




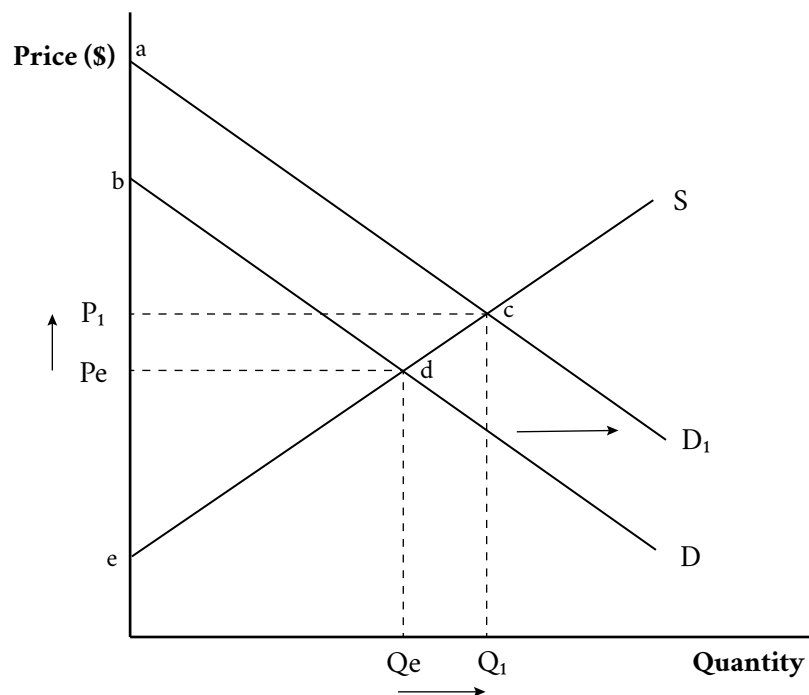
Assessment Schedule – 2023**Scholarship Economics (93402)****Evidence****Question One: Dynamic pricing and market efficiency**

- Price elasticity of supply (PES) measures the responsiveness of a change in quantity supplied (QS) to a change in price. It is mainly affected by the extent of variable resources present in production over different periods of time. It is also affected by the number of competitors and spare capacity in the industry.
- Ride share journeys have relatively elastic supply since the resources available, i.e. drivers, are relatively flexible / variable and can quite quickly be increased when there is an increase in price. In contrast, concerts have relatively inelastic supply since there is a relatively fixed supply of seats / capacity for any specific concert. Only limited temporary seating can be added so the quantity supplied will increase by a less than proportionate amount in response to an increase in price.
- Price elasticity of demand (PED) measures the responsiveness of a change in quantity demanded (QD) to a change in price. Elasticity of demand is determined by the availability of substitutes, durability of the product, proportion of income required and the nature of the product, i.e. necessity vs. luxury. Ride share journeys are relatively elastic since there are substitutes such as taxis, buses, walking, and in general using ride shares is a luxury so the quantity demanded is relatively responsive to a change in price. (Candidates may also note that at particular times of increased demand, e.g. bad weather or rush hour, demand may become relatively less elastic.) Concerts for popular stars are relatively price inelastic as, although the price is often a high proportion of income, there are no close substitutes, and fans see the concert as a necessity. Consequently, the quantity demanded for concerts will be relatively unresponsive to a change in price.
- In both markets, an increase in demand results in a higher price, higher producer surplus, and no deadweight loss, so allocative efficiency is maintained. At the original price, a shortage would occur as quantity demanded would be greater than quantity supplied, so consumers would bid up the price. Quantity demanded would fall as a result, while quantity supplied would increase until equilibrium is reached at P_1 , where demand and supply are equal.
- In the case of ride share journeys, consumer surplus would increase from bdP_e to acP_1 (Graph One) since the increase in quantity consumed more than offsets the effect of the increase in price. This reduces the difference between price paid and the price consumers were prepared to pay. The increase in price is proportionately smaller than the increase in quantity due to the elastic demand for ride shares. Producer surplus increases from $P_e d e$ to $P_1 c e$ since both the price has increased and the quantity sold increases. As the market is in equilibrium, there is no deadweight loss. There is an increase in net welfare as the sum of surpluses increases as $ace > bde$.
- In the case of concerts, consumer surplus would change from abP_e to cdP_1 (Graph Two). The increase in price is proportionately greater than the increase in quantity demanded due to the inelastic demand and supply. Producer surplus increases from $P_e b e$ to $P_1 d e$ since both the price and the quantity sold increases. Since the market is in equilibrium, there is no deadweight loss. There is an increase in net welfare of $acdb$ as the sum of PS and CS increases overall.
- Setting a maximum price or fixed price at the original price P_e would have the effect of creating a deadweight loss (Graphs Three and Four), as quantity demanded would exceed quantity supplied, creating a shortage that cannot be addressed. In both cases, producers will miss out on additional revenue and profit since neither price nor quantity supplied can be increased. Producer surplus in both markets decreases, as both price and quantity decrease, with a fixed price ( in Graphs Three and Four).
- In both markets, consumer surplus will increase since the difference between the price P_e and the price that consumers were willing to pay has increased, though this will be offset by a fall in CS caused by the quantity supplied being limited to Q_e . (See comment below about relative shifts.)
- For ride shares, those consumers able to get rides will benefit as the price will be lower than it could have been, but others will miss out on rides even if they were prepared to pay a higher price, since the price cannot rise to

