

# When Good Markets Go Bad

## The Need for Government Intervention

(2014 Edition)



### **YEAR 13 ECONOMICS**

Covering NCEA Level 3 Achievement Standard 3.4

by  
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## Explanatory Note and Acknowledgements

This edition has been updated for the 2014 year and includes additional assessment material. This text covers Achievement Standard 3.4. Students are required to “*Demonstrate an understanding of government intervention to correct market failure*”.

The key changes in this standard are that the study of natural monopolies has been removed and the effects of imperfect information as a form of market failure is included.

This text aims to provide teachers and students with a practical approach to the topics and concepts covered in this unit.

In writing this text it became apparent that there is a need to reconcile the concept of efficiency in markets with the concept of market failure.

It must be emphasised that market failure represents an outcome that is not efficient. This is because total social benefits are not being maximised compared to total social costs. Therefore marginal social benefits do not equal marginal social costs in determining output.

The key point is that government intervention to correct market failure usually represents an improvement in efficiency. If the government succeeds in reducing the market failure then the outcome represents a gain in efficiency rather than a deadweight loss. This means care must be taken in teaching the effects of an indirect tax or a subsidy on a market depending on the nature of the good.

I hope this text enhances your teaching program.

I would like to thank Gina Hodgson for her efforts in helping me complete this text. Your feedback would be much appreciated.

Regards

Peter Lyons

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# 5

## Equity and Efficiency

### Introduction

The topic of equity or fairness is one of the most controversial areas of market failure. Some economists believe that major differences in income do not represent market failure but are actually an expected and desirable outcome of a market system. A free market system will produce large differences in wealth and income between people in a society.

This section explores fairness in the spread of income and wealth in a society. It examines how the Government can reduce unfairness in the distribution of wealth and income in a society.

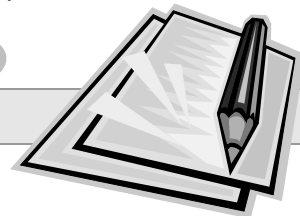
## Interpretation

**Equity** means fairness. Equity is a subjective concept. This means that people will have different opinions of “what is fair?”. Inequity means people are being treated unfairly.

**Equality** means to be equal or the same. An equal distribution of income in a society means that people receive the same income regardless of job, experience, qualifications or effort. Inequality is a situation where people are not being treated the same.

**Efficiency** occurs in a market when total social benefits are maximised compared to total social costs. (This means the marginal social benefit of the last unit produced equals the marginal social cost).

### Illustration Exercise



1. State whether the following situations represent equity and/or equality. Explain your answers.

Situation	Equity (Yes/No)	Equality (Yes/No)	Explanation
Doctors are paid more than nurses			
A class is put on detention because of misbehaviour of some students			

Situation	Equity (Yes/No)	Equality (Yes/No)	Explanation
People on higher incomes pay a higher rate of tax			
Students in an exam receive either "not achieved", "achieve", "merit" or "excellence"			
Consumers in New Zealand pay 15% GST on all purchases			

## How is Equity Measured in a Society?

Equity or fairness in a society is usually measured by the spread of incomes and wealth. If the spread is very uneven this is usually regarded as unfair. It must be noted that this is a subjective judgment, i.e. an opinion, however there are practical reasons why a very unequal spread of income or wealth is undesirable in a society.

History has many examples of societies that have collapsed because of huge inequalities in the spread of wealth or income. Massive inequalities have led to social tensions, economic inefficiencies and even civil wars.

Income can be defined as a flow of money such as salaries, wages, interest and dividends. Wealth is defined as a stock of assets such as property, investments in shares, bank deposits or even cash. Wealth includes the ownership of valuable items such as paintings, cars or antiques.

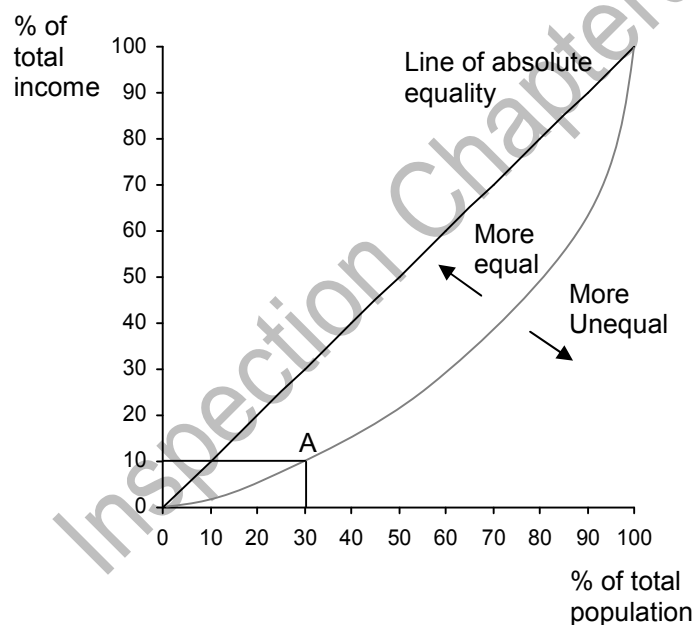
A Lorenz curve can be used to illustrate the spread of income (or wealth) in a society. This graph shows the total income that is earned by decile groupings in the society.

