Chapter 1
Fundamental Economic concepts

1.1 What is Economics all about?

Economics is a **social science** focusing on human behaviour and social interactions. Ultimately, it is about how individuals, groups and organisations choose to allocate their limited resources to achieve their goals and/or satisfy their needs and wants. It's about how these economic agents respond to various incentives and weigh up the costs and benefits associated with any course of action. At the core of Economics is the problem of **relative scarcity** [See Section 1.2], where our limited resources continually force us to make decisions about how they should or could be used. Importantly, the use of these relatively scarce resources is typically guided by considerations related to both efficiency and equity (fairness), and this changes over time as societies evolve.

Economics is all around us. Each person makes what might seem to be small and insignificant economic decisions, but when aggregated, these decisions are likely to have consequences that the original decision maker may not have considered. Economics therefore tries to explain the underlying factors that affect decision making, and analyses and evaluates the short-run and long-run consequences of these decisions. For example, one would hope that your on-going economics education will give you a better understanding of both the costs and benefits associated with your own decision making, as well as more insight into the different perspectives that can be held on various issues involving economic decision making.

As you continue to develop your knowledge of Economics, you may be faced with a number of key questions that economists have attempted to answer. Try to think deeply and creatively about possible solutions to some of these problems and create questions of your own. In some cases, the answers posited by economists may challenge your way of thinking. This is good for your learning and highlights the fact that economists often disagree, and are engaged in regular debate. By the time you have finished Units 3 and 4, you are likely to think differently about a number of issues and your decision making may be assisted as you develop a deeper understanding of the tools and theories used by economics.

Over time, economists have branched out into many areas of knowledge (some of which are beyond the scope of the VCE Economics course). Here is a sample of some of the questions and issues that economists have considered:

- How do people choose which goods and services that they consume?
- How do producers decide what they will produce and how they will produce it?
- How are these choices influenced by new discoveries and technological change?
- Why are some people paid significantly more than others?
- What factors influence the level of income earned and why do some people become unemployed?
- Why do prices change for goods and services?
- Why do governments intervene in markets and how are living standards affected by such intervention?
- What factors influence world trade and how does interaction with the rest of the world influence Australia's living standards?
- Why does poverty occur and why are some countries richer than others?
- How do government's respond to global economic shocks, such as the disruption caused by pandemics such as COVID-19?

Economics as a discipline often faces much criticism. The models developed by economists are often based on a number of simplifying assumptions and these lead to conclusions and decision-making that may, in some cases, not lead to the best outcomes for the majority of society. The economic theories that are presented throughout this book may sometimes conflict with your own experience and understanding of the world. You are encouraged to question the nature of these theories and the assumptions that underpin them. Unlike a traditional science subject, the outcomes are not, for the most part, absolute facts, and critical thought and creative thinking are therefore encouraged in the study of Economics.

Microeconomics vs Macroeconomics

Many economics courses are divided into the study of microeconomics and macroeconomics. **Microeconomics** is the study of the economic behaviour of individual consumers as well as businesses. The first area of study in the Unit 3 course has a microeconomics focus. In this area of study, the role of markets and the price mechanism is discussed as well as the factors that influence buying and selling decisions.

Macroeconomic analysis builds on this foundational knowledge developed in microeconomics and attempts to explain economy-wide phenomena. Our study will look at the government's aggregate economic goals such as the rate of growth in the volume of production, the percentage of those who are considered unemployed and how quickly the general level of prices is rising. In Unit 4, the policy interventions used by the government will be considered in terms of their effects on the key macroeconomic goals.

Activity 1a: Macro or micro?

Complete the table to indicate whether the issue is predominantly a microeconomic or macroeconomic one:

Concepts/factors/events	Micro	Macro
The shortage of cars in the Australian market due to a lack of key resources		
The decision by the government to increase the assistance provided to first home buyers		
An increase in the inflation rate above the target of 2 to 3% on average over time		
The increasing number of workers who are employed as casuals		
A decision by the government to halve the excise tax on petrol		
A decision by the Russian Government to invade Ukraine		
A decrease in the total volume of production due to floods on the east coast		
A decrease in the price of Economics textbooks		
The closure of a local bookshop due to increased competition from online sellers		
An increase in the allocation of resources to the production of avocadoes due to their perceived health benefits		
The opening of new urgent care health clinics		

Why don't economists agree?

Economists often disagree on key economic relationships and how various events might affect individuals or groups in an economy. At the time of writing, the world economy was experiencing slower rates of economic growth, combined with strong growth in the general level of prices (and therefore the cost of living) caused by a range of factors. These factors included the ongoing global conflicts (such as the war in Ukraine and tensions in the middle east), global supply chain issues, higher international shipping costs, the transition away from fossil fuels, ongoing natural disasters and stronger growth in government spending. Not surprisingly, there was much disagreement about how to best tackle the combined effects of these, and other factors.

Despite the healthy debate amongst economists about a wide range of contentious issues, there does seem to be some agreement among the majority of economists with regard to some key principles. A number of these key principles were explicitly stated by Gregory Mankiw, a Harvard Professor and former adviser to George W. Bush. Mankiw is the author of the best-selling economics textbook in the world. These principles are related to how people make decisions (1 -4), how people interact (5 -7) and how the economy as a whole works (7 -10). These principles are summarised in Table 1.1 and become a useful starting point for any discussion about the economy. The principles outlined by Mankiw reflect a well-accepted view of key economic conclusions, but not all academics (Economic or otherwise) accept these principles. You are encouraged to revisit this table as your knowledge of economics deepens.

Table 1.1 Mankiw's "Ten Principles of Economics"		
1	People face tradeoffs	In order to get something you like, you usually have to give up something else.
2	The cost of something is what you give up to get it	Whenever a decision is made the decision maker looks at the explicit costs but also include the value of what they have given up.
3	Rational people think at the margin	This is another way of saying that a rational person will do something if the extra benefit of doing so exceeds the extra cost associated with the action.
4	People respond to incentives	The behaviour of people will change when the costs and benefits associated with any action change.
5	Trade can make everyone better off	Trade allows people and countries to specialise in what they do best. By trading, a country's citizens are generally able to buy more goods and services and therefore increase living standards.
6	Markets are usually a good way to organise economic activity	In his 1776 book *An Inquiry into the Nature and Causes of the Wealth of Nations*, Adam Smith observed that households and firms interacting in a market act as if they are guided by an "invisible hand" that leads them to desirable market outcomes. Prices are generally seen as the way the invisible hand works its magic.
7	Governments can sometimes improve market outcomes	In some cases markets are unable to efficiently allocate resources (referred to as market failure). In these cases governments develop public policy to re-allocate resources to those areas that will maximise society's wellbeing.
8	A country's standard of living depends on its ability to produce goods and services	Income is derived from the production of goods and services, so producing a greater volume of goods and services will increase living standards. Increases in productivity will mean that more goods and services can be produced from a nation's resources thereby increasing income and living standards.
9	Prices rise when the government prints too much money	When the government creates large volumes of its money, its value will fall. If this is the case, and there are the same number of goods and services available, then it makes sense that more money will be needed to purchase a given good or service.
10	Society faces a short-term trade off between inflation and unemployment	Reducing inflation often results in a temporary increase in the unemployment rate because it may require policies that reduce the ability of consumers to spend.

As you proceed through this book and gain a deeper understanding of economics, keep Mankiw's principles in mind. Try to regularly reflect upon and question whether Mankiw's principles are able to accurately describe human behaviour and the economic outcomes you have observed yourself. For example, one notable ecological economist, Herman Daly, would argue that there is inadequate reference to the environment in **Mankiw's principles**, arguing that instead, these should be a key starting point for any discussion of Economics and economic decision making. Other economists, who question the **neoliberal model** presented by Mankiw, argue that his models oversimplify economic theory and omit the ways in which markets can degrade human well-being, undermine societies and threaten the planet. If you have studied Unit 1 Economics, you may also question the nature of the rationality principle as you will have investigated instances where humans make seemingly irrational choices (see Box 1.1).

One of the challenges associated with learning about Economics is that the media and politicians often misinterpret and deliberately distort elements of economic theory to present an argument that suits their agenda. Unfortunately, some of what you are presented with may in fact be 'econobabble', where aspects of economic theory have been conveniently manipulated (or ignored) to convince the public that their decisions/ideas are justified. This means that when you access any media report on Economics, it is important to consider the motivations of the writer and their level of understanding of key economic issues. Where possible, try to access an alternative viewpoint, especially when considering contentious issues. Be wary of simplistic (populist) solutions to complex problems. As a student of Economics, you have therefore chosen a path where the answers are not always obvious (and there may not always be a right answer) and you will need to reflect constantly on what you are learning. While this may appear challenging at first, the rewards will come as you develop a deeper understanding of the human condition and our role in the world.

