

Assessment Schedule – 2016

Scholarship Economics (93402)

Evidence

Question One

Key points

A natural monopoly occurs when one firm can supply an entire market's demand at a lower cost and price than can two or more firms. This usually occurs when the firm has extremely high start-up costs but low marginal costs, so that average costs fall across the relevant range of demand. Transpower is likely to be a natural monopoly because the cost of setting up the power grid throughout the country is very high, so the average cost will fall over the range of demand as these fixed costs are spread over more and more units.

The revenue curves for any monopoly are downward sloping since, as the sole supplier to the market, the monopoly, in order to increase sales, has to drop its price. The average revenue curve is, therefore, the same as the market's demand curve. A natural monopoly's average cost curve slopes downwards across the range of demand as very high fixed /set-up costs are spread over more and more units. The marginal cost curve tends to be relatively flat because the cost of producing each extra unit is low. Candidates should provide a suitable natural monopoly graph.

If Transpower operates at its profit-maximising output, where $MR = MC$, the price and output will not be allocatively efficient. Since Transpower has a high degree of control over price, they will over-price and under-produce compared to the allocatively efficient outcome that would result, theoretically, in a more competitive market. Allocative efficiency occurs when a market operates at equilibrium, where demand and supply are equal so that consumer and producer surplus is maximised; for a monopoly, this would be where $AR = MC$. A deadweight loss results when the monopoly operates at $MR = MC$, which is a loss of consumer and producer surplus. Candidates should provide a suitable natural monopoly graph, illustrating the profit-maximising output and profit-maximising price and the allocatively efficient price and output.

The Commerce Commission could use marginal cost pricing or average cost pricing to regulate Transpower. Marginal cost pricing involves setting the price equal to the firm's marginal cost where $MC = AR$. This would result in the allocatively efficient output and price; however, because of the shape of the AC and MC curves for natural monopolies, the firm is likely to earn subnormal profits. Candidates should provide a suitable graph illustrating a natural monopoly with marginal cost pricing and earning a subnormal profit. As Transpower is a State-Owned Enterprise (SOE), this may be acceptable to the Government (as Transpower's sole shareholder) because allocative efficiency is being achieved. Alternatively, the Government may consider that Transpower is not achieving an acceptable return. (Note that it would be unlikely that the Government would provide a subsidy to cover the subnormal profit because Transpower is an SOE). In addition, a subnormal profit could lead to under-spending on infrastructure and maintenance, leading to supply issues in the future.

Average cost pricing involves regulating the price at a level where average costs are equal to average revenue, and so the firm is earning a normal profit. This option would improve allocative efficiency in the market compared to the profit-maximising output and profit-maximising price but would not achieve allocative efficiency because the price would remain higher and output lower than the allocatively efficient outcome – so, a deadweight loss would still exist. Candidates should provide a suitable graph illustrating a natural monopoly with average cost pricing.

In regulating prices for Transpower, the Commerce Commission aims to make "sure suppliers have incentives to innovate and invest in their infrastructure, and to deliver services efficiently and reliably at a quality that consumers expect, while limiting businesses' ability to earn excessive profits". This would suggest that their pricing decisions are more likely to be close to average cost pricing, since sufficient profit needs to be included to enable the firm to "innovate and invest", which is not likely under marginal cost pricing, in which the firm is earning subnormal profits. This will not result in allocative efficiency but does reduce the level of deadweight loss that would occur if the firm were allowed to profit maximise. It also ensures that the infrastructure is maintained and developed so that the quality of service provided by Transpower does not deteriorate.