The 45 degree line represents absolute equality of income distribution, i.e. income is spread evenly in the society.

The further the curve bows out from the line of equality the bigger the inequality in the distribution of income in that society.

Point A on the Lorenz curve below shows the bottom 30% of the population receive 10% of the total income of that society.

**Illustration of a Lorenz Curve for a Society**



## **Why is the Free Market System Not Always Equitable?**

The free market system is based on markets setting the prices for goods and services and resources. Prices act as signals to producers telling them what goods and services to produce. Producers are motivated by profit.



**1. The profit motive acts as an incentive and will lead to inequalities of income**

The profit motive means there will be inequalities of income. If every person in a society received the same income regardless of effort or enterprise there would be no incentive to take risks or produce as efficiently as possible.

**2. People's access to education and training as well as differences in abilities will lead to differences in income**

In a market system, people will have different skills and access to education as well as different intellectual and physical abilities. Those people with disabilities such as blindness or deafness or other physical limitations will be at a disadvantage in their ability to earn an income.

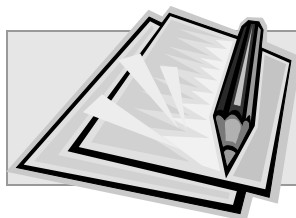
**3. Market failure can lead to inequalities of income**

This section of the course has examined market failures. Market failures caused by monopoly power, a lack of resource mobility or imperfect information can lead to large inequalities of income in a society.

**4. Differences in the productivity of workers and the prices received for the final products will lead to income inequalities**

Economic theory based on marginal analysis states that people's incomes are determined by their marginal revenue product. Marginal revenue product is determined by the productivity of a worker and the price of the final product. Differences in productivity and the price of the final products will lead to differences in income.

If income inequalities become too extreme then this is regarded as unfair. A key feature of many developed countries is the policy of **equality of opportunity**. This is when a government ensures that people have access to education, health care and housing as well as a minimum income to ensure all members of society have a fair opportunity to succeed.



### Case Study – The New Zealand Experience of Free Markets

From 1984 New Zealand adopted many of the key features of the free market system. These policies were based on neo classical economics. Some of the policies included privatisation of government assets, free trade, controlling inflation and user pays for government services such as health and education.

Privatisation involved the sale of government assets such as Telecom, BNZ and the Railways to the private sector. The money from the sales helped reduce government debt. The businesses would be run based on the profit motive. This would ensure better services and competitive prices.

Privatisation led to an increase in unemployment in New Zealand. The private owners sought to increase profitability by reducing staff. Privatisation also led to the emergence of private monopoly situations such as Telecom controlling phone lines.

1. Complete the table below listing the effects on efficiency and equity of privatisation.

The Effects of Privatisation		
	Positive Effects	Negative Effects
Efficiency		
Equity		

The policy of free trade led to the removal or reduction of many of the tariffs, subsidies and quotas that had provided protection for local producers from competition from imports. New Zealand's clothing, electronics and car industries were particularly affected with many local businesses unable to compete. This led to a rise in unemployment. Free trade provided better prices and more choice for consumers. It also led to resources shifting to areas of production where they could compete on world markets without protection.

2. Complete the table below showing the effects of the move to free trade by New Zealand:

The Effects of Free Trade		
	Positive Effects	Negative Effects
Efficiency		
Equity		

User pays for health and education meant that people were charged for using public hospitals and for tertiary study. It was aimed at ensuring that these services were not overused because of the lack of a direct charge. This would reduce wastage and overcrowding.

3. Complete the table below showing the effects of user pays on health and education.

The Effects of User Pays on Health and Education		
	Positive Effects	Negative effects
Efficiency		
Equity		

## How Can a Government Ensure Equity in a Society?

The concept of equity and social justice is one of the most controversial topics in economics. This is because there is no right answer to the question of “what is fair?”. Attitudes to social justice and equity are the key determinants of political beliefs in a society.

A government has a number of tools that it can use to improve equity in a society.

