Assessment Schedule – 2021

Scholarship Economics (93402)

Evidence

Question One: The New Zealand honey market

Key points

- Honey production may be an example of perfect competition since there are many producers in New Zealand (9 000 beekeepers) who are price-takers, having to accept the market price for their honey. The honey produced is relatively homogenous from one beekeeper to another, and there are no significant barriers to entry, as is evidenced by the growth from 3 000 to 9 000 producers. (In some cases, it could be argued that the market is monopolistically competitive since some beekeepers are able to differentiate their honey, e.g., mānuka vs multi-floral).

- The market for raw honey has seen a significant increase in supply in response to supernormal profits being earned in the honey market (Resource B). As a result, the price of honey has fallen to between $3 and $4 per kg (Graph One – see Appendix). This has caused MR and AR to fall for all firms. Since MR_1 is now below MC at the profit-maximising output Q, firms will reduce output to Q_1 where MR_1 = MC and profits are maximised. In addition, based on the information provided, it appears that the market price has fallen below that needed for a normal profit, i.e., below minimum AC, so firms are now earning a subnormal profit in the short run (Graph Two – see Appendix).

- As stated in Resource A, honey costs between $8 and $10 per kg to produce, so the fall in price has resulted in firms earning subnormal profits (Graph Two). Some firms have shut down, indicating that the price has fallen below the shutdown point (minimum AVC), so they are better off to shut down production and pay only fixed costs than to continue to produce (Graph Three – see Appendix). This would especially apply to new entrants, as suggested in Resource A, who may have higher average costs due to set up costs and the absence of economies of scale.

- Low interest rates in 2021 and 2022 will reduce fixed costs for beekeepers but will not impact AVC. Average costs fall from AC to AC_1. The shutdown point will remain the same, since AVC is unchanged, but subnormal profit is reduced (Graph Four – see Appendix), as the difference between TC and TR decreases for those who don't leave the market.

- In the long run, it would be expected that some firms will leave the industry if subnormal profits continue, as better profits can be earned elsewhere. As a result, supply should decrease from S_1 to S_2, resulting in an increase in the market price. This should continue until a normal profit is being earned at price P_2. Individual beekeepers who have remained in the industry will increase production to Q_2, since at Q_1 they would be missing out on marginal profits. The effect of the low interest rates would be that the break-even point / price will be at a lower price than in the past, due to lower average costs (or fewer firms have to leave the industry than without the decrease in interest rates) (Graph Five – see Appendix). In addition, the long-run outlook for international demand is very positive, so for those firms who can remain in the market, increased demand will further increase the market price, supporting a return to normal profits.

Judgement

Outstanding Scholarship	8	The candidate produces and effectively communicates an outstanding and sophisticated economic analysis of the impact of the changes in the market for raw honey on individual beekeepers. This is complete and demonstrates perception and insight *AND* demonstrates *sophisticated abstraction and integration* of the resource material *AND* demonstrates *independent reflection and extrapolation* relevant to the evaluation of the market for raw honey on individual beekeepers in the short run and long run

		AND is *convincing* and economically literate.
	7	The essay fulfils most of the requirements above **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.
Scholarship	6	The candidate produces and effectively communicates a sophisticated economic analysis of the impact of the changes in the market for raw honey on individual beekeepers in the short run and long run. This demonstrates a high level of *analysis and critical thinking* *AND* incorporates a *competent level of integration and synthesis* of the resource material *AND* the discussion and evaluation are *clear, logically developed, and precise*.
	5	The essay fulfils most of the requirements above **but** has some unsupported generalisations *OR* some major point in the discussion is neglected or incomplete *OR* has some inadequacy in the evaluation *OR* ideas may not be communicated effectively.
No Scholarship	4	The candidate produces an analysis of the impact of the changes in the market for raw honey on individual beekeepers in the short run and long run *AND* produces a *clear but undeveloped* discussion and evaluation *AND* demonstrates *some level of integration and synthesis* of the resource material *AND* demonstrates *some application* of economic theory relevant to the discussion.
	3	The answer fulfils most of the requirements above **but** is incomplete *OR* fails to present a cogent argument or make critical analysis *OR* does not communicate ideas adequately.
	2	The answer shows limited understanding relevant to the question. Some information is recalled, but ideas are not explained or analysed.
	1	The answer contains a minimal amount of relevant evidence.
	0	No response; no relevant evidence.

Question Two: New Zealand waterways

Key points

- Waterways in New Zealand may be considered a public good, as they meet the two public goods criteria. They are non-excludable by price, since it is not possible to stop anyone from using them if they have not paid for their use, primarily because they run through many areas and regions, meaning that it's very difficult to restrict access. They are also generally non-rival, since one person using a waterway does not prevent anyone else from using it, due to the vast size of the waterways network. They are also non-depletable, since one person using a waterway will not impact the availability of the resource. Candidates could argue that overuse results in a loss of non-rivalry or non-depletion.

- Since waterways are non-excludable by price due to the size and breadth of the waterway network, it's not possible to prevent anyone from using them. Therefore, waterways can be subject to free-rider behaviour where people (and businesses) excessively use the waterways resource, knowing that they cannot be charged for its use or restricted from accessing it. This is particularly the case since no one "owns" these waterways.

