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Draw a cross through the box (⊠)
if you have NOT written in this booklet

OUTSTANDING SCHOLARSHIP EXEMPLAR

NZQA | **Mana Tohu Mātauranga o Aotearoa**
New Zealand Qualifications Authority

Scholarship 2023
Economics

Time allowed: Three hours
Total score: 24

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should answer ALL the questions in this booklet.

Pull out Resource Booklet 93402R from the centre of this booklet.

If you need more room for any answer, use the extra space provided at the back of this booklet.

Check that this booklet has pages 2–28 in the correct order and that none of these pages is blank.

Do not write in any cross-hatched area (⌗). This area may be cut off when the booklet is marked.

**YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE
END OF THE EXAMINATION.**

INSTRUCTIONS: Write an essay in response to EACH of the THREE questions in this paper. Question Two is on page 10, and Question Three is on page 18.

QUESTION ONE: Dynamic pricing and market efficiency

Use information from **Resources A** to **C**, and your knowledge of micro-economic theory, to answer this question.

Consumers are becoming increasingly aware that prices for some services are no longer fixed, but can fluctuate at different times according to the level of demand. This is called dynamic or 'surge' pricing. Ride shares and concerts are examples of markets where it occurs.

Using elasticity theory, analyse the impact of dynamic pricing on participants and allocative efficiency in the markets for ride shares and concerts. Evaluate the effect of a government intervention to ban dynamic pricing in each market.
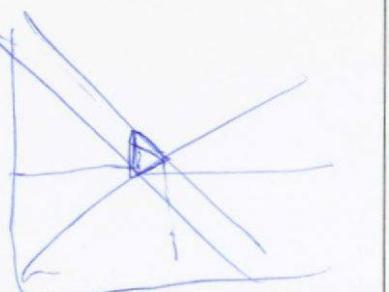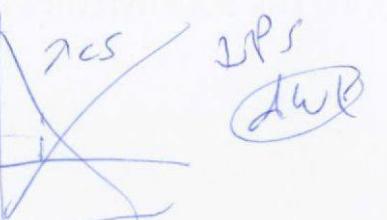
In your answer:

- use appropriate economic models
- use elasticity concepts to explain why ride shares would have more elastic supply and demand than concerts
- for each market, analyse how dynamic pricing impacts consumer surplus, producer surplus, and allocative efficiency at times of increased demand
- evaluate the effect that implementing a fixed or maximum price that bans dynamic pricing would have on consumers, producers, and allocative efficiency at times of increased demand in each market.

Use the space below to plan your essay. This plan will NOT be marked.

PLANNING
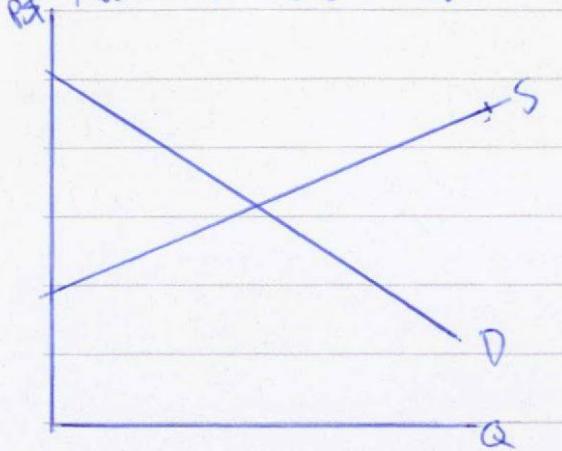
- PED
- ride shares, substitutes, not right now, cheaper PANTS
- concert opposite
- supply can get more cars, east ↑S
- concerts less

↑CS   ↓PS
dWL
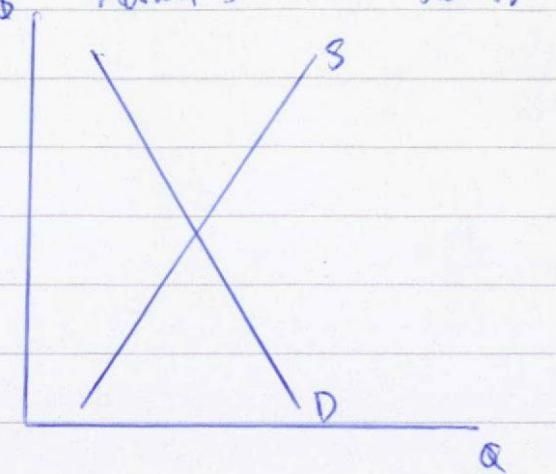
Price elasticity of supply and demand measures the responsiveness of quantity supplied or demanded to a change in price. ~~Ride~~ ~~cross~~ ~~~~