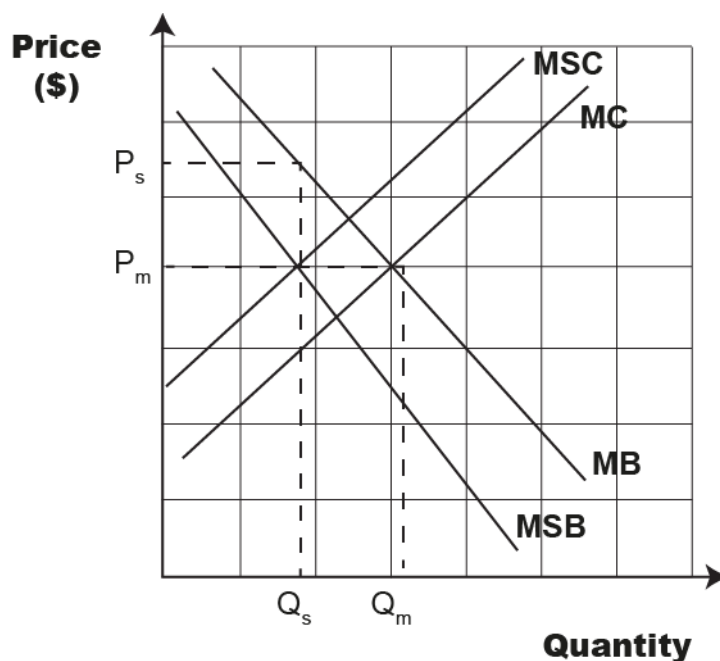
Outstanding Scholarship	8 Marks	<p>The candidate produces and effectively communicates an outstanding and sophisticated economic analysis of the allocative efficiency of Transpower as a natural monopoly, and possible pricing regulations, by applying micro-economic theory. This is complete and demonstrates <i>perception and insight</i></p> <p><i>AND</i></p> <p>demonstrates <i>sophisticated abstraction and integration</i> of the resource material</p> <p><i>AND</i></p> <p>demonstrates <i>independent reflection and extrapolation</i> relevant to the evaluation of the effect of pricing regulations on allocative efficiency</p> <p><i>AND</i></p> <p>is <i>convincing</i> and economically literate.</p>
	7 Marks	<p>The essay fulfils most of the requirements above for 8 marks but contains minor factual inaccuracies (when this affects a statement or opinion)</p> <p><i>OR</i></p> <p>deals inadequately with an essential point</p> <p><i>OR</i></p> <p>lacks sufficient abstraction or integration of the resource material</p> <p><i>OR</i></p> <p>has some minor failure in the evaluation</p> <p><i>OR</i></p> <p>may lack some fluency and/or coherence.</p>
Scholarship	6 Marks	<p>The candidate produces and effectively communicates a sophisticated economic analysis of the allocative efficiency of Transpower as a natural monopoly, and possible pricing regulations, by applying micro-economic theory. This demonstrates a high level of <i>analysis and critical thinking</i></p> <p><i>AND</i></p> <p>incorporates a <i>competent level of integration and synthesis</i> of the resource material</p> <p><i>AND</i></p> <p>the discussion and evaluation are <i>clear, logically developed, and precise</i>.</p>
	5 Marks	<p>The essay fulfils most of the requirements above for 6 marks, but has some unsupported generalisations</p> <p><i>OR</i></p> <p>some major point in the discussion is neglected or incomplete</p> <p><i>OR</i></p> <p>has some inadequacy in the evaluation</p> <p><i>OR</i></p> <p>ideas may not be communicated effectively.</p>
	4 Marks	<p>The candidate produces a comprehensive analysis of the allocative efficiency of Transpower as a natural monopoly, and possible pricing regulations, by applying micro-economic theory</p> <p><i>AND</i></p> <p>produces a <i>clear but undeveloped</i> discussion and evaluation</p> <p><i>AND</i></p> <p>demonstrates <i>some level of integration and synthesis</i> of the resource material</p> <p><i>AND</i></p> <p>demonstrates <i>some application</i> of economic theory relevant to the discussion.</p>

	3 Marks	The answer fulfils most of the requirements above for 4 marks, but is incomplete OR fails to present a cogent argument or make critical analysis OR does not communicate ideas adequately.
	2 Marks	The answer shows limited understanding relevant to the question. Some information is recalled, but ideas are not explained or analysed.
	1 Mark	The answer contains a minimal amount of relevant evidence.
	0 Marks	No response; no relevant evidence.

