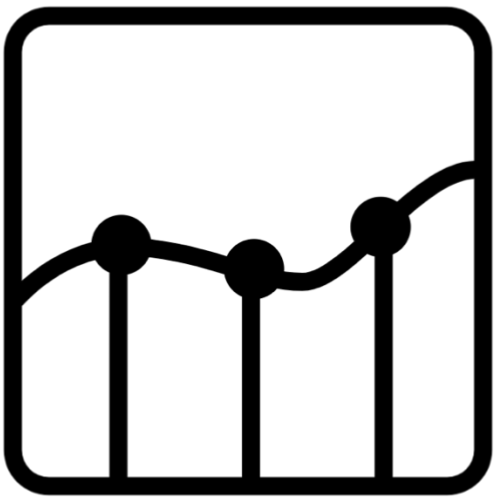
Department of Education

GOVERNMENT OF WESTERN AUSTRALIA

Year 11 ATAR Economics

Unit 1: Microeconomics – Market Failure



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Unit 1 – Microeconomics

MARKET FAILURE

Estimated time to complete this topic: 15 hours

Topic – Market Failure

This unit examines the four main types of market failure that exist in a free market. This means when the free market does not result in the surplus-maximising level of price and output.

The four types are:

- Market Power
- Externalities
- Public Goods
- Common Property Resources

Syllabus Points

Market power

- the concept of market power
- barriers to entry in a market
- how market power can influence market efficiency i.e. a deadweight loss
- the role of the Australian Competition and Consumer Commission (ACCC) in ensuring market efficiency
- policy options to influence market power, including regulation/deregulation and legislation

Externalities

- the distinction between positive and negative externalities
- how an externality can influence market efficiency i.e. a deadweight loss
- policy options to correct for externalities, including the use of taxes and subsidies

Public goods and common resources

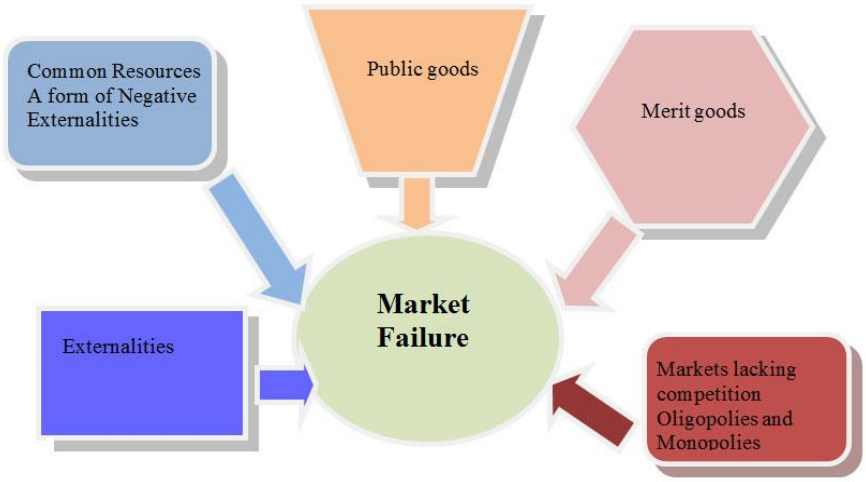
- the distinction between public goods and common resources
- why public goods suffer from the free rider effect
- why common resources suffer from the tragedy of the commons
- policy options to reduce market failure associated with public goods and common resources

Textbook:

Discovering Economics Parry and Kemp (6th Ed)

Concepts covered:

The following diagram gives examples of market failure. However, there are other examples of market failure such as unfair or inequitable distribution of income.