Ride shares are likely to have relatively more elastic supply and demand that concert tickets. ~~Ride~~ Ride shares ~~~~ are a purchase that does not have to be immediate, so consumers can choose to ~~~~ wait for the price to decrease. There are many substitutes such as buses, trains or taxis. These factors mean that demand for ride shares is elastic, so an increase in price will be met with a more ~~~~ than proportionate decrease in quantity demanded. Supply is also likely to be relatively elastic, as the price increases, drivers are encouraged to go out to work, increasing quantity supplied. There are no barriers to entering the market outside of having a car and license and being registered. Quantity supplied can easily increase, so supply is relatively elastic. Concerts, on the other hand, may be relatively more inelastic in both supply and demand. Concert tickets are a luxury item, ~~they cost are large~~ and cost a high proportion of income, which are factors of elastic goods, but they are a time sensitive product and there are no close substitutes. Concert ticket purchase cannot be put off or substituted for something else. This means they have relatively inelastic demand, so an increase in price will be met by a less than proportional decrease in quantity demanded. Supply is also inelastic. Some venues may be able to add extra seating but this is limited (resource C). Supply is not able to easily

increase, so supply is inelastic.. An increase in price will be met by a proportionally smaller decrease in Qs.
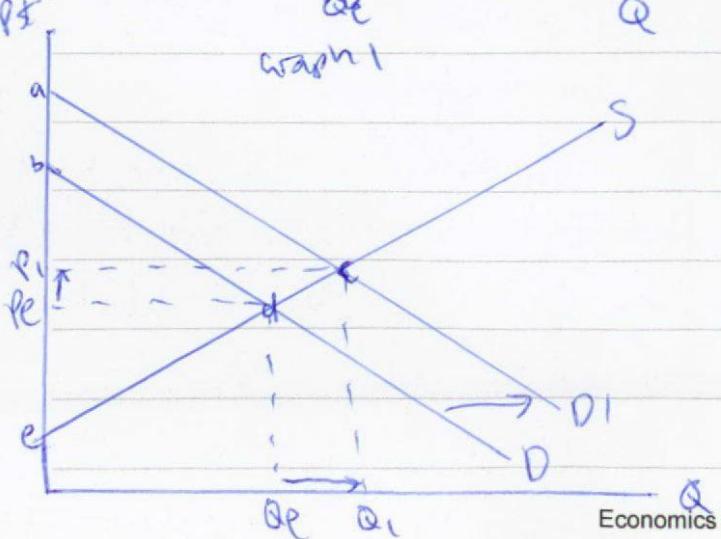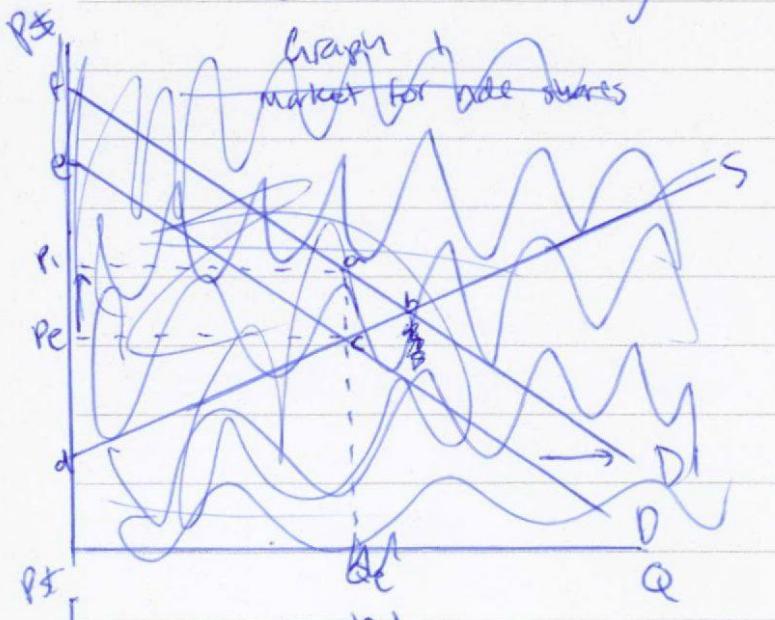
Market for ride-shares

Market for concert tickets
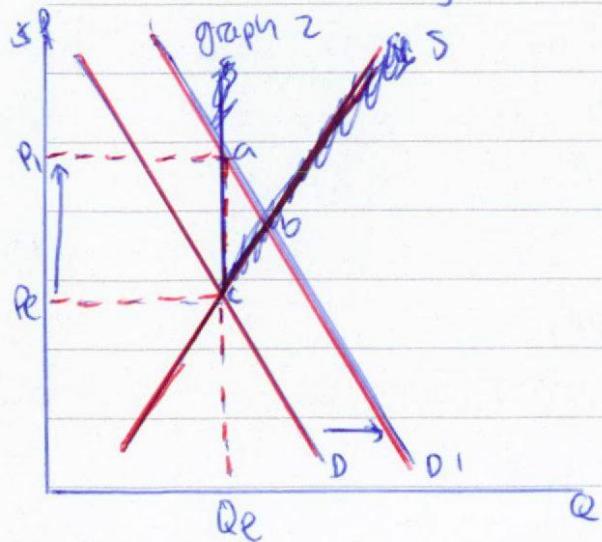
Dynamic pricing occurs when prices are adjusted depending on demand. At times of increased demand, prices increase. This can impact consumer surplus, producer surplus, and allocative efficiency.

