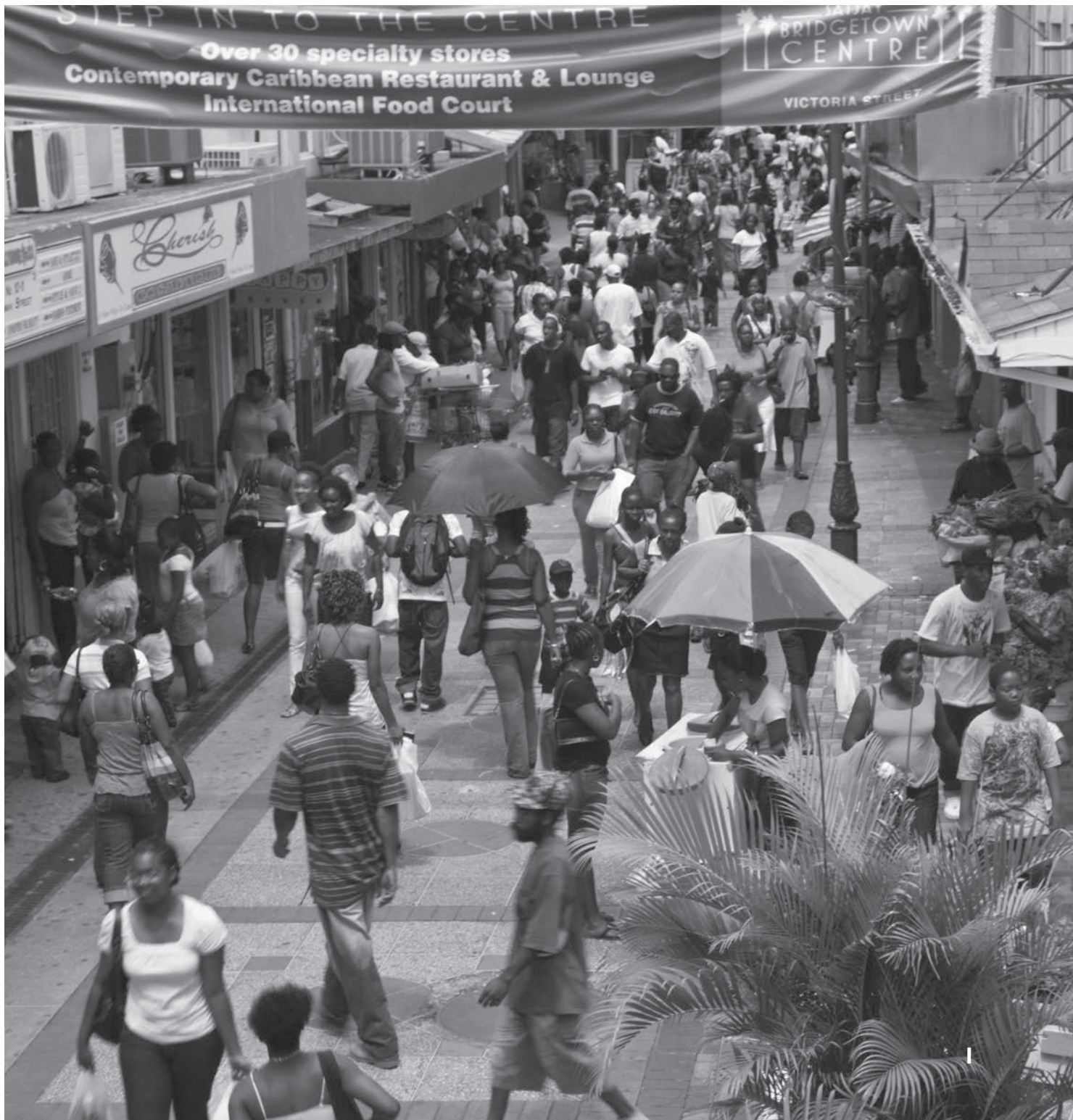


Chapter I

The Economic Problem



Learning Objectives

By the end of this chapter you should be able to:

- Define scarcity
- Explain opportunity cost
- Explain the production possibility frontier and decreasing, increasing and constant costs
- Identify three main choices – what, how and for whom to produce
- Describe economic systems – subsistence, free market, planned and mixed economy
- Explain Pareto optimality

Exam tip

All examination questions focus on learning objectives.

Exam tip

Always support your definitions with examples, formulae or diagrams.

Introduction

Scarcity exists when unlimited human wants cannot be satisfied because resources are limited – e.g. housing.

Resources generally consist of land, labour, capital and human enterprise, for example:

- **LAND** – anything above or below the ground that is provided by nature – e.g. air, sunshine, fish and minerals;
- **LABOUR** – human mental or physical effort of any kind – e.g. surgeon;
- **CAPITAL** – producer goods which enable future production – e.g. machines;
- **ENTERPRISE** – human resource which organizes and coordinates the other factor inputs to produce goods and services.