You are therefore encouraged to begin your studies of Economics with an open mind. Future generations will need solutions to the challenges associated with managing the economy, such as how to promote long term economic growth that is also sustainable, how to address the issue of intergenerational equity, how to reduce the manipulation and exploitation of consumers, how to avoid a future economic crisis, how to deal with the challenges related to climate change, how to make property more affordable and how to reduce government debt.

Box 1.1 Economists make assumptions

When economists develop their models and theories, they often make simplifying assumptions about human behaviour and the way variables might interact with one another. As we progress through the textbook, it might be useful to reflect upon and regularly challenge these assumptions to deepen your understanding of the relevant theories. You may also gain some insight into why it is often difficult for economists to make accurate forecasts and predictions. Four of the key assumptions that economists make are outlined below.

1. Ceteris Paribus

Economists often want to know how one variable (such as price) affects another (such as the demand for a particular product). As you discover in the next chapter, economic theory suggests that an increase in price will result in a decrease in demand for the given product. This relationship is made using the assumption ceteris paribus, which means that all of the other factors that might affect the decision to buy the product at a point in time are held constant. The ceteris paribus assumption is unlikely to reflect the real world but it helps to isolate key economic relationships. Econometric programs can test the validity of economic theories by isolating the effect of the two (or more) relevant variables.

2. Rational economic decision making

Economists also assume that humans are rational decision makers. This assumes that whenever a decision needs to be made, an economic agent will consider all of the relevant information and weigh up the potential costs and benefits. This assumption inherently implies that consumers (in particular), have access to perfect information and know exactly what they are buying. It might also suggest that humans are devoid of emotions and that they can process the information necessary to make the decision. Behavioural economists have devoted years of research to the questioning of this key assumption.

3. Consumers are utility maximisers and firms are profit maximisers

Many of the established models of economic behaviour (one of which will be covered in the next chapter), assume that individuals seek to maximise their utility. This means that they will, for example, purchase those goods and services that they believe will generate the highest level of individual satisfaction. The models also assume that firms will make decisions that maximise their profits (which is equal to their revenue minus their expenses). Inherent in this assumption also is that economic agents are acting in their own self-interest.

4. Diminishing marginal utility

The consumer is assumed to benefit from greater (rather than less) consumption of a good or service. This is why products may be described as goods (rather than bads!). It is generally assumed, however, that each additional unit of a good does not necessarily generate the same degree of satisfaction. Economists argue that the more of a good or service that is consumed per period, the smaller the increase in total utility (satisfaction) that is generated from the last unit. This is referred to as **diminishing marginal utility.**

1.2 Relative Scarcity: needs and wants

If you ask someone who may have studied Economics what it is about, they may initially struggle to provide you with a concise explanation. As we have seen in Section 1.1, there are a vast array of issues that could be considered in an economics course. Economics is often described as a subject about incentives, choices, and consequences. It is essentially focused on the management of a society's scarce resources to maximise a society's wellbeing. Most economics courses therefore start from the premise of **relative scarcity.** Something is seen as scarce when it is desired but access to it is limited. We start by making the (perhaps challengeable) assumption that our collective needs and wants can never be fully satisfied (they are therefore considered **infinite**). In contrast, the resources needed to meet all of our needs and wants have physical limits (they are therefore **finite**).

All economies face the problem of relative scarcity, no matter how wealthy or resource-rich they are. Therefore Economics studies how different **economic systems** attempt to allocate scarce resources (discussed in Section 1.3) to

meet the needs and wants of their people. In fact, one could argue that the problem of scarcity is likely to get worse over time as more and more of the world's finite resources are consumed and the size of the human population increases.

Economists often distinguish between needs and wants when they discuss relative scarcity. A **need** is seen as good or service that is deemed to be necessary for one's survival. As societies evolve over time, what is considered a need by some individuals (in rich industrialised nations like Australia) may be seen by others as a want (those who may be living in a less developed nation like Zimbabwe). A **want** is therefore a good or service that is not necessary for one's survival, but consumption of which adds to the quality of one's life. Most would accept that food, water, clothing and shelter are needed for survival, but what about telecommunications services, electricity and healthcare? Are these needs or wants? Like many areas of Economics, there is no definitive answer and each person will express a different opinion on how they perceive each of these 'products'. The economic models that are discussed throughout this book are based on another key economic assumption; households seek to maximise their needs and wants through their interactions in the economy and that for most people, these needs and wants cannot be fully satisfied. In other words, as one need or want is satisfied, another will emerge in its place. For example, you might be about to each lunch, but you will need to access more resources tomorrow and the next day, etc.

Study tip

Many of the theories and models that will be investigated in this course will be based on key assumptions. Assumptions are often needed to develop a theory and to explain key relationships between economic variables. While it might seem like an obvious assumption that 'needs and wants can never be satisfied' there will be some theorists and some individuals around the world who would openly question the validity of such a viewpoint. Therefore, as you progress through the course, pay particular attention to the assumptions that are explicitly stated and how these might affect the validity of economic predictions. [Also see Box 1.1 'Economists make assumptions']

Economics as a discipline tries to improve the experience of humanity by seeking (constantly) to overcome the problems created by relative scarcity. Scarcity makes it necessary for economic decision making to allocate resources to best meet the needs and wants of society. Economic agents cannot have everything they want and usually have a limited income they can use to meet their desires. They also cannot work 24 hours per day and therefore need to allocate their scarce labour resource to that area of production that a) is within their skills set and b) will maximise their wellbeing (which may include, but is not totally limited to, the ability to purchase the goods and services that are available). Economics continually seeks to understand why humans make the choices they make and then tries to analyse the consequences of these choices for the economy as a whole and for a number of key stakeholders.

1.3 Resources and the key economic questions

An **economy** is a place where scarce resources are allocated among competing uses. Economists distinguish between three main types of **resources** that can be used to produce goods and services to meet the needs and wants of the people on the planet. For this reason, they are also referred to as **factors of production**, where the quantity and quality of these factors of production has a big impact on national living standards or welfare. The three factors of production are as follows:

- **Land or natural resources** refers to all those resources that occur in nature. These can be **utilised** in the production process to generate more elaborate products or consumed in their raw form. Examples of such resources include water, forests, minerals, land, animals, fruit and vegetables. It may seem obvious, but all production ultimately depends on natural resources.

- **Labour** refers to the mental and physical effort by humans in the production process. For example, your teacher is currently exerting effort to provide you with an education and your doctor has to think deeply when presented with the challenges associated with diagnosing a patient. A construction worker may be involved in more physical effort than some other professions. In some cases people will become unemployed or leave the labour force (covered in Chapter 5) and may therefore be unable (or unwilling) to contribute their labour resource to the production process.

- **Capital** refers to those resources that have been made by combining labour and natural resources to create a more sophisticated input in the production process. Capital goods are made with the intention of making more goods and services in the future, and generally these will increase the efficiency with which natural resources can be converted into end-use products for consumption. Examples of physical capital include machinery, tools, factories, infrastructure and artificial intelligence.

In some texts you will see reference to a fourth type of resource (or factor of production) referred to as **entrepreneurship** or **enterprise**. This refers to the skills of those individuals who combine resources to produce goods and services. They take financial risks to establish enterprises and are extremely important to wealth creation for every nation. They not

only include high profile entrepreneurs like Jeff Bezos, Gina Rinehart or Janine Allis, but include the owners of every small or medium-sized business in existence. This type of scarce resource typically forms part of 'labour resources,' given that entrepreneurs are providing their expertise or skills to the business sector of the economy.

Due to the existence of relative scarcity (limited resources and unlimited demands), all **economic agents** and all economies need to make choices. These choices can be guided by answering three key basic questions:

1. What goods and services will be produced and in what quantities?

All economies must decide on the different goods and services that should be produced. For example, the Australian economy produces more education services than it does television sets. Economic theories have been developed to explain why this occurs. In a predominantly market-based economy (such as Australia), the question of what and how much to produce is assumed to be answered through the interaction of demand and supply of independent self-interested consumers and producers. What to produce will also be affected by government decision making. For example, during the COVID-19 pandemic, the Australian Government purchased millions of faces masks to protect medical professionals, and later purchased millions of Rapid Antigen Tests to increase the likelihood that education services could continue to be provided. However, there were a host of temporary measures that were introduced which limited the production of goods and services, such as laws preventing live venues from opening and the forced closure of some 'high risk' manufacturing facilities (such as meat processing plants).

