of both goods equally, there will be a parallel outward shift of the entire PPC (Figure 2). If the technological improvement is in the capital goods industry only, the PPC will shift in a skewed manner, as shown in Figure 3.

Question: Is it possible for the PPC to shift inwards? What can cause that to happen?

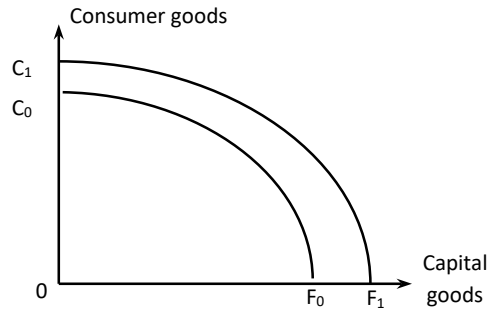


Figure 2**: Parallel Shift of the PPC**

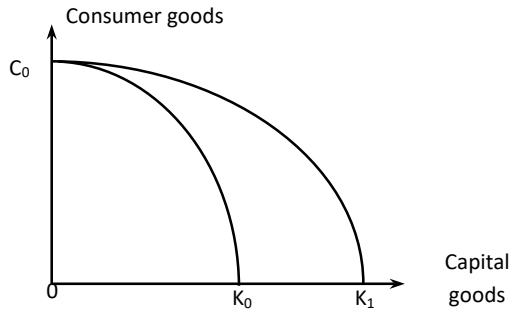


Figure 3**: A Rightward Skew of the PPC**

Sectional Summary
- The PPC can reflect the concept of Scarcity, Choice and Opportunity Cost. It can also reflect efficiency (which we will elaborate in future topics).
- The entire PPC can shift based on changes in 1) Quantity of resources, 2) Quality of resources and 3) improvement in technology.

3. RATIONAL DECISION-MAKING AND THE MARGINALIST PRINCIPLE

3.1 DECISION-MAKING UNITS OR ECONOMIC AGENTS

Decisions must be made regarding the use of scarce resources in any society.

If decisions must be made, who should make them? How are decision-making units in any economy typically classified? Economists typically classify them into firms, households and the government. The concept of choice applies to **all** decision-making units or economic agents in an economy.

Firms: A firm is an organisation that uses resources to produce goods and services. All producers are called firms.

Households: A household is any group of people living together as a decision-making unit. Every individual in the economy belongs to a household. When an individual buys and consumes goods and services, he or she is usually called a **consumer**. When he or she offers labour services, he or she is usually labelled "**labour**". If his or her job is mainly to organise factors of production, he or she will be called an **entrepreneur**.

Government: In economics, the government has a role in providing public goods, redistributing income, regulating markets and improving economic performance and standard of living in a country.

3.2 THE ECONOMIC DECISION MAKING PROCESS

The process of decision making often requires every economic agent to deliberate on the various choices that are available to them. This process involves the need to take into account certain considerations. These considerations include:

- **Constraints**: Economic agents have to consider the constraints they are facing in order to decide on the best-ranked choice that maximises their net benefit.

- **Costs and Benefits**: In making any decision, every economic agent would need to consider the monetary and non-monetary costs and benefits that result from making a choice.

- **Information**: In order to make arrive at an optimal decision, economic agents would need to gather relevant information to properly assess the costs and benefits of every choice. With this information, economic agents would be better able to not only understanding the costs and benefits of every choice, but also assess the **trade-offs** as well as analyse the **intended** and **unintended consequences** arising from the decision made.

- **Perspectives**: Every economic decision made by economic agents need to take into account the perspectives of relevant stakeholders since the impact on and the subsequent reaction of those affected by the decisions may in turn affect the intended outcome of the decision made.

3.3 MAKING RATIONAL DECISIONS

Key Concept: A rational decision weighs costs and benefits. In deciding how much to produce or consume, the marginalist principle (see below) is used.

The **basic assumption** of Economics is that all decision-making units make rational decisions. Rational decisions involve the weighing-up of the costs and benefits of any activity. Economic agents will always choose the alternative that **allows them to maximise their net benefit** (the difference between benefit and cost).

- **Firms:** Faced with scarce resources (or factors of production), firms have to decide what goods and services to produce in order to achieve its objective. Traditional theories of the firm assume that the firm seeks to maximise its profit. Hence faced with scarce resources, firms have to decide what goods and services to produce in order to yield the highest level of profit (Profit = Total Revenue less Total Cost). Firms also have to decide on how to produce these goods and services (i.e. the method of production).

