

No part of the candidate's evidence in this exemplar material may be presented in an external assessment for the purpose of gaining an NZQA qualification or award.

SUPERVISOR'S USE ONLY

S

93402



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

☐

+

TOP SCHOLAR



Mana Tohu Mātauranga o Aotearoa
New Zealand Qualifications Authority

Scholarship 2025 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 the margins (XXXX). This area will 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. There is planning space for each question. Your planning will NOT be marked.

QUESTION ONE: Avocados – a tough season for growers

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

Changes in the world market for avocados and in costs for avocado growers directly impact the level of exports and the profitability of New Zealand avocado orchards.

Analyse the impact of changes in the world avocado market on the New Zealand avocado market and on individual avocado growers. Evaluate the short- and long-run effects on avocado growers' output and profitability.

In your answer, using appropriate economic models, you should:

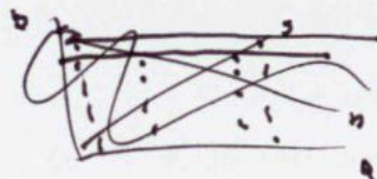
- explain why New Zealand avocado growers can be considered to be an example of perfect competitors rather than monopolistic competitors
- explain the impact of the change in world price on exports, consumer surplus, producer surplus, and allocative efficiency in the New Zealand avocado market
- use marginal analysis to analyse the impact of:
 - the change in avocado prices and input costs on individual perfectly competitive New Zealand avocado growers in the short run
 - ongoing subnormal profits on firms and the New Zealand avocado market in the long run, and evaluate the influence that the world market price may have on this.

PLANNING

Perf comp: many firms, homogeneous product, price taker

Monop: many firms, differentiated product, some price control

• $w \uparrow \rightarrow C \uparrow \rightarrow PS \downarrow$
 $AC \uparrow \rightarrow AP \downarrow \rightarrow AET$
 as both w & Q after.



MA: inputs: $rc \rightarrow \therefore MC, AC \uparrow$
 $Q \downarrow \quad P \downarrow$

LA: $S \downarrow$

Perfect competition has many firms, no entry/exit barriers, homogeneous products, and individual firms are price takers.

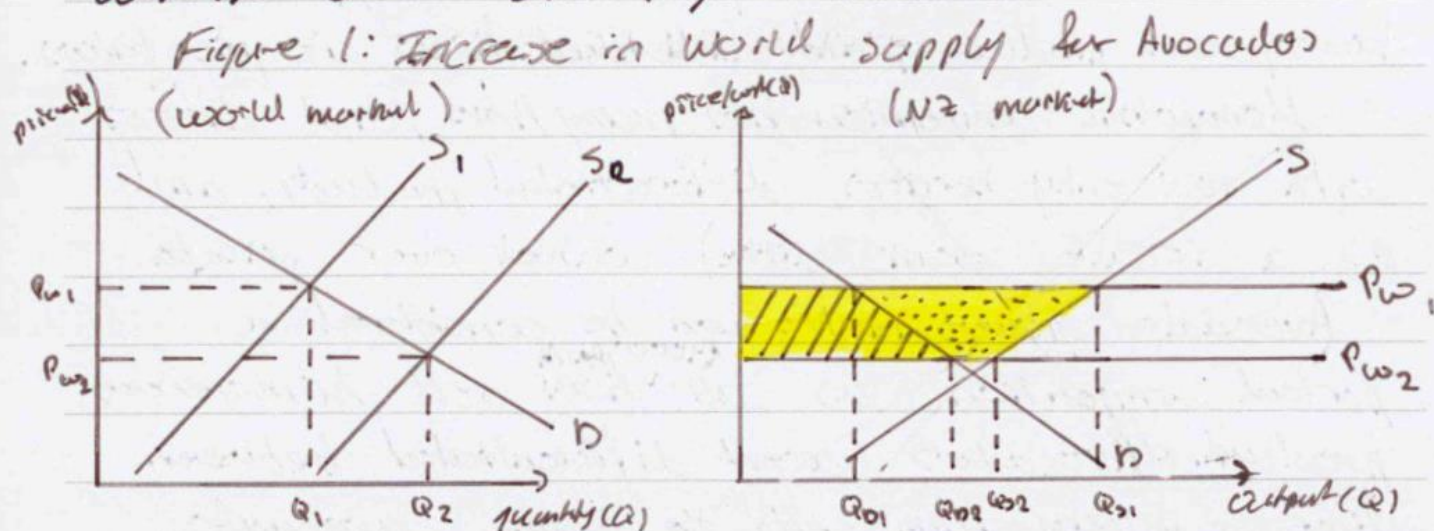
Monopolistic competition has many firms, but differs with low entry barriers, differentiated products, and as a result some (little) control over prices.