- Waterways have been impacted by negative externalities of production. Agriculture and urban development have resulted in pollution of many NZ waterways, which is negatively impacting freshwater fish species, reducing water quality, and reducing recreational access to waterways that are no longer swimmable. These are externalities of production, since they are spillover effects impacting third parties that stem from the production processes involved. As a result, social marginal cost would be greater than marginal cost since there is an additional spillover cost to society from production (Graph One – see Appendix). This means that the socially desirable quantity, Q_s, is less than the market quantity, Q_m, and the socially desirable price, P_s, would be greater than the market price, P_m. Consequently, there would be a deadweight loss in these markets, and the markets would be allocatively inefficient, since spillover social costs are not being factored into the market price.

- Increased regulations on waterways affecting industries would increase costs for these firms, increasing their marginal costs (fines for firms that do not meet the new regulations would also increase marginal costs). Consequently, MC would shift to MC_1 (Graph Two – see Appendix) and, with marginal production being relatively less profitable, equilibrium quantity would decrease, and price would increase, moving the market towards the socially desirable equilibrium and reducing deadweight loss. (Candidates might also note that in the long term, actions taken as a result of the regulations could reduce spillover costs, moving MSC to the right). This policy may be seen as equitable since it may be considered fair that the industries negatively affecting waterways are required to take specific actions to reduce their spillover costs. If MC_1 moves to be equal to MSC, then the market will be allocatively efficient. This could be effective so long as it is properly enforced by government, as polluters would have little choice but to take action to follow the regulations.

- Increased government and council spending would result in improved waterways and a reduction in the spillover costs of production from industry – MSC would shift to MSC_1 (Graph Three – see Appendix) and the gap between MC and MSC_1 would reduce, reducing deadweight loss and improving allocative efficiency (Graph Three). However, this may be considered inequitable, since all taxpayers are paying to reduce the spillover costs created by specific and identifiable industries, which may be unfair. An opportunity cost will result for government and councils, who could have spent this money on other areas. This policy could be effective, as it can be more immediately put into effect than other policies.

- New regulations restricting intensification of farming types that are nitrogen- and effluent-intensive would reduce overall supply in the market, reduce productivity and/or increase costs of production in for these farmers, causing MC to shift to the right to MC1 (Graph 2) and reducing the size of the deadweight loss by reducing the quantity produced from Qm to $Qm_1$and therefore improving allocative efficiency. This policy may be seen as equitable since it limits those specific farming types creating negative spillover effects; however, it may be considered inequitable if policies fail to address other industries that are also negatively impacting waterways. For the same reason, this policy could be effective for the industries affected but less effective than other policies if other industries are not addressed.

- Subsidies or tax credits for business taking action to improve waterways would reduce the costs for firms wishing to act, therefore making it more likely that they will do so, reducing negative externalities of production from these firms, reducing deadweight loss, and improving allocative efficiency (Graph Three). They may be considered fair since they reward firms that actively move to improve waterway quality. Alternatively, this policy may be

considered unfair if it is seen as rewarding firms or industries for fixing issues that they caused in the first place. This policy could be effective, as it would make action by water polluting industries more financially viable.

- Assigning property rights to local waterways for iwi would enable iwi to take legal action to protect the waterways that are now their "property", or for which they have legal stewardship. This could involve using the courts to fine polluters, increasing polluters' marginal costs to reduce market quantity and raise market price (Graph Two). This may be seen as equitable since only those negatively impacting the waterways would be targeted. This policy could be effective since assigning a specific owner to a waterway would increase their incentive to police polluters and to act to better protect their asset.

- Fining businesses and farms that have allowed pollutants to enter waterways, above limits set by the Government, would have the effect of increasing the marginal costs of those firms from MC to MC_1 (Graph Two). This will result in their prices increasing to P_{M1} and quantity produced to fall to Q_{M1}, reducing deadweight loss and improving allocative efficiency. This policy may be equitable since it specifically targets businesses and farmers that are creating pollution in waterways, thereby internalising the externality. However, this policy is unlikely to be effective since it is difficult to enforce – it is difficult to prove that any one producer allowed excess pollutants to enter a waterway.

- The candidate should provide a justified recommendation as to which of the three policies analysed would be most effective at improving the quality of New Zealand waterways in terms of equity, efficiency, and effectiveness.

Judgement

Outstanding Scholarship	8	The candidate produces and effectively communicates an outstanding and sophisticated economic analysis of the impact of waterway polluting industries on New Zealand waterways. This is complete and demonstrates perception and insight *AND* demonstrates *sophisticated abstraction and integration* of the resource material *AND* demonstrates *independent reflection and extrapolation* relevant to the evaluation of possible policies to address the negative externalities affecting New Zealand waterways *AND* is *convincing* and economically literate.
	7	The essay fulfils most of the requirements above **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.
Scholarship	6	The candidate produces and effectively communicates a sophisticated economic analysis of the impact of waterway polluting industries on New Zealand waterways. This demonstrates a high level of *analysis and critical thinking* *AND* incorporates a *competent level of integration and synthesis* of the resource material

		AND the discussion and evaluation are *clear, logically developed, and precise*.
	5	The essay fulfils most of the requirements above **but** has some unsupported generalisations *OR* some major point in the discussion is neglected or incomplete *OR* has some inadequacy in the evaluation *OR* ideas may not be communicated effectively.
No Scholarship	4	The candidate produces an analysis of the impact of waterway polluting industries on New Zealand waterways and possible policies to address externalities *AND* produces a *clear but undeveloped* discussion and evaluation *AND* demonstrates *some level of integration and synthesis* of the resource material *AND* demonstrates *some application* of economic theory relevant to the discussion.
	3	The answer fulfils most of the requirements above **but** is incomplete *OR* fails to present a cogent argument or make critical analysis *OR* does not communicate ideas adequately.
	2	The answer shows limited understanding relevant to the question. Some information is recalled, but ideas are not explained or analysed.
	1	The answer contains a minimal amount of relevant evidence.
	0	No response; no relevant evidence.