Study tip

A note about language. In Economics, you will come across a lot of new terms. One term you will see often is 'utilise'. Some students assume this is just a fancy way of saying 'use'. Technically, in Economics, we talk about 'utilising' our resources or 'capacity utilisation' to signify that we mean they are being used for some benefit or being used effectively.

Study tip

In Economics, we often use the expression 'economic agents' to refer to any entity (such as a person, household, government or business) that makes economic decisions.

2. How will the goods and services be produced?

This key economic question looks at the methods of production that are employed to meet the needs and wants of society. Producers need to decide on the degree to which the production process is labour intensive or how effective it might be to replace labour with technology, such as artificial intelligence. This decision is likely to be affected by the relative price of the resources. For example, some countries have an abundance of labour and lower wages which might encourage manufacturers to employ more people in the production process. Generally speaking, these decisions will be made by businesses to maximise their profits (another key assumption). How to produce will therefore be heavily influenced by the costs and benefits associated with different production methods. In some cases, the government will influence how goods and services are produced. For example, governments often require that firms alter their production processes to meet occupational health and safety standards. Alternatively, governments will typically legislate for minimum wages to apply across the country. These types of interventions will tend to increase the cost of labour relative to capital, and influence how firms produce goods and services.

3. For whom will these goods and services be produced?

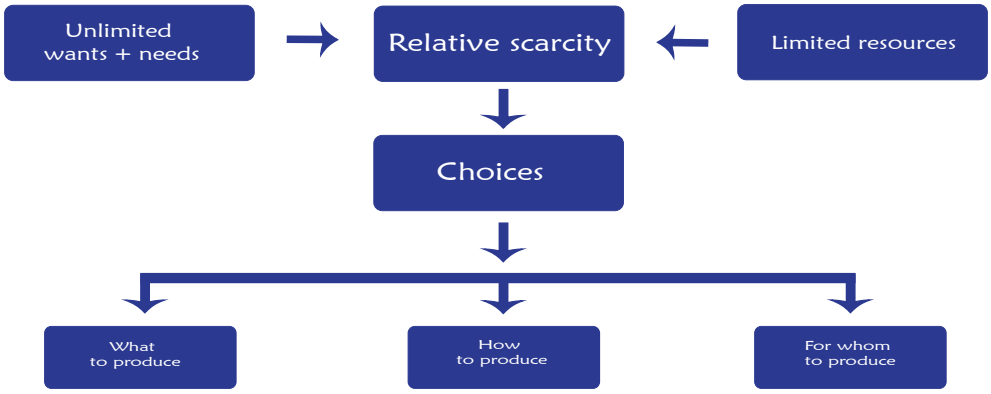
The final key question that all economies must consider is associated with the **distribution** of the benefits derived from production. Once the goods and services have been produced and made available for consumers, how might an economy decide who gets to enjoy them? Should the decision be based on the ability to pay or should need or social standing be a relevant determinant? The approach taken by economies when answering this question is the cause of much debate, and like many areas of economics there is not a definitive solution that will satisfy all relevant economic agents. In Australia, this question is largely answered based on who can afford to buy what is produced (which is affected by the value of their economic contribution to the production process). It is therefore heavily linked to markets. In most countries (and in varying degrees), the government will redistribute incomes (via taxes and transfers) to alter the access to goods and services as well as provide some essential items at reduced or zero prices. As you will discover in Chapter 3, the government will produce those goods and services that benefit society but may not be profitable for businesses in a free market (i.e. one without government intervention).

Study tip

In the VCE 3/4 Economics course, we focus on the role of the Australian Federal Government and how it influences resource allocation. In reality, all levels of government (which includes State and Local governments) play an active role in re-allocating resources to areas considered to be in the national interest. They influence each of the key economic questions, which is further discussed in Activity 1b.

Figure 1.1 highlights the core economic problem faced by all economies, characterised by an imbalance between our unlimited needs and wants and limited resources which results in scarcity and the need to make key economic decisions about how resources will be allocated. Box 1.2 refers to general options available to countries when deciding which economic system will deliver the best outcome.

Figure 1.1
Relative scarcity and choices



Box 1.2 Different systems used to allocate resources

Market capitalism

A market is any place that allows buyers and sellers to interact and exchange goods and services. This interaction and exchange may or may not take place in a physical space. A market system is therefore one that allocates resources based on the buying and selling decisions of consumers and producers. Prices give signals, which influence the behaviour of these buyers and sellers. Capitalism refers to an economic system where the majority of productive resources are owned by private individuals and firms. Capitalists will therefore use their assets to generate revenue which motivates them to provide the goods and services that are demanded.

Planned Socialism

A completely different type of economic system is one in which the government is primarily responsible for resource allocation. Governments may make long-term and short-term plans about what to produce, how to produce it and who receives the production after it is produced. This is referred to as a planned economy. Socialism indicates that the majority of productive assets are state owned (owned by the people of the country collectively) and therefore no one can benefit excessively from producing goods and services.

Planned Capitalism

An unusual economic system may evolve whereby the government directs the private owners of productive assets to produce certain goods and services. Therefore the output of the country is planned. This has been used by countries during war time when the owners of factors of production are directed to the production of goods and services that are needed for defence. In this system, the ownership of factors of production remains with private individuals, and so it continues to be called a form of capitalism.

Market Socialism

Under this system the government owns most of the resources (socialism) but markets determine what goods and services are ultimately produced (market system). For example, the businesses may be owned by the government but their operations would be left to independently appointed management who would try to maximise profits based on what consumers wanted most.

Review Questions 1.1 - 1.3

1. **Explain why Economics is often referred to as a social science and describe the key elements of social sciences.**
2. **Outline why there exists disagreement between economists.**
3. **Outline why the predictions made by economists will often be different to the predictions made by other social scientists.**
4. **Define the term relative scarcity. Explain why this is such an important concept when studying Economics.**
5. **Discuss the concept of relative scarcity with respect to the time you have available to undertake all of the activities you want to complete today.**
6. **Distinguish between microeconomics and macroeconomics.**
7. **Provide examples and explain the importance of each of the 'factors of production'.**
8. **Identify the three essential economic questions that each economy seeks to answer. Using Australia as an example, explain how the economy might answer each of these questions.**

Activity 1b: Quick Thinking Activity?

Consider a dairy farm. Identify and classify factors of production that might be used to produce a range of dairy products.

Natural	Labour	Capital

Activity 1c: COVID-19, supply chain disruptions and scarcity

During the early stages of the COVID-19 pandemic, many goods and services experienced increased scarcity. This was evident in many supermarket aisles where there were empty shelves. Toilet paper, hand sanitiser and paper towels were virtually impossible to buy in some neighbourhoods. Once Rapid Antigen Tests (RATS) were made available, people would go to their local chemist and find that there were none available for purchase. This might be described as a situation where there is a temporary increase in the degree of scarcity, with most economists believing that it was unlikely to persist for an indefinite period. The scarcity encouraged economic agents to make choices. Some decided to drive around from pharmacy to pharmacy, some queued up for long periods, while others went in search of the tests from resellers (at inflated prices). Others simply chose to go without until they were more widely available. The government also intervened to reduce the degree of scarcity by providing free tests to all students and teachers.

The different approaches taken by governments to the COVID 19 pandemic also had an impact on relative scarcity around the world. Many governments imposed strict lockdowns, which reduced the availability of a wide range of products. However, as vaccines became available, most economies opened up and scarcity (while always present) was slowly reduced. After two years of the pandemic, Shanghai, a city of 26 million people was again forced to lockdown. This not only had repercussions for local citizens, who faced a scarcity of food and essential medicines, it also caused major disruptions to supply as factories were forced to close down and truck drivers were not available to transport products to ports. This resulted in supply disruptions around the world and highlighted the interconnectedness of nations and how government decisions in one country can affect scarcity in many others.

When scarcity for a product, or a range of products, increases, it means that needs and wants are increasingly being unmet. Some people may not be able to access those goods and services that meet their needs (they cannot, for example, purchase the food they need to survive). The supply chain disruptions also meant that car manufacturing was delayed (because key components are made in China). New car buyers had to wait for an extended period of time before their wants were met (so the increased degree of scarcity was temporary). When needs and wants cannot be met, markets do adjust. The most noticeable changes that both consumers and businesses saw was rising costs and prices. This helps to determine (at least in part) the answer to the third of the key economic questions – for whom to produce? The higher prices highlight how economies typically ration the scarce products, with those willing and able to pay the highest prices being the ones in the best position to enjoy the consumption of the relevant goods and services.