They include:

- Transfer payments (benefits).
- Taxation policies.
- Direct provision.
- Subsidies on certain goods and services.
- Laws and regulations.

**Transfer payments** are a payment with no economic activity in return. The Government in New Zealand provides a range of benefits such as for the unemployed and invalids. These provide a basic safety net for people in need.

**Taxation policies** can be used to redistribute income in a society. A tax system must ensure vertical and horizontal equity. Vertical equity means that people on higher incomes pay a higher amount of tax. Horizontal equity means that people on the same level of income should pay the same amount of tax.

There are three main types of tax systems:

1. **A progressive tax system** is when those on higher incomes pay a higher average tax rate.

$$(\text{ATR (Average Tax Rate)}) = \frac{\text{Total Tax Paid}}{\text{Income}}$$

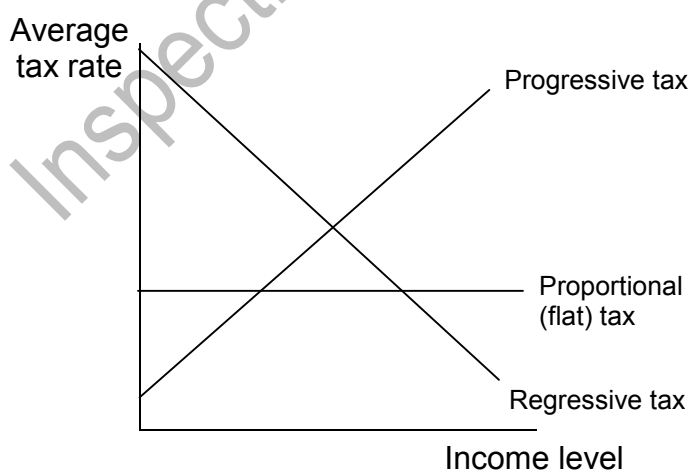
The income tax system in New Zealand (PAYE) is a progressive tax system. As people earn more income they move into a higher tax bracket. This increases their marginal tax rate (tax on the last dollar earned) as shown in the following chart.

Income Level	Marginal Tax Rate
Up to \$14,000	10.5c
14,000 to 48,000	17.5c
48,000 to 70,000	30c
70,000+	33c

Tax rates at 31/3/13

2. **A proportional or flat tax** is when the average tax rate is constant. This means a person pays a fixed percentage of their income as tax.
3. **A regressive tax system** is when the average rate of tax decreases as a person's income increases. GST is regarded as a regressive tax because people on higher incomes save more of their income. This means that the amount of GST they pay as a percentage of income is less than for a lower income person who spends more of his income.

Graph illustrating the Main Tax Systems



## **Direct provision by government of certain goods and services**

Goods and services provided directly by government and funded from taxation are called collective goods. In New Zealand these include state schools and public hospitals.

## **Subsidies on certain goods and services**

This reduces the costs of production and therefore lowers the price of these items to consumers. In New Zealand a wide variety of medicines are subsidised by the government. The government also subsidises childcare as a means of allowing parents to stay in the workforce.

## **Laws and regulations**

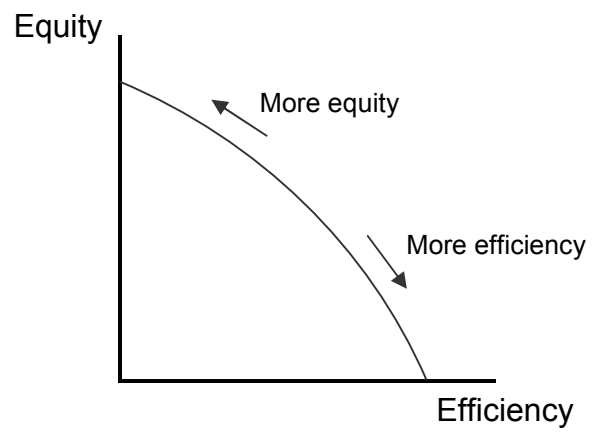
Laws and regulations can also be used to ensure equity in the distribution of income. New Zealand has a minimum wage law for workers. There are also laws relating to the employment and dismissal of staff to ensure fairness in the process.

## **The Equity/Efficiency Trade-Off**

Policies aimed at ensuring fairness in the distribution of income can have a negative effect on efficiency due to lost output. Policies aimed at increasing efficiency can reduce equity. This trade-off is known as the “**leaky bucket effect**”.

If a government introduces a minimum wage this is aimed at increasing fairness in the distribution of income. Some firms may not employ extra staff and this can lead to more unemployment and less production so there is a loss of efficiency. There is an equity/efficiency trade-off.