Avocado growers in NZ can be considered a perfect competition as all ¹¹⁰⁰⁰ firms sell homogeneous product. Avocado's aren't differentiated between firms - every firm sells the same avocado. Individual firms are also 'price takers' (DesA), and have no degree of control over the market price. They must accept the 'market price' whether it is '\$2.48 per avocado... [or] \$1.75' (DesA). Avocado growers also have no entry/exit barriers, unlike in monopolistic competition where there are generally significant knowledge or skill requirements to enter the market.

NZ avocado growers are exporters on the world market. They are also 'price takers on the international market' (DesA) as ~~NZ export~~ NZ is too small to influence the world price. Particularly for a good like avocado's which NZ is not as well known for producing, unlike luxury lamb. Thus, when 'the world [is] growing avocado's so we've got increased supply and competition in our export markets' (DesA), which via market forces leads to a decrease in the world price for avocado's, NZ avocado

(shown on figure 1)

must accept this new lower price. The effects can be shown on Figure 1 below.



The increase in ~~the~~ world supply from S_1 to S_2 resulted in a decrease to the world price from P_{w1} to P_{w2} and an increase in quantity from Q_1 to Q_2 .

As NZ avocado ~~producers~~ exporters are too small to influence the world price, they must accept the new lower price of P_{w2} . At this lower price, domestic demand increases from Q_{d1} to Q_{d2} as avocados are ^{more affordable (\$2.48 to...\$1.75) (Res A)} ~~less profitable~~, while domestic supply ^{as avocados are less profitable} decreases from Q_{s1} to Q_{s2} . As a result, there is less overall output of avocados in NZ, ^(Qs2) while increasing local demand. Therefore less surplus to export. So exports decrease from $(Q_{s1} - Q_{d1})$ to $(Q_{s2} - Q_{d2})$, as noted by Res A: export plan of about 1.4m trays (compared to) 2.6m trays ... well over 1m trays down! This is ~~is~~ ^{is} ~~largely~~ a ~~result~~ Since the price NZ consumers ~~has~~ pay has decreased from '\$2.48 to \$1.75' (Res A), the difference between the price

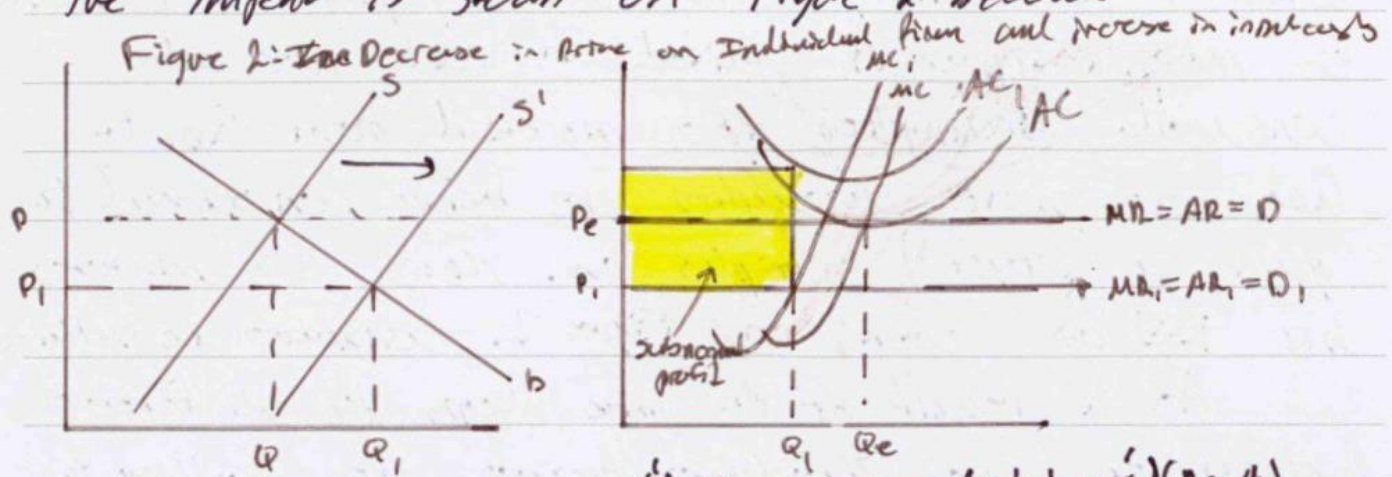
consumers are willing to and actually pay has ^{increased} ~~decreased~~, so more surplus is gained on each avocado consumed. Consumption also increased from Q_{D1} to Q_{D2} , so more avocados are being consumed to gain a (larger) surplus on. Thus CS increases by Δ as seen on Figure 2. Consumers are better off.