- **Households – Consumers:** Faced with a limited income, households will select the particular combination of goods and services (holidays, food etc.) which yields the highest satisfaction/utility.

- **Governments:** Faced with budget constraints, governments aim to maximise social welfare. They will have to prioritise their spending. For example, the government needs to decide between welfare or infrastructure expenditure.

3.4 THE MARGINALIST PRINCIPLE

Marginalist Principle: Producing or consuming up to the point where the benefit from the last unit produced or consumed (marginal benefit) is equal to the cost from the last unit (marginal cost).

Most of our economic choices are made at the margin. The margin is the edge or border where we must decide whether to take one more step, whether to purchase one more unit of a particular good or whether to use one more unit of a particular resource. Rational choices made at the margin involve weighing up marginal costs and marginal benefits. These are the costs and benefits of doing a little bit more of a given activity.

Consumers use marginal analysis when buying.

- Economists assume that benefits can be measured and the benefit of consuming additional units of a product decreases with amount consumed. For example, the benefit derived from consuming the first cup of ice-cream will be higher than the second and the second would be higher than the third and so forth for subsequent units.
- We spend on one item until the benefits gained from spending on an additional unit (marginal benefit or MB) of that good is equal to the price of the good. The price is also the opportunity cost to the consumer since the income spent could have been used for the purchase of a different good.
- If MB > price, it is rational to choose to consume more of that good.

Firms/producers use marginal analysis to decide the level of production.

- The benefit to a car manufacturer is the amount of revenue he receives from the sale of the car.
- A profit maximizing car manufacturer produces cars until the production of one more car brings in the same amount revenue as its cost of production. That is, he compares the cost and revenue of the **additional** car produced. If an additional car adds more to the firm's revenue than to its costs, it will be profitable to produce 1 more unit of it. The firm should keep on producing additional cars until the additional revenue from selling that last car is equal to the additional cost of producing that last car.

Firms/producers also use marginal analysis when they decide how many units of a particular resource to use in production.

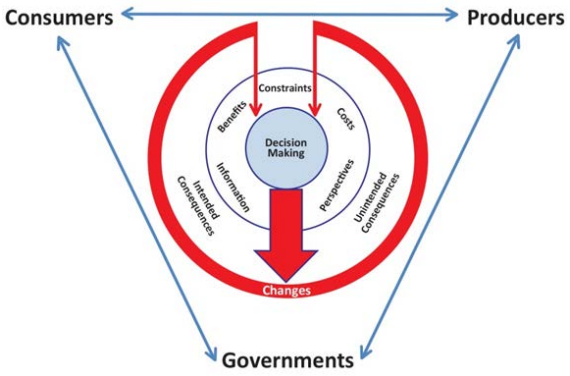
- They hire salespeople until hiring one more salesperson adds less to sales revenue than to costs

Governments use marginal analysis to make decisions and allocate resources.
Objective: Maximise Social Welfare

- Part of a government's role is to decide where tax money should be spent on to the benefit of the people.
- They may need to make choices on what projects to undertake or how many should be built (for example, schools).
- By considering the marginal social benefits (all parties, rather than just the consumers or producers) and marginal social cost, government will decide the allocation of resources that maximizes social welfare.

In effect, our entire economic system makes decisions at the margin. We increase production until one more unit of output is worth equal to the resources required to produce it. In this way, we help ensure that our scarce resources are used to produce the things we want most.

In summary, the economic decision making framework can be represented as below.



Sectional Summary

- Marginalist principle is whereby decisions are made at the margin; where the marginal cost and marginal benefits of an activity are considered in the decision making process.
- Consumers: Marginal Utility (Benefit) against Marginal Cost (Price)
- Producers: Marginal Revenue against Marginal Cost
- Government: Marginal Social Benefit against Marginal Social Cost

4. RESOURCE ALLOCATION IN A FREE MARKET ECONOMY

All societies are faced with the problem of scarcity. The way in which society addresses the 3 fundamental questions on resource allocation differs from country to country. The degree of government control over the economy gives rise to different economic systems.

At one extreme lies the completely **free market economy** where there is no government intervention at all. There is private ownership of all resources and individuals and firms take all economic decisions. Producers are free to make and sell whatever output they think will be profitable. Consumers are free to buy whatever goods they can afford. This entire voluntary buying and selling is coordinated by *unrestricted markets*, where buyers and sellers make their wishes known.

The ***price or market mechanism*** refers to the system of allocating resources using price adjustments caused by market forces in a free market economy. *Market prices* guide resources to their highest valued use and direct goods and services to consumers who value them the most. The allocative and distributive functions of prices will be explained using demand and supply analysis in the next topic.