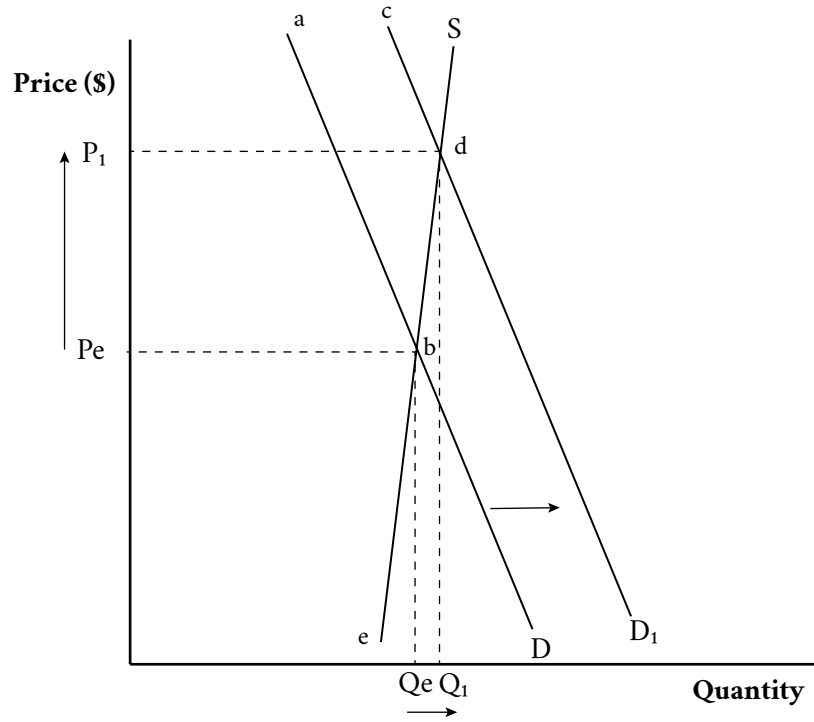
generate an increase in quantity supplied. Overall, consumer surplus increases to the shaded area () in Graph Three.

- Similarly for concerts, those able to get tickets will gain as they will pay a lower price than would have been charged under dynamic pricing, but others will miss out on tickets that may have been supplied if prices could have been raised. Overall, consumer surplus increases to the shaded area () in Graph Four as the decrease in price outweighs the decrease in quantity. Further, due to the ability to on-sell tickets, a maximum price in this market is likely to lead to secondary sales / scalping.
- With the implementation of a fixed price, consumers in both markets are better off. However, both markets are allocatively inefficient, as shown by the deadweight loss in Graph Three and Graph Four, since producer and consumer surpluses are no longer being maximized and the markets are unable to operate at equilibrium. Deadweight loss will be greater in the ride share market due to the proportionally greater reduction in quantity supplied due to the elastic PES.
- Overall, a maximum price would be difficult to justify in the ride share market as dynamic pricing allows the market to respond quickly to changes in demand due to elastic supply, and a maximum price would result in a significant shortage and deadweight loss. A fixed / maximum price could possibly be justified in the concert market since price elasticity of supply is very inelastic, so any increases in price have little impact on supply and primarily benefits consumers (though a deadweight loss is still evident).
- Note: Responses could vary depending on the relative shifts candidates illustrate in graphs and will be marked accordingly.