Examples of market failure

Expanded syllabus for teaching and learning

Market power

- the concept of market power
- barriers to entry in a market
- how market power can influence market efficiency i.e. a deadweight loss
- the role of the Australian Competition and Consumer Commission (ACCC) in ensuring market efficiency
- policy options to influence market power, including regulation/deregulation and legislation
- the concept of market failure

Externalities and effects of government policies

- the distinction between positive and negative externalities
- how an externality can influence market efficiency i.e. a deadweight loss
- policy options to correct for externalities, including the use of taxes and subsidies

Public goods and common resources

- the distinction between public goods and common resources
- why public goods suffer from the free rider effect
- why common resources suffer from the tragedy of the commons
- policy options to reduce market failure associated with public goods and common resources

Text (6th ed.) Chapter 5: Pages 105 -121

Glossary

Market Power	
Monopoly	
Oligopoly	
Duopoly	
Barriers to Entry	
Deregulation	
Legislation	
Anti-competitive Behaviour	
Market Failure	
Inequity	
Common property resources	
Positive externalities	
Merit goods	
Negative externalities	
externalities	
subsidies	
tax	
Public goods	

Property rights	
Rival	
Excludable	
Common properties	
Free rider	
Club good	

- At what point should the market operate at to be operating efficiently?
- What would happen if the market was operating at a price higher than this?
- What would happen if the market was operating at a lower price?
- Market failure can lead to too many or too few goods and services consumed or produced.

Market Power

A firm has market power if it can affect the market price by varying its output.

The term **market power** refers to the ability of a firm (or group of firms) to raise and maintain price above the level that would prevail under a competitive market.

Monopolies and oligopolies have substantial power because they operate in markets that have very little competition.

Monopoly- an imperfect market with just one firm.

Oligopoly- an imperfect market with a few large dominant firms.

Recap of relevant assumed knowledge

(see Chapter 4 in Discovering Economics text)

- The difference between what the consumer is willing to pay and what they actually pay is represented by _____ _____.
- The difference between what the supplier is willing to supply the good for and what they actually receive is represented by _____ _____.
- The benefit of consuming one extra unit of a good or service is called _____ _____.
- The cost of supplying one extra unit of a good or service is called _____ _____.

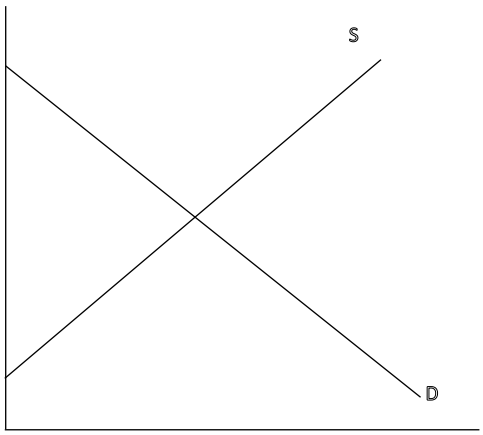
Refer to p.106 - 108 in Discovering Economics 6th Ed to complete the following:

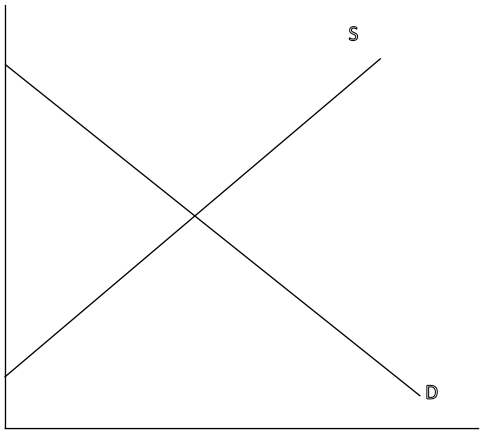
Imperfect Markets	**Reason why they are able to exist (barriers to entry)**
An imperfect market exists when: • • • •	Some examples of barriers to entry are: • • • • • • •

How market power can influence market efficiency i.e. a deadweight loss

Diagram and explanations – p.108 -111

A competitive market – characterized by a large number of small firms, there is free entry and exit to the market and very little product differentiation. An imperfect market is characterized by exploitation of the consumer by the producer. Label and complete the diagrams below and explain *in your own words*, referring to your diagram how they illustrate how production, price and quantity affect consumer, producer and total surplus.





What does '**anti-competitive behaviour'** refer to?

Use p.109 – 111 to make your own *brief* notes on business practices that reduce competition.

The role of the Australian Competition and Consumer Commission (ACCC) in ensuring market efficiency

The following information is from the Australian Competition and Consumer Commission (ACCC) website:

Our role

Competitive markets increase the prosperity and welfare of Australian consumers. Our role is to protect, strengthen and supplement the way competition works in Australian markets and industries to improve the efficiency of the economy and to increase the welfare of Australians.

