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

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TOP SCHOLAR

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 (AREA DO NOT WRITE). 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

Question 2 continued: ...in quantity of exports will be outweighed by the decreased price and the increased quantity of imports also is outweighed by increased price. As such, the export receipts would instead decrease and import payments increase. This would decrease the balance of trade and hence decrease the current account.

An appreciation in the exchange rate would cause exports to be less price competitive, and as exports are more expensive to foreign importers. Imports would become cheaper, as the same

(see page 18 planning)

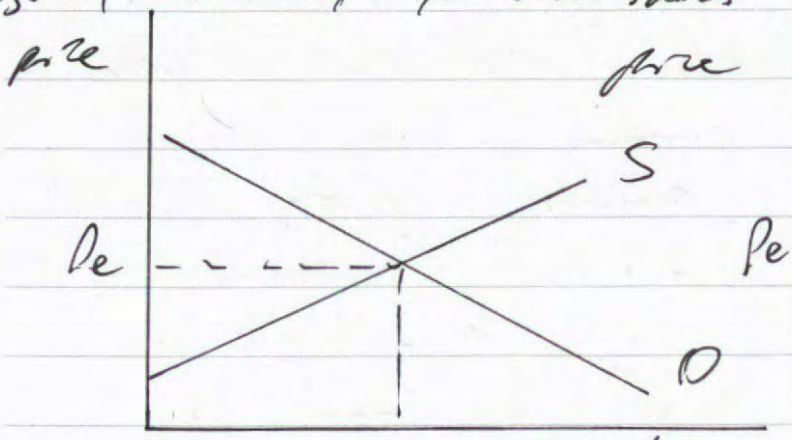
Elasticity is the responsiveness of quantity demanded or supplied to changes in price. In the case of ride-sharing, there are many alternatives to it such as, "bus, train, or taxis, as well as other ride share companies". As such, when the price of ride-shares increases, consumers can simply switch to other services that they require for transportation. As such, the quantity demanded will drop significantly for ride shares, resulting in a highly elastic demand. As for elasticity of supply, the suppliers of ride shares (drivers) have a high availability of information. For instance, when there is "Bad weather, rush hour and special events", the drivers can easily "see increased prices for rides", likely available on their phones as and on the respective apps. As such when the drivers see the new information on prices, they are "encouraged to go out to work" due to increased revenue and profit incentives. Thus, they are more willing and able (information-based) to provide a greater quantity of ride shares, hence increasing the quantity

supplied for ride shares significantly. This means that the supply for ride shares is also price elastic. The concept of availability of information can also be applied to the consumers. The consumers also have access to information rapidly, ("potential customers can wait to see if the prices go back down") and so can also respond quickly to the information. Thus, even in the short-run, consumers will adjust quantity demanded significantly according to price, thus making their demand elastic.

In the case of events, there are fewer substitutes, as fans would typically want to see the specific artist. Moreover, due to the more "exclusive and exclusive seats" would also tend to have less substitutes, as these seats are an "exclusive" experience. As such, due to the lack of close substitutes as compared with ride shares, price changes to prices will result in a proportionately small change to quantity demanded, as even if the price increases, the consumers can still be willing and

likely able to purchase the desired seats of the event. Thus, the demand for concerts is more inelastic than ride shares. Also in the case of the supply of increases to price are also unlikely to increase quantity supplied, despite the added profit incentive. This is because there are a limited number of seats at the event and even so increasing the price would not allow for increased quantity supplied. It is possible for events to expand quantity supplied in accordance with price as "some venues are able to add small amounts of extra temporary seating." However, the scope of this is "limited" and so the increase to quantity supplied would still not be as significant. Thus, the supply for concerts is less elastic than ride shares.

Figure 1 - Market for ride shares



Market for concerts.

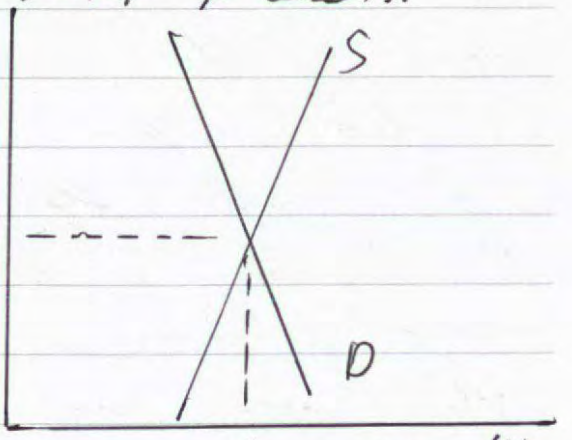
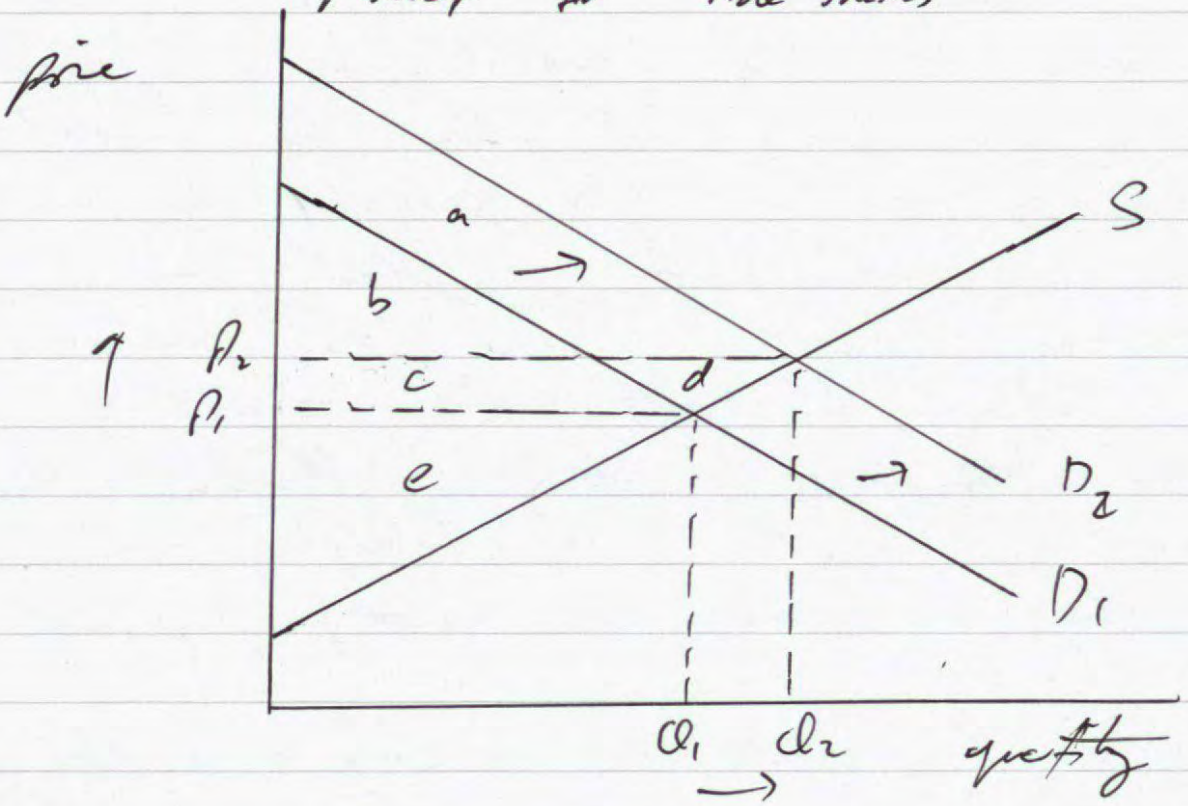