As a result of the price drop, the difference between the price producers/growers are willing to and actually accept has ~~decreased~~ ^{increased} ~~decreased~~, so less surplus is gained on each avocado sold. Less avocados ~~are~~ ($Q_{S1} \rightarrow Q_{S2}$) are being sold on which to gain a (smaller) surplus, so PS decreases by Δ .

The NZ market is allocatively efficient both before and after the change to world price as the market operates where $Q_D = Q_S$, with any surplus being exported. ~~All the~~ No domestic consumers are excluded within the price they are willing to pay, ~~and~~ and all output is sold at the world price. However, since the loss to PS is greater than the gain to CS, overall ~~allocative~~ efficiency decreased. The market remains allocatively efficient, it is just less efficient than before as less ^{total} units are produced/consumed.

As NZ avocado growers are perfectly competitive, individual firms must accept the new lower market price for avocados. They are also facing increased input costs (variable costs).

The impact is shown on Figure 2 below.



Increasing input costs ^{↑ fuel, agri-chemicals, labour (res etc)} increases variable costs. Variable costs are dependant on output, thus ~~AC~~ ~~increases~~ MC increases to MC_1 , as each unit costs more to produce, and AC increases to AC_1 . As firms must accept the new lower price, $MR=AR=D$ drops to $MR_1=AR_1=D_1$. At the current output Q_e , firms are making marginal losses as $MC_1 > MR_1$. Each additional avocado grown generates more costs than it clears revenue. Firms will therefore decrease output to Q_1 , where $MR_1 = MC_1$, and profit is maximised (losses are minimised). At this output Q_1 and price P_1 , individual firms are making ~~subnormal~~ ^{in the short run} ~~profit~~ $AC_1 > AR_1$. Thus, many avocado growers will leave the industry due to continual accounting & economic losses, and the ~~fact~~ ^{fact} that there are no exit barriers.

In the long run, despite individual NZ ~~many~~ ^{few} farmers leaving the market, since NZ avocado growers are price takers on the world market, this will not result in an increase in price. Instead, only firms with very

low production costs will be able to survive in the long run making normal profits. Most firms will be forced to leave, unless or until the world price increases again, or production costs fall significantly as to offset both the initial increase and the lower world price.