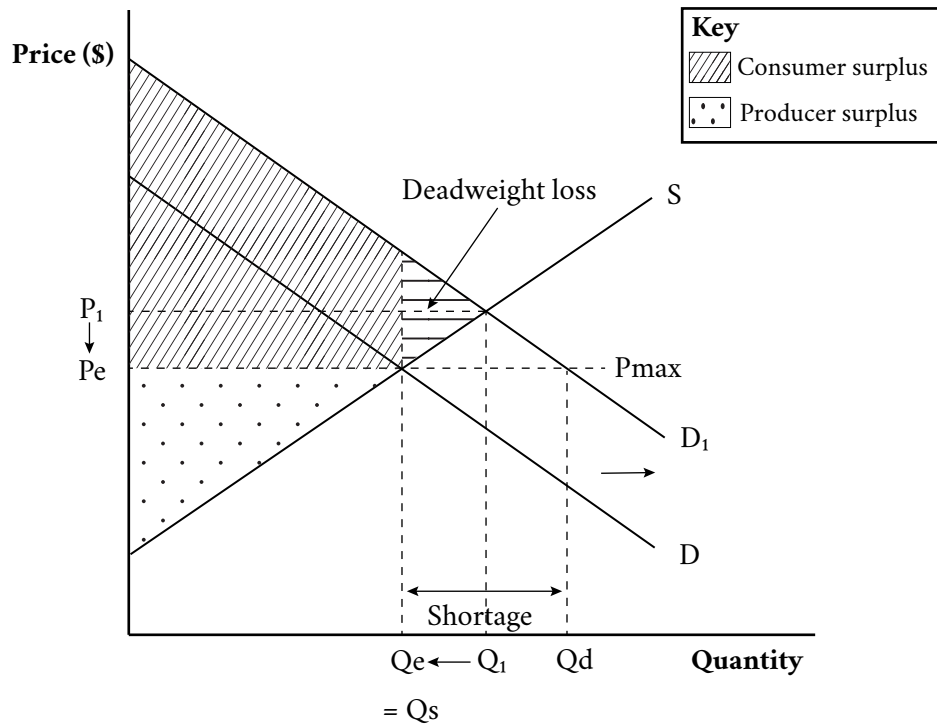
Graph One: The market for ride shares



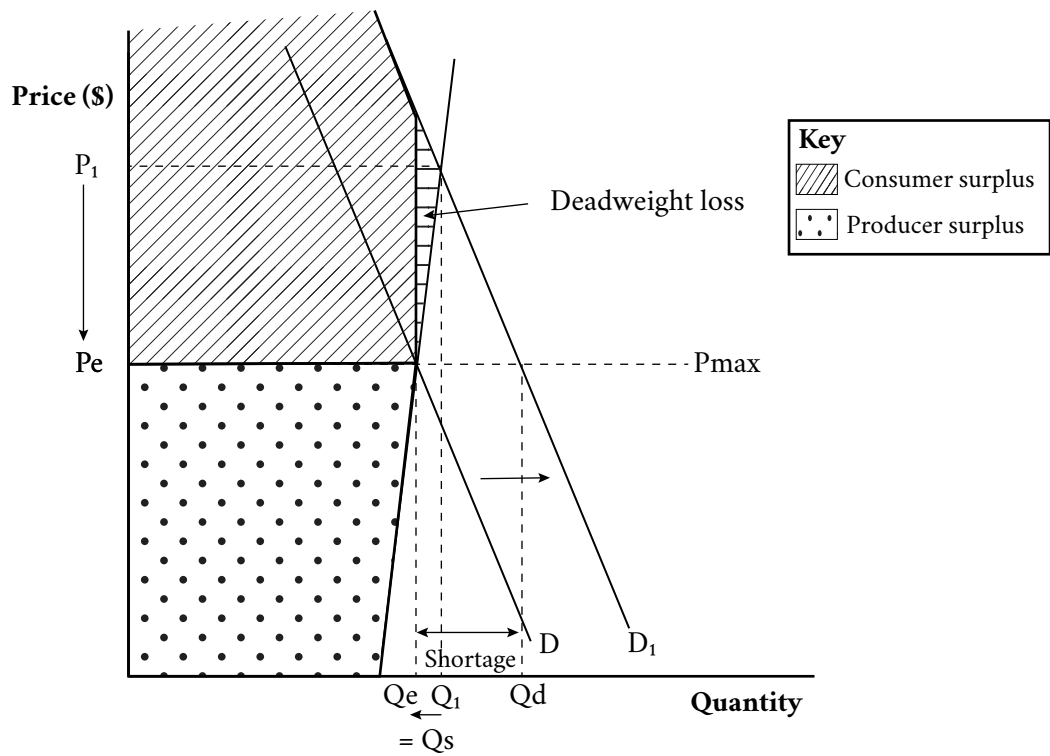
Graph Two: The market for concerts



Graph Three: The market for ride shares



Graph Four: The market for concerts



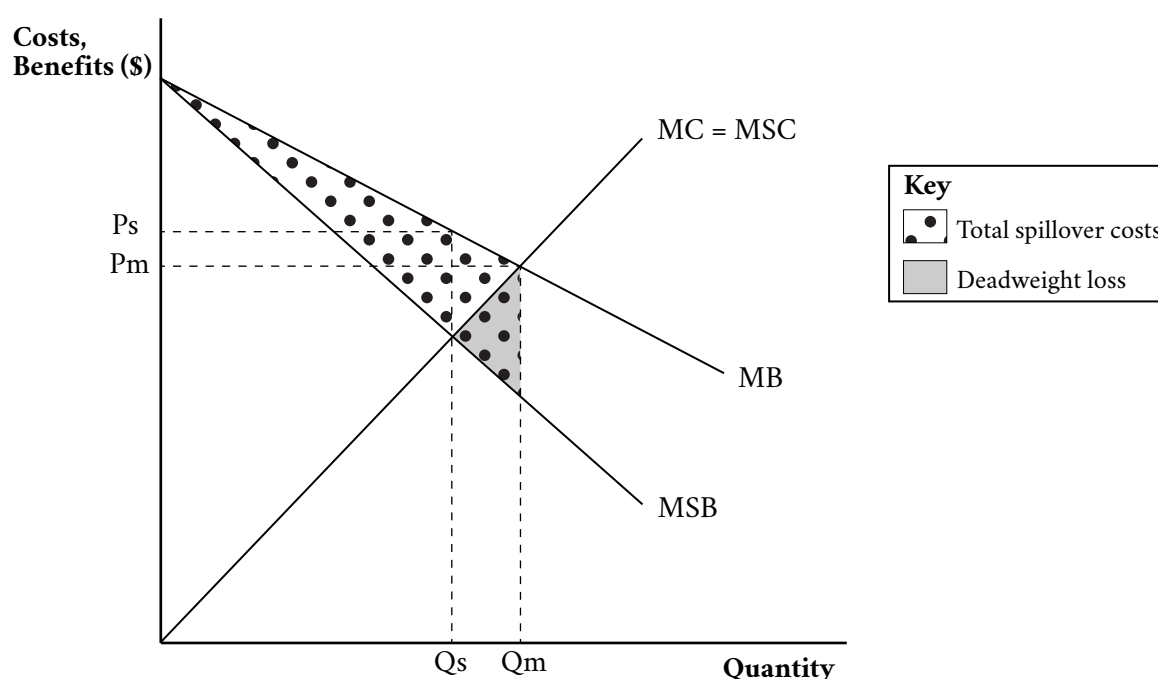
Judgment

Outstanding Scholarship	8	<p>The candidate produces and effectively communicates an outstanding and sophisticated economic analysis of the impact of dynamic pricing on two markets with different elasticities and evaluates the effect of banning dynamic pricing on producers, consumers, and allocative efficiency in each market.</p> <p>This is complete and demonstrates <i>perception and insight</i>.</p> <p>AND</p> <p>demonstrates <i>sophisticated integration and abstraction</i> of the resource material</p> <p>AND</p> <p>demonstrates <i>independent reflection and extrapolation</i> relevant to the evaluation of a government policy and its effect on banning dynamic pricing.</p> <p>AND</p> <p>is <i>convincing</i> and economically literate.</p>
	7	<p>The essay fulfils most of the requirements above but contains minor factual inaccuracies (when this affects a statement or opinion)</p> <p>OR</p> <p>deals inadequately with an essential point</p> <p>OR</p> <p>lacks sufficient abstraction or integration of the resource material</p> <p>OR</p> <p>has some minor failure in the evaluation</p> <p>OR</p> <p>may lack some fluency and/or coherence.</p>
Scholarship	6	<p>The candidate produces and effectively communicates a sophisticated economic analysis of the impact of dynamic pricing on two markets with different elasticities and evaluates the effect of banning dynamic pricing on producers, consumers, and allocative efficiency in each market.</p> <p>This demonstrates a high level of <i>analysis and critical thinking</i></p> <p>AND</p> <p>incorporates a <i>competent level of integration and synthesis</i> of the resource material</p> <p>AND</p> <p>the discussion and evaluation are <i>clear, logically developed, and precise</i>.</p>
	5	<p>The essay fulfils most of the requirements above but has some unsupported generalisations</p> <p>OR</p> <p>some major point in the discussion is neglected or incomplete</p> <p>OR</p> <p>has some inadequacy in the evaluation</p> <p>OR</p> <p>ideas may not be communicated effectively.</p>