Graph 1
Market for ride shares

Graph 1

As um demand increases in the market for ride shares, the demand curve shifts outwards from D to D1. More ride shares are demanded at each and every price. The price increases from Pe to P1. As the price increases drivers are more likely to come out to work as the opportunity cost of staying home increases, so quantity supplied increases. A new
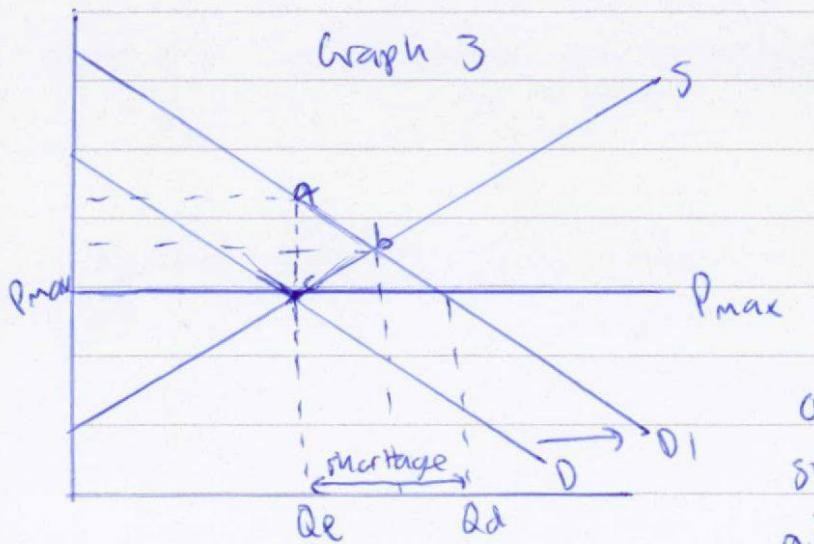
equilibrium is found at $P_1 Q_1$ and quantity traded increases from $Q_e - Q_1$. ~~Prod~~ Producer surplus increases from $P_e d e$ to $P_1 c e$, as the difference between the price producers are willing to sell at and the price they actually sell at increases, and units ~~on~~ which to gain a surplus increases. More ~~surplus~~ surplus derived on more units, so PS increases. Consumer surplus changes from $b d P_e$ to $a c P_1$. This change is likely to be positive, as any surplus per unit lost by the increased price will be offset by the more than proportional increase in units on which to derive a surplus due to its elastic demand CS increases. A new equilibrium is formed, so ~~there~~ no deadweight loss occurs and the market remains allocatively efficient.


graph 2

In the market for concert tickets (graph 2), Demand increase is shown as the shift from D to D1. However, in the market for concert tickets, supply is limited, so cannot increase beyond a certain level. As Quantity supplied cannot increase, a large price increase from P_e to P_1 occurs. Quantity remains constant at Q_e, and a new equilibrium is formed at $P_1 Q_e$. Consumer surplus changes, ~~but~~ but this change is uncertain. Quantity is constant but the difference between the price they are willing to and actually pay is uncertain as price increases as well as Demand. Producer surplus increases as the price increases, the difference between the price they

willing to sell at and actually sell at increases, so more surplus is gained on each unit. PS increases by area Pi a c Pe. However a deadweight loss occurs as supply cannot increase to meet increased demand. Area ~~a~~ abc shows a net efficiency loss and surpluses are no longer maximised so the market is not allocatively efficient.
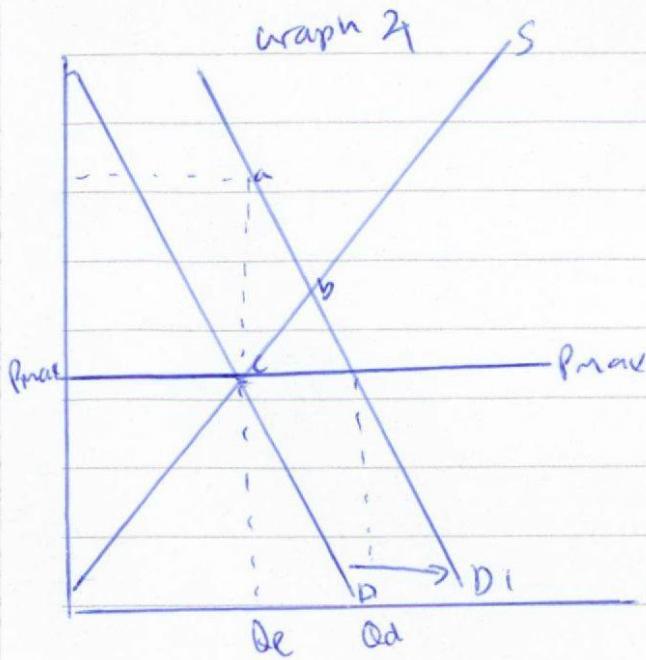
A fixed price that bans dynamic pricing would sit at the original equilibrium price and would prevent prices from increasing following increased demand.