Question Three: Repayment of government debt

Key points

- The operating balance is calculated from government revenue minus government spending (Model One – see Appendix). Government expenses increased due to the Government response to the worldwide COVID-19 pandemic – $50 billion was spent on the Covid Response Recovery Fund, which was made up mainly of the Wage Subsidy. Whilst government spending increased, government revenue decreased, increasing the operating balance deficit. Due to a decrease in international tourism, a decrease in the overseas demand for our exports and decreased consumer spending, indirect taxes such as GST decreased. Lower incomes caused by job losses and lockdown resulted in a decrease in direct taxes such as income and company tax. The increase in budget deficit was funded by increasing the national debt.

- To reduce debt levels, the Government would need to run a budget surplus by decreasing spending, increasing tax revenue through higher taxes, or increasing economic growth to increase tax revenue.

- Government spending decreases on healthcare, education, and social services would result in a decrease in Aggregate Demand, as G is a component of AD. This would cause a reduction in real GDP with lower planned output from Y to Y_1. Unemployment increases as less derived demand results from the decreased production of goods and services, and the gap between Y_1 and Y_f has increased. With the multiplier effect, the reduction in real GDP would have a larger final impact than the initial reduction in government spending (Graph Two – see Appendix). In addition, there would be potential longer-term consequences to productivity as reductions in any of these areas, particularly education, could limit the future potential of the population.

- An increase in taxes could be achieved through increasing GST above the current 15%, raising income tax levels or company tax, or introducing a new tax such as capital gains tax. Through higher taxation, government revenue increases, with the possibility of returning the budget deficit to surplus. However, with withdrawals more than injections (assuming surpluses are used to repay debt), real GDP would fall. An increase in direct taxes like income tax, company tax, or a capital gains tax would result in a decrease in C as household incomes decrease, with less discretionary spending. AD decreases, and real GDP and employment levels decrease (Graph Two). An increase in GST would result in a decrease in aggregate supply as producers have to raise prices at each output level. This would also reduce real GDP while also raising inflationary pressures (Graph Three – see Appendix).

- Both a decrease in government spending and increase in taxation could return a budget surplus, allowing debt to be reduced. In the short run, the negative impact would lower economic growth, lower derived demand, and raise unemployment.

- Increasing the age of superannuation results in an increase in consumption spending (C) as household income increases as people work longer and so keep a higher income. Superannuation costs for the government decrease as people work for more years before retiring, reducing transfer payments, while income tax from higher PAYE payments could increase government revenue. The NZ labour force increases as illustrated by increase of Y_f to Y_{f1} (Graph Four – see Appendix) increases. With less spending and higher revenue, the operating budget could return to surplus. However, this could be politically unpopular and may be considered inequitable to older workers. This would also take time to implement in the short run, but the benefits would continue into the long run, allowing debt to be gradually repaid without a contractionary impact on the economy.

- Stimulating economic growth would result in an increase in real GDP, due to an increase in government spending on supply side policies. AD increases initially, due to the extra government spending, which would increase debt further. Aggregate supply increases in the longer term, due to lower costs of production, and increased productivity from infrastructure improvements and a more skilled workforce. As both AS and AD increase, this could result in significant increases in real GDP, higher demand for labour, and multiplied benefits to the economy. The initial effect would be to increase the operating balance deficit as government spending increases; however, the economic growth that results in the longer term would result in an increase in tax revenue, returning the budget to a surplus. The impact on general price level would depend on the relative shifts of the AD and AS curves. Moreover, if real GDP increases, the percentage of debt to real GDP decreases, thereby reducing the debt ratio. This policy could be argued to be a longer-term option as it takes time to implement and gain the resulting benefit (Graph Five – see Appendix).

- Under normal circumstances, the Government would have a responsibility to reduce debt from over 50% GDP back to 'prudent levels' (identified as 15–25% of GDP) quickly, as required by the Public Finance Act. New Zealand could be vulnerable to another shock, such as natural disaster, and interest on debt must be paid. However, the pandemic is a 'one in a hundred year' event, the burden of which could potentially be spread over generations. Further, policies to rapidly reduce debt would most likely damage New Zealand's rate of economic growth and reduce employment, which would have negative long-term implications for the country and for the government budget. As New Zealand has low debt to GDP compared to other countries, this may suggest that the relative increase in debt could be of less concern. Also, interest rates are at an all-time low and so the cost of maintaining debt is low. It could be argued that the benefits of stimulating long-term growth could outweigh the costs of borrowing. The world economy is still vulnerable and so focus should be on economic growth and employment.