Questions

1. **What is meant by the term relative scarcity?**
2. **Identify three products that have been increasingly scarce over the last two years.**
3. **Explain how government decisions in Australia may have temporarily increased the degree of relative scarcity in the economy.**
4. **With reference to a relevant example, explain the link between relative scarcity and the need for choice.**
5. **With reference to the above text, and your knowledge of economics, explore the possible consequences of increasing levels of scarcity.**

1.4 Choice and opportunity cost

If scarcity is described as the basic economic problem, then it is evident that not every need and want of humans can be met. The problem of scarcity has not yet been solved, even in the richest economies.

Economists argue that every decision that humans make involves a cost. By devoting this minute to writing these words, the author is intrinsically sacrificing their ability to allocate their time to their second-best alternative. While the authors see the writing of this book as their best choice, they also acknowledge that there is a cost in doing so (which is how economists tend to think). For example, the second best choice might be the design of a highly engaging lesson plan.

Study tip

When students are asked about the opportunity cost of a particular decision, they sometimes create a list of all the possible alternatives. Remember that the opportunity cost is only referring to the value or net benefits that would have been enjoyed if the next best alternative was selected. There is no need to mention the 3rd, 4th or subsequent choices as part of the answer. It is also important to remember that the value of the choice foregone is not the choice itself, but rather the net benefit that would have been gained by making that choice.

Whenever you are faced with a choice, there may be a myriad of alternatives available to you. Consider the allocation of your time on Friday night. You may be able to go to the movies with your friends, chat with a potential love interest online, eat dinner with your parents or sit in your room and learn more about the interesting theories developed by economists on human behaviour. Once you have made a choice, you have essentially foregone (given up) the ability to undertake the alternatives. However, economists are only interested in the second-best alternative when considering the **opportunity cost.** It can be defined as the value (or net benefit) that is being sacrificed, or would have been enjoyed, if the next best alternative was selected.

Consider your decision to read this chapter in preparation for your first assessment task at school. Assume that you have wisely decided that this is the 'best' use of your time. While you might not agree, the fact that you are actually reading these words is evidence that you have made this your first choice. In doing so, you may have sacrificed many alternatives such as those mentioned in the previous paragraphs. Let's assume that you are reading this book late into the evening so your second best choice may be getting a good night's sleep so that you can concentrate better in class tomorrow. By choosing to read the book, you may in fact be foregoing the benefits that are associated with deep restorative sleep. This is your opportunity cost – the **value** of what you have given up in making your choice.

Opportunity cost can be measured in a number of ways. Let's consider the decision to buy a new iPhone (even though your old one might still be working). A person with no background in Economics may think that the cost of the purchase is the price paid. A person who has studied Economics, however, will realise that the opportunity cost has not been fully considered in this buying decision. The person who foregoes $1500 to purchase the new phone may no longer be able to afford to take an overseas holiday. The benefits associated with this holiday is the real cost of the purchase, if this was indeed the next best alternative. If the person has a mortgage, then the opportunity cost might be the benefits associated with paying off their home loan sooner . It is important to remember that there can only be one opportunity cost, and that is the value or net benefits attached to the next best alternative that has been foregone.

1.5 The production possibility frontier

One way of illustrating the concept of opportunity cost and to show how an economy might allocate scarce resources, is to use a simple model of the economy called the **production possibility diagram** (or production possibility frontier or curve – PPF or PPC.) Given that an economy must decide what goods and service it will produce to satisfy its citizens' needs and wants, it would be reasonable to assume that there are an excessively large number of combinations of goods and services that could be produced in a nation. The combination that is ultimately chosen can be reflected using this simplified model. Whenever a combination of goods/services is produced using the available resources, it follows that another combination will no longer be achievable (i.e. there will be an opportunity cost).

Generally speaking, a production possibility diagram is a simplified model that looks at the **trade-off** between producing two particular goods or services. For example, we could assume that an economy could devote all of its resources to the production of goods or services (or a combination of both goods and services). The model could be simplified further

to show the decision to produce computers or guitars (or any other conceivable alternatives). The PPF could be used to illustrate a range of trade-offs including:

- The allocation of hours in a day between working and leisure activities
- How an economy allocates resources towards consumer versus capital goods (which might shift the PPF outwards)
- How a farmer allocates her scarce land between the production of strawberries and raspberries
- How an economy allocates its resources between goods that are harmful and those that promote wellbeing.

The simplest PPF model assumes that an economy can produce only two goods. When a PPF is constructed it is also assumed that:

- the economy has a fixed amount of land, labour and capital
- the resources are being used in the most efficient way to maximise production.

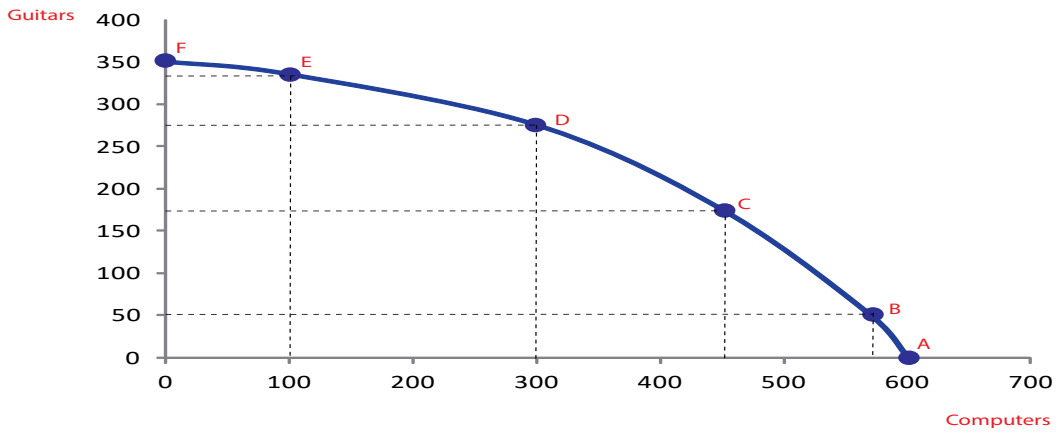
Table 1.2

Production combinations	Production of computers (units per year - million)	Production of guitars (units per year - million)
A	600	0
B	570	50
C	450	175
D	300	275
E	100	335
F	0	350

If the data above is transferred to a Production Possibility Frontier (PPF), then it would appear like Figure 1.2, with the production of guitars on one axis (in this case the y-axis) and production of computers on the other axis (x-axis).

The PPF highlights a number of ways that the economy could allocate its scarce resources. The economy can choose, for example, to allocate all of its scarce resources to the production of computers (at which point they would produce 600 million computers and no guitars). If they were able to achieve this point along the PPF then it is said that they have efficiently allocated their resources (using one measure of efficiency called technical efficiency which will be discussed in Section 1.6).

Figure 1.2: Production Possibility Frontier



The PPF indicates that any point could be chosen and in doing so there would always be trade-offs. Once a point on the PPF has been reached, the only way to move to another point is to give something up. For example, the economy could move from point A - where it was making only computers and the total output was therefore 600 computers- to point C - where it is now making 175 guitars, but only 450 computers. In making this shift – a reallocation of resources – the economy will gain 175 guitars, but in doing so it will no longer be able to produce 150 of the computers. This loss of 150 computers is the opportunity cost of producing the first 175 guitars. By producing more guitars and fewer computers, the economy has effectively changed its allocation of resources (there is a reallocation of resources because more land, labour and capital will be devoted to the production of guitars and less will be devoted to the production of computers when compared to point A). This could be due to a number of factors, many of which will be discussed in Chapter 2. In a **market capitalist economy**, the combination of guitars and computers that is chosen will usually be determined through

the interaction of demand and supply and therefore be heavily influenced by the needs and wants of consumers and the supply conditions that prevail in the market.

Important information to note about this PPF:

- A movement along the PPF to the right and downward means a country is allocating more to the production of computers and less to the production of guitars. To increase production of computers the economy must **sacrifice** the production of guitars. The opportunity cost of producing extra computers is therefore measured in terms of the lost production of guitars.
- Production points outside the PPF are not achievable today. This highlights the economic problem of relative scarcity and the need for choice. The economy simply does not have enough resources to reach a production point outside its PPF, since its PPF represents the maximum possible output using all its resources efficiently. However, an economy could manage to consume at a point outside its PPF if it chose to specialise in the production of one good, such as guitars and traded some of these in exchange for computers, which may be produced cheaper/more efficiently in another country. The economy may also choose to consume more than their economy is capable of producing through **external borrowing**, but this may be associated with lower consumption levels in the future. These options will be discussed further in Chapter 7.
- Over time, a country may expand its **productive capacity** and therefore the PPF will shift out and to the right. This would indicate that there can be an increase in output of *both* computers and guitars. This could be achieved if there are discoveries or availability of new resources that can be utilised in the production process (such as land, labour or capital), or people develop more efficient production techniques, whereby more output can be generated from the existing resources (the inputs). This will be discussed in Chapter 4.
- Points inside the current PPF indicate that the economy is not allocating its resources efficiently. It may also mean that some resources are either **underemployed** or **unemployed** (see Chapter 5) as the maximum potential production levels are not being attained.