Graph 3

Graph 3 shows the market for ride shares with a max price implemented at the original equilibrium. At this fixed price producers are unwilling to increase supply, so Qs stays constant at Qe. As demand increases D to D1, qu demanded at each price increases. At Pmax, ~~quantity~~ ~~increase~~ quantity demanded increases from Qe to Qd. However, as Qs is constant, this creates a shortage. The price cannot be increased, so the shortage cannot be cleared and the market faults. PS remains constant as quantity and price do not change. ~~Both~~ CS increases, as demand increases while price is constant, so difference between price willing to pay and actually pay increases

However, a deadweight loss occurs as the market cannot clear the shortage. Allocative efficiency is lost.

Graph 4

Graph 4 market for concert tickets the max price Pmax is at equilibrium quantity Qe. as demand increases D – D1, a shortage of Qe – Qd occurs as quantity supplied does not change at fixed price Pmax. the legal requirement of a fixed price prevents the market from clearing. PS doesn't change as P and Qs are constant. CS increases as the difference between price willing to pay and actually pay increases. However a dwl of area abc occurs as the market cannot restore equilibrium so allocative efficiency is lost.

QUESTION TWO: Market failure in the market for high-emission vehicles

Use information from **Resources D** to **F**, and your knowledge of micro-economic theory, to answer this question.

> The Clean Car Discount scheme, implemented in 2022, focuses on the supply and demand of different types of vehicles coming into New Zealand. The policy is part of a government strategy to reduce the consumption externality of transport emissions, by encouraging the importation of low-emission vehicles.
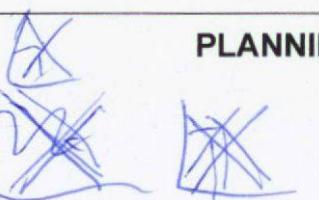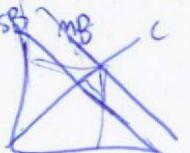
Analyse the market failure in the market for high-emission vehicles. Evaluate the effectiveness and impact on allocative efficiency of the Clean Car Discount scheme in encouraging buyers to switch from high-emission vehicles to cleaner, low-emission vehicles.

In your answer:
*   use appropriate economic models
*   explain the externality and market failure in the market for high-emission vehicles
*   analyse the impact on allocative efficiency in the market for high-emission vehicles of each of the two policies in **Resource D**
*   evaluate the overall effectiveness of a combination of both policies in reducing transport emissions and achieving allocative efficiency in the market for high-emission vehicles in the short and long term.

Use the space below to plan your essay. This plan will NOT be marked.

PLANNING
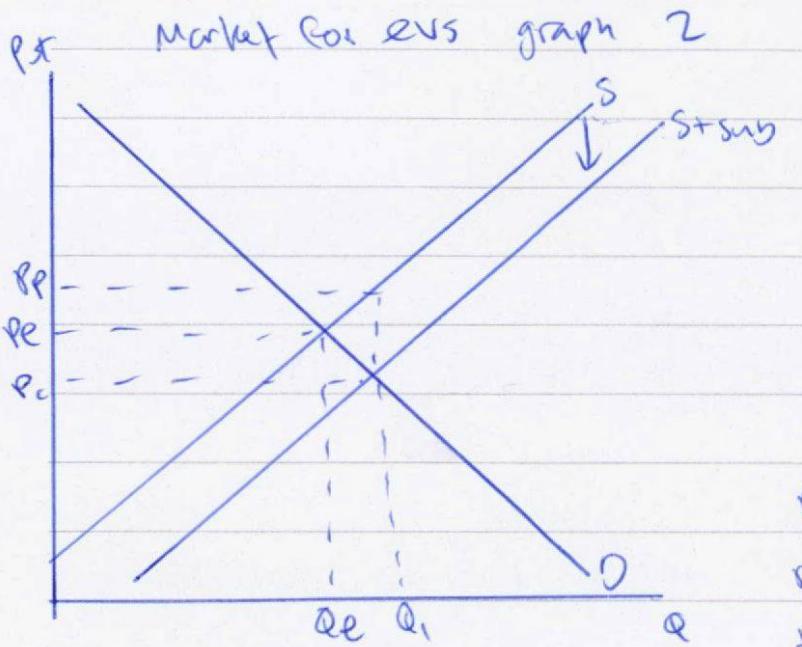
Consumption of high emission vehicles has a negative externality of consumption. This means it has spill over effects onto a third party, causing market failure. High emission vehicles produce large amounts of NO_2 which causes serious impacts on the health of NZers. This has impacts such as the premature deaths of more than 2200 adults and over 13200 cases of childhood asthma (resource E).