Figure 1 illustrates this as the left the demand and supply curves for ride shares is shallower (more elastic) than that for concerts.

After in the case of the ride share market, increased demand would result in Figure 2.



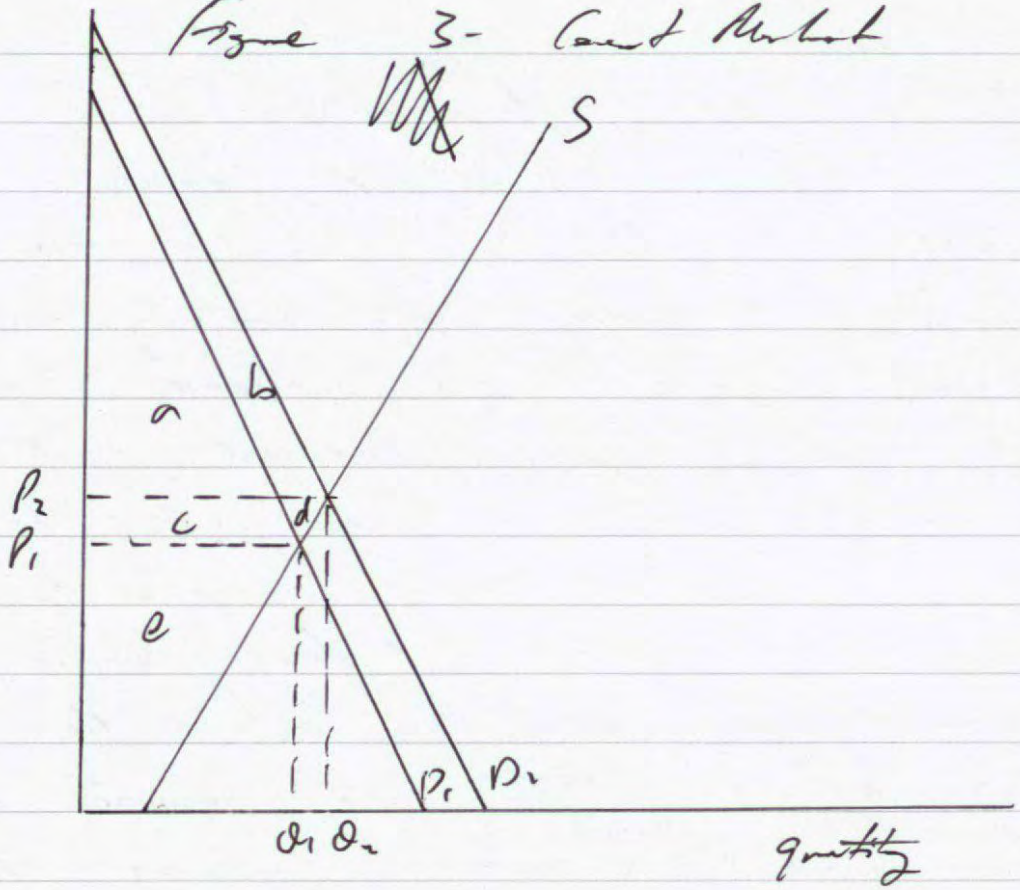
The demand for ride shares increases from Q_1 to Q_2. As such, the market price increases from P_1 to P_2 and the market quantity increases from Q_1 to Q_2. The consumer surplus increases from the area bdc to the area abd. This is because the quantity of services from which to derive

consumer surplus has increased. This is in spite of the increase in price, which should actually decrease consumer surplus as the difference in the price consumers are willing to pay and the price they actually pay (this loss is given decreases to producers) this is because of the highly elastic supply curve, which results in the market quantity increasing proportionately more than market price until increased demand. As such, the increased quantity outweighs the increased price to consumer surplus, causing consumer surplus to overall increase.. The producer surplus increases from the area e to the area e+c+d. This is because both the increased market quantity increases the quantity of services from which to derive producer surplus, and the increased market price increases the difference between the price producers would be willing to charge and the price they actually charge. Both of these result to increased producer surplus. After the increased demand, consumer plus producer surplus is still maximized, and there has been no deadweight loss (DWL) in the market. Thus, the market

remains allocatively efficient.

For the court market, the increased demand is shown in Figure 3.