In reality, no economy is likely to produce at a point on its PPF because all economies have some unemployment and labour (and other factors of production) will not always be utilised in the most efficient manner. The PPF can also be used to discuss the concept of efficiency and the different ways that economists can measure the efficiency of resource allocation. This is covered in Section 1.6 below.

Review Questions 1.4 - 1.5

1. Define the term opportunity cost and explain how it is intrinsically linked to the concept of relative scarcity.
2. Consider the decision to purchase a new car. Explain how an economist would include the concept of opportunity cost into their decision-making process. What might be the opportunity cost of such a decision?
3. Think of a critical choice you have made in the last week and describe the opportunity cost associated with making this decision.
4. Outline the possible opportunity costs associated with the following decisions:
   - purchasing a lottery ticket
   - eating an apple
   - going for a run
   - smoking a cigarette.
5. Explain how a production possibility diagram demonstrates the trade-off between producing two products. What are the key assumptions associated with the construction of such a model?
6. Refer to Figure 1.2, which highlights the production possibilities for a small hypothetical economy.
   a. If the economy moves from point A to point B, they can produce 50 guitars that were not previously possible. What is the opportunity cost of this decision?
   b. Describe the economic problem that might result if there was only demand for 100 computers and 200 guitars.
   c. An economy seeks to achieve the most efficient allocation of resources. In your own words, describe what this would mean for the hypothetical economy shown in Figure 1.2.
   d. If the people valued guitars and computers equally, what would be the most efficient allocation of resources for this economy?
   e. If the consumers of the economy wished to consume 500 computers and 200 guitars, how could the economy consume this amount? What problem might this create?

1.6 The nature and types of economic efficiency

This first chapter has focused on the nature of the economic problem and how economies attempt to answer the three key economic questions of *what to produce, how to produce and for whom to produce*. Ultimately the economy will need to allocate its scarce resources to produce the goods and services that best meet the needs and wants of its citizens. The **allocation of resources** that is achieved is therefore a discussion of where land, labour and capital are utilised in the production process and which particular combination of goods and services are produced by the economy. Should the economy produce more guitars or computers? Is land allocated to the farming of beef or soybeans? Do more people work in medicine or the farming of the land? These are key questions for any economy and economists are also interested how efficiently resources are allocated. They want to know not only if production is being maximised, but also whether efforts are being made to maximise society's wellbeing. Is the economy able to respond quickly to changing preferences and circumstances and does an emphasis on meeting the needs and wants of current generations come at the expense of future generations? Each of these questions can be evaluated by looking at the different measures of **efficiency** discussed below.

Allocative efficiency

The **most efficient allocation of resources** will be one that is able to maximise the satisfaction of the needs and wants of society. If resources are allocated efficiently, the goods and services that people gain the highest level of utility from will be produced in the best possible way (i.e. the right goods and services will be produced, using the most efficient production methods). Goods and services will be made in the right quantities and will generally go to those people who value them the most.

When allocative efficiency occurs, no resources will be wasted, and it will be impossible to make someone better off without making someone else worse off. From a production point of view, the cost of producing a given output is minimised (or maximising the output from a given quantity of inputs) and from a consumption point of view, the goods and services produced by society will provide the highest level of 'collective' satisfaction.

While this ideal may never be achieved in reality, it is certainly possible to make assessments about whether resources are being allocated more efficiently over time. A reduction in waste or higher living standards for a society may be some of the indicators used to assess whether a society is allocating its resources more efficiently. It may also occur when markets clear and there is no shortages or surpluses of certain goods or services. With reference to Figure 1.2 earlier, only one point on the PPF will be considered **allocatively efficient**. This will occur when the allocation of resources chosen maximises society's wellbeing. In a market economy this will be determined through the interaction of demand and supply (which will be discussed in Chapter 2). Prices, which are assumed to be a measure of the additional benefits that consumers generate from each unit of consumption, provide producers with a valuable signal that can help determine where they allocate their scarce resources. It would be unrealistic to expect that any economy will be able to achieve allocative efficiency, but it provides a benchmark against which the current allocation may be measured.

Technical (or productive) efficiency

This type of efficiency is said to occur when it is not possible to increase output without increasing inputs (resources). Therefore the most **technically efficient** point of production occurs where productivity is at a maximum and where average costs are at a minimum. Technical efficiency could therefore be improved if workers are able to produce more goods or services per hour worked (an increase in labour productivity). With reference to Figure 1.2, it is assumed that all points on the PPF are technically efficient because all resources are fully employed and being utilised efficiently.

Dynamic efficiency

This refers to how quickly an economy can reallocate resources to achieve allocative efficiency or how quickly an economic entity can reallocate its resources from one activity to another. This type of efficiency therefore relates to the speed of adjustment and economists are interested in how quickly and how easily resources can be reallocated so that needs and wants can be maximised in any economy. With reference to the PPF, a dynamically efficient market would be one where the movement of resources from the production of guitars to computers could occur quickly if the demand for computers were to increase for some reason. This would require mobile resources and a flexible workforce whose skills are transferrable.

Because prices are often seen as **'sticky'** (i.e. slow to adjust) it takes some time before resources are reallocated to where they are best able to meet the needs and wants of society. For example, some markets may be dynamically inefficient because it is not possible to quickly reallocate resources. If there was a week of horrible weather that resulted in fewer people attending the movies, it would be very difficult for the movie theatre operators to change how they allocate their cinemas. They may still need to show the movie even if the cinema is half empty, which is not maximising output using available inputs. During the COVID-19 pandemic, it was evident that some businesses adapted much faster than others, switching from one area of production to another area that suddenly experienced an increase in demand. As mentioned earlier, some producers of alcohol were quickly able to alter their production process to meet the demand for hand sanitiser.

Successive Federal Governments from both sides of politics have encouraged flexibility in a range of markets to promote dynamic efficiency, for, by example, deregulating markets or removing subsidies that distort the price signals that alter the allocation of resources. Reforms to the way wages and conditions are determined in labour markets have also been designed to reduce rigidities that would otherwise slow down the rate at which organisations can respond to changing market conditions.

Inter-temporal efficiency

This type of efficiency focuses on balancing the allocation of resources between different time periods. Economic agents are increasingly concerned about how resources are managed not only now but whether they will be available to meet future needs and wants. If resources are consumed in excessive proportions by current generations then future generations may suffer a relative decrease in their living standards (therefore sacrificing allocative efficiency in the future). Alteration of the earth's delicate ecosystem due to our current actions, could also create greater problems associated with relative scarcity in the future. This may mean that a cost is being imposed on future generations and one could argue that this is not inter-temporally efficient.

An alternative way to look at inter-temporal efficiency is to look at the balance between the level of consumption and savings over a period of time. If inadequate savings are available in the current period, then investment opportunities may be sacrificed (the opportunity cost of excessive spending). Current investment is likely to create future consumption opportunities, so it is important for a country's long-term economic prosperity to maintain adequate levels of investment. If economic agents consume excessively in the current period by going into debt, then they may have to sacrifice future consumption because an increasing portion of their income will be devoted to servicing and paying off previously accumulated debt.

Given that the traditional economic models are based on rationality, one might also consider the consumption decisions made by individuals in terms of inter-temporal efficiency. A decision today to consume excessive volumes of alcohol (which might increase immediate utility) is likely to reduce utility in the future (both short run and long run). It might therefore be considered inter-temporally inefficient.

Study tip

When discussing the impact on efficiency of a change in economic conditions or government policy, try to focus on one or two of the types of efficiency discussed here.

Links between the different types of efficiency

There may in many cases be a complementary relationship between different types of efficiency. For example, if the economy is able to generate more goods and services at a lower cost, then it is likely that technical efficiency will be achieved. By producing more at the lowest possible cost, more goods and services can be attained which is likely to maximise society's needs and wants (i.e. improve allocative efficiency). A society that is dynamically efficient is also more likely to achieve allocative efficiency. When market conditions change, businesses need to respond quickly and if they are able to do so then they are more likely to maximise the needs and wants of society.