Question Two**Key Points**

The existence of spillover costs of production and consumption are explained, using examples. The release of greenhouse gases into the atmosphere is a result of agriculture, industrial production methods, and industrial and household burning of fossil fuels for energy and transport. These emissions are the result of both production and consumption, and they result in negative impacts on people outside of the buyer–seller relationship. Future incidences of respiratory illness, the effects of violent storms, rising sea levels affecting low-lying areas, and increased food costs due to crop failures are among the potential spillover costs of current greenhouse gas output. As a result, goods produced and consumed that involve the emission of greenhouse gases are under-priced and over-produced / consumed. Too many resources are being allocated worldwide to production that results in the release of greenhouse gases; and, therefore, market failure exists.

The model would show a new MSC curve above (to the left of) the MC curve and a new MSB curve below (to the left of) the MB curve – marginal social cost curve is above MC, reflecting additional social costs over and above the marginal costs of production. Marginal social benefit is below MB, reflecting the idea that when the social costs of consumption are considered, the benefit to society is less than the private benefit. In either situation, the market would show equilibrium market price (P_m) lower than the socially desirable price and equilibrium market quantity (Q_m) greater than the socially desirable quantity. A deadweight loss is occurring, resulting in market failure.

The Market for Goods and Services

Alternatively, candidates could illustrate production externalities and consumption externalities on separate graphs.

The features of a public good are explained and related to the environment. Explanation includes use of the tragedy of the commons or the free-rider principle. Public goods are non-rival, non-depletable, and non-excludable by price:

- non-rival, as use by one person does not prevent another person from using it
- non-depletable since, especially in terms of the atmosphere, it has been considered that use by one person does not reduce the availability of the environment for another person
- non-excludable by price, since it is not possible to prevent a person from benefiting from the environment if they have not paid a charge.

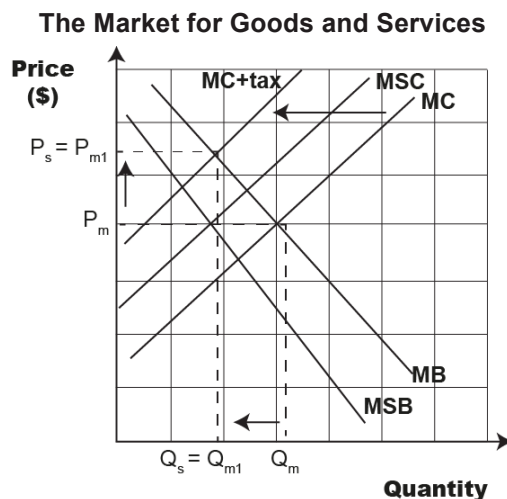
However, the increase in emissions has, over time, affected the non-depletable nature of a clean environment, and it has been only recently that the effect on individuals has started to become significant. The non-rival and non-excludable nature of the environment makes it impossible to identify individual polluters and, therefore, they have been able to free-ride at the cost of human society at large. Because they are non-excludable, they have hindered the imposing of a pricing system in order to influence producer and consumer behaviour, and the effort has needed an almost universal will of governments to gain progress. Governments have been unwilling to act individually because additional costs to their producers and consumers would reduce international competitiveness and, therefore, national wealth.

Policy alternatives evaluated possibly include carbon tax, emissions trading schemes, use of property rights, government ownership, or subsidised carbon sequestering. Candidate also:

- includes a model to identify the impact on the externality
- explains cost and benefit for the alternatives
- provides a a reasoned / realistic evaluation of the policies.

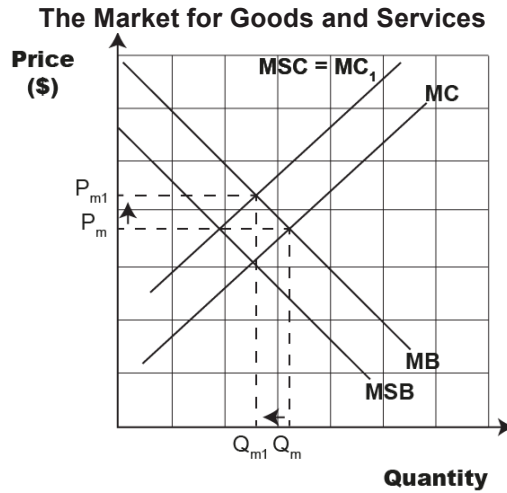
Policy options include the following:

A per-unit carbon tax would result in additional costs of production that would raise the MC towards the MSC curve to $MC+tax$. If the tax can be applied at the correct rate, it is possible to fully offset the spillover costs of production and consumption, raising the price to P_s and reducing the output to Q_s . The funds raised by governments could be used to mitigate the impact of climate change by paying for things such as relocations from flooded areas, or they could be used to subsidise and encourage the production and consumption of alternative clean energy sources.