The three most basic choices all societies must make are:

- **What to produce** – this refers to the type of goods and services to be produced;
- **How to produce** – this relates to the combination of factors of production that should be used;
- **For whom to produce** – this relates to the distribution of goods and services.

The distribution of goods and services may take the following forms:

- Lotteries;
- Rationing;
- Food stamps;
- A system of merit or need;
- A price system;
- Queues.

Opportunity cost

Opportunity cost is defined as the sacrifice of the next-best choice whenever economic decisions are made. The opportunity cost of building a school is therefore giving up the next-best option of constructing a hospital.

Opportunity cost is illustrated by a diagram called a 'production possibilities frontier' (PPF) or a 'production possibilities curve' (PPC).

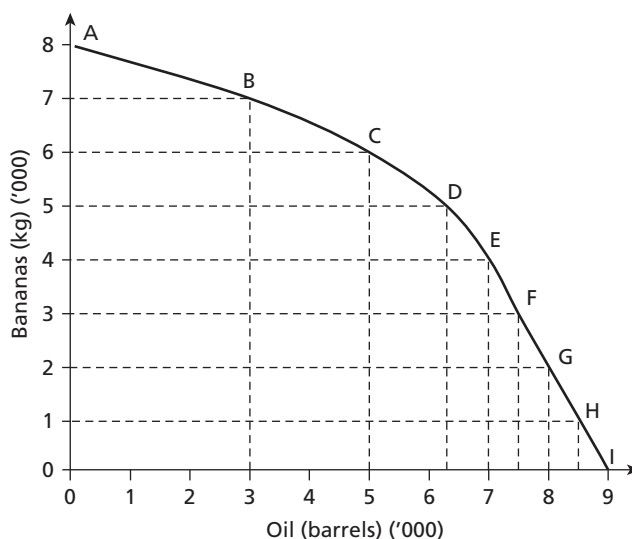


Figure 1.1 Combinations of a production possibilities curve showing increasing opportunity cost

A PPC shows the maximum of different combinations of two types of goods that a country's resources can produce. The assumptions that are made when drawing the PPF are:

- There are only two goods;
- Technology is fixed;
- No foreign trade exists;
- Output is measured on a yearly basis;
- The level of resources is fixed;
- Output is measured in units;
- Resources are perfectly mobile.

Note:

- A maximum of 8000 kg of bananas can be produced and 0 barrels of oil.
- A maximum of 9000 barrels per day (bpd) can be produced and 0 kg of bananas.
- Since society needs both goods, moving from combination A to B requires the allocation of resources from banana production to oil.
- 1000 kg of bananas are sacrificed to produce 3000 barrels of oil at a ratio of 1 kg of bananas to 3 barrels of oil.
- This exchange results in a loss of 1 kg of bananas to gain 3 barrels of oil.
- The opportunity cost of choosing combination B over A is 1000 kg of bananas given up.

The reason for the concave shape of the PPF

- The shape of the PPF is concave due to the law of increasing costs.
- Referring to Figure 1.1 shows that moving from combination A to combination B sacrifices the resources producing 1000 kg of bananas to achieve 3000 bpd of oil.
- Moving down the PPF to combination C, D, E and F, the same 1000 kg of bananas given up yield 2000 barrels of oil for combination C, but not for combination D, E and F.
- From B to C yields 2000 bpd, C to D 1300 bpd and only 500 barrels of oil for combinations E to F.
- This is so because resources are more suited to banana production than oil production.
- Also, adding extra resources to oil production eventually causes the rate of production to decrease.
- This is called the **law of diminishing returns** or the **law of increasing costs**.

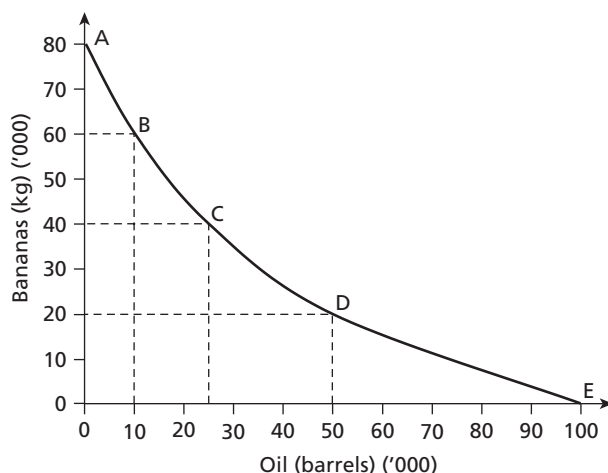


Figure 1.2 The convex shape of the production possibilities frontier showing decreasing opportunity cost

Note:

Also observe that in Figure 1.2.