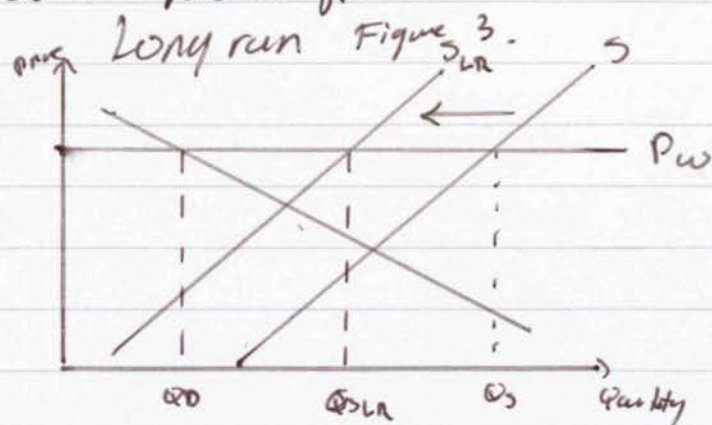


Figure 3 shows the long-run impact of higher costs and lower world price on NZ avocado growers. Q_S decreases greatly to $Q_{S,LR}$ as only these very few firms with normal profits will operate. Q_D is unchanged as the world price is unchanged. This assumes P_W and production costs are constant. If the world price does again increase, more firms will enter the avocado market as there are low entry barriers, chasing supernormal profits on the export market.

Overall, the decrease to world prices decreases efficiency as $AP_S > \Delta C_S$, and results in a decrease in output. This is reflected by individual firms who accept the new lower world price, and decrease individual output to profit maximize. In the long-run, profitability depends entirely on

changes to the world price of currencies, or
~~changes~~ significant changes to production costs for
individual firms.

QUESTION TWO: Public goods – Auckland roads and allocative efficiency

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

Auckland's population is projected to increase to at least 2.2 million by 2045, placing pressure on roads, reducing their performance, and increasing congestion. The Auckland Transport Alignment Project (ATAP) concluded that investment in both infrastructure and demand management tools, such as a congestion charge, are needed to reduce congestion in Auckland.

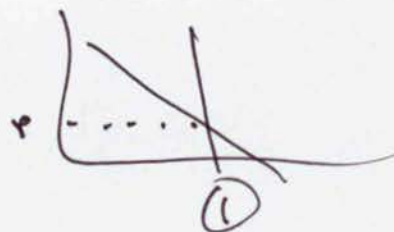
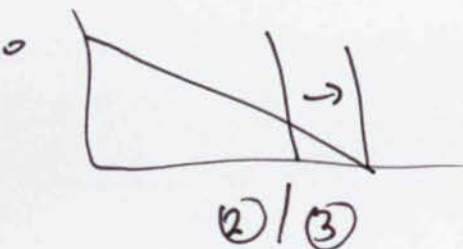
Analyse the impact of a growing population on allocative efficiency in the provision of Auckland roads. Evaluate the effectiveness and impact on allocative efficiency and equity of government policies designed to reduce traffic congestion.

In your answer, using appropriate economic models, you should:

- explain the extent to which Auckland roads meet the characteristics of a public good
- using the public goods model, analyse and illustrate the impact of an increase in population on Auckland roads, and explain how this leads to market failure and allocative inefficiency in road provision
- analyse and evaluate the impact on allocative efficiency and equity of the three recommended policies designed to improve traffic flow (Resource D), and recommend which policy/policies would be most effective in the short and long term, taking into consideration allocative efficiency and equity.

PLANNING

- non-rival, non-price excludable
kind of ~~at~~ $\checkmark$ (tells x)

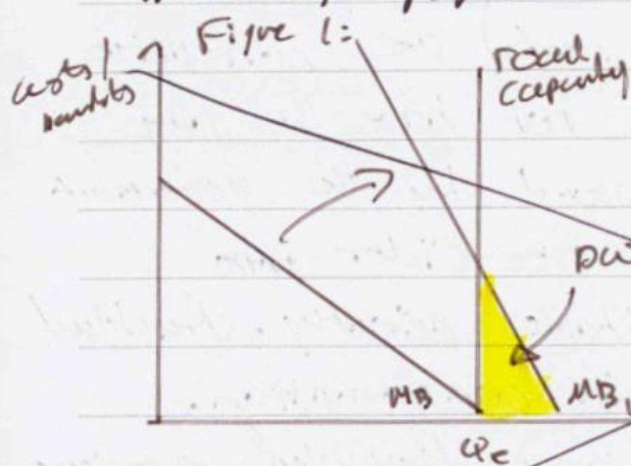


A public good is defined as being non-rival in consumption, and non-excludable by price.