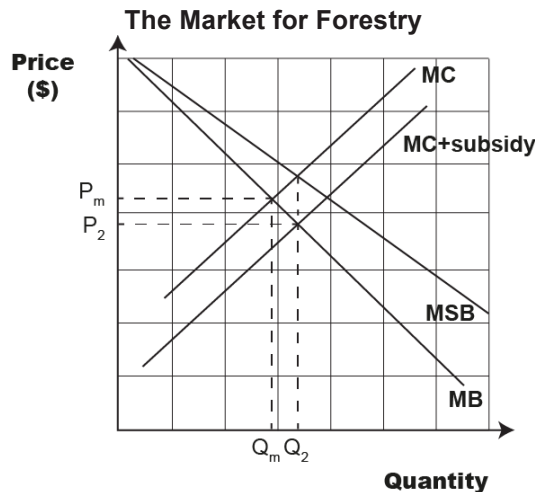
A carbon tax is a good option as part of a policy package because it sends a price signal that discourages carbon-based goods and encourages alternatives, thereby increasing allocative efficiency. Care would need to be applied to ensure that the tax was at an appropriate level and that the costs of collection and redistribution did not weigh heavily on the funds collected, as this would lead to a loss of allocative efficiency.

An emissions trading scheme would result in additional costs of production that would raise the MC for those firms that choose to have excess carbon emissions and purchase emissions rights. Firms that choose to reduce carbon emissions may be able to reduce their MC by selling emissions rights. The market will have a fixed quantity of carbon emissions. For firms choosing to emit carbon, the MC would rise towards the MSC curve to MC_1 , reflecting the cost of emissions rights. Because this market would be a producer market, the carbon emitted during consumption is unlikely to be included; however, the market may price emissions to effectively offset the spillover costs of production, raising the price to P_{m1} and reducing the output to Q_{m1} .



An emissions trading scheme is a good option as part of a policy package because it sets a quantity limit on carbon emission from production. Care would need to be applied to the market to ensure that the resulting price of carbon emissions fairly reflects the cost to society of those emissions.

Subsidised carbon sequestering would result in lower costs of production for industries such as forestry and would lower their MC. Forestry has a spillover benefit from production in the absorption of carbon that occurs when trees grow. The subsidising of forestry (MC falls to $MC + \text{subsidy}$) encourages tree planting, leading to increased output (to Q_2), and increased carbon absorption. This increased carbon absorption will offset carbon emissions from other industries and reduce carbon in the atmosphere.



Subsidised carbon sequestering is a good option as part of a policy package because it offsets the carbon emissions of both consumption and production. The cost of the subsidy can be paid from carbon tax revenue. The downside of sequestering is that it does not, by itself, change carbon emissions. The negative behaviour would continue. What sequestering does do is remove from the atmosphere carbon that has already been emitted.

Outstanding Scholarship	8 Marks	<p>The candidate produces and effectively communicates an outstanding and sophisticated economic analysis of the causes and effects of climate change, and key economic policy options that could be used to slow down climate change.</p> <p>This is complete and demonstrates <i>perception and insight</i> AND demonstrates <i>sophisticated abstraction and integration</i> of the resource material AND demonstrates <i>independent reflection and extrapolation</i> relevant to the evaluation of the different policy options AND is <i>convincing</i> and economically literate.</p>
	7 Marks	<p>The essay fulfils most of the requirements above for 8 marks, but contains minor factual inaccuracies (when this affects a statement or opinion) OR deals inadequately with an essential point OR lacks sufficient abstraction or integration of the resource material OR has some minor failure in the evaluation OR may lack some fluency and /or coherence.</p>
Scholarship	6 Marks	<p>The candidate produces and effectively communicates a sophisticated economic analysis of the causes and effects of climate change, and key economic policy options that could be used to slow down climate change.</p> <p>This demonstrates a high level of <i>analysis and critical thinking</i> AND incorporates a <i>competent level of integration and synthesis</i> of the resource material AND the discussion and evaluation are <i>clear, logically developed, and precise</i>.</p>
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	4 Marks	<p>The candidate produces a comprehensive analysis of the causes and effects of climate change, and key economic policy options that could be used to slow down climate change AND produces a <i>clear but undeveloped</i> discussion and evaluation AND demonstrates <i>some level of integration and synthesis</i> of the resource material AND demonstrates <i>some application</i> of economic theory relevant to the discussion.</p>