- The effect on other macro goals would depend on the policies used. Reduced spending and increased taxation would assist in rapidly reducing government debt, but have a negative effect on employment, real GDP, and deflation at a time of reduced world economic activity – so could be detrimental to the economy in the long run. Changing the superannuation age or stimulating economic growth would have positive impacts on real GDP and employment but are longer-term strategies and would not result in rapidly repaying debt.

Judgement

Outstanding Scholarship	8	The candidate produces and effectively communicates an outstanding and sophisticated economic analysis of the reasons for increasing government debt levels and potential government policies to reduce debt. This is complete and demonstrates perception and insight *AND* demonstrates *sophisticated abstraction and integration* of the resource material *AND* demonstrates *independent reflection and extrapolation* relevant to the evaluation of the effect on the New Zealand economy *AND* is *convincing* and economically literate.
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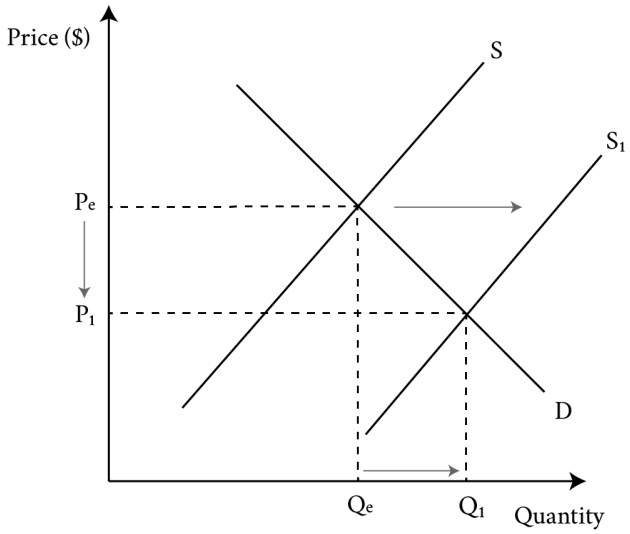
Scholarship	Outstanding Scholarship
13 – 18	19 – 24