Graph 1

MPC=MSC

MSB MPB

The social benefits are less than the private benefits as a large spill over cost occurs, as a social health cost of $10.5 billion. The market operates at the private equilibrium where private marginal cost ~~during~~ (MPC) equals private marginal benefit (MPB). Market quantity is Qm and market price is Pm. However this is not socially optimal. The good is underpriced and overconsumed. The socially optimal price and quantity are Ps and Qs. At the market equilibrium Pm Qm, the spill over cost are shown by area acbe. At quantity Qm, some of this cost is offset by consumer surplus a fde is offset. However cost of abc is not offset and is a dead weight loss, causing market failure. Surpluses are not maximised and allocative efficiency is lost.
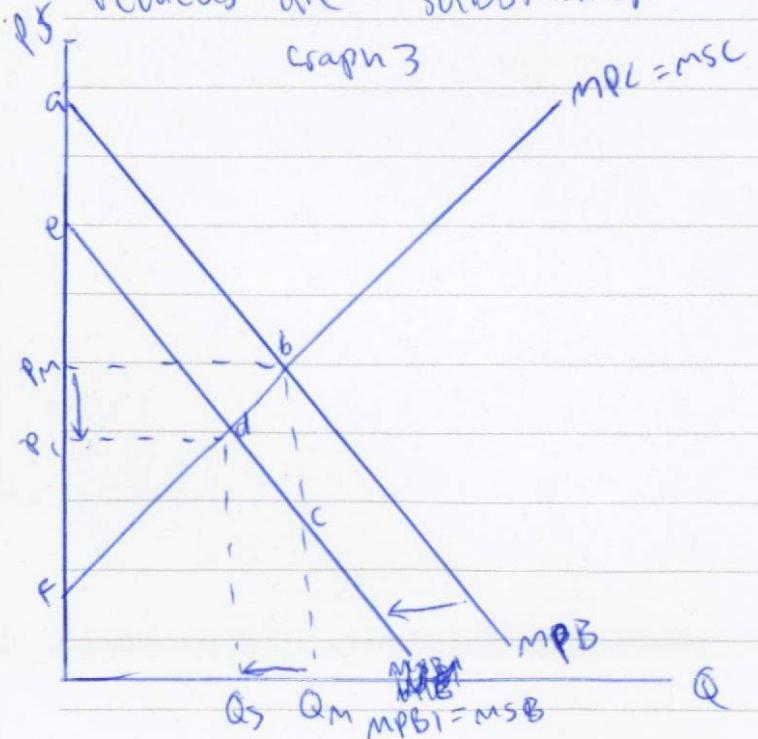
Resource D outlines 2 policies to try to ~~new the market for~~ reduce the consumption externality of high emission vehicles. The first is a subsidy on low emission vehicles, such as electric vehicles (evs).

Market for evs graph 2

A subsidy for evs increases supply from S to S+sub. A new equilibrium is found at Q₁ Pc. Price consumers pay decreases from Pe to Pc and price producers recieve increases from Pe to Pp. Quantity increases from Qe to Q₁. Increased quantity traded of electric vehicles will decrease demand for high emission cars. evs are relatively ~~more~~ more affordable following the ~~subsidy~~ subsidy, and evs and high emission vehicles are substitutes
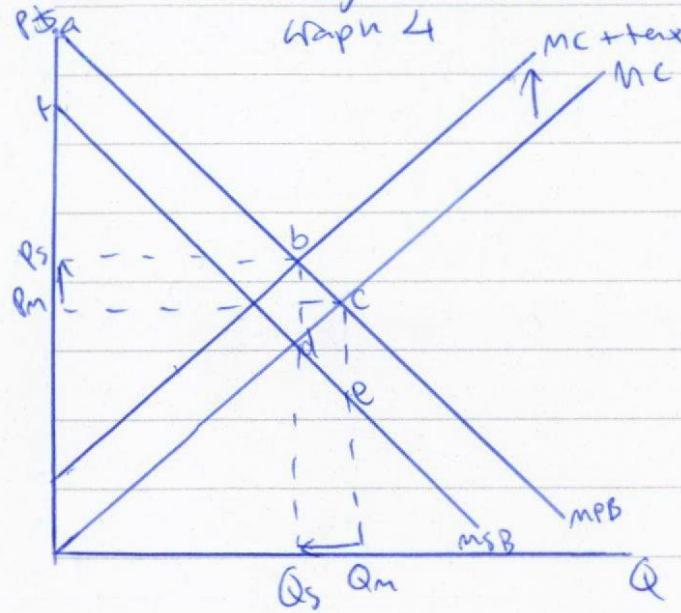
Graph 3 shows the market for high emission cars following the ev subsidy. Marginal private benefits decrease from MPB to MPB1. MPB1 = MSB, So private and social marginal benefit are equal. A new equilibrium is found at ~~Qs Pm~~

Qs P₁. Price decreases from Pm to P₁ and quantity decreases from Qm to socially optimal quantity Qs. Consumer ~~surplus decreases~~ surplus changes from abPm to edP₁ and Ps ~~changes~~ decreases from Pm bf to P₁ df. However, spill over costs are eliminated as ~~AGGR~~ MPB = MSB, so no deadweight loss occurs. Previous dwl of area bdc is removed and the market is allocatively efficient.

Another policy would be to tax high emission vehicles.