Auckland roads (excluding toll roads) are non-price excludable as consumers do not have to pay to use them. They are provisioned by the government for this reason as due to the free-rider problem, they are not profitable privately. Auckland roads are slightly rival in consumption. 'Congestion' (p. 5 E) results in a diminished experience for consumers due to the fact there are other consumers. However, in periods of low/no traffic, having a few additional drivers to share the road with ~~is not~~ does not diminish one driver's experience. Therefore Auckland roads (not toll roads) are an impure public good.

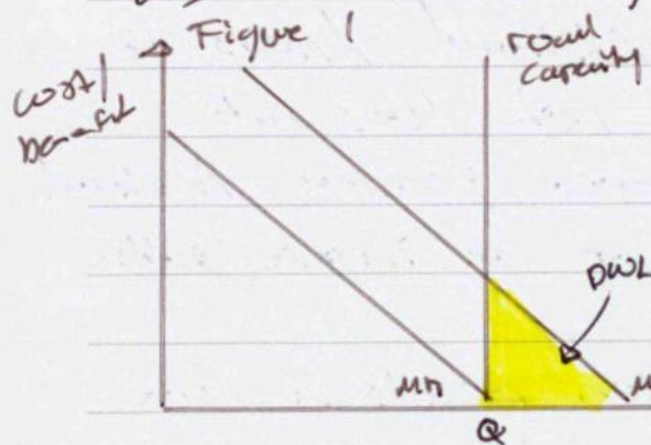
An increase in population results in more demand for Auckland roads. There are also significant negative externalities of consumption of roads - pollution, traffic for 'long periods of time is an unhealthy activity' (p. 5 C) which leads to decreased productivity of workers, and car accidents costing both time and taxpayer money. As a result, with high consumption, marginal social benefits decrease, and marginal social costs increase. However, these externalities can be generally avoided with increased provision of roads, as most negative spillover costs are the result of increased congestion.

Figure 1 below shows the impact of an increasing population in Auckland on Roads.



The increase in population increases demand (MB) for roads to MB_1 . Demand also becomes more inelastic as it becomes

more of a necessity good with public transport not being a suitable substitute due to overcrowding.



The increase in population increases demand (MB) for roads to MB_1 as more consumers want to use the roads. As road capacity is a Q_c , this results in

many consumers being excluded from consumption as a result of overcrowding and congestion.

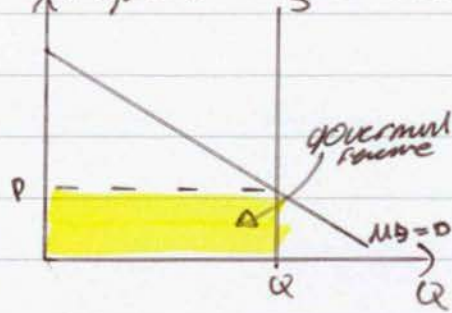
The market is no longer operating where $QD_1 = QS$ and therefore is not at equilibrium. There is a shortage of roads not fulfilled by an increase in price as roads are an impure public good. This results in a DWL as not all consumers who want to use roads are able to. The market for roads is allocatively inefficient and market failure occurs.

In an attempt to reduce allocative inefficiency, 3 policies are suggested.

1. Time of use policy (Pps D).

A time of use policy will charge road users a 'congestion charge on key roads during peak hours' (Pps D). Since the market for roads has dynamic demand, it is generally allocatively inefficient. Inefficiency occurs during times of congestion, with this policy specifically targets. The effect is shown in Figure 2 below.