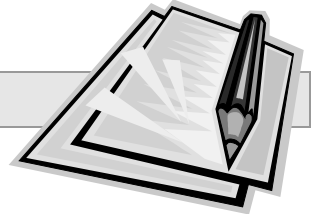
If a government increases the top tax rate for high income earners this may be aimed at improving equity in the spread of incomes. This can cause some high income earners to reduce their hours of work leading to less output. There is an equity/efficiency trade-off.

**Graph Showing the Equity/Efficiency Trade-Off**

Inspection Chapters



## Chapter Review Exercise



1. Complete the following Glossary:

- (a) \_\_\_\_\_ means to treat the same.
- (b) \_\_\_\_\_ means fairness.
- (c) \_\_\_\_\_ is a flow on money from such sources as salary, wages, rent, interest, dividends.
- (d) \_\_\_\_\_ is a stock of assets such as bank deposits or a house.
- (e) \_\_\_\_\_ is a graph showing the spread of wealth or income in a society.
- (f) \_\_\_\_\_ represents an even spread of income in a society on a Lorenz curve.
- (g) \_\_\_\_\_ occurs when policies aimed at increasing fairness result in less output in an economy.
- (h) \_\_\_\_\_ are goods provided by the government funded from taxation, e.g. schools or hospitals.
- (i) \_\_\_\_\_ means to provide people with the same access to education or health.
- (j) \_\_\_\_\_ are payments by the government for no economic activity in return, e.g. unemployment benefits.
- (k) \_\_\_\_\_ is a tax system where the average tax rate increases with income.
- (l) \_\_\_\_\_ is a tax system where average tax rate is constant as income changes.
- (m) \_\_\_\_\_ is a tax system where average tax rate falls as income increases.

2. State how each of the following impacts on **equity** or **equality** or both or neither. (Explain your answer):

(a) GST:

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(b) Student fees for tertiary education:

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(c) Tax credits for working parents with families:

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(d) Free vaccinations for children:

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(e) Doctors receive more pay than nurses:

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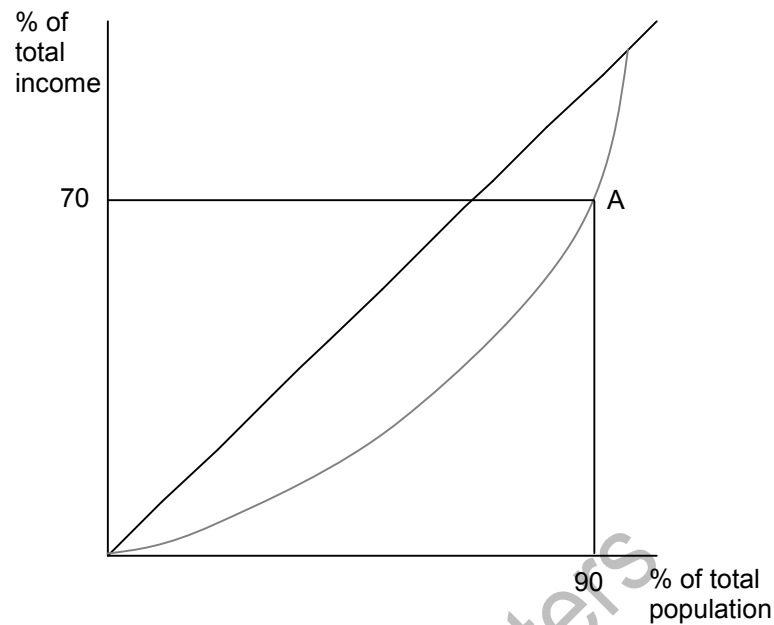
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(f) No interest on student loans:

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3. Use the Lorenz curve below to answer the following questions:



- (a) What does point A represent?
- 
- 
- (b) What percentage of total incomes does the richest 10% of this society earn?
- 
- (c) What does the 45 degree line represent?
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- 
- (d) Show the effects of an increase in unemployment in the economy on the graph above.

4. Explain how each of the following represents an equity/efficiency trade-off:

(a) Charging people for using national parks.

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(b) Increasing the level of unemployment benefits.

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(c) Road user charges on the Harbour Bridge.

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5. **New Zealand – A Case Study**

From 1984 New Zealand embarked on an economic program based on free market policies. These policies involved privatisation (sale) of government assets, the removal of laws restricting competition (deregulation), free trade, balancing government budgets and strict control of inflation.

The sale of government assets such as Railways and Telecom to the private sector was aimed at increasing efficiency.

(a) State why selling government assets to the private sector is regarded as increasing efficiency?

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During this period there was a massive increase in unemployment. Many of the privatised government businesses laid off staff to increase profitability.