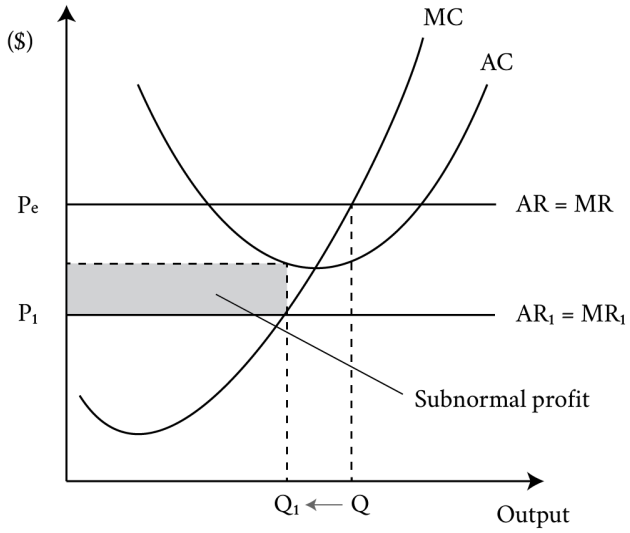
Appendix

Question One: The New Zealand honey market

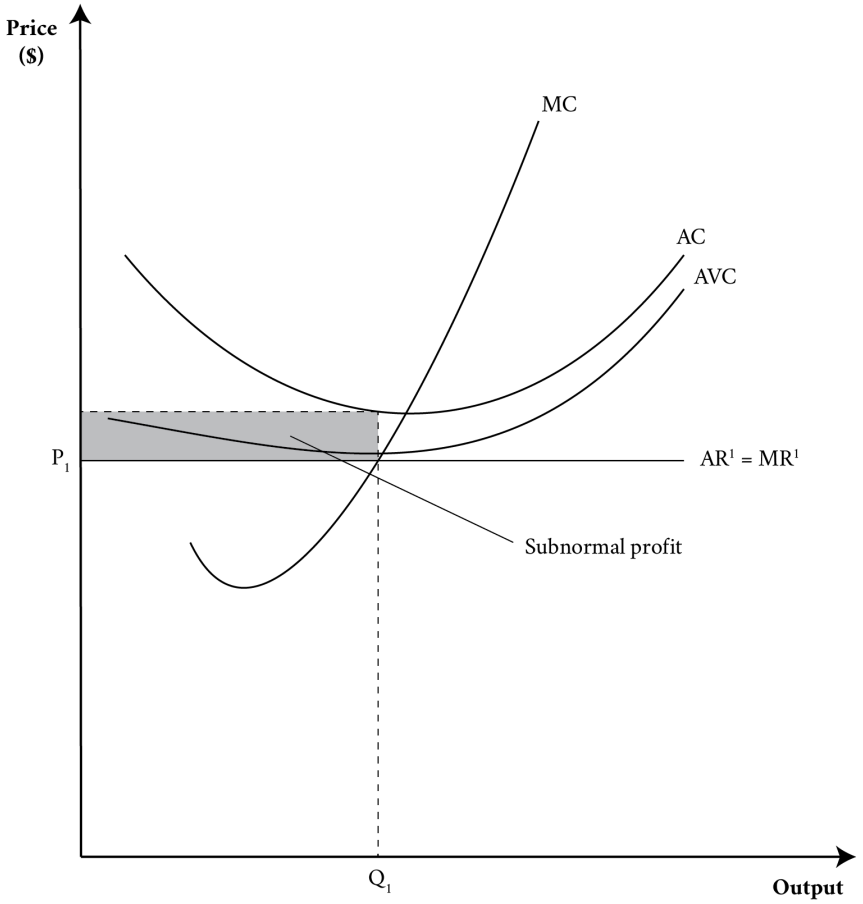
Graph One: Market for raw honey



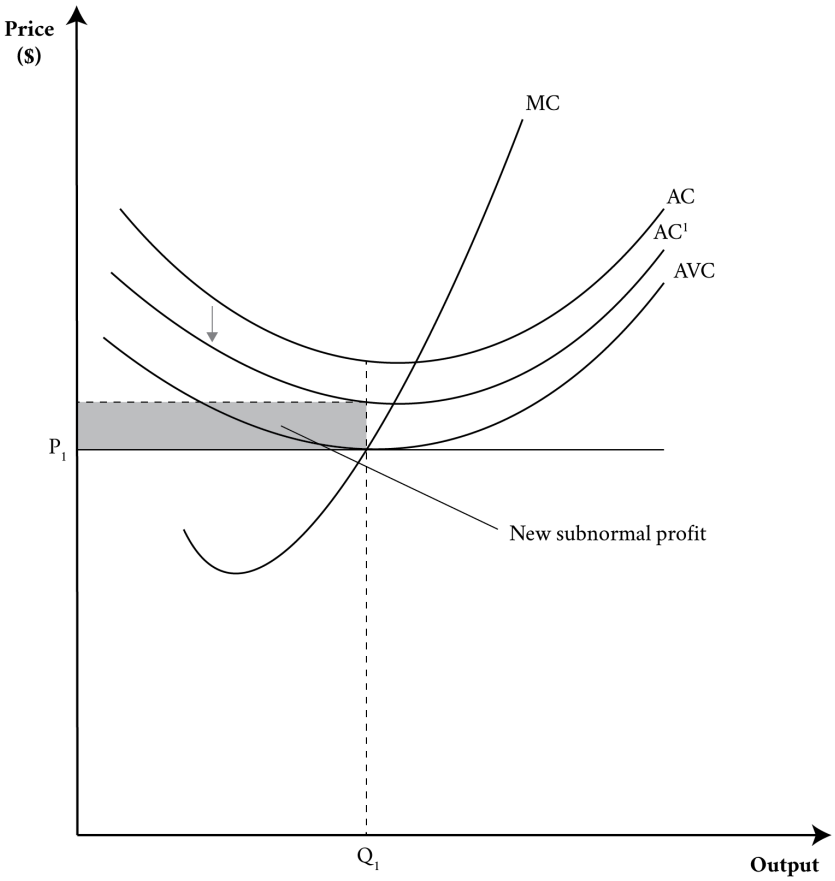
Graph Two: Individual beekeeper



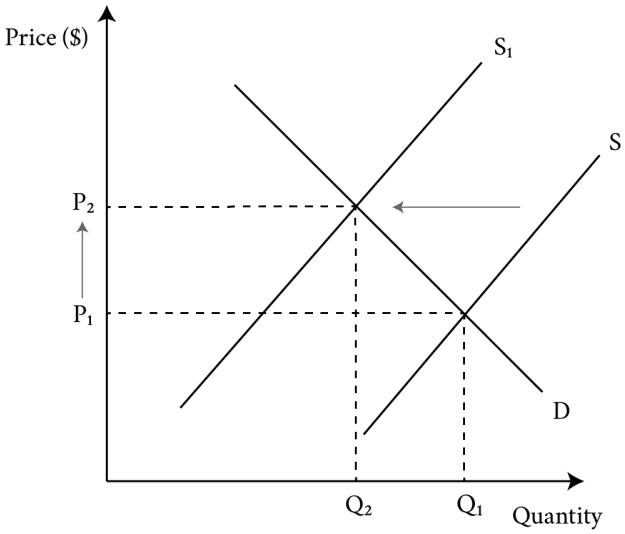