Figure 2: times of use charge.



this policy results in a price of P being placed on road usage. Therefore, during times of congestion, roads are no longer a

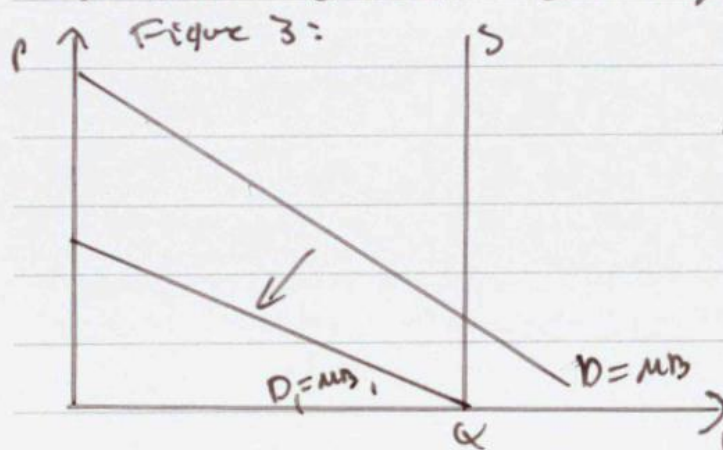
public good - they become price excludable and generate government revenue. The price also results in allocative efficiency assuming free riders do not occur. It ~~forces~~ moves the market to equilibrium at P, Q where $MB=MS$. Therefore, the DWL is eliminated and allocative efficiency occurs. However, although this policy is efficient, it is very inequitable. Times of use charges a 'regressive' (Pps F) policy. Low income households are disproportionately impacted/targeted by the policy. In addition to having less disposable income to put toward, paying the fee, 'wealthy drivers tend to live

closer to the city center' than poorer families, meaning poorer families have further distance to travel thus more fees, and worse public transport available, thus more reliance on cars.

As a result, this policy is extremely inequitable. Government revenue revenue could be used to fund better infrastructure or ~~social~~ social aid to poorer families in general. The policy is also fairly short term and doesn't address the underlying issues of a growing population.

2. Improved Provision of public transport (Res D)

Improving provision of public transport will reduce reliance on road usage for the average consumer, thus decreasing demand. This is shown on figure 3 below.



Not only does this decrease demand at each and every output, it also makes demand for roads more price elastic (less inelastic), as better substitutes

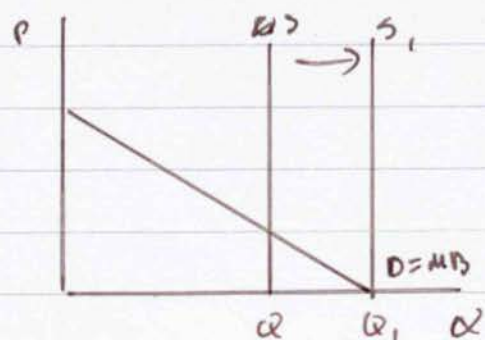
are provided. More consumers will consider 'buses, trains, and cycleways' as a suitable alternative to roads, decreasing its necessity & lack of substitutes nature.

This policy also achieves allocative efficiency by eliminating the DWL. The new equilibrium, where $Q^S = Q^{D'}$

at a quantity Q - ~~cost~~ this policy is also more equitable with a better long term approach as reliance on roads is decreased. However, ~~as~~ it will cost government revenue, raising funding in other areas of the economy will be cut. Equitability also depends on where improvements of provision are made. Cycle lanes and more bus/train networks will likely only be built in areas of high demand. Those consumers who don't live in these areas will receive no benefit and are therefore disproportionately impacted. Although this policy is not fully equitable, it doesn't directly target poorer households like the limits of use charges.

3. Infrastructure Spending

increasing infrastructure spending will increase supply of roads. This is shown in Figure 4 below



This policy directly tackles the use and supply issue by increasing supply to a more suitable and manageable level such that road

congestion doesn't occur. No consumers are excluded from consumption, and the market is operating at equilibrium at Q_1 where $QD = QS_1$. Therefore, the DWL is cleared and the market is allocatively efficient. There will be initial costs, which will be significant. However, congested roads cost NZ GDP '\$1.3 billion' annually (Roe C), and therefore

government spending to reduce these congestion externality costs is justified. In the long run, congestion externalities to as national productivity will be much less significant. Government spending therefore reduces long-term costs of roads. As a result, although they may initially seem to be inefficient spending, long-term will be efficient. This policy is also very equitable. No consumer is ~~left out~~, ~~or~~ excluded, and all benefit. In fact the spending would even be considered somewhat progressive as public transport is not a viable substitute for roads for many poorer households living further away.