- (b) Explain how this process could increase inequality in New Zealand.

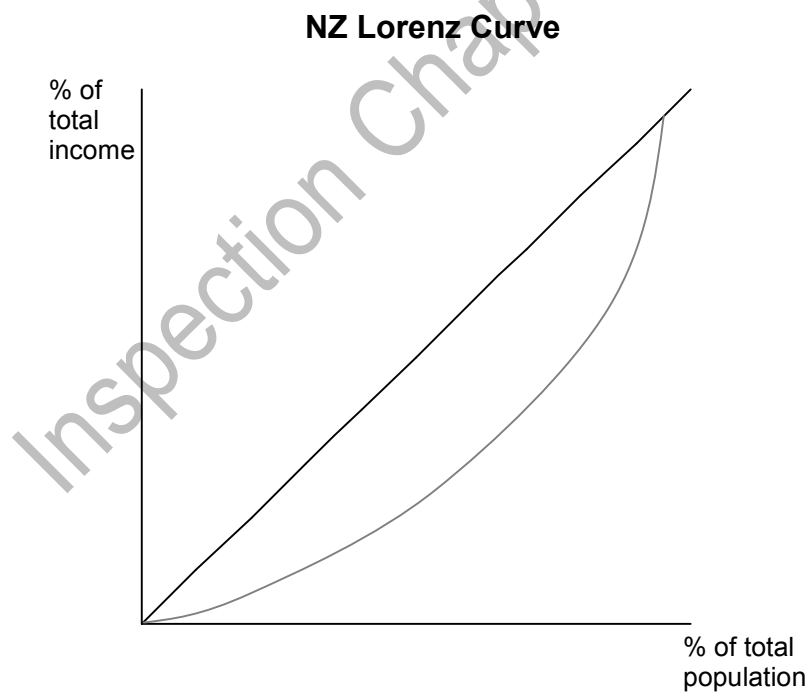
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- (c) Sketch on the Lorenz curve below the effects on the spread of income of the rise in unemployment.



In 1991 the Government cut the unemployment benefit and tightened the criteria for receiving the unemployment benefit.

- (d) How could this affect economic efficiency?

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- (e) How could it impact on equity?

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In the mid 1990s the Prime Minister announced that increased income inequalities were a good thing as it showed that free market policies were working.

- (f) Give two reasons for the rise in income inequalities during this period.

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- (g) Explain why the Prime Minister suggested that increased income inequalities can be a good thing.

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## 6. Contemporary Issues

In 2010 the Government reduced the top income tax rate from 39c to 33c. It also raised GST from 12.5% to 15%.

- (a) Discuss the likely effects of these changes on efficiency.

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- (b) Discuss the likely effects of these changes on equity.

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The Government is proposing the partial privatisation of power companies such as Mighty River and Meridian. These businesses are currently fully owned by the Government.

It believes that the sale of these assets will make them more accountable to “market discipline” because their shares will be traded on the share market. These companies are major suppliers of electricity to businesses and households in New Zealand. The Government is hoping that “mum and dad” investors will buy the

shares. This will encourage Kiwis to save and invest in profitable businesses.

The Government has earmarked the funds raised by the privatisations for spending on new schools, hospitals and other infrastructure. The proceeds from the sale should mean that the Government will not have to borrow as much in the future.

- (c) Classify the following points as either **for** or **against** the sales.

	<b>For <u>or</u> Against</b>
Private ownership makes the companies more accountable because if they fail to perform people can sell the shares.	
New Zealanders will be encouraged to save more to invest in these assets.	
The Government will need to borrow less and therefore there will be less pressure on interest rates to rise.	
These businesses are currently owned by the Government on behalf of all New Zealanders.	
Power companies operate in a market structure that is an oligopoly.	
The businesses will have an increased profit motive to ensure maximum returns for their shareholders.	
Lower income earners are unlikely to have the funds to buy shares in these businesses.	
Electricity is generally regarded as a necessity.	



- (d) Construct an argument in favor of the partial privatisation of these power companies based on improved efficiency.

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- (e) Construct an argument against the partial privatisation of these power companies based on equity concerns.

Inspection

## 7. **Research Project - The Battle for a “Living Wage”**

In early 2013, unions in New Zealand launched a campaign calling for the introduction of a “living wage” for low paid workers. Many of these workers are employed in low paid service jobs such as cleaning, security and retail. Unions argue that these workers are struggling to survive on the minimum wage rate set at \$13.50 per hour. The Government has recently raised this minimum wage by 25c per hour to \$13.75.

Union leaders suggest that a “living wage” should be at least \$18 to \$20 per hour.