Figure 3- Court Market



In Figure 3, the demand increases from D_1 to D_2, causing the market price to increase from P_1 to P_2 and the market quantity to increase from Q_1 to Q_2. The consumer surplus changes from a+c to a+b. There has been an increased quantity from which to derive consumer surplus, thus increasing it. However, the increased price would decrease the difference between

what consumers are willing to pay and what they actually pay. Because of the inelastic supply, the increase in quantity may not necessarily outweigh the increase in price, as the quantity would increase less proportionately. Thus, depending on how inelastic the supply is, the consumer surplus may increase or decrease. The loss in consumer surplus from before (area c) is given to producer surplus due to the increased price. The producer surplus increases from the area c to the area e+d. This is because of both an increased quantity (more units from which to derive producer surplus) and increased price (difference between what producers are willing to charge and what they actually charge increases). In this case, the increased demand has meant that consumer plus producer surplus is still maximised, and so a PWL has been introduced. Thus, the market for vaccines also remains allocatively efficient. (See book).

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.

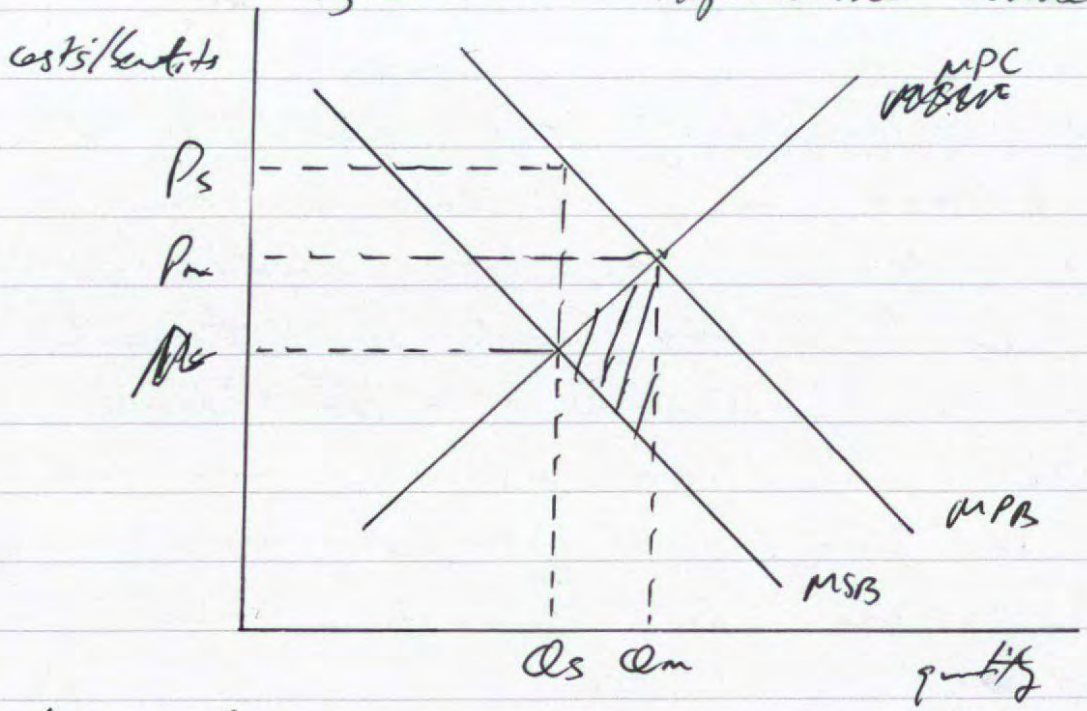
PLANNING

Question 3 continued: A depreciation of the exchange rate will mean that exports become more price competitive, as the value of the export to foreign purchasers becomes cheaper. Also however, imports will become more expensive, as more of the domestic currency is required to purchase the same ~~of~~ imports in the foreign currency. Thus, export receipts would increase and import payments would decrease, resulting in an increase to the balance of trade. Thus, they would increase the current account. However, depending on the Marshall-Lerner condition, this may not be the case. If the sum of the price elasticity of demand for exports and imports is less than 1, then the increase

(see page 2 planning)

A negative externality of consumption is when there are negative spillover costs onto a 3rd party as a result of consumption. Such spillover costs are not accounted for in the marginal private or benefit, MPB, and so the marginal social benefit or, MSB, is lower than the private. This results in Figure 1.

Figure 1 — High-emission vehicles.



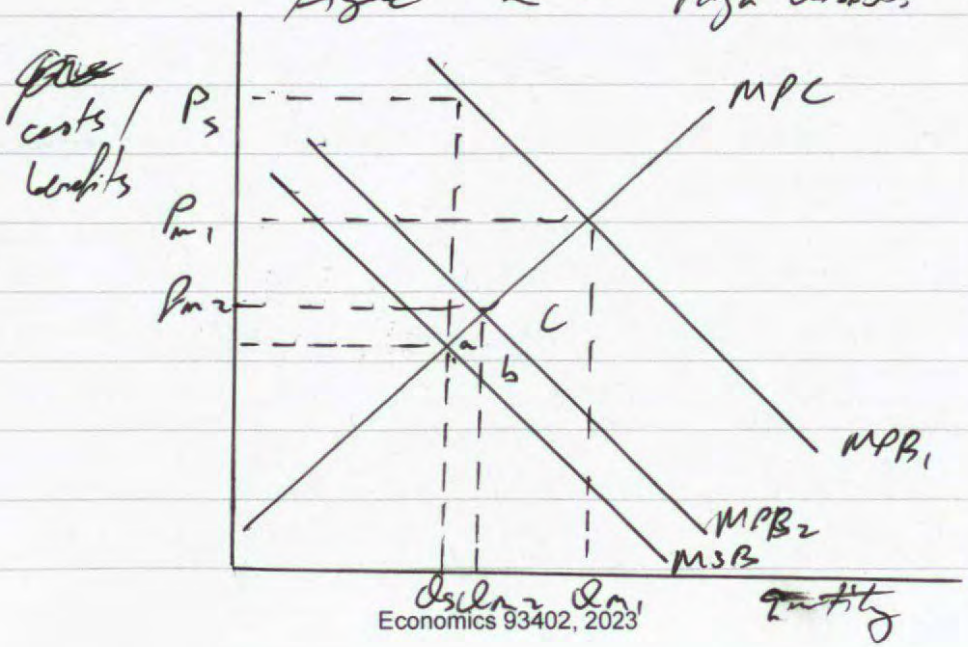
In this case, high-emissions vehicles have negative spillover ~~cost~~ cost on a 3rd party. "exposure to human-made air pollution [from vehicles] has serious impacts on the health of Waterloo." This results in MSB being less than MPB. Thus, the market quantity, Qm, is greater than the socially desirable quantity, Qs, and the market price, Pm, is less than the socially