Therefore, all three policies will increase traffic flow (decrease congestion) and result in allocatively efficient outcomes. However, the times of use charge, despite generating government revenue, is only a short-run solution by itself, and is extremely inequitable due to ~~costing~~ being a regressive policy. Improved provision and increased infrastructure both address the long term issues of increasing populations, but require significant investment. Improving provision also isn't entirely equitable. The best option would be a combination of all 3. The times of use will provide a fast short-term solution with improving provision & infrastructure, which may take years

to be fully effective - the government revenue gained can also be used to find the other 2 more sustainable and long term solutions. Thus, short run and long run efficiency is achieved, with only brief inequity for poorer families.

QUESTION THREE: Monetary and fiscal policy to reduce inflation

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

Tighter monetary policy should be the primary tool for containing inflation, but fiscal policy can play a supporting role.

Analyse how monetary and fiscal policies could be used to achieve price stability in the New Zealand economy. Evaluate to what extent a 'fiscally neutral' tax cut policy could support contractionary monetary policy to reduce persistently high inflation rates.

In your answer, using appropriate economic models, you should:

- explain how the implementation of contractionary monetary policy from 2021 to mid-2024 was used to reduce inflation rates
- analyse the combined impact on inflation of implementing a 'fiscally neutral' income tax cut policy with a reduction in government spending, and analyse why this result could be uncertain; use multiplier theory to evaluate the likely impact on inflation
- evaluate the overall effectiveness of using a contractionary monetary policy in conjunction with a 'fiscally neutral' income tax policy to reduce high inflation levels.

PLANNING

• ~~not~~ OCR rising from 2021-2024

• fiscally neutral : $G \downarrow$ (100% of tax cuts)
 $C \uparrow$ (16% of tax cuts) $84\% \downarrow$?
 $\rightarrow$ multiplier
 leads to 100% spending overall.

• contractionary $\downarrow$
 B

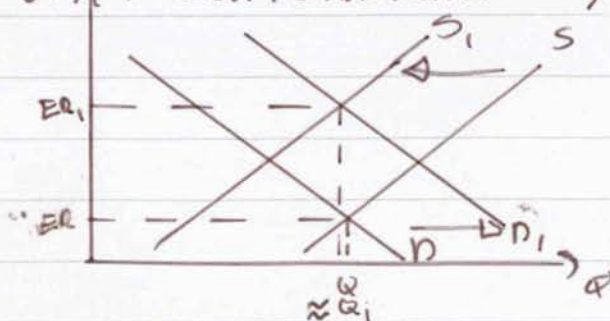
Between 2021 and 2024, the OCR has risen steadily from $\sim 0.3\%$ to $\sim 5.5\%$. Therefore interest rates have increased. (Per Ex)

Increasing interest rates makes taking out loans more expensive due to higher loan repayments. This discourages businesses from making large investments, and pushes back projects for when costs are lower. As a result, business investment (I) decreases.

Higher interest rates make saving more profitable as consumers who save receive more interest. Since consumers can either save or spend, if saving is incentivized, consumption spending (C) will decrease.

Higher interest rates encourage investment in NZ\$. Both overseas (foreign) and domestic investors will look to invest in NZ\$. This results in more demand for NZ\$ and less supply of NZ\$ as holders ~~to~~ remove their money from the FOREX market. This is shown on Figure 1 below.

Ex 1 NZ\$ on FOREX market - Figure 1



An increasing OCR results in a higher exchange rate (ER to ER_1) with roughly the same quantity ($Q \approx Q_1$) as a result of increasing demand ($D \rightarrow D_1$) and decreasing supply ($S \rightarrow S_1$). This ~~affects the~~ appreciates the NZ\$. NZ\$ is worth more foreign currency than it was before. Thus, imports become relatively cheaper

for NZ consumers, increasing demand for imports and therefore increasing import payments (M).

NZ export receipts convert from the same amount of foreign currency to less NZ\$ than before. Thus export receipts (NZ\$) decrease (X). Therefore, net export receipts ($X-M$) decreases.