Students are to research the arguments for and against a “living wage” set at \$18 to \$20 per hour. They are to present their findings in the appropriate format outlined by their teacher.

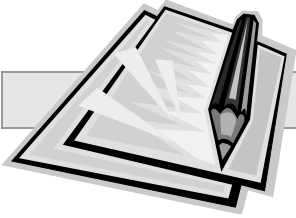
Students must frame their arguments in terms of the impact on equity and efficiency.

# 6

## **Demonstrate an Understanding of Government Intervention to Correct Market Failure**

### **Introduction**

This section contains practice assessments for this achievement standard. They are designed as review tests with relevant contemporary New Zealand examples.



## Practice Assessment 1

### Question 1

One of the difficulties that firms face is getting the returns from training staff. The problem is that if the firm spends a considerable amount on training an individual, there is a risk that the person will move to another job. The firm loses the benefits of its investment. This leads to a general underinvestment by firms in the training and development of their staff. Investment in education and training of people increases the human capital of a society.

1. Explain the market failure identified by the underinvestment in staff education and training.

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2. The social benefits of investing in human capital are greater than the private benefits. Explain this statement.

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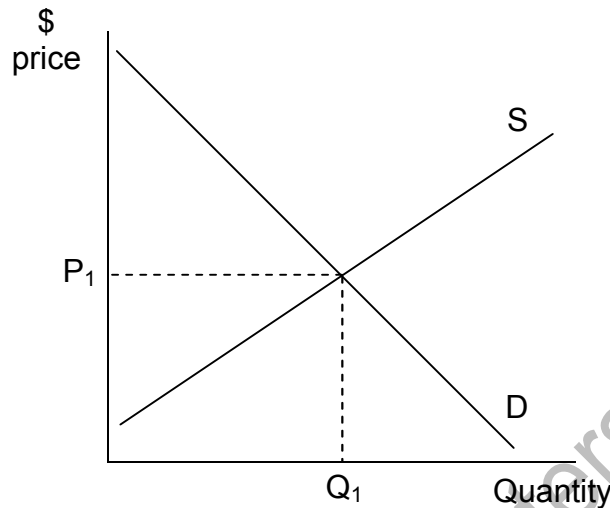
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3. The graph below shows the market for training courses for building apprentices in New Zealand.

**Market for Training Courses for Building Apprentices**



- (a) Show on the graph above the socially desirable equilibrium.
- (b) Explain a possible government policy that could be used to move the market towards a socially desirable equilibrium.

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4. The Christchurch rebuild will require a work force with a variety of construction skills. One of the challenges facing the Government is to ensure that young job seekers have the necessary skills to gain employment. There are several approaches the Government could use.

They include:

- Direct provision of training courses.
- Subsidies for employers willing to provide the necessary training.



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### Question 2

Lawrence (in Otago) is one of the first towns in New Zealand to provide free wireless access to broadband internet users. One of the aims of this policy is to encourage tourists to stop off in the town on the journey through to Queenstown and other tourist areas.

1. Is free wireless broadband a public good?

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2. Explain how the provision of free wireless access to internet users could be justified using economic theory.

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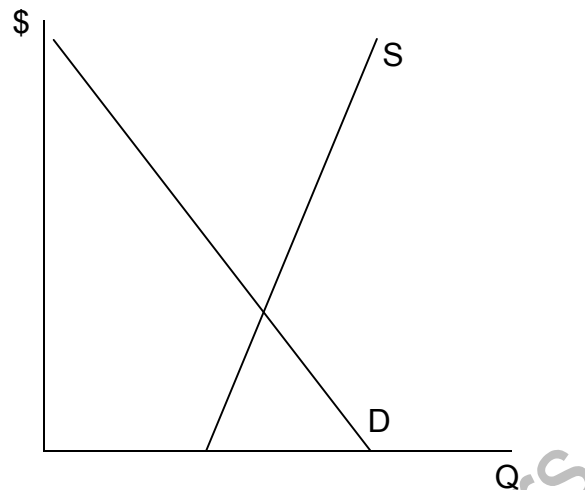
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3. Use the graph below to illustrate and explain a possible problem that may arise for users of the internet in Lawrence.

**Wireless Internet Use in Lawrence**



Explanation:

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3. It could be argued that provision of free wireless internet access improves efficiency and equity for the town's residents.

Evaluate this statement.

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**Question 3**

There has been a major campaign in New Zealand pushing for the introduction of a “living wage” for lower income earners. This would allow them to meet their living expenses. It is estimated that such a wage would be around \$18 per hour. The minimum wage for adults is currently \$13.75.