Graph 4

Graph 4 shows the addition of a tax to the market for high emission vehicles. ~~86pr~~ Marginal costs shift from MC to MC+tax, and a new equilibrium is found where MC + tax = MPB. Quantity decreases from market quantity Qm to socially optimal quantity Qs and price increases from market price Pm to socially optimal price Ps. High emission vehicles are no longer underpriced or overconsumed. ~~threel~~ ~~imperts / Ps ~~~~ but the ~~~~ nature of ~~~~ change is uncertain. As decreases los ve ~~~~ As quantity decreases, spill over costs decrease from acef to abdf. This shows an efficiency gain of area bced and the deadweight loss of cde is removed. There is a private deadweight loss of area bcd as surpluses are lost, but this is more than offset

by the removal of spill over costs and resulting efficiency gain. ~~The net impa~~ there is a net efficiency increase of area of cde and the market is allocatively efficient.

These policies would be effective in combination to achieve allocative efficiency in the short and long term and to achieve the govt. goal of reducing emissions. The subsidy on electric cars and resulting decrease in demand for high emissions vehicles would likely only be effective in the long term, as it takes time for consumers to change their behaviors and habits. This policy also relies on the decrease in Marginal social benefits being large enough ~~the~~ so that MPB decreases to equal MSB. If this decrease is not large enough it will only decrease the size of the deadweight loss rather than removing it entirely. MPB will decrease gradually, only removing the deadweight loss and achieving allocative efficiency in the long term. The tax on high emission vehicles is likely to act faster and have an impact in the short term. A tax immediately decreases MC, increasing the price and decreasing quantity. If this tax causes the new equilibrium to form at the socially optimal price and quantity, it will quickly remove the deadweight loss and achieve allocative efficiency. Together these policies will achieve allocative efficiency in the market in both

the short and long term. Additionally, the subsidy is a cost to the govt. while the tax generates revenue. Revenue collected from the tax can be used to fund the subsidy without negatively impacting the govt. operating balance and any additional revenue can be spent to further decrease emissions through ~~sustainability initiatives~~ investment in public transport ~~or~~ ~~environmental programmes~~ education around emissions. This along with an increase in ev use and decrease in high emission vehicles, will decrease transport emissions and achieve allocative efficiency.

QUESTION THREE: Relationship between the current account and the exchange rate

Use information from **Resources G to J**, and your knowledge of macro-economic theory, to answer this question.

> The current account and the exchange rate are interrelated economic issues. The current account has decreased from a surplus in June 2020 to a near record deficit in September 2022. Meanwhile the value of the New Zealand dollar against the US dollar has fluctuated but overall has trended downwards.

NZD depreciating

Discuss the interrelationship between the current account and the exchange rate within the New Zealand economy. Evaluate whether a strong or a weak exchange rate is most likely to reduce the current account deficit.
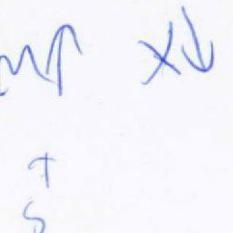
In your answer:

- use appropriate economic models
- explain how the current account balance is calculated and, using **Resource G**, explain the factors that caused the current account deficit to increase in the March 2022 quarter
- analyse the combined impact of the increased current account deficit and rising interest rates in the United States on the New Zealand exchange rate
- compare the effect of a depreciation and an appreciation in the exchange rate on the current account. Evaluate which is most likely to reduce the current account deficit.

Use the space below to plan your essay. This plan will NOT be marked.

PLANNING

*NZ less safe, less demand, further depreciate?*

The current account is made up of 4 components. Balance on goods, services, income, and foreign transfers. Balance on goods ~~measures~~ is a records of all imported and exported goods. A positive balance means we export more than import and vice versa. Balance on services ~~was~~ measures our imported services such as freight services against exported services which is largely tourism. The balance on income is the balance on investment and interest paid out of NZ against that earned overseas. Balance on foreign transfers is an account of 1-way payments such as gifts or foreign aid. Each of these components has a negative or positive balance depending on whether more is earned or spent. These are added up to calculate the current account balance.
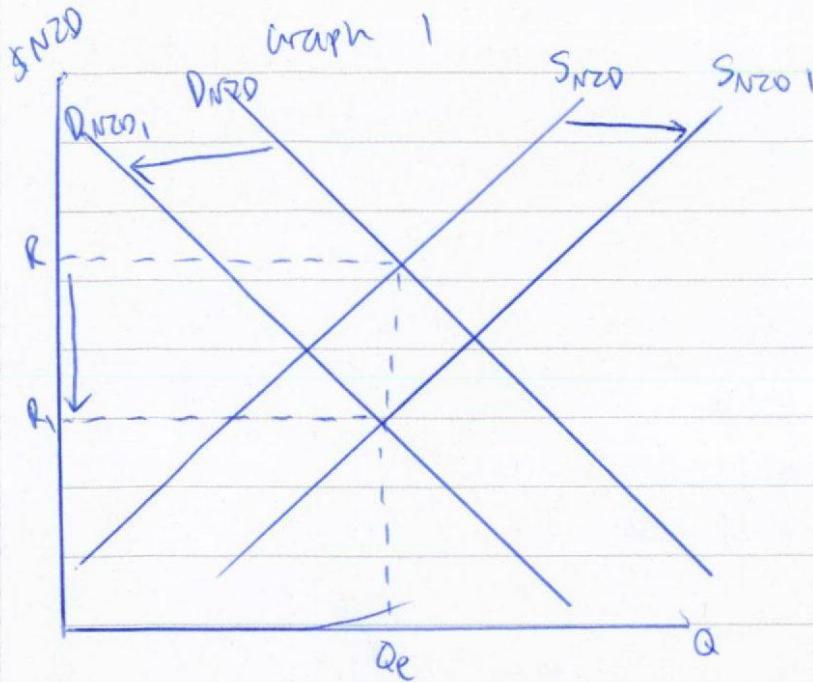
A current account deficit means that the balance is negative, and more money is leaving NZ than coming in. According to resource G, the existing current account deficit widened, got worse, in the March 2022 quarter. Both exported and imported goods rose, but imports increased by a greater amount, worsening balance on goods. Goods that are essential in ~~pro~~ domestic production such as crude oil and transport equipment as well as pharmaceutical products (vaccines, antigen tests) that were so essential during covid-19, are all imported goods. A large increase in imported goods worsens Balance on goods. This was somewhat offset by increases in exports such as butter, cheese, and milk powder, as world dairy prices increased, but these rose at a slower rate, so the net balance on goods