desirable price, P_S. ~~The~~ Thus, high-emission vehicles are being overproduced and underpriced. There is this DWL given by the shaded area. Because of the allocative inefficiency, the market failure has occurred in this market.

One of the policies is a subsidy for low-emission vehicles. This would cause a decrease in the price of low-emission vehicles as supply increases as costs decrease. Thus, by the substitution effect, the demand for high-emissions vehicles will decrease, as both goods fulfill the same want/need for transportation and so are substitutes. The "installation of more than 700 public and over the 550 private EV charges" means greater convenience for low-cost vehicles, incentivizing a switch.

provide rebates also incentivizes low-emission car usage

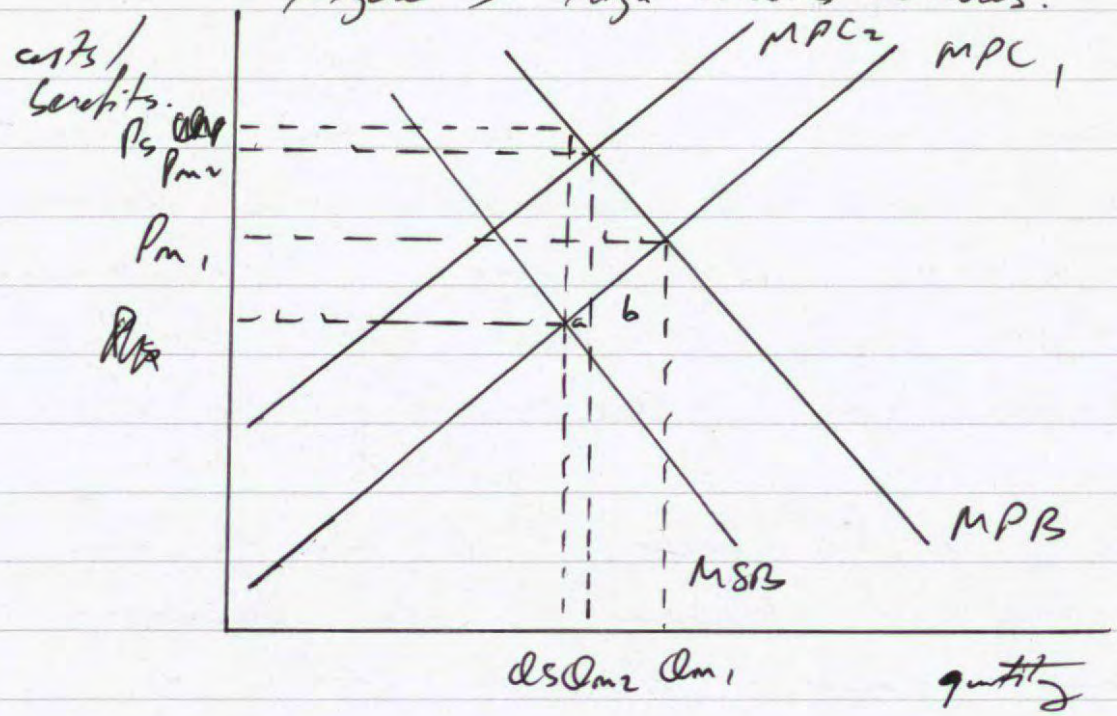
Figure 2 – High emissions rebate



In this case, the demand decreases from MPB_1 to MPB_2. Accordingly the market quantity decreases from Q_{M_1} to Q_{M_2} and the market price decreases from P_{M_1} to P_{M_2}. The market quantity thus approaches the socially desirable one, Q_S, causing the market failure to be reduced. The original deadweight loss was the area a+b+c. However, the decreased demand causes the deadweight loss to decrease to area a, as the market approaches a socially desirable quantity. Thus, the market becomes more allocatively efficient and the extent of this improvement in allocative efficiency depends on the extent of the decreased demand and hence market quantity.

The other policy is to charge a fee/tax on high-emission vehicles. This may be up to $5175. The tax would cause an increased cost for selling these ex high-emissions vehicles, thus decreasing the supply from MPC_1 to MPC_2, as seen in Figure 3.