1. Explain whether a living wage is aimed at improving efficiency or equity.

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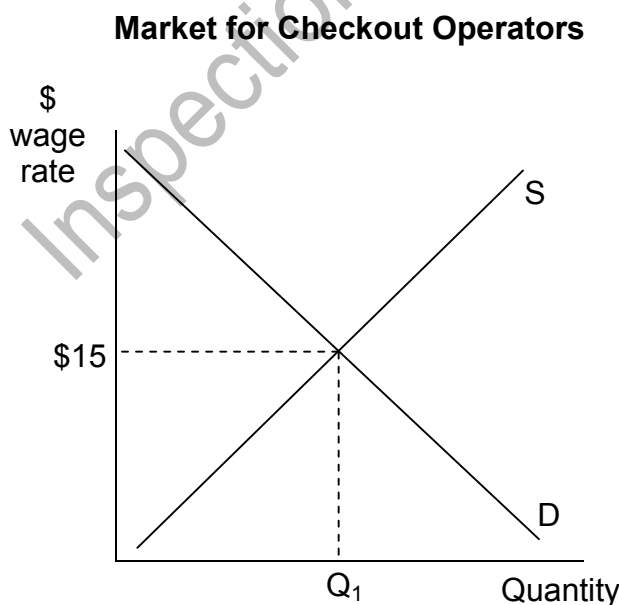
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2. Critics of the living wage argue that it would lead to jobs losses in certain occupations.



- (a) On the graph above show the likely effects of a living wage set at \$18 per hour.



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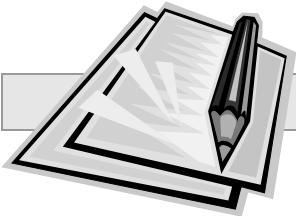
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Inspection Chapters



## Practice Assessment 2

### Question 1

Auckland City has a major problem with traffic congestion especially during peak times. People use their cars to get to and from work but in doing so they contribute to the congestion on the roads.

1. Explain the type of market failure represented by traffic congestion during peak times.

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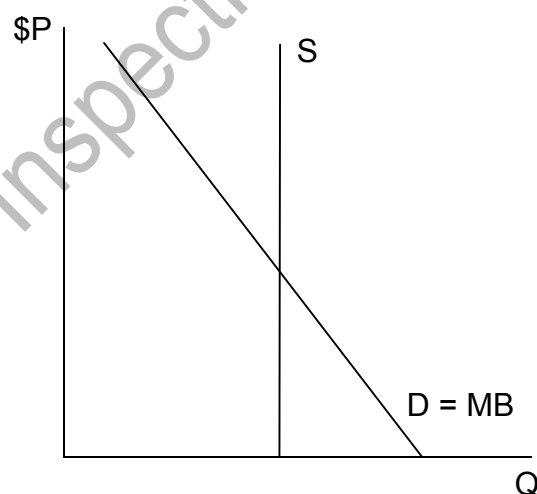
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2. The graph below shows the “market” for road use on the Northwestern Motorway.

**Market for Northwestern Motorway Use**



- (a) Identify on the graph the likely quantity of consumption during peak traffic times ( $Q_P$ ).
- (b) Identify on the graph the socially desirable level of consumption ( $Q_{SD}$ ).

3. Explain whether the Northwestern Motorway could be classified as a “public good”.

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4. Traffic congestion is a problem in many major cities. A possible response that governments have used to try to solve the problem is by using road user charges. Modern technology makes imposing direct charges on motorists who use roads during peak times much easier to administer.

Explain and illustrate how a road user charge could be used to internalise the externalities caused by traffic congestion.

In your answer you should:

- (a) Identify the nature of the externality caused by traffic congestion.
- (b) Use an appropriate graph to explain and illustrate how a road user charge could reduce the externality caused by traffic congestion.
- (c) Explain the likely impact of the road user charge on efficiency and equity.

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**Question 2**

The Carbon Emissions Trading Scheme aims to use market forces to help solve the problem of carbon emissions that are contributing to global warming. The Emissions Trading Scheme (ETS) creates a market in pollution rights called carbon credits.

Producers whose activity reduces carbon emissions receive carbon credits. These sellers of credits may include planters of forestry or any firm that is a polluter but has managed to reduce its emissions below its quota. They can sell these credits to producers who create carbon emissions, i.e. those who are net polluters.

The idea is to force large polluters to recognise the social cost of their activities. This gives them an incentive to reduce their emissions because this will reduce their costs of production.