	3 Marks	The answer fulfils most of the requirements above for 4 marks, but is incomplete <i>OR</i> fails to present a cogent argument or make critical analysis <i>OR</i> does not communicate ideas adequately.
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Question Three

Key points

Achieving an operating balance surplus means that government income has exceeded government spending. This is significant because this has not been achieved since 2008 and indicates that the economy has recovered to the point where tax revenues have grown faster than government spending. When the Government is running budget deficits where spending exceeds income, Government has to borrow in order to fund the difference – which, in turn, adds future interest costs to Government expenses and could affect New Zealand's international financial position by lowering New Zealand's credit rating.

The business cycle affects the Government's ability to achieve the surplus since, when the economy is growing strongly, so too will tax revenue from GST, income tax, and company tax, while also reducing social welfare payments as more people are in work – this will make it easier to achieve a surplus. However, if the economy is slowing, then the opposite will apply, making it more difficult to maintain the surplus.

Income tax cuts will have the initial expansionary effect of increasing consumer spending because consumers will have greater disposable income. This will increase aggregate demand, boosting national output and economic growth. Candidates should provide a suitable AD/AS graph. This will have a multiplied effect through the economy, leading to increased employment. In the long term, since total tax revenue may be reduced, this could affect the Government's ability to continue to generate surpluses and to repay government debt.

Repaying government debt will initially have a contractionary effect on the economy because the surplus is effectively a net withdrawal from the economy. As a result, AD will fall and economic growth will slow. Candidates should provide a suitable AD/AS graph. In the long term, repaying government debt will reduce future interest payment costs, thereby providing extra available funds for government spending or maintaining the surplus at times of low growth. Lowering government debt also provides the government with a buffer against future recessions or adverse economic events because it makes future borrowing more viable. Paying off debt will also improve New Zealand's credit rating and further lower borrowing costs as a result.

Increasing government spending on infrastructure and other investment will have the initial effect of increasing aggregate demand, thereby increasing national output and economic growth. Candidates should provide a suitable AD/AS graph. This will have a multiplied effect through the economy. Additionally, if the spending results in improved national productivity and efficiency gains, then aggregate supply will increase, adding to economic growth and minimising any inflationary effects. Efficiency gains will benefit the economy in the long term in terms of international competitiveness; though, again, the Government's not repaying debt will provide less of a buffer against adverse economic events.

Restarting payments to the NZ Superannuation Fund would have a contractionary effect on the economy because the surplus is effectively a withdrawal from the economy. In the long term, restarting payments would enable the fund to continue to grow to provide a useful buffer against rising superannuation costs in the future, reducing the need to raise funds through higher taxes or other means. However, the effect on economic growth is likely to be negligible, though increased investment in New Zealand businesses by the Superannuation Fund could contribute to future growth.

Candidates should provide a justified policy recommendation with a focus on the benefits to economic growth in the long run.

Outstanding Scholarship	8 Marks	<p>The candidate produces and effectively communicates an outstanding and sophisticated economic analysis of the short- and long-term economic impact of different options for utilising the government operating balance surplus, by applying macro-economic theory. This is complete and demonstrates <i>perception and insight</i></p> <p>AND</p> <p>demonstrates <i>sophisticated abstraction and integration</i> of the resource material</p> <p>AND</p> <p>demonstrates <i>independent reflection and extrapolation</i> relevant to the evaluation of which option is likely to have the greatest economic benefit to the economy in the long term</p> <p>AND</p> <p>is <i>convincing</i> and economically literate.</p>
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