Graph Three: Individual beekeeper



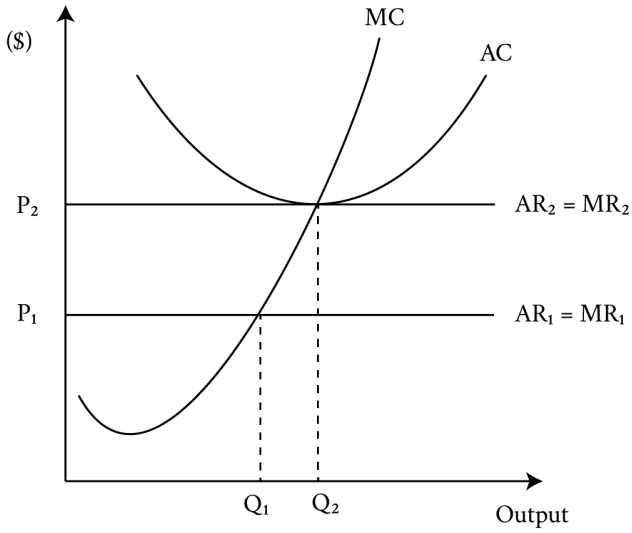
Graph Four: Individual beekeeper



Graph Five: Market for raw honey

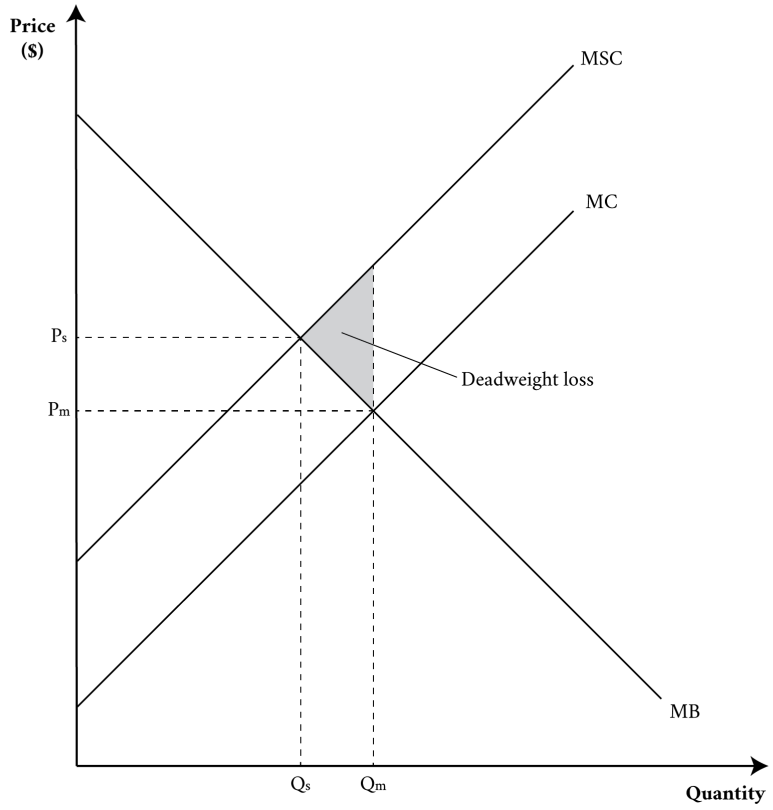


Graph Six: Individual beekeeper

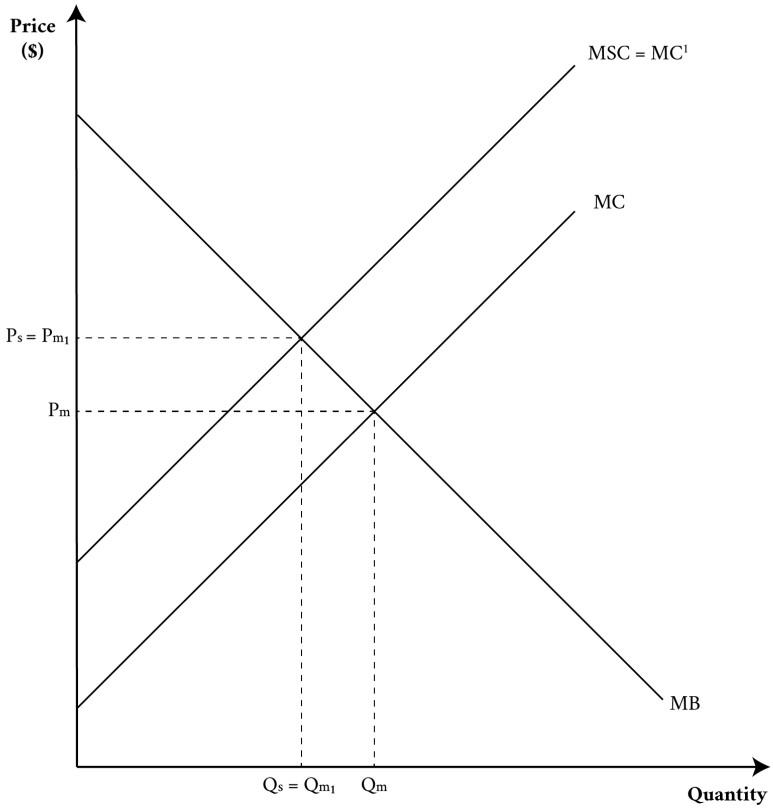


Question Two: New Zealand waterways