1. Explain the market failure that carbon emissions represent.

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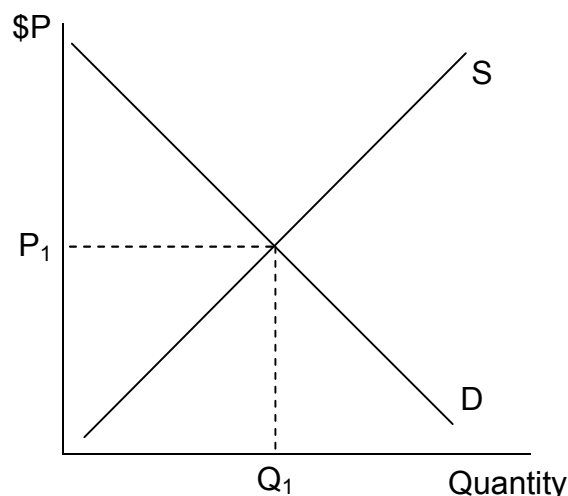
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2. The graph below shows the market for electricity produced by coal-fired power producers. These are major contributors to carbon emissions.

**Market for Coal Generated Electricity**



(a) On the previous graph show the effects of the Carbon Emissions Trading Scheme on the market. Identify the socially desirable price and quantity.

(b) Explain the change you have drawn.

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3. This approach to reducing the externality caused by carbon emissions is called establishing “property rights”. Explain what is meant by property rights.

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4. Using an Emissions Trading Scheme to try to reduce carbon emissions is very controversial. Some commentators have argued that the ETS will increase the costs of production for major producers which will lead to higher prices for consumers. Some have argued that there will be lower output and job losses as a result of the higher costs of production for polluting firms. Another criticism is the unfairness if some governments adopt the scheme and others don't. This gives producers in some countries an advantage over others.

Evaluate the possible impacts of the ETS on:

- (a) Producers;
- (b) Consumers;
- (c) Government.



Inspection Chapters

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### Question 3

Most Western economies have experienced a large growth in income inequalities over the past few decades. There are many possible reasons for this change. They include the impact of globalisation, technology and a variety of political and economic changes. Some economists argue that income inequalities are a natural outcome of a market system. They are necessary to provide incentives for people to work harder, start businesses and gain better skills and education.

Other economists argue that excessive income inequalities can be destructive for a society. They create relative poverty and misery. Some people get locked into a poverty trap characterised by a lack of education, unemployment and low incomes and poor health.

1. Explain how it could be argued that income inequalities are equitable.

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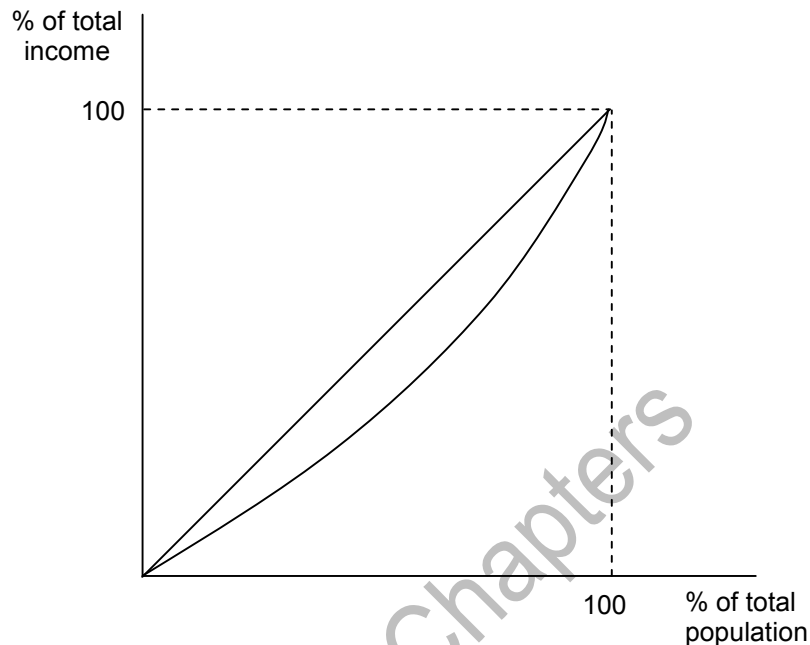
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2. Use the axis below to sketch Lorenz curves to illustrate what has happened to income distribution in many Western economies over the past few decades.

**Lorenz Curves Showing Changes in Past Few Decades**



3. Governments have a variety of policies that can be used to reduce income inequalities. One option is to increase the minimum wage paid to lower income workers.

Identify the possible equity/efficiency trade-offs of raising the minimum wage for lower income workers.

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4. A government could also reduce income inequalities through its taxation and spending policies.

Discuss these possible approaches that a government could use to reduce income inequalities.

Refer to the possible efficiency/equity trade-offs that may occur.

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