worsened. Exported goods increased by 15% while imported goods increased by 24%. The balance on services also worsened. Service exports in New Zealand is mainly tourism. This rapidly decreased during the pandemic as NZ borders were closed during most of 2020 and 2021. Though the borders have since reopened, tourism has not reached the levels it used to be. The march quarter, typically the peak quarter for overseas travel, experienced ~~and lower~~ service exports. Along with this, demand in NZ for imported services, such as freight services, increased. Service imports increased by $5.4 billion (35%). Though service exports did increase, it was only by a small amount (12%). This was more than offset by the increase in service imports, and balance on services worsened.

Total imports rose by 26% while exports only increased 15%, so net balance on trade (~~imports~~ goods and services) worsened. This worsened the current account balance, widening the deficit.
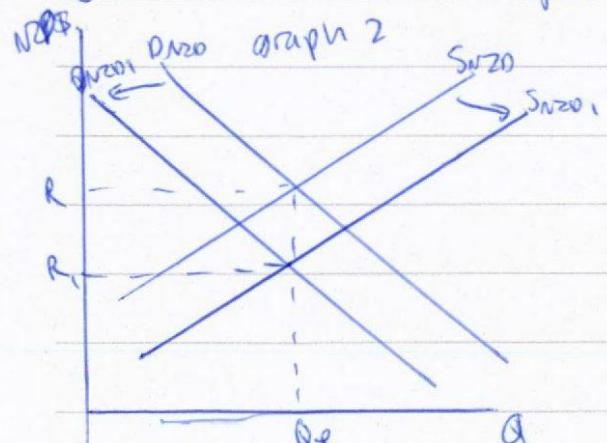
~~Hyper~~ Tighter monetary policy in the US increases US interest rate, causing the USD to appreciate relative to other currencies such as the NZD. As US interest rates increase, it becomes a relatively more attractive place to invest, as returns are higher. Domestic investors will likely choose to invest in the US, so the supply of NZD on the market will increase, seen as a shift from S_{NZD} to S_{NZD} 1.

Graph 1

Foreign investors that were previously choosing to invest in NZ may now choose to invest in the US as returns will be higher, so demand for NZD decreases from D_{NZD} to D_{NZD_1}. A new equilibrium is found at $Q_e R_1$. Quantity traded is constant, but the exchange rate depreciates from R to R_1. It takes more units of NZD to purchase the same amount of foreign currency.

The increased current account deficit also impacts the ~~near~~ exchange rate. ~~An increased deficit shows an increase in New Zealands debt. This decreases the safety that buying NZD offers by times of global uncertainty such as recent years.~~ This deficit shows increased imports and decreased exports. As imports increase demand for foreign currency in NZ increases, so supply of NZD will increase ($S_{NZD} \rightarrow S_{NZD_1}$). Similarly, as exports decrease, demand for NZD must decrease as the overseas sector are purchasing less NZ products. ($D_{NZD} \rightarrow D_{NZD_1}$). These shifts combine to depreciate the exchange rate from R to R_1 while quantity stays constant at Q_e.

Graph 2

These 2 factors both cause a depreciation of the NZD. In combination they will depreciate the exchange rate significantly.

The exchange rate can have an influence on the current account by impacting imports and exports (balances on goods and services). When the exchange rate appreciates, ~~purchase more units of~~ the same unit of NZD can ~~buy~~ purchase more units of foreign currency. This means that ~~exports~~ imports are relatively more affordable, so they are more competitive in the domestic market. After an appreciation, the same value of NZD is more expensive in a foreign currency. This means exports are relatively more expensive ~~cheaper~~ overseas, so they are less ~~price~~ price competitive in the foreign market. Imports increase and exports decrease. This worsens the balances on goods and services, worsening the current account and therefore worsening the deficit.