This means we will take action where this improves consumer welfare, protects competition or stops conduct that is anti-competitive or harmful to consumers, and promotes the proper functioning of Australian markets.

Our priorities are reflected in four key goals:

1. maintain and promote competition and remedy market failure
2. protect the interests and safety of consumers and support fair trading in markets
3. promote the economically efficient operation of, use of and investment in monopoly infrastructure
4. increase our engagement with the broad range of groups affected by what we do.

ACCC initiatives also include promoting consumer education in regional and rural areas and with indigenous communities.

Our role complements that of state and territory consumer affairs agencies who administer mirror consumer protection legislation in their jurisdictions, and the policy work of The Treasury's Competition and Consumer Policy Division.

Anti-competitive behaviour refers to any agreements or arrangements between firms that seek to restrain competition and thereby remove the automatic regulation that competitive markets achieve.

The government uses regulation to achieve some social objectives, but they need to be careful they avoid reducing the level of competition in an industry. Use p.115 to outline the types of regulations that restrict competition and explain the taxi example.

Policy options to influence market power, including regulation/deregulation and legislation

Microeconomic reform can be *defined* as government policies or initiatives aimed at improving the performance and/or the efficiency of industries or sectors in the economy. Microeconomic reform can include any of the following:

1. Antitrust laws:
   - promote a competitive economy
   - rules and regulations designed to promote a competitive economy by both prohibiting actions that restrain competition and restricting the forms of market structures that are allowable.
2. Regulation that attempts to provide consumers with a quantity/price closer to that of the efficient level.
3. Public ownership of the monopoly. This may reduce profit motive and lead to a more efficient market.

Watch the video at this link and/or read the transcript underneath, to answer the following questions:

https://www.khanacademy.org/economics-finance-domain/ap-microeconomics/imperfect-competition/ap-monopolies-tutorial/v/monopolies-vs-perfect-competition

List 4 characteristics of perfect competition.

Explain what a 'price taker' is.

What is a monopoly?

Are they price takers or price setters? Why?

What is an example of an industry that is more towards the perfect competition end of the spectrum?

Can you think of an Australian example of a monopoly/oligopoly?

Externalities

The distinction between positive and negative externalities

An **externality** is a side effect of economic activity. This means that someone else (a third party) other than the producer and consumer is affected.

Externalities cause markets to be inefficient, and thus fail to maximize total surplus. An externality arises when a person engages in an activity that influences the well-being of a bystander and yet neither pays nor receives any compensation for that effect.

Negative externality is defined as a cost that the third party experiences other than the producer and the consumer.

A positive externality is defined as a benefit that the third party experiences other than the producer and the consumer.

Research

Use this following website to answer the questions about positive externalities.

https://www.intelligenteconomist.com/positive-externalities/

1. Complete the sentence: Positive externalities are

_____

_____

_____

2. Externalities are otherwise known as: '_____'.

3. Are positive externalities good or bad for society?

_____

_____

4. Positive externalities can be private or social. Explain.

5. Types of positive externalities

Positive externalities of consumption lead markets to consume a *smaller* quantity than is socially desirable.

Copy the diagram on the website or on p.113 of Discovering Economics and explain why this is the case.

Positive externalities of production occur when the production of the good produces greater social benefits than private. These goods are therefore typically under-produced, and as a result, under-consumed too.

Copy the diagram from the website to explain how this occurs.

Recent examples of positive externalities of production and consumption

Negative externalities of production lead markets to produce a larger quantity than is socially desirable. Use p. 112 in Discovering Economics 6th Ed to illustrate how a negative externality of production leads to a dead weight loss to society.

Activity

Read the web article:

http://economicstudents.com/2019/09/climate-change-humanitys-biggest-externality/

What does the article claim to be 'climate change's greatest culprit'?

List the largest causes of human emissions in New South Wales.

The article gives four characteristics that make climate change a negative externality. Explain these characteristics.

Briefly list some of the solutions that have been suggested for dealing with this externality.