No Scholarship	4	<p>The candidate produces a comprehensive analysis of the impact of dynamic pricing on two markets with different elasticities and evaluates the effect of banning dynamic pricing on producers, consumers, and allocative efficiency in each market.</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	<p>The answer fulfils most of the requirements above but is incomplete</p> <p><i>OR</i></p> <p>fails to present a cogent argument or make critical analysis</p> <p><i>OR</i></p> <p>does not communicate ideas adequately.</p>
	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: Market failure in the market for high-emission vehicles

- A negative externality of consumption exists in the market for high-emission vehicles. Consumption of high-emission vehicles causes spillover costs to third parties not involved in the decision process to buy high-emission vehicles. Transport emissions have an impact on air quality, causing human-made air pollution. Third parties affected include adults who die early, and 13 200 children who get asthma, as well as social costs to the taxpayer of \$10.5bn. There may also be costs to the government of reducing air pollution and making legislation to reduce pollution. This creates a market failure as the market has negative externalities on third parties.
- Negative spillovers of consumption reduce the private MB at all levels of output, so $MSB < MB$ (Graph Five). Private market equilibrium occurs where $MSC = MB$, at Q_m , P_m where high-emission vehicles are over-consumed and under-priced compared to the socially desirable equilibrium. Social equilibrium takes account of all costs of consumption ($MSB = MB$ minus spillover) and occurs at lower quantity (Q_s) and higher price (P_s), achieving social efficiency. At the private market equilibrium $MSB < MB$, creating a DWL. Market failure occurs as the high-emission vehicle market is not delivering an allocatively efficient outcome. To eliminate the DWL, the market needs to operate where $MSC = MSB$, which occurs at P_s , Q_s .