Achieving one type of efficiency, however, does not guarantee that another type will also be achieved. For example, an economy could be technically efficient by reducing costs and boosting productivity. But if this involves producing goods and services that nobody wants, then it will not be seen as allocatively efficient. Producing at the lowest cost might also mean taking shortcuts with safety and increasing the level of pollution that is emitted into the atmosphere. If more people are hurt in the workplace and there are higher levels of pollution, then this could be an indication that

society's collective satisfaction is not being maximised. Similarly a decision by the Federal Government to subsidise solar panels will help to promote inter-temporal efficiency because it will reduce greenhouse gases. Experts have agreed, however, that it might be one of the most inefficient ways for an economy to reduce carbon emissions. In this respect, the improvement in inter-temporal efficiency is not matched by an improvement in allocative efficiency.

Activity 1d: Types of efficiency

Examine the scenarios described in the left hand column. In the right hand columns, identify a kind of efficiency that is likely to be affected and identify if there is likely to be an improvement (↑) or a worsening (↓) of efficiency. In some cases, more than one type of efficiency will apply and you should be prepared to justify your choice(s).

Scenario	Efficiency type(s)	↑ or ↓
The government places an excise tax on all alcoholic beverages		
A factory replaces its workers with robots		
The RBA increases interest rates to slow down consumption demand		
Supply disruptions caused by government mandated lockdowns		
Students learn a range of competencies that allow them to work in a variety of workplaces.		
The government introduces a policy to make Rapid Antigen Tests free		
The Victorian Government bans the sale of puppies from "puppy farms"		
The Australian Government provides recommended daily water usage on water bills		
The government makes 'HECS-HELP' fees higher for Economics degrees and lower for Teaching degrees		
An increase in the number of fake news articles posted on social media		

Activity 1e: A link between food choices and efficiency

Much of the focus of Chapter 1 has been on the concepts of relative scarcity and choices. As we have seen, each choice we make usually has a number of consequences. Before any choice is made, economists might (unrealistically) assume that all of the consequences (including the opportunity cost) will be rationally considered. But how do our food choices affect our ability to achieve an efficient allocation of resources? To answer this question, we might want to look at some of the different ways we measure efficiency and find a link between each of these and our food choices.

To achieve allocative efficiency, it is assumed that the combination of goods and services that are produced and consumed will lead to a maximisation of society's wellbeing. Economists generally assume that the consumer knows what is best for them and therefore they have traditionally avoided making value judgements on the choices that are made. The economist usually concludes that the product has been made available because consumers demand it, and it may have been sold in the right quantities to the people who wanted it the most. It is assumed that the consumer has weighed up the costs and benefits using the available information. However, in the case of eating a bowl of ice-cream, the decision to consume the ice-cream may have been made without sufficient consideration of the costs and benefits and may not, in fact, be the most rational choice available to the consumer.

If they had reflected on their decision over a longer time frame (rather than acting on their immediate needs and wants), then they may have been able to make a better decision that could have enhanced wellbeing and led to a more allocatively efficient outcome. Ask yourself next time you are considering whether to eat a sugary treat whether you are maximising your wellbeing in the current period and whether your future wellbeing is factored into the decision making process. Is it allocatively efficient if scarce resources are being allocated to products that provide little nutrition and may cause harm in the long run?

While there is much debate about what is the most appropriate diet for humanity, there is some growing consensus that certain foods reduce human performance (including brain performance). If a consumer decides (especially over a period of time) to eat the 'wrong' types of foods then their cognitive function might decline and the number of sick days that he/she needs to take might increase. This will decrease their productivity in the workplace and result in a decline in technical efficiency over time, higher prices and fewer needs and wants being met (and hence the decline in technical efficiency is also associated with a decline in allocative efficiency).

The current consumption of the 'wrong' food could also be associated with a decline in inter-temporal efficiency. A decision to eat an excessive amount of sugar in the current period, for example, could be associated with an increase in the incidence of heart disease, diabetes and obesity in the future. This might impose a cost on future generations and governments, because they will need to spend more on medical expenses for the people who become unwell. Is it therefore inter-temporally inefficient for the consumer to focus on the consumption of those foods that provide the most immediate gratification, if, in the future, it is associated with a decline in human performance and increasing medical costs (which will be partially borne by all of society)?

Questions

1. **How does allocative efficiency differ from technical efficiency?**
2. **With reference to the consumption of food, explain why choices made by individuals may lead to a decrease in technical efficiency. What food choices might enhance technical efficiency?**
3. **The definition of allocative efficiency makes reference to the idea of 'maximising society's wellbeing'. Evaluate whether a free market society will arrive at an efficient allocation of resources when it comes to food consumption. (Note: to 'evaluate' means to weigh up arguments for and against the proposition.)**
4. **With reference to a particular type of food, explain how food choices in the current period might lead to a decline in inter-temporal efficiency.**
5. **Based on your own experience and your knowledge of efficiency, discuss whether the government should intervene in the market for food to influence the choices made by consumers. (This issue will be covered again in Chapter 3 and this will give you the opportunity to look back at your answer and modify/improve it).**

Activity 1f: Should you go to university?

As a Year 11/12 student, you have probably noticed one of the many advertisements generated by the large number of universities in operation in Australia. In many cases, these universities promise their prospective students many benefits. The advertisements appeal to our inherent desire to achieve our human potential and the multitude of career opportunities that are available upon graduation.

Each year academics and journalists repeatedly ask 'Is going to university really worth it?' In 1971, only 2% of the population had a tertiary qualification, compared to nearly 50% today. With increasing numbers of people attending university and graduating (especially since the deregulation of the industry has led to an increase in the number of places available), there are potential benefits and costs that might be considered at the individual level and from the perspective of the whole economy.

One of the key attractions associated with a university education is that graduates receive, on average, higher salaries over their lifetime. For example, degrees in Medicine, Dentistry and Economics are usually associated with future employment in professions where the average income is significantly higher than most. Research conducted by The OECD has consistently shown that graduate salaries are well above the median for those without degrees and the scope for promotion and pay rises is enhanced. Another potential 'non-tangible' benefit is the personal fulfillment that comes from a job that is challenging and well-regarded by most in society. Time spent at university may also lead to the development of meaningful friendships and memorable experiences. The qualification could also reduce future anxiety because work security is likely to be higher. Research by the Grattan Institute indicates that the average lifetime earnings can be nearly double for a person with a bachelor degree compared to someone with a Year 12 qualification.

As you will discover in Chapter 3, universities also provide individuals and society with opportunities to innovate and undertake meaningful research. The knowledge gained is likely to boost productivity in the workplace and lead to the development of new ways of producing goods and services, such that, over time, the purchasing power of households increases.

It is rare, however, for university graduates to discuss all of the 'costs' that are associated with the extra years of learning. While at university, most students face very low upfront costs. The price of tuition can be deferred until the person starts work because the government essentially lends the student the money (usually through the various HELP schemes). Despite this ability for students to delay the costs until they are earning a salary, the OECD reports that tutition fees in Australia are some of the highest in the OECD.

How many students consider the opportunity cost of their decision to undertake University education? Whilst studying, the student gives up the opportunity to engage in full-time paid employment. Over the course of a standard three-year degree, this will amount to thousands of dollars. There may also be other costs (which are harder to quantify) such as the stress associated with meeting university deadlines and facing subject material that is initially difficult to grasp. At the end of the degree, the student ends up with a debt that is likely to be tens of thousands of dollars and needs to be paid back as soon as the graduate begins to earn an income of $54,435 (the threshold income for repaying HELP debts). Starting one's working life with a large debt may inhibit the ability to borrow for other major purchases, such as a house.

Weighing up the costs and benefits in a rational manner may be difficult. There are no guarantees that the university qualification will lead to meaningful employment in one's chosen profession. In an era with rapid changes in technology and the introduction of more and more artificial intelligence, it could be argued that in some cases the skills learnt at university might be redundant by the time a person graduates. Bryan Caplan, author of *The Case Against Education*, argues that students learn very little which is of use in the workplace. It does, however, provide a signal to the labour market of their "intelligence, work ethic and conformity". He therefore argues that we, as a society, have allowed universities to become a potential gateway to a good career.

Following this logic, one might also conclude that resources are not being efficiently allocated because similar outcomes might be achieved through reduced spending on education. The government pays for part of the cost of university education but allows students to choose what they want to study (as long as they are able to meet the university criteria). This has, for example, led to an increase in the number of students graduating from law degrees, far outstripping the demand for law graduates in the labour market. In 2020, the Government announced that it would restructure the fees for certain courses with decreases in the costs associated with studying nursing and teaching and increases in fees for courses like law, commerce and the arts.