Discovering Economics 6th Ed p.126

Complete the Activity 'Economics in the news – Lead Pollution in Esperance'

Government Policy options to correct for externalities

Externalities mean that the optimal quantity and price are not achieved. Governments have a role in ensuring that the optimal quantity is produced. They can use policies to ensure that production of goods with negative externalities decreases and increase the consumption of goods with positive externalities. Government policy needs to internalise the external cost or benefit in the market price.

Government policy on externalities

1. Negative externality

Taxes: a fee that is charged/levied by the government on a product, income or activity.

Diagram (p.115)

2. Positive externality

Subsidy: an economic benefit (such as a tax allowance or rebate) or a financial aid (grant) provided by the government.

Diagram

Discovering Economics 6th Ed p.124

Complete the following:

Problem Solving 1

Question 1

Question 2

Classifying Goods

The distinction between public goods and common resources.

To classify the different goods in the economy is to use two criteria:

- **Rival in consumption** – consumption by one person reduces the supply available to others
- **Excludable** – non-payers can be denied consumption of the good or service

	Excludable	Non-Excludable
Rival	Private Goods "Typical Goods" (Clothes, Food, Flowers, etc.)	Common Goods "Common Pool Resources" (Mines, Fisheries, Forests, etc.)
Non-Rival	Club Goods "Artificially Scarce Goods" (Cable TV, Private Parks, Cinemas, etc.)	Public Goods "Collective Goods" (Air, News, Sunshine, etc.)

Characteristics of Public goods

Public goods are non-rival in consumption (consumption by one person does not decrease its supply) and non-excludable - can't exclude non payers from consuming the good.

Characteristics of Private Goods

Private goods are rival in consumption (consumption by one person does decrease its supply, and they are excludable - non payers can be excluded from consuming the good.

Characteristics of Common Property Goods

Common property goods are rival in consumption and non-excludable.

Characteristics of Club Goods

Also known as quasi-public goods. They are non-rival in consumption and excludable.

Discovering Economics 6th Edition p.129

Complete the activity “Whales protected by court decision”

Why public goods suffer from the free rider effect

The free rider effect

Consumers who do not pay for consumption cannot be excluded from enjoying the benefits of consumption.

Public goods (as opposed to private goods) suffer from the free rider effect as public goods are non-excludable. People who do not pay for the use (through taxes) cannot be stopped from consuming public goods. For example, someone who doesn't pay their taxes cannot be restricted from using Kings Park. It would be inefficient for the government to patrol Kings Park and only allow certain people in.

Why common resources suffer from the tragedy of the commons

Common property goods are non-excludable and rival in consumption. Property rights cannot be assigned to this type of good and therefore ownership is universal. There is no specific ownership of forests, the atmosphere or fisheries. However, it is everybody's collective responsibility to take care of these goods. The use of the ocean by some, imposes external costs on other users. For example, the use of the ocean by Japanese whalers imposes external costs on whale watching tour companies in Western Australia.

Tragedy of the commons

Refers to a dilemma in which many individuals acting independently in their own self-interest can destroy a shared resource. For example, Japanese whalers who kill the animal in the self-interest of making a profit destroy the shared resource of the whale population. Polluters in developing countries who emit tonnes of carbon dioxide into the atmosphere are acting in the self-interest of making a profit and are producing using the least cost method. However, this pollution destroys the shared resource of the atmosphere. Common property goods suffer from the tragedy of the commons as these types of goods cannot be assigned property rights. If it was decided that the whale population was the property of Australia, then Australia could hold an individual accountable for killing whales using Australian laws. However, it is very difficult and unreasonable to give Australia control of the entire whale species. Instead, Australia has ownership of certain waters and will hold people accountable for the actions carried out in these waters.

Problem solving 2 P.117 (text not needed)

Complete the table below.

	Rival/non-rival in consumption	**Excludable/non-excludable**	**Type of goods**
Free to air TV			
iPhone			
Kangaroos			
Netflix			
Suburban roads			
Public transport			
Concert			
Internet			
Rock lobsters			
Police force			
National defence			

The policy options to reduce market failure associated with public goods and common resources

Public goods provided by the government include those from Federal, State and Local government.