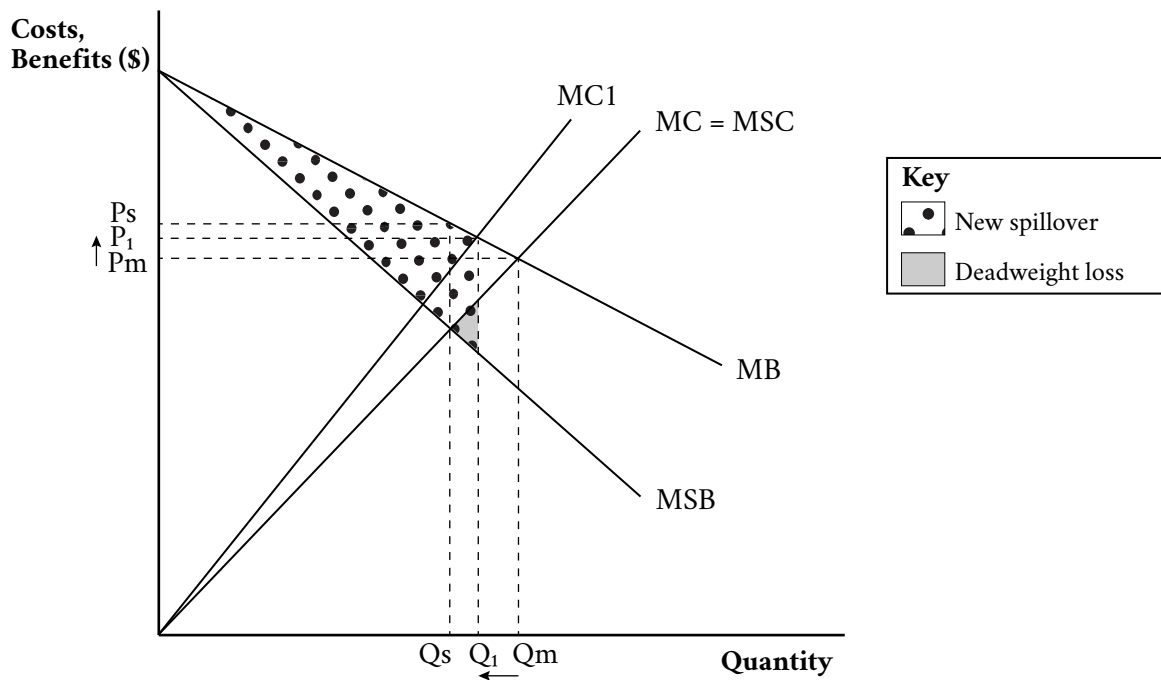
Graph Five: The market for high-emission vehicles

Policy options

Tax/fee on high-emission vehicles

- A tax/fee on high-emission vehicles of between \$2875 and \$5175 will decrease the supply of imported high-emission vehicles coming into New Zealand. This is shown by a decrease in the MC curve to the left to MC_1 (Graph Six), as the cost of production increases, and importing high-emission vehicles becomes less profitable at every price. A new equilibrium is created where MC_1 and MB intersect, at the higher price P_1 and the lower quantity Q_1 , closer to the socially desirable equilibrium P_s , Q_s . As the price has increased, quantity demanded decreases as it is less affordable, *ceteris paribus*. At the higher price, some of the externality is internalised and passed onto the consumer, reducing the spillover and the DWL. The fee decreases the market failure and decreases allocative inefficiency as shown by a smaller deadweight loss. Cars in New Zealand have an average age of 14.7 years, so it is likely to take many years to reach the socially desirable quantity of cars sold.

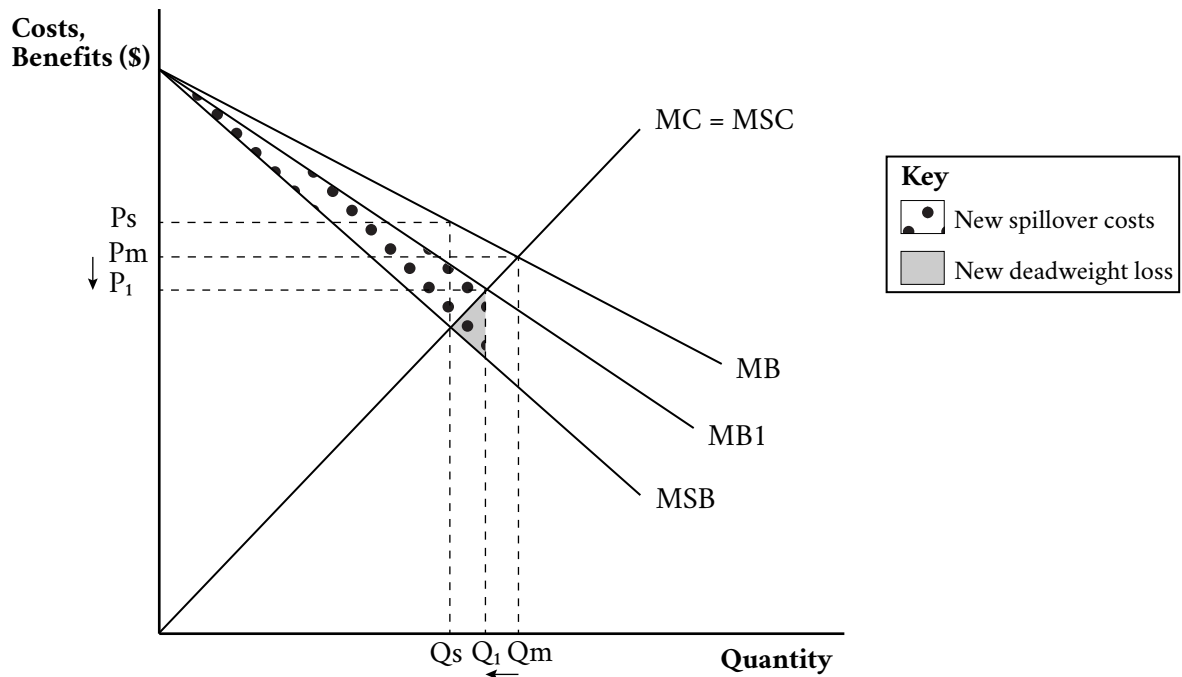
Graph Six: The market for high-emission vehicles