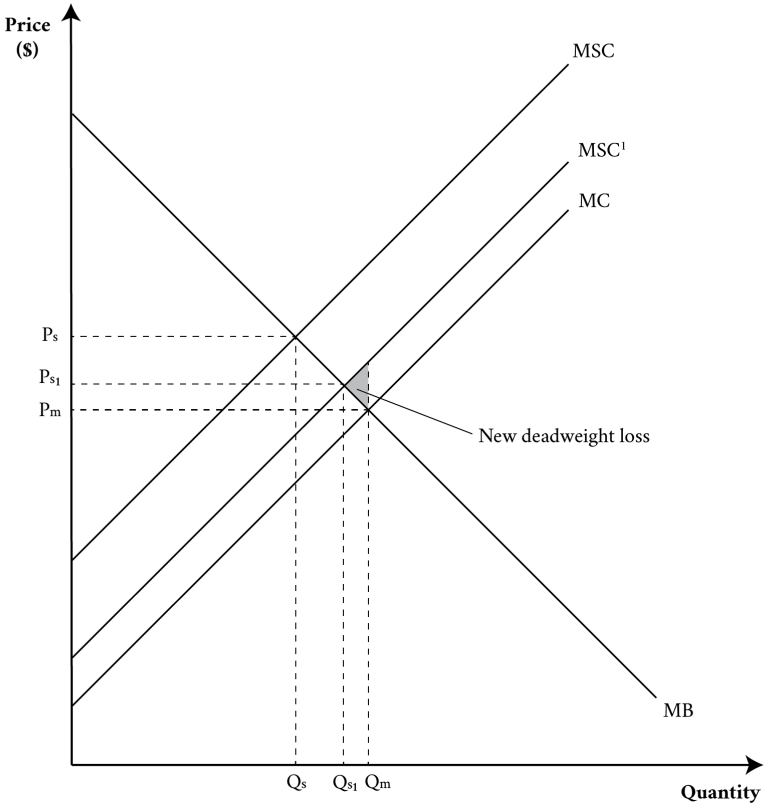
Graph One: Water-polluting industries



Graph Two: Water-polluting industries

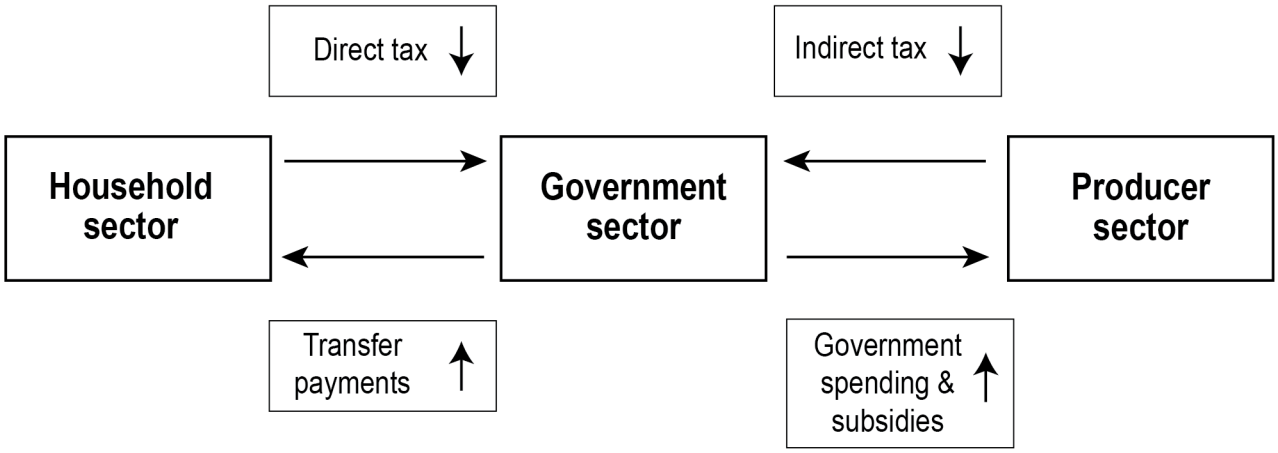


Graph Three: Water-polluting industries

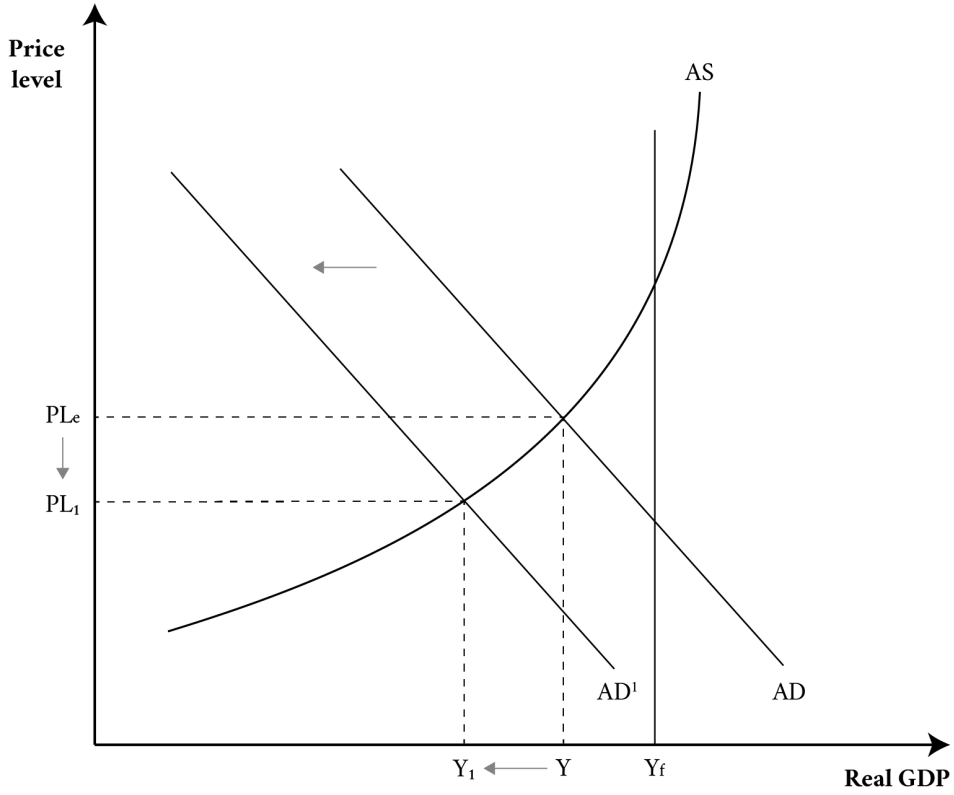


Question Three: Repayment of government debt