Questions

1. **Define the term opportunity cost, with reference to a relevant example.**
2. **Identify and explain the opportunity costs that might be associated with a university education.**
3. **Create a T-table that identifies the potential cost and benefits associated with a university education (be as creative as you would like).**
4. **Evaluate the view that spending on certain areas of education may be seen as an inefficient allocation of resources.**
5. **Explain how spending on tertiary education may be associated with an increase in technical efficiency.**
6. **Explain how spending on tertiary education may be associated with an increase in dynamic efficiency.**

Activity 1g: Applying opportunity cost in real life is challenging

One way of looking at the concept of opportunity cost is in terms of money (or your income). Some students of Economics might have a part-time job and are therefore likely to be paid by the hour. As you develop financial literacy skills and learn to manage your own money, remembering the concept of opportunity cost might be very valuable.

A key way to increase your savings (and therefore potentially improve the balance between consumption today and your ability to consume in the future) is to record every dollar that you spend. This is recommended in a book by Vicki Robin called *Your Money or Your Life*. App developers have picked up on this idea, so you can now track your spending easily. The strategy is designed to increase your awareness of the miscellaneous items that you purchase and which might add up to significant amounts each month.

One suggestion for how you calculate the opportunity cost for each item purchased, is to look at how many hours it takes you to earn the required amount. For example, if your wage is $10 per hour and you have the option of going to the movies with friends on a Friday night, where you will spend $40 (you have some snacks etc.), then your night out takes you four hours to earn enough for the evening. You could then ask yourself whether the sacrifice of four hours of work is worth a night out with your friends. What is the opportunity cost associated with you going to the movies?

Alternatively, you might decide to forgo the opportunity to attend the movies and work an extra shift (and earn another $40). What might you be giving up? The obvious answer is the opportunity to hang out with your friends (and as that time will never be given back, this opportunity is lost forever). You may also consider other benefits associated with the movie night. You may be excluded from conversations about the shared experience of the movie and hanging out, the improvement in concentration and enjoyment of life that comes from engaging in recreational activities and you might suffer from FOMO (fear of missing out). This indicates the difficulties associated with being a rational economic agent. Should we be making decisions in this way or conclude that life would be much simpler if we didn't consider (all of the key elements of) the opportunity cost? Will this new focus on opportunity cost change your behaviour?

Questions

1. **Define what is meant by the term opportunity cost.**
2. **Explain what the potential opportunity cost might be if one was to spend money on the movies on a Friday night.**
3. **What might be the benefits associated with recording all dollars spent?**
4. **Consider all the elements of what is foregone when you decide to stay home and study on a Friday night.**
5. **How might the recording of spending behaviour influence inter-temporal efficiency?**

Activity 1h: Shopaholics – opportunity cost and the link to efficiency

Much of the focus of Chapter 1 has been on the concepts of relative scarcity and choices. As we have seen, each choice we make usually has a number of consequences. Before any choice is made, economists might (unrealistically) assume that all of the consequences (including the opportunity cost) will be rationally considered.

In the 2009 film, *Confessions of a Shopaholic*, Isla Fisher plays Rebecca Bloomwood, a consumer who cannot resist the temptation associated with buying fashionable clothes. Her behaviour is compulsive, and one may question whether her approach to meeting her needs and wants is based on a rational assessment of the costs and benefits associated with her decisions. This case study therefore looks at the potential consequences when consumers don't understand opportunity cost, or at least don't apply it to their purchasing decisions.

When a consumer undertakes any type of spending then there is an opportunity cost. In Rebecca's case she gives up the opportunity to save any money which could enhance her future living standards. In fact, her situation is much worse, because she is drowning in debt. Her credit cards are at their limit, which is very costly given that they typically have very high rates of interest (many charge 20%). This means that if one looks at the opportunity cost over time, Rebecca will need to allocate a portion of her future income to the repayment of both debt and the interest costs. One could therefore argue that her decision to bring forward her purchases to a period where she doesn't have sufficient income, results in a high opportunity cost (which she may not fully consider because she cannot visualise the pain associated with paying off debt). When she does eventually pay back the debt, it is evident that she will need to forego the purchase of some goods and services.

The story might also enhance our understanding of the concept of inter-temporal efficiency. Rebecca's decision to

bring forward her purchase might be an indication that she has not efficiently balanced her consumption today with her future consumption. Her decision to purchase clothes might boost her wellbeing in the current period, but it means that some aspects of her future living standards will need to be sacrificed. Over the last 40 years, consumers have been able to more easily access credit facilities, and this has resulted in exponential growth in debt. If the debt has been used to purchase consumer items like clothes, then it could be argued that this is inter-temporally inefficient. The allocation of resources has been skewed towards the current period and may come at the expense of future levels of individual and collective wellbeing.

The increased consumerism has not only contributed to the accumulation of debt, it could be argued that it is not sustainable. A wide range of resources are utilised to make and distribute clothing for example. The rapid rate at which clothes are purchased and then discarded (sometimes referred to as fast fashion) means that there is increased exploitation of natural resources, increased pollution from production and shipping and an increase in the amount of waste that must be sent to landfill. In the past, these discarded clothes may have been reused or recycled, but the flood of used clothing entering the market means that there is no end point for much of it, other than the local tip.

Therefore, the shopaholic not only reduces their own inter-temporal efficiency by consuming excessively and going into debt, he or she increases the environmental costs, and this is likely to decrease the living standards of future generations, some of whom are yet to be born.

Questions (responses may be enhanced by watching the film mentioned in the case study)

1. **What might be the opportunity cost associated with a shopping compulsion?**
2. **What is meant by the term inter-temporal efficiency?**
3. **Why might excessive consumerism be an indicator of inter-temporal inefficiency?**
4. **Why might the average consumer fail to consider the opportunity cost when making spending decisions?**
5. **How might the fast fashion industry contribute to inter-temporal inefficiency?**

Activity 1i: Business decision making and opportunity cost

When the economic models are discussed in future chapters, there will be an inherent assumption that both the consumer and the producer behave in a rational manner. For a firm this means that their business decisions are guided by the goal of profit maximisation. For those who are studying Accounting, profit will be a very familiar term and can be simply stated as the revenue generated from sales minus the expenses associated with running the business. For example, if you ran a smoothie bar that sold 400 smoothies per day for $6, your revenue would be $2,400 per day (i.e. $6 X 400). The costs of the ingredients, the wages of your workers and other (overhead) expenses might equal $2,000 per day. Therefore, your profit per day would be $2,400 - $2,000 = $400 per day. The accountant might therefore look at the profit over a period (such as six months) and communicate this information in the relevant Income Statement.

Economists, however, consider profit in a slightly different way. For economists, profit is calculated as the revenue minus the **economic** costs. The economist, like the accountant considers the money used to pay for the resources needed to run the business. For example, if the business does not own the building from which it operates, it will pay rent. They also pay their workers' wages directly. These are referred to as explicit costs – they can be verified with receipts and are paid to non-owners of firm. The firm will also need to consider its implicit costs. For example, if the smoothie business did own the building from which they operate, they are sacrificing potential income from renting it out to a third party. This is an opportunity cost. Similarly, the hours of work that the owner contributes to the business also represents an opportunity cost because they have been unable to earn a salary by working elsewhere. Therefore, the economic profit is equal to the revenue minus the explicit costs and the implicit costs.

To further illustrate this point, imagine that a young entrepreneur sets up her own Economics tutoring business. At the end of the first year, she declares that she has made a profit of $60,000. This figure, however, is only based on her accounting expenses. What she may fail to consider is the $65,000 she could have earned as a graduate teacher. This is her opportunity cost. Based on this simple case study, it can be concluded that she has made an economic loss of $5,000.

Questions

1. **Define the term opportunity cost.**
2. **Distinguish between the terms implicit and explicit costs.**
3. **With reference to the concept of opportunity cost, explain how economic profit is calculated.**
4. **Use the following financial information to calculate the economic profit (for one week) for the following small lawnmowing business:**

Item	Per week
Services provided per week	25
Price charged per service	$50
Petrol expenses	$500
Advertising expenses	$250
Insurance expense	$12
Other expenses	$18

Additional information: The owner of the business could earn $470 per week working in a local restaurant and the owner has been offered $50 per week to rent his lawnmower to a friend.

5. **Based on the information calculated in Question 4, should the owner continue with their business venture? Should it be based purely on economic calculations or are there other factors that might be considered?**

Review Questions 1.6

1. Explain why governments seek to maximise the efficiency of resource allocation.
2. Distinguish technical efficiency from allocative efficiency.
3. Distinguish dynamic efficiency from inter-temporal efficiency.
4. Explain why a more technically efficient allocation of resources can boost allocative efficiency.
5. Explain why dynamic efficiency is intrinsically linked to the concept of allocative efficiency.
6. Explain why a more technically efficient allocation of resources may in some instances not lead to the achievement of allocative efficiency.
7. Explain why every point on the PPF is considered technically efficient, but only one point on the PPF is considered allocatively efficient.
8. Identify some factors that might promote a more efficient allocation of resources.
9. Explain, with reference to an example, why an increase in allocative efficiency might be associated with a decline in inter-temporal efficiency.