Subsidy on low-emission vehicles

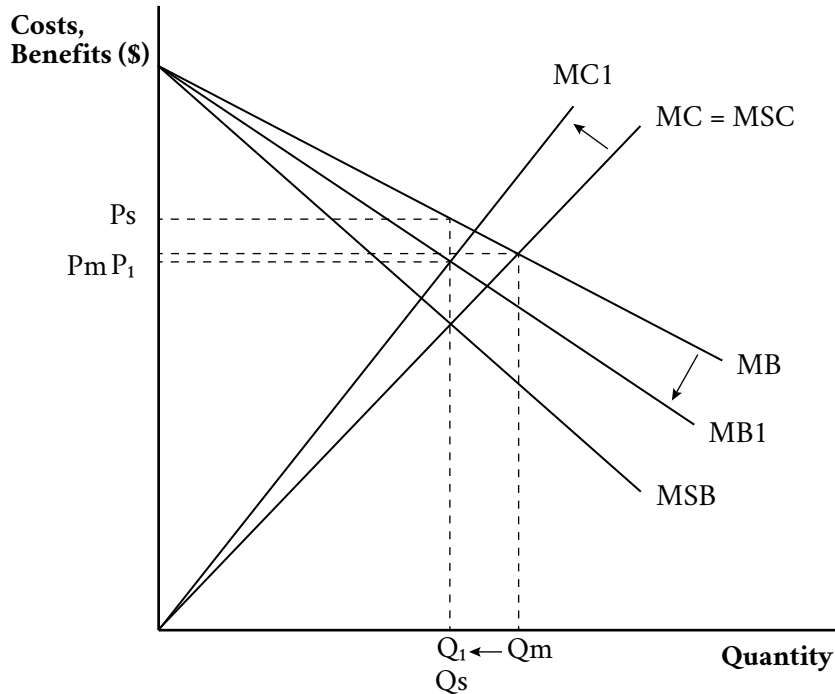
- A subsidy on low- or zero-emission vehicles will encourage more consumers to buy electric and hybrid vehicles. As price decreases due to the subsidy of \$3450 to \$8625, quantity demanded increases, *ceteris paribus*. As low-emission and high-emission vehicles are substitute goods, as the price of EV and hybrid vehicles decreases, consumers will switch away from buying petrol and diesel cars as they are relatively more expensive. There is a decrease in demand for high-emission cars, shown by a decrease in MB to MB1 (Graph Seven), a shift to the left, towards MSB. A new equilibrium is created at Q_1 , P_1 . Although the quantity sold decreases, the price of high-emission cars will decrease from P_m to P_1 . The new quantity sold does not decrease to Q_s as some buyers will still choose diesel and petrol vehicles, due to low availability of electric vehicles and lack of charging stations, particularly rurally. At P_1 , Q_1 there is a smaller spillover and the deadweight loss has decreased, so allocative inefficiency decreases.

Graph Seven: The market for high-emission vehicles



- Each policy will result in a decrease in the number of consumers choosing to buy high-emission vehicles, with more buying low-emission vehicles. This is shown by a decrease in quantity, towards the socially desirable equilibrium Q_s . As a deadweight loss exists, the market is still not allocatively efficient.

Graph Eight: The market for high-emission vehicles



- If both policies are implemented, the combination of a decrease in MC to MC_1 and a decrease in MB to MB_1 could result in a new equilibrium at P_s , Q_s – the socially desirable equilibrium. The decrease in price caused by the decrease in demand is outweighed by the increase in price caused by the tax/fee. This means high-emission vehicles would no longer be underpriced and overproduced. This would eliminate the deadweight loss and internalise the externality. Furthermore, the cost of the subsidy would be paid by the tax on higher emitting vehicles, reducing the cost to the Government. However, the Clean Car Discount is more likely to be effective in reducing emissions in the long run than the short run. This is because it will take many years for buyers to replace their high-emitting cars, due to cost and lack of availability of suitable substitutes. In the meantime, as New Zealanders keep their cars for nearly 15 years, there are still many diesel and petrol cars creating human-made pollution.