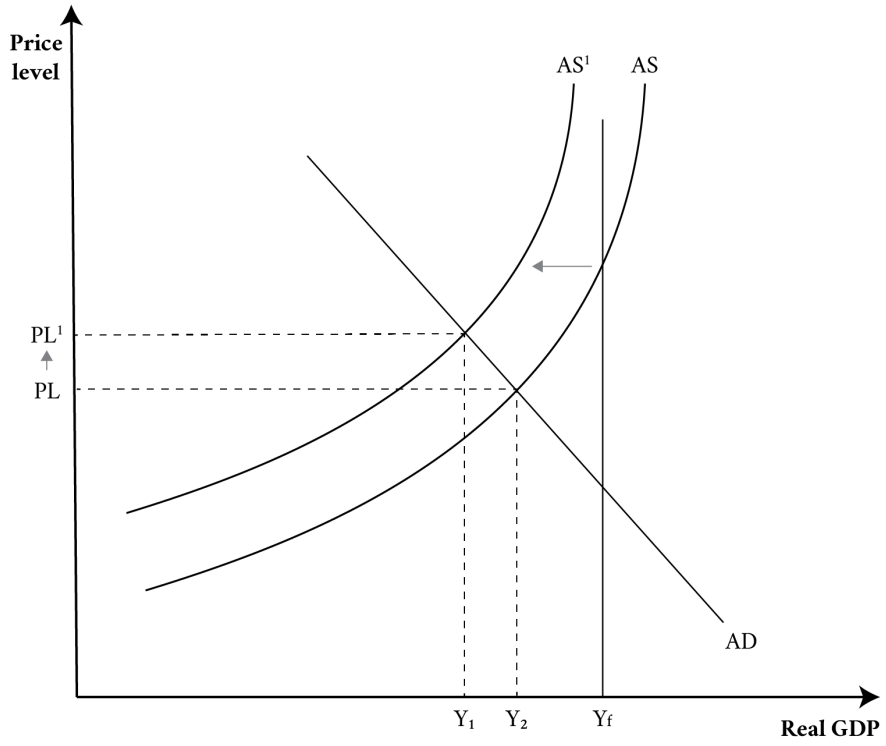
Model One: Circular flow model of the New Zealand economy



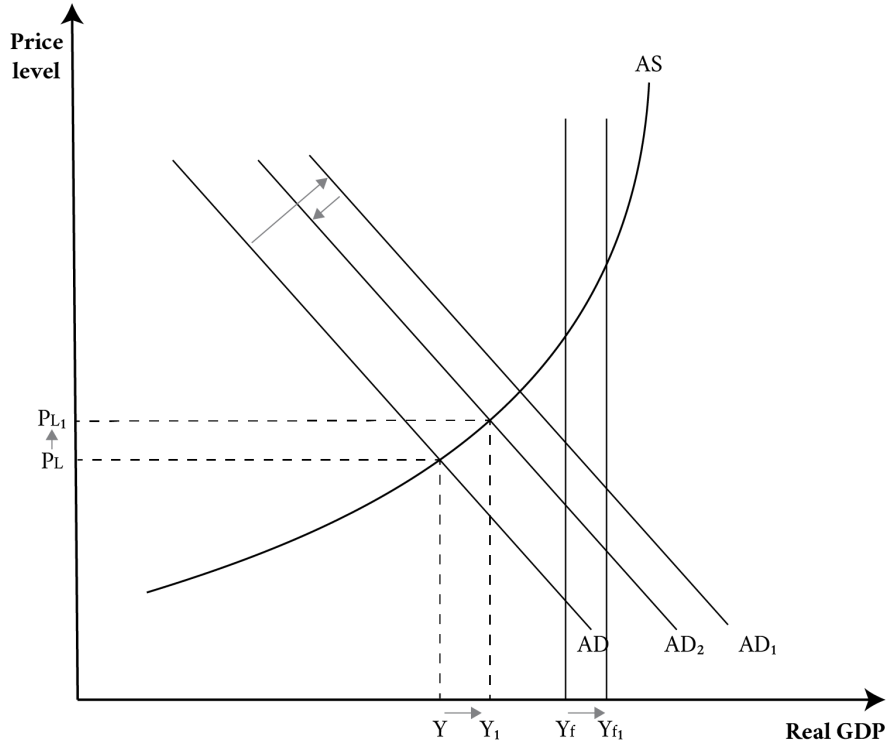
Graph Two: New Zealand economy



Graph Three: New Zealand economy



Graph Four: New Zealand economy



Graph Five: New Zealand economy