A depreciation has the opposite effect. When the price of NZD decreases relative to other currencies, the same units of NZD can buy less foreign currency. Imports become relatively more expensive and less price competitive in the domestic market. As NZD depreciates it costs less foreign currency to purchase the same NZD. Exports become more price competitive as they are relatively more affordable in the overseas market. Imports decrease and exports increase, improving the balances on goods and services. ~~Then~~ This will

improve the current account balance and reduce the deficit, ceteris paribus. An appreciation will worsen the current account balance, while a ~~depreciation will~~ depreciation will improve it.

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QUESTION
NUMBER

93402

00356

Outstanding Scholarship

Subject: Economics

Standard: 93402

Total score: 19

Q	Score	Marker commentary
1	06	The candidate produced an essay that includes a generally sophisticated economic analysis with good integration of the resource material.
		On page 3, they provide a comprehensive explanation of elasticity of demand and supply in the case on ride shares and concerts, including reasonable integration of resource material. However, the models provided on page 4 do not effectively support the explanation.
		On pages 4 and 5, the candidate effectively analysed the effect of an increase in demand on the rideshare market, including reference to resource material and an appropriate model. The answer also included suitable reference to the effect of relative changes in quantity supplied versus price on changes in CS and PS.
		On pages 5 and 6, the candidate produces a mixed analysis of the effect of an increase in demand on CS and PS in the market for concerts but incorrectly suggests that a deadweight loss is created. (While a vertical supply curve was not expected, credit is given for the interpretation of the material in the context of concerts).
		On pages 6 and 7, the candidate provided a reasonable analysis of the effect of a maximum price on each market but did not accurately compare the effect on CS and PS in terms of missed PS and CS and did not provide an evaluative conclusion.
		Overall, this essay has good coverage throughout and reflects generally sound economic analysis but with a few errors. A higher score could have been achieved with more detailed analysis of the effect of a maximum price including an evaluative conclusion.
2	07	The candidate explained the market failure through integrating the resources succinctly into their opening paragraph. They defined the negative externality correctly by comparing the PMB to SMB and synthesised this with data through quantifying the spillover costs to society. The candidate integrated their model through the comparisons of the prices

		and quantities at the private and social equilibriums. DWL was labelled correctly and integrated into analysis.
		Both the LEV and HEV market models were drawn to compare the impacts of the first policy on both (the question focussed on the HEV market). The subsidy was drawn to decrease MPB all the way to MSB, prices and quantities before and after the implementation of this policy are synthesised into the analysis, as is the elimination of the negative externality and the DWL. The candidate could have explained why the spillover costs were fully eliminated. The tax on the HEV market is drawn correctly through a shift left of the MC curve, price and quantity are also labelled and integrated into the analysis correctly. DWL is fully removed, and spillover costs are internalised, making the market allocatively efficient and relating it back to the question.
		The candidate evaluated the short-term and long-term impacts on the market for HEVs of implementing these two policies and integrated both their models and the resources into this part of their essay. Here they explained the size of the shifts of PMB (subsidy) and MC (tax) and the policies' effectiveness to reduce the market failure in each case.
3	06	Page 19–20 contains an outstanding and sophisticated analysis of the causes of the current account deficit. Each component of the current account was analysed in detail, integrated resource material, and used the candidate's own knowledge. The relative changes were clearly outlined, for example balance of imported goods outweighs the increase in balance of exported goods. Use of dollar values, rather than just percentages, would have demonstrated more sophisticated abstraction of the resource material.
		The economic model and analysis of the impact of changes to the United States interest rates on the New Zealand dollar is comprehensively explained on page 21. Valid reasons were given for both the changes to demand and supply and linked to the depreciation of the dollar. This could have been improved by discussing the link between demand decreasing as less New Zealand dollars are converted / bought.
		On page 21, the candidate provided a sophisticated explanation of the further depreciation on the New Zealand dollar caused by the current account deficit. This was supported by an economic model, correctly showing an increase in supply. A decrease in demand for exports was explained and illustrated. However, this contradicted the resource material, which identified an increase in exports. For an outstanding score the relative shifts would be correct. The combined impact of both events is correctly stated.

		On page 22, the candidate provided a sophisticated analysis and brief evaluation of the impacts of an appreciation and a depreciation on the current account.
		Overall, this essay was a 6 as the candidate produced a sophisticated, logically developed, and complete economic analysis. Supporting economic models were clearly illustrated and graph references were integrated into explanations.
		To achieve an outstanding score, further evidence of insight or perception was required. An economic model illustrating the combined impact of both scenarios, correctly identifying an increase in demand for exports and incorporating relative shifts, would have raised this to a score of 7. Similarly, the evaluation could have referred to the elasticity of demand for imports and exports, including examples from the resource, and how this would affect the goal of reducing the current account deficit. This would also have raised the score to an outstanding score of 7.