Judgment

Outstanding Scholarship	8	<p>The candidate produces and effectively communicates an outstanding and sophisticated economic analysis of market failure within the New Zealand market for high-emission vehicles, analyses the impact of two government policies on allocative efficiency, and evaluates the likely effectiveness of policies in reducing emissions in the short and long run. This is complete and demonstrates perception and insight</p> <p><i>AND</i></p> <p>demonstrates <i>sophisticated integration and abstraction</i> of the resource material</p> <p><i>AND</i></p> <p>demonstrates <i>independent reflection and extrapolation</i> relevant to the evaluation of possible policies to address the negative externalities associated with high-emission vehicles</p> <p><i>AND</i></p> <p>is <i>convincing</i> and economically literate.</p>
	7	<p>The essay fulfils most of the requirements above 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	<p>The candidate produces and effectively communicates a sophisticated economic analysis of market failure within the NZ market for high-emission vehicles, analyses the impact of two government policies on allocative efficiency, and evaluates the likely effectiveness of policies in reducing emissions in the short and long run.</p> <p>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	<p>The essay fulfils most of the requirements above 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>

No Scholarship	4	<p>The candidate produces a comprehensive analysis of market failure within the New Zealand market for high-emission vehicles, analyses the impact of two government policies on allocative efficiency, and evaluates the likely effectiveness of policies in reducing emissions in the short and long run.</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	<p>The answer fulfils most of the requirements above but is incomplete</p> <p><i>OR</i></p> <p>fails to present a cogent argument or make critical analysis</p> <p><i>OR</i></p> <p>does not communicate ideas adequately.</p>
	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.
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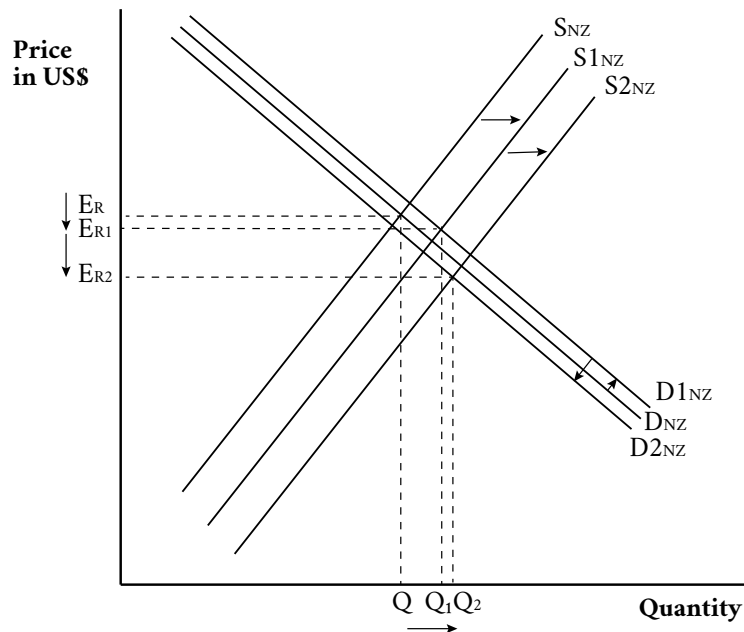
Question Three: Relationship between the current account and the exchange rate