The government decides to provide these goods because there is no incentive for them to be provided by the private sector. For example, there is no profit to be made in providing a highway or a park as the costs incurred would outweigh any profit made from charging consumers for using the good. Also, the government sees a benefit to society in these goods being provided. For example, it is in the government's and society's' best interest to have a healthy and educated population. Therefore, the government provides free or low cost medical and education facilities.

It is often impractical for governments to penalise free riders. Compulsory taxation and vigilance in making citizens pay their taxes is the simplest way to avoid the problem. If governments tax public goods specifically and consumers pay for entry to parks etc, they become private goods instead of public goods which is often not the intention of governments when supplying the goods.

It is difficult for the government to implement policies relating to the market failure associated with common property goods. In the past they have used **regulations, permits and taxes** to limit the free rider effect. In relation to whaling, the Australian Government has implemented laws against whaling in its waters. For example, in November 2015, the Australian Government fined Japanese company Kyodo $1 million for whaling in an Australian whale sanctuary. In Australia, permits are required to fish in large quantities and bag limits exist for all fishing. In July 2012, the Australian government implemented a Carbon Tax whereby polluters were charged $23 per tonne of carbon dioxide emitted. The policy was repealed in July 2014. Emissions trading schemes are another option for discouraging carbon emissions. This scheme involves a cap for producers on how much carbon they can emit. If they emit under this limit they can sell the remaining allowance they have to other producers which lowers their costs of production.

Test your understanding

The following questions and answer keys are taken from ETAWA exams. They are used with the kind permission of the Economics Teachers' Association of Western Australia. Full exam papers are available in the member's section of the ETAWA website

Practice multiple choice questions

1. People walking past a bakery often comment on the pleasure of smelling freshly baked bread. This is an example of a _____
   (a) negative consumption externality
   (b) negative production externality
   (c) positive consumption externality
   (d) positive production externality

2. Which of the following explains why the market system fails to produce public goods?
   (a) Consumers can benefit from public goods without having to pay for them.
   (b) Consumers prefer to buy private goods rather than public goods.
   (c) Low income earners are disadvantaged because they cannot afford public goods.
   (d) Government business enterprises produce public goods cheaper than private industry.

3. A good that is _____ and _____ is a _____.
   (a) rival; non-excludable; private good
   (b) rival; excludable; club good
   (c) non-rival; excludable; common resource
   (d) non-rival; non-excludable; public good

4. The deadweight loss associated with producing a product that has an external cost occurs because
   (a) too much output is produced.
   (b) too little output is produced.
   (c) the price firms charge for the good is too high.
   (d) not enough resources are allocated to producing the good.

5. A firm with market power is most likely to use that market power to
   (a) improve the allocation of resources.
   (b) charge higher prices than firms with little market power.
   (c) charge customers for its negative externalities in production.
   (d) increase the elasticity of its supply curve.

Practice short answer/data interpretation question

Question **(12 marks)**

Read the article at the following link:

https://www.news.com.au/lifestyle/health/health-problems/federal-government-faces-new-calls-to-introduce-a-sugar-tax-by-2019/news-story/0152a91b11ac76f2ece40755ed12af91

(a) Outline one private cost and one external cost of consuming high sugar drinks.

(2 marks)

(b) Use a demand/supply model to show the effect of a 20% tax placed on the sellers of high sugar drinks. Show the price paid by buyers, the price received by sellers and the new quantity after the tax is imposed. (4 marks)

(c) Will the incidence of the tax fall on consumers or producers? Will the tax be effective in reducing the consumption of high sugar drinks? Explain your answers by referring to the price elasticity of demand for high sugar drinks. (3 marks)

(d) Explain how the tax will affect market efficiency. (3 marks)

Extended answer questions **(20 marks)**

(a) By using examples, explain the differences between a negative externality and a positive externality. (6 marks)

(b) Choose either a negative or a positive externality and demonstrate using a demand/supply model, how the externality affects market efficiency. (6 marks)

(c) What are public goods and common resources? Provide an example of each and explain why they cause markets to fail. (8 marks)