Multiple choice review questions

1. Relative scarcity is likely to be caused by:
a) A growing population
b) The depletion of non-renewable resources
c) Infinite needs and wants and finite resources
d) All of the above

2. The economic question of what to produce is least likely to be determined in a modern economy like Australia by:
a) The buying decisions of consumers
b) Surveys completed by market researchers
c) Changes in relative prices
d) Changes in the availability of key resources

3. Which of the following outcomes might be inconsistent with Mankiw's 10 principles of Economics?
a) A decision by a consumer to burn $10,000
b) A person considers the opportunity cost associated with learning economics
c) A country attempts to contain the rapid rise in prices, but this leads to a recession
d) The central bank prints money causing the general level of prices to rise

4. Resources are likely to be more scarce if:
a) There is an increase in the number of people retiring
b) Output per hour worked increases
c) Humans make better use of solar resources
d) There is increased use of recycled products

5. Which of the following is least likely to be considered a microeconomic investigation?
a) An investigation into the economic consequences for Australia caused by the war in Ukraine.
b) A discussion of the consequences of a cut in interest rates for the market for housing
c) An analysis of the impacts of an increase in excise taxes on the market for cigarettes
d) An analysis of exchange rate movements on the demand for education by international students.

6. The opportunity cost associated with building a new link between the Eastern Freeway and the Metropolitan Ring Road might include:
a) An increase in the number of deliveries that can be made per hour
b) A decrease in road congestion
c) The government no longer being able to fund the employment of more teachers across the country
a) An increase in the price of oil used to make the freeways.

7. The opportunity cost associated with dancing all night with your friends might be:
a) improved dancing ability
b) the loss of income from working all night instead
c) fatigue
d) the need to purchase new shoes

8. A country may experience an immediate shift of its production possibility frontier to the left if:
a) Net migration to Australia is negative
b) There is an increase in the participation rate
c) There is a new discovery of oil
d) There is an increase in the use of artificial intelligence in the production process.

For questions 9, 10 and 11, refer to the following production possibilities for a hypothetical economy producing only apples and beef (million units per year).

Production combinations	Production of beef (units per year - million)	Production of apples (units per year - million)
A	1 000	0
B	800	1 000
C	600	1 300
D	300	1 700
E	50	1 900
F	0	2 000

9. If the people of this country value apples twice as much as beef, then the optimal allocation of resources is:
a) Combination A
b) Combination C
c) Combination E
d) Combination F

10. If the country decides to increase its production of apples from 1300m units to 1900m units, then the opportunity cost is:
a) the production of 600m units of beef
b) the production of 300m units of beef
c) the production of 0m units of beef
d) the production of 550m units of beef

11. If the country experiences a bushfire that results in a fall in production to 500m units of beef and 0m units of apples, then this may create the economic problem of:
a) allocative inefficiency
b) unemployment
c) technical inefficiency
d) all of the above

12. Tastes and preferences in an economy change such that more people now prefer avocadoes to tomatoes. Dynamic efficiency is likely to be evident if:
a) the government has to introduce a tax on avocadoes
b) the government introduces new subsidies for those who produce tomatoes
c) more land is made available for the production of avocadoes in a short period of time
d) the supermarkets put tomatoes on sale every week

13. Inter-temporal efficiency is likely to improve if:
a) a tax is imposed on carbon emissions
b) the price of an avocado increases
c) the price of water decreases
d) the government reduces the excise tax on petrol

14. Technical efficiency is likely to increase if:
a) the price of education increases
b) there is an increase in the level of competition across markets
c) the government prevents the import of foreign fruit and vegetables
d) the tax on alcohol is reduced

15. An increase in the price of all university fees is likely to cause:
a) a decline in inter-temporal efficiency
b) a decline in technical efficiency
c) a decline in dynamic efficiency
d) all of the above

16. Which of the following is not a key assumption that economists make when constructing most of their models?
a) Economic agents are rational
b) Consumption of a good is associated with decreasing marginal utility
c) The relationship between two variables can be better determined by holding all other variables constant
d) Consumers do the best they can with limited information

17. Which of the following is not an example of capital resource for your school?
a) A teacher
b) An electronic whiteboard
c) A school building
d) A teacher's laptop

18. Which of the following might cause an economy to operate at a point inside its PPF?
a) A reduction in tax rates for all income earners
b) Reduced spending on vocational education and training
c) An increase in borrowing by households
d) An increase in export demand

19. A study of macroeconomics is likely to include:
a) an analysis of how an increase in income affects the demand for sausages
b) the degree to which households alter their spending on mobile phones when the exchange rate depreciates
c) an analysis of the causes of a world-wide recession
d) an evaluation of the effect of changes in child care subsidies on the market for child-care

20. Consider a PPF with consumer goods on the y-axis and capital goods on the x axis. Based on this information, which of the following statements is likely to be untrue?
a) A movement along the PPF to the right is likely to result in a shift of the PPF to the right in the future.
b) The citizens could consume at a point beyond the PPF if they borrowed from a neighbouring country
c) If the economy is operating at a point inside the PPF, there is likely to be unemployed resources.
d) The most efficient allocation of resources occurs when the economy operates on the x-axis.

Chapter summary

1. Economics is the study of choices; the factors that influence choice and the consequences of these choices for the individual and society.
2. Relative scarcity occurs because the demands on resources are assumed to be infinite but the earth can only provide limited resources to meet our needs and wants.
3. A need is a good or service that is essential for human survival.
4. A want is a good or service that is not necessary for survival, but which adds to the quality of one's life.
5. Economists distinguish between three main types of resources that can be used to produce goods and services to meet the needs and wants of the people on the planet – land or natural resources, labour and capital.
6. Land or natural resources are those inputs used in the production process that are acquired from the natural world and which may be used in a relatively unprocessed state or transformed into more elaborate inputs or products.
7. Labour resources represent the physical and mental effort of humans in the production process.
8. Capital resources combine a variety of natural resources and are developed by humans (labour) so that the production process is more efficient.
9. Microeconomics studies the behaviour of individual economic agents and markets, whereas macroeconomics studies issues that are related to the whole or larger parts of the economy.
10. Economists often disagree on a number of issues with regards to human behaviour and how economies will respond to different events and policies. A summary of the key principles that most economists agree with can be found in 'Mankiw's Principles' (Table 1.1).
11. All economies attempt to answer the three basic economic questions of what to produce, how to produce and for whom to produce.
12. The primary way that resources are allocated (and therefore how we answer the key economic questions) in the Australian economy, is via the market mechanism. This means that resources are used to make the goods and services that are most desirable for the end consumers.
13. Whenever a choice is made there is always a cost. The existence of trade-offs means that there will be an opportunity cost – the value of the next best alternative foregone.
14. A production possibility curve (frontier) is a simple economic diagram that models the choices available to citizens of an economy. It shows the combinations of two particular goods or services that could be produced using the available resources in the most efficient manner.

15. Opportunity cost can be illustrated using a production possibility frontier. Production of more of one of the goods involves the sacrifice of some of the other good because the resources are allocated from one area of production to another.
16. It is impossible for a country to produce at a point outside their PPF in the short term. Over time they may add to their resource pool through discoveries (which provides the nation with more land resources), improvements in the quality of resources, immigration (more labour resources), or find ways to use their resources more productively.
17. Any point inside the PPF represents an inefficient allocation of resources, as some resources will be idle. This will make it impossible to achieve technical and hence allocative efficiency
18. A country can consume at a point outside its PPF through trade or by borrowing.
19. Allocative efficiency is achieved when resources are directed to those goods and services that provide society with the highest end-use and maximises the benefit to society.
20. Technical efficiency occurs when the society is able to produce the largest volume of goods and services from their given factors of production. Technical efficiency is a prerequisite for allocative efficiency but does not guarantee that it will be achieved.
21. Dynamic efficiency can be improved when factors of production can be reallocated quickly following changing economic circumstances (such as changes in tastes and preferences)
22. Inter-temporal efficiency focuses on the balance between consumption today and consumption tomorrow. This type of efficiency looks at the impact of current economic activity on resource depletion, pollution and how savings and investment decisions made now affect future living standards and wellbeing. It may also be affected by consumption decisions today that can reduce one's quality of life in the future.