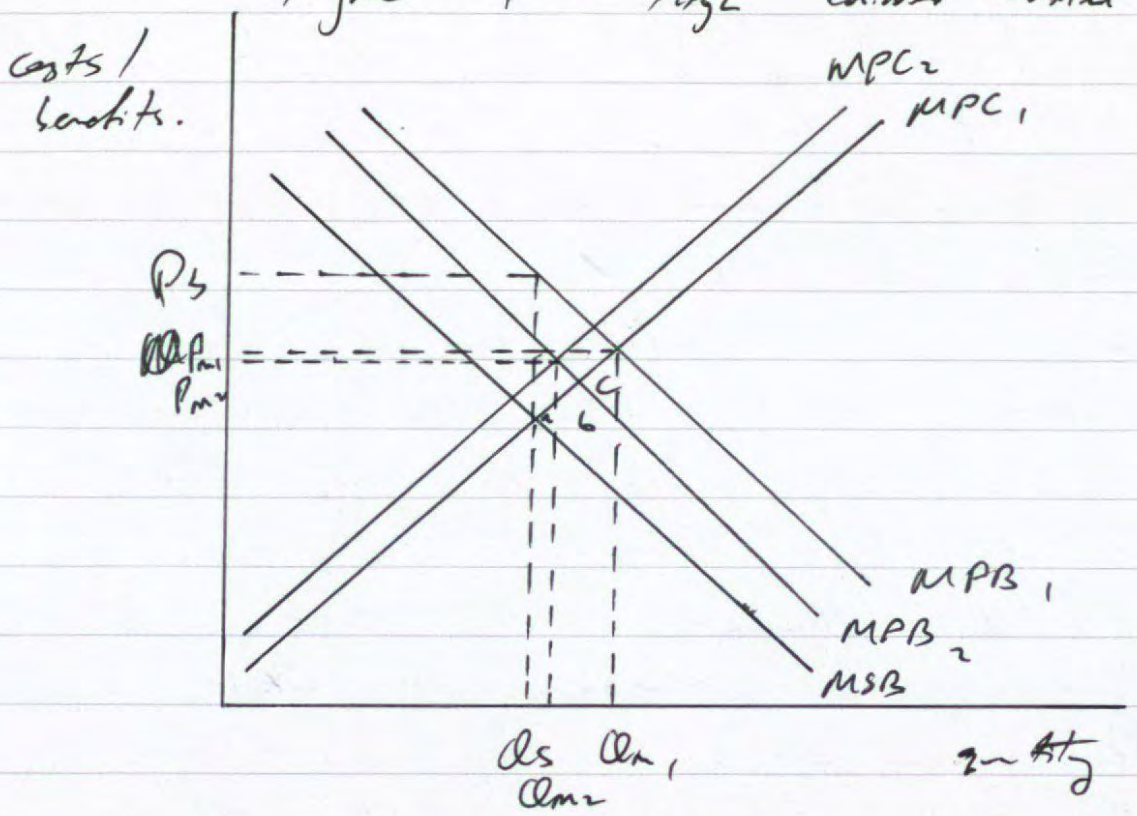
Figure 3 – High-emission vehicles.



This results in a decrease in market quantity from Q_{m1} to Q_{m2} and an increase in market price from P_{m1} to P_{m2}. Because both market price and quantity are approaching the socially desirable ~~quantity~~ price and quantity, P_S and Q_S, the market failure is being reduced. As such, the DWL decreases from the area a+b to the area a. Thus, because of the correction of market failure and the decrease in DWL, the market becomes more allocatively efficient.

Figure 4 depicts a combination of the two policies.

Figure 4 – High emission vehicles



Both the supply and demand have decreased (from MPC1 to MPC2 and from MPB1 to MPB2, respectively). This results in a decrease in quantity from Qm1 to Qm2, approaching the socially desirable quantity of Qs. (The change in market price depends on the relative shifts of the two curves). In this case, both policies contribute to a decreased market quantity. Thus, the decreased market quantity will be greater overall in the short-run, thus significantly reducing transport emissions. However, it should be noted that many NZers, especially low-

- income earners, may not have sufficient income or money to make the switch to low-emissions vehicles, even with the rebates and fees. This would especially be the case in the short-run, as households not only lack the information that such policies exist, but also that they may not have sufficient spare money to make the switch. However, there will still be a decrease in DWL from the area a+b+c to the area a. As such, it appears that the market becomes more allocatively efficient. However, as stated, the tax's decrease to market quantity may not be as significant, resulting in a lesser decrease to DWL and hence a lesser improvement to allocative efficiency.

However, in the long-term, these policies will become more effective. One reason is because consumers will have more access to information. One instance of information is the July 2022 study, which showed that "transport emissions are also responsible for 17% of the health

impacts of fine particles in the air we breathe." As such, demand will decrease due to tastes and preferences, and consumers are further incentivised (alongside the pre-existing policies) to switch to low-emissions vehicles. Moreover, consumers will become more aware of the policies, such as the "public EV charging network now offering fast (rapid DC charging stations at least every 75 km", among other aspects. This, consumers would be more willing to make the switch, as they learn of the convenience and environmental benefits of these vehicles. Moreover, they become more aware in the long-term of the financial aspects, such as the fees or the rebates. This means they understand the added costs of high-emissions and the added benefits of low-emissions, incentivising them to switch. Furthermore, in the long-term, households are more able to save up and also manage their money. This means they are more able to actually purchase a low-emissions vehicle. Hence, in the long-term, they are more able to make the switch. As such, in the long-term, more UK households are willing -- (See question 3)

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.

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.

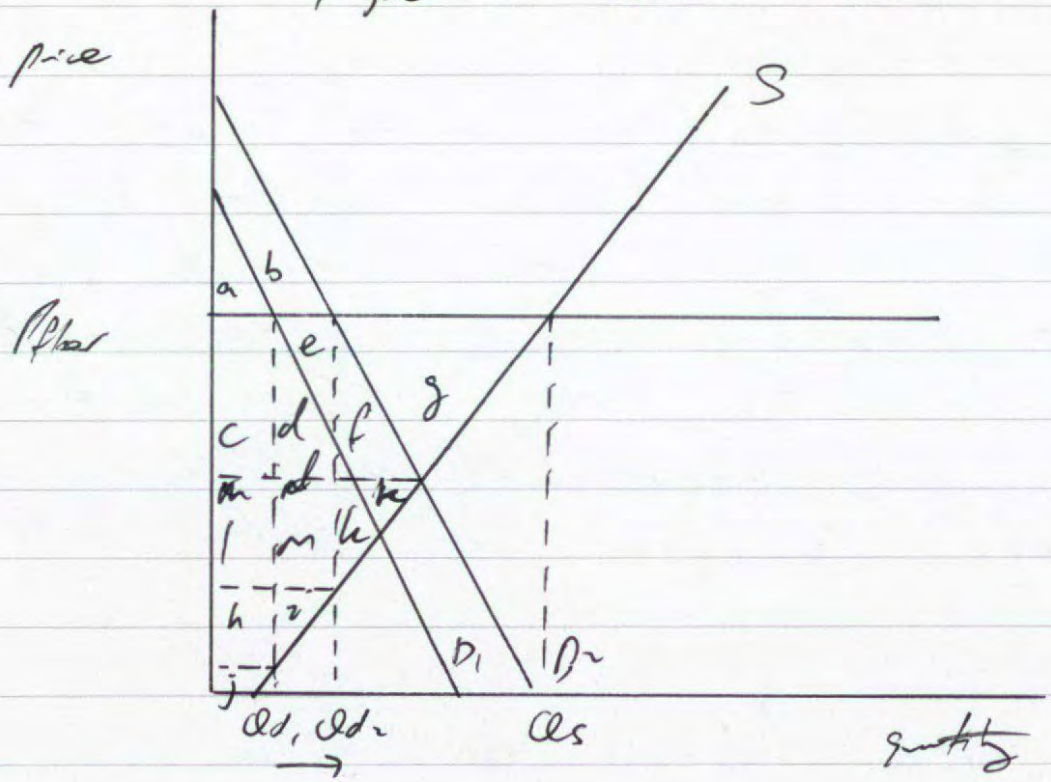
Use the space below to plan your essay. This plan will NOT be marked.