- Current account is calculated by balance of goods + balance on services + balance on income + balance on current transfers. Balance of goods is the value of exported goods minus the value of imported goods ($X_g - M_g$). Balance of services is the value of exported services minus the value of imported services ($X_s - M_s$).
- In 2022 there were several import and export factors that contributed to the current account deficit increasing.
- **Balance on goods:** The value of imported goods increased to \$18.3bn (March 2022) due to the increase in demand for chemical and pharmaceutical goods such as vaccines and antigen tests. Household spending increased on imported goods such as textiles and clothing. The balance of exported goods increased to \$16.4bn due to higher global dairy prices. However, as this was lower than the increase in the value of imported goods, the balance on goods decreased by \$1.9bn.
- **Balance on services:** The value of imported services increased to \$5.4bn due to the cost of freight for increased imported goods. The value of exported services increased by \$3.4bn. Combined this contributed to an increased deficit of \$2bn on balance on services.
- Balance on goods decreased by \$1.9bn and balance of services decreased by \$2bn, an overall increase of \$3.9bn in the deficit in the balance of goods and services component of the current account.
- An increase in balance on imported goods and an increase in the balance of imported services will increase supply of the New Zealand dollar. Importers will convert New Zealand dollars to overseas currencies to pay for imports. This results in an increase in supply of the New Zealand dollar from S_{NZ} to S_{1NZ} (Graph Nine) and a decrease in the price of the New Zealand dollar.
- An increase in the balance on exported goods and exported services will cause an increase in demand for the New Zealand dollar (D_{NZ} to D_{1NZ}) as exporters convert overseas earnings back into New Zealand dollars.
- As the value of imports (\$23.6bn) is greater than the value of exports (\$19.8bn), the shift of the supply curve will be greater than the shift of the demand curve and the New Zealand dollar will depreciate.
- An increase in interest rates in the US results in an increase in supply of the New Zealand dollar as investors currently investing in New Zealand seek higher and safer returns and profit in the United States. As investors sell their New Zealand dollars there is an increase in the supply curve to the right, S_{1NZ} to S_{2NZ} . Similarly fewer overseas investors will choose to place funds in New Zealand as the return is relatively lower, and demand for the New Zealand dollar decreases (D_{1NZ} to D_{2NZ}). Both the increase in supply and decrease in demand cause the price of the NZ dollar to fall (ER_1 to ER_2). Overall the NZ dollar depreciates from ER to ER_2 .
- A depreciation will have a positive impact on the current account. As the New Zealand dollar depreciates, each dollar buys less overseas currency. Imported goods (M_g) and imported services (M_s) become relatively more expensive, as more dollars will need to be sold to buy imports. Consumers in New Zealand may substitute imports with cheaper domestically produced goods, so import payments decrease. Conversely, New Zealand exported goods and services will become relatively cheaper than overseas produced goods, resulting in an increase in exported goods (X_g) and exported services (X_s), increasing export receipts.
- As balance on goods ($X_g - M_g$) increases and balance on service ($X_s - M_s$) increases, the current account will improve.
- Conversely, an appreciation of the New Zealand dollar will have a negative impact on the current account balance. More overseas currency has to be sold to buy each New Zealand dollar, increasing the cost of exported goods and services, decreasing export receipts. Imported goods and services become relatively cheaper, increasing import payments. Balance of goods decreases ($X_g - M_g$) and balance of services decreases ($X_s - M_s$). Overall an appreciation of the New Zealand dollar will decrease the current account balance.
- Providing the demand for exported and imported goods and services is price elastic, a depreciation of the New Zealand dollar will be most favourable for the current account. However, should the demand for imported and

exported goods and services be price inelastic, for example oil, an appreciation of the New Zealand dollar would be more favourable for the current account.

- Candidates may argue that, due to J-curve effect, the elasticity of imports and exported goods changes over time. Therefore, an appreciation (in the short term) and depreciation (in the long term) can both be more favourable for a reduction in the current account.

Graph Nine: The market for the New Zealand dollar



Judgment

Outstanding Scholarship	8	<p>The candidate produces and effectively communicates an outstanding and sophisticated economic analysis of the interrelationship between the current account and the exchange rate in 2022, and evaluates the impact of an appreciating and depreciating New Zealand dollar on the current account.</p> <p>This is complete and demonstrates perception and insight</p> <p>AND</p> <p>demonstrates <i>sophisticated integration and abstraction</i> of the resource material</p> <p>AND</p> <p>demonstrates <i>independent reflection and extrapolation</i> relevant to the evaluation of the effect on the New Zealand economy</p> <p>AND</p> <p>is <i>convincing</i> and economically literate.</p>
	7	<p>The essay fulfils most of the requirements above but contains minor factual inaccuracies (when this affects a statement or opinion)</p> <p>OR</p> <p>deals inadequately with an essential point</p> <p>OR</p> <p>lacks sufficient abstraction or integration of the resource material</p> <p>OR</p> <p>has some minor failure in the evaluation</p> <p>OR</p> <p>may lack some fluency and/or coherence.</p>

Scholarship	6	The candidate produces and effectively communicates a sophisticated economic analysis of the interrelationship between the current account and the exchange rate in 2022, and evaluates the impact of an appreciating and depreciating New Zealand dollar on the current account. This demonstrates a high level of <i>analysis and critical thinking</i> <i>AND</i> incorporates a <i>competent level of integration and synthesis</i> of the resource material <i>AND</i> the discussion and evaluation are <i>clear, logically developed, and precise</i> .
	5	The essay fulfils most of the requirements above but has some unsupported generalisations <i>OR</i> some major point in the discussion is neglected or incomplete <i>OR</i> has some inadequacy in the evaluation <i>OR</i> ideas may not be communicated effectively.
No Scholarship	4	The candidate produces a comprehensive economic analysis of the interrelationship between the current account and the exchange rate in 2022, and evaluates the impact of an appreciating and depreciating New Zealand dollar on the current account. <i>AND</i> produces a <i>clear but undeveloped</i> discussion and evaluation <i>AND</i> demonstrates <i>some level of integration and synthesis</i> of the resource material <i>AND</i> demonstrates <i>some application</i> of economic theory relevant to the discussion.
	3	The answer fulfils most of the requirements above but is incomplete <i>OR</i> fails to present a cogent argument or make critical analysis <i>OR</i> 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.

Cut Scores

Scholarship	Outstanding Scholarship
13 – 18	19 – 24