- Moving down the curve between points A to D results in sacrificing resources producing 20 kg of bananas to produce an increased number of barrels of oil. For example, from combination A to B, 20 kg of bananas are given up to gain 10 barrels of oil.
- From combination C to D, the gain in oil is 25 barrels, and D to E the gain is 50 barrels. This is the **law of decreasing opportunity cost** or the **law of increasing returns** in production.

Exam tip

Differently shaped PPCs and points in and out of the curve appear as questions for both Papers 1 and 2.

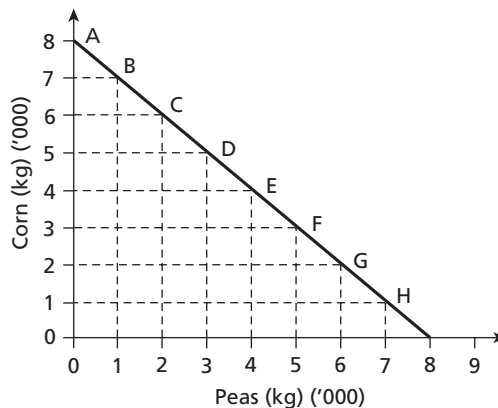


Figure 1.3 Combinations of the linear production possibilities frontier showing constant opportunity cost

The linear PPF

Observations on Figure 1.3:

- The linear PPF curve in Figure 1.3 shows that moving from combinations A through F indicates a 1:1 ratio – 1000 kg of corn given up would yield 1000 kg of peas.
- Resources are equally productive when they are allocated to either good.
- This phenomenon is the **law of constant opportunity costs**.
- This curve is typical of production of similar goods – e.g. production of corn and peas.

Points within and outside of the PPF

Note the following in Figure 1.4:

- Point X (i.e. 40,000 bananas and 50,000 bpd of oil) indicates that resources are inefficiently employed, or that there are unemployed resources yielding a lower output of both goods.
- Moving to point X_1 (75,000 bananas and 90 bpd of oil) and using idle resources yields more of both goods. This point illustrates efficiency in production.
- Over time, new technology and innovation may shift the curve outward resulting in production of more of both goods – point X_2 .

This is also referred to as **long-term economic growth**.

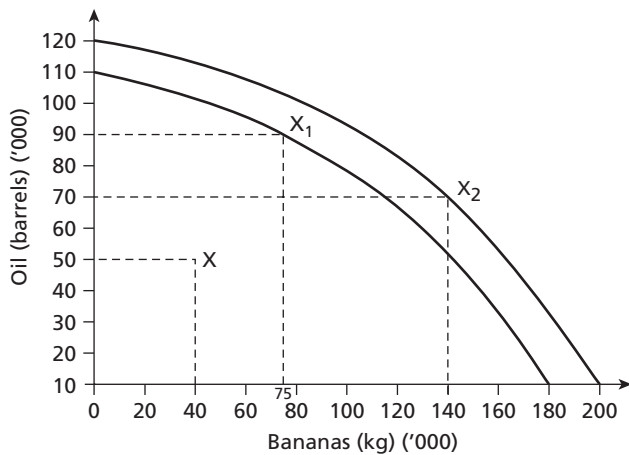


Figure 1.4 Combinations showing points within and outside of the production possibilities frontier

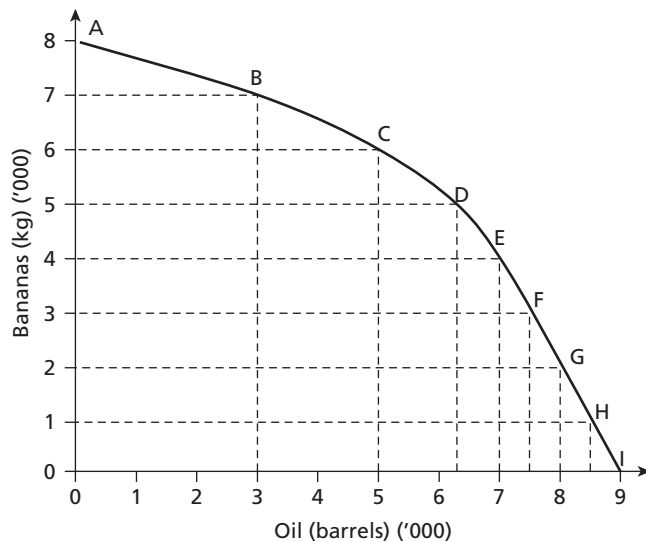


Figure 1.5 Possibilities curve showing Pareto optimality

Pareto optimality

- Pareto optimality or Pareto efficiency is achieved when it is impossible to allocate resources to improve the position of some persons without reducing the position of others.
- Pareto optimality exists on all points on the PPF.
- In Figure 1.5, for example, changing combination B to combination C makes oil producers better off by 2000 bpd of oil but at the loss of 1000 kg of bananas to banana producers.
- Pareto optimality therefore implies the very best possible outcome for the efficient use of resources.