PLANNING

Question 3 continued: a amount of domestic currency would purchase a higher quantity of imports in the same foreign currency. Thus, export receipts would decrease and import payments increase, decreasing the balance of trade. This would decrease the current account. However, this depends on the relative elasticities as well. If imports + exports are price inelastic, the increase to quantity of imports would be less significant, and the decrease to the quantity of exports would be outweighed by its increase in price. Thus, in this case, export receipts would increase and import payments decrease, hence resulting in an increase to the balance of trade and an increase to the current account. (see extra paper)

Question 1. (continued): In the case of the market for concerts, the minimum price is again fixed at P_{floor}.

Figure 5 - Concert market



When demand increases from D_1 to D_2, the price remains fixed and the quantity demanded (concert quantity) increases from Q_{d_1} to Q_{d_2}. As such, the consumers are better off, as they receive a greater quantity of concert tickets without compromising affordability. However, due to the inelastic supply, the increased quantity will be less significant than for side shares. However, the consumer surplus increases from a to a+b, due to more consumers from above to derive

consumer surplus. Producers will also be better off due to the increased quantity. However, the price floor will decrease the benefits the receive, as explained before. However their producer surplus will increase from the area of $c+h+j$ to the area $c+h+j+e+d$. Thus, from a social surplus perspective, both consumers and producers are better off, due also to the decrease in DWL from the area $d+i+h$ to $f+k$. Thus, allocative efficiency is improved but not fully achieved. The price floor still results in allocative inefficiency.

(Question 2a continued): able to switch from high emissions to low emissions vehicles. This would decrease the market quantity for a car high emissions vehicles and thus reduce transport emissions. The decreased market quantity approaches socially desirable quantity more, thus decreasing the DWL and making the market more allocatively efficient.

(Question 3) a: The current account balance or consists of the net sum of balance of trade in goods and

Services plus net current transfers and net remittances. The balance of trade in goods in services is the export receipts of all exports of goods and services minus the import payments of all imports of goods and services.

From Resource G, there has been "a significant strong demand for imports of goods imports during the COVID-19 pandemic". As such, both the quantity and price of imports would increase. This is to be seen in "Consumption goods [...] also attributed to the rise in the value of imported goods". Thus, because of the increase in both value and quantity of imports, NZ's import payments for goods will increase. "Service imports [...] increased" indicates that import payments for services also increased. On the other hand, "the "Exported goods are at a slower rate." The "rise in the value of milk powder, butter and cheese" and the "increase in global dairy prices" makes NZ exports of dairy (a large portion of NZ's overall exports) less price competitive. As such, NZ would export less and

here, ~~despite the increased prices of exports,~~ ~~we~~ ~~experience a decrease in the~~ the increase in export receipts from higher prices is not as significant. Moreover, "service exports fell" due to the disruption of tourism in the March quarter due to COVID. As such, the growth of service exports (receipts) is also not as significant.

As such, since the growth in import payments outweighs the growth in export receipts, the balance of trade in goods and services (X-M) becomes more negative (M increases more so than X). Since the balance of trade is a ~~component of the~~ component of the current account, ~~the~~ this would thus lead to an ~~decrease~~ increase in the current account deficit in the March 2022 quarter. (widening to $29.7 billion). The net balance of trade indeed has a substantial impact on the current account balance, as the it contributed $10.2 billion in widening the current account deficit.

An increased current deficit means that there is an increased demand for imports and

a decreased supply for ~~a~~ exports. ~~With~~ In the case of imports, this means that NZ ~~or~~ would sell more ~~of~~ NZD ~~for~~ in exchange for other currencies to purchase imports. This could increase the supply for the NZD. For exports, ~~since~~ it means that foreigners will buy less NZD ~~for~~ as they will be purchasing a lower amount of exports. As such, the demand for ~~our~~ the NZD decreases.

Figure 1 - NZ foreign exchange.