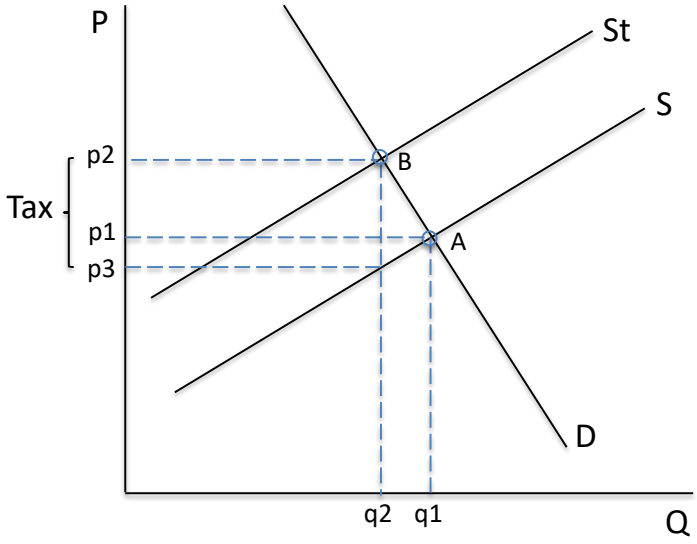
Answers

Multiple choice

Q1 d Q2 a Q3 d Q4 a Q5 b

Data interpretation/short answer question

a.	Private cost – negative effect on a person's health External cost – medical cost imposed on the government (taxpayers)	1 mark 1 mark
b.	D/S diagram showing decrease in supply – equilibrium price increases & qty decreases. Refer to diagram below: Price paid by buyers is p2 Price received by sellers is p3 New qty is q2	1-2 marks 1-2 marks
c.	The tax incidence is likely to fall on consumers since demand for high sugar drinks is likely to be inelastic – consumers will be addicted to sugar; relatively inexpensive. In the diagram below, consumers pay p1p2 of the tax; producers pay p1p3. If D is inelastic, then there will be a relatively small decrease in quantity.	1-2 marks 1 mark
d.	A tax imposed on a good normally reduces market efficiency because it reduces consumer & producer surplus, creating a deadweight loss (DWL). However, in this case, because high sugar drinks are associated with large external costs, the tax will actually improve market efficiency because it will help to reduce consumption.	1 mark 1-2 marks



Initial equilibrium is at point A: price is p1 & qty is q1
The tax causes a decrease in supply – S curve shifts to St, new equilibrium is point B
After tax, price rises to p2, qty falls to q2
Buyers pay p2, sellers receive p3.
Tax = p2p3

Extended response questions

(a) By using examples, explain the differences between a negative externality and a positive externality. (6 marks)

(b) Choose either a negative or a positive externality and demonstrate using a demand/supply model, how the externality affects market efficiency. (6 marks)

(c) What are public goods and common resources? Provide an example of each and explain why they cause markets to fail. (8 marks)

(a)	Negative externality: when the act of consuming or producing a good creates an external cost on other people, e.g. a factory that pollutes the atmosphere may adversely affect people's health – social costs > private costs Positive externality: when the act of consuming or producing a good creates an external benefit on other people, e.g. a property with a beautiful garden provides benefits to neighbours – social benefits > private benefits	1-3 marks 1-3 marks
(b)	Diagram showing either a negative or a positive externality – perhaps 4 marks for correctly labelled diagram & 2 marks for some explanation Negative externality – show the social supply curve above the private supply curve, label the external cost, show the equilibrium qty above the efficient qty, label the DWL. (see fig 5.3 P&K) Positive externality – show the social demand curve above the private demand curve, label the external benefit, show the equilibrium qty below the efficient qty, label the DWL. (see fig 5.4 P&K)	1-6 marks OR 1-6 marks
(c)	Public goods are goods that are non-rival & non-excludable – this means that they can be collectively consumed & non-payers cannot be excluded Common resources are goods that are rival & non-excludable – this means that consumption by one affects the consumption of others & non-payers cannot be excluded An example of a public good is national defence; national park; free to air TV Public goods suffer from market failure because they tend to be undersupplied due to 'free riders' An example of a common resource is fish in the ocean; wildlife e.g. tigers, elephants, whales; congested highways Common resources suffer from market failure because they are overexploited or depleted due to the tragedy of the commons	1-2 marks 1-2 marks 1 mark 1 mark 1 mark 1 mark