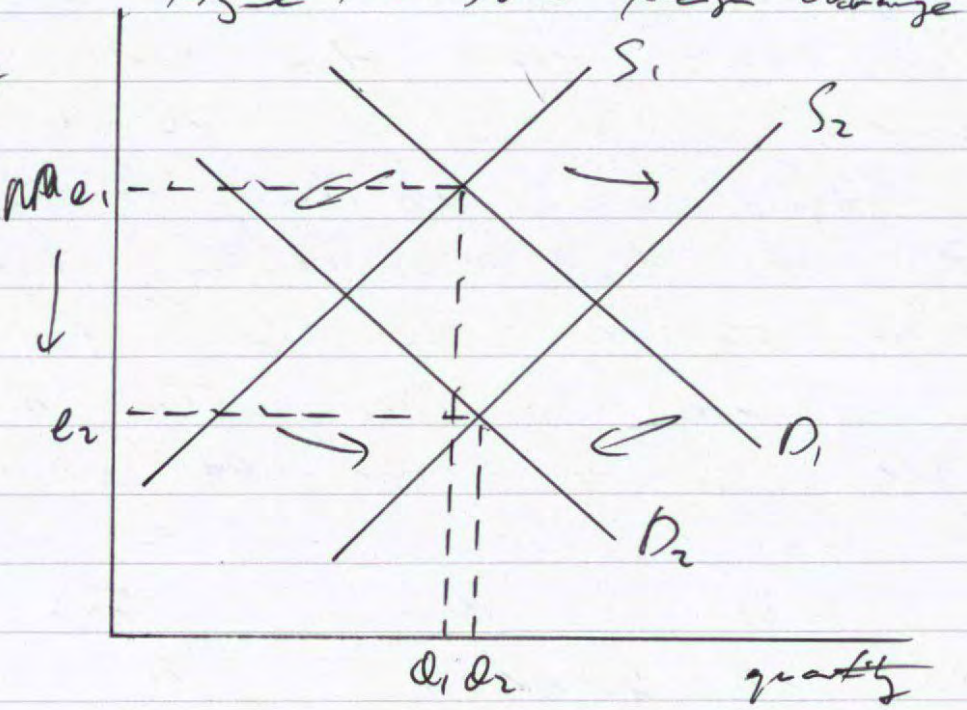


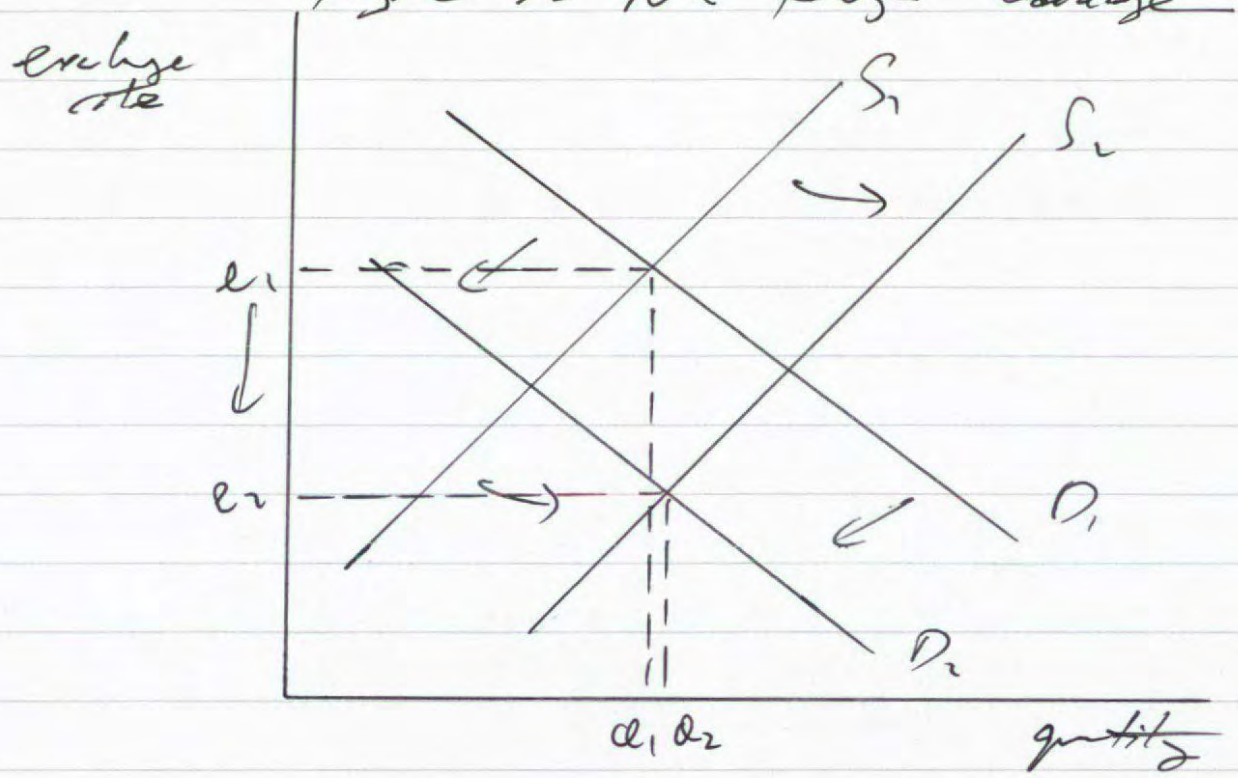
Figure 1 illustrates the two shifts. The supply increases from S_1 to S_2 and ~~the~~ as the demand ~~for~~ decreases from D_1 to D_2. As such, the ~~R~~ quantity changes from Q_1 to Q_2 (depends on relative shifts of supply and demand) and

the exchange rate depreciates from e_1 to e_2. As such, the increasing current account deficit would depreciate the exchange rate.

When there are rising interest rates in the US, NZers are more likely to send their money to the US. This is because the higher interest rates means greater returns for NZ savers. ~~Moreover, US savers are NZ are less foreigners are least less likely to save in the~~ This means that there will be an increased supply for the NZD. Moreover, all foreigners are less likely to save in NZ, as there is a relatively higher interest rate in the US. As such, foreigners are less likely to purchase NZD, as they have a less incentive to save in NZ, and so the demand for NZD is decreased. These effects are exacerbated by "the safety it [the US] offers in during times of global economic uncertainty". ~~As such~~ These effects are seen in Figure 2.

The ~~increased~~ supply increases from S_1 to S_2 and the demand decreases from D_1 to D_2. As such, the

Figure 2 NZ foreign exchange



the quantity of NZD changes from Q_1 to Q_2 (depends on relative shifts) and the exchange rate depreciates from e_1 to e_2. As such the rising interest rates in the US also depreciate the NZ exchange rate.

Thus, both the increased current account deficit & and the rising interest rates lead to depreciation of the NZD. The combined impact will thus be a significant depreciation of the NZD. This is depicted by the general decreasing trend in the price of NZD in USD as seen in Reserve J. Graph

(see page 10 planning section)

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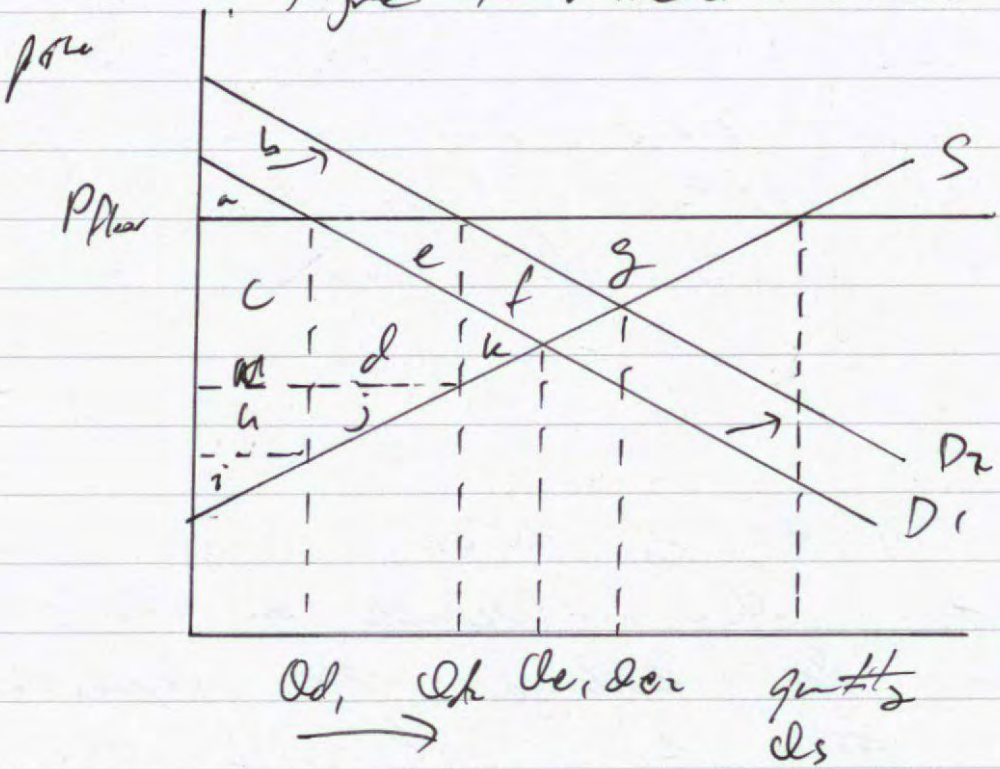
QUESTION NUMBER

1. When a fixed price (maximum price) is imposed, Figure 4 depicts the price floor market.

Figure 4. Price floor market



In this case, the price floor is imposed at Pfloor. The Qd quantity demanded initially is Qd1 and the quantity supplied is Qs1. Thus, the market would operate at Qd1 and there is a surplus equal to Qs - Qd1. Because the market operates only up to Qd1, the consumer surplus is limited by this quantity, resulting in consumer surplus being the area of a (different

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QUESTION NUMBER

area between price willing to be paid and Pfloor up to Qd1) and producer surplus being area C + below i. Because the competitive market equilibrium (point of allocative efficiency) is at Qe1, and there is less quantity than this, the market is not allocatively efficient, as consumer plus producer surplus is not maximised, and there is DWL given by d + h + j. When the demand then increases from D1 to D2, the price remains fixed at Pfloor, and the quantity demanded increases from Qd1 to Qd2. In this case, consumers are better off as they experience an increased quantity without other changes to price. As such, they receive more rides without compromising their affordability. Their consumer surplus would thus also increase from a to a+b, as there are more units from which to derive consumer surplus. The producers would also be better off. This is because they would receive increased revenue from the increased quantity. However, it is

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important to note that this does not apply significantly to individual drivers, as they do not receive the aggregate revenue but only the price charged per ride (which is fixed). Moreover, producers would have received an even greater increase in revenue were it not for the price floor, as they would have received the same quantity increase but also a price increase. As such, in terms of expenditure and revenue, the consumers are better off than producers. The producer surplus also increases from the area c+h+z to the area c+d+e+ +h+i+j. Thus, in terms of total surplus, both consumers and producers are better off. However, the observed increase may have been greater without the price floor, as there has also been a decrease in DWL from d+j to f+h. The inelastic nature of the supply would help to the decrease DWL. Thus, with the price floor, although surplus is improved, DWL still exists and so the market is still allocatively inefficient. (See question 3)

QUESTION NUMBER

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3 Whether each appreciation reduces the current account deficit depends on the short or long term. In the short-term, exporters and importers have less access to information and have less time to make changes in accordance with new information (such as appreciation or depreciation). Thus, exports and imports would become inelastic. As such, in the short-term, an appreciation is likely to reduce current account deficit. This is because the prices of exports would increase, but due to the lack of information and time, the quantity of exports does not decrease significantly. Thus, export receipts would increase. Moreover, import payments would decrease, as as importers would be paying less NZD to buy a relatively the same number of imports. However, in the long-term, a depreciation is more likely to reduce current account deficit. This is because people have more time to make changes and more access to information. As such,

QUESTION NUMBER

ASSESSOR'S USE ONLY

They will a depreciation means an increase improvement in price competitiveness of exports leads to increased growth, increasing export receipts. Moreover, importers would be importing less, as they realise that imports are are more expensive in their domestic currency. As such, import payments decrease. As such, the volume of trade would increase, and the current account deficit would be reduced.

In this case, a depreciation would be more effective, as a short-term solution to the current account deficit is sufficient. In the long-term, an appreciation would then increase a current account deficit, due to the opposite reasonings as above. Therefore