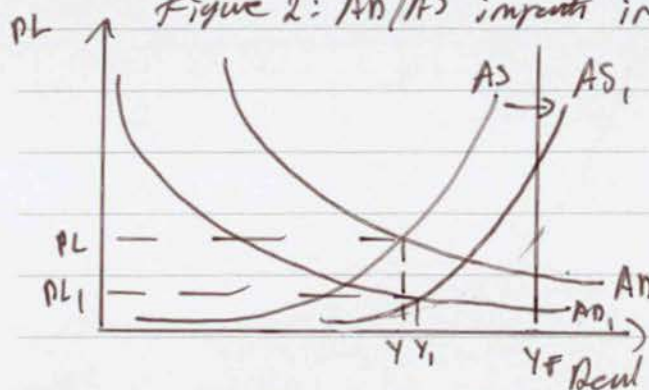
With a stronger exchange rate, costs of imported raw materials becomes relatively cheaper therefore reducing costs of production for NZ producers. This is a component of AS, and therefore increases AS.

$C+I+(X-M)$ are all components of AD and all decrease, thus AD decreases.

AD decreases more than AS increases as new factors are ~~eff~~ impactful, and not all businesses benefit from reduced costs of imported raw materials (e.g. exporters).

These impacts are shown on Figure 2 below.

Figure 2: AD/AS impacts increasing OCR.



The increases to the OCR result in AD decreasing to AD_1 and AS moving to AS_1 . Real GDP stays roughly the same and depends on

whether the economy was operating at or far from full employment. If near Y_F , real GDP would decrease to Y_1 , if far from Y_F (e.g. 2009), real GDP increases to Y_1 . This

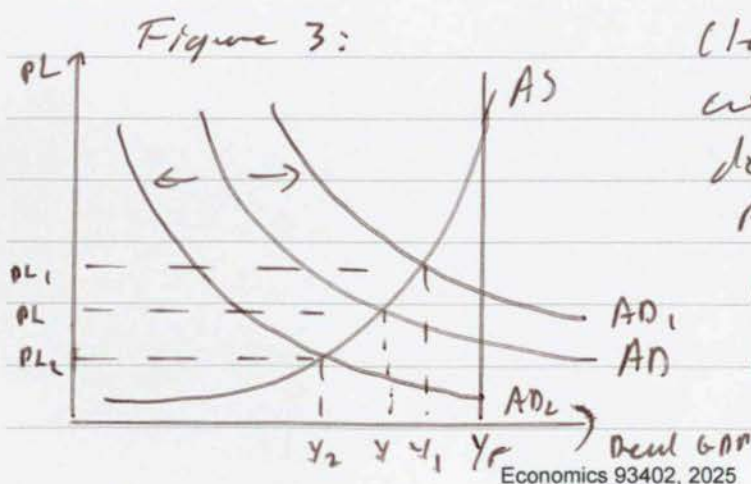
is due to the shape of the AD & AN curves ~~have~~ having changing steepness. No matter where the economy is operating, PL will ~~be~~ decrease to PL_1 . This decrease will be more noticeable when the economy is operating closer to full employment.

Therefore, the OCR increases in 2021-2024 (a contractionary monetary policy), were able to reduce the price level and inflationary pressures by reducing AD and increasing AS .

A tax relief results in the government receiving less tax revenue, and households having higher disposable incomes. As a result, tax cuts "generally 'lower government spending' (Res M), offsetting the increase to AD through increased consumption spending (C) and investment (I). A 'fiscally neutral tax reform' (Res I) effectively funds 'the tax relief from savings (reductions) in government spending' (Res I).

While ~~however~~ the government saves 100% of the tax cuts, ~~the~~ households only save 84% according to Westpac (Res J). This would intuitively mean AD would decrease as the reduction to government revenue of 100% more than offsets the increase to AD through the 16% of tax cuts being spent. ~~How~~ This however does not account for the multiplier effect. As the MPC is 16%, households spend 16% of the initial reduction in tax payments (16% of increase in disposable income.) Moreover, this becomes additional disposable income for other sectors of the

economy. Of which, they spend 16%, or 2.56% of the original tax cut. This becomes additional income for other households/sectors, of which they spend 16%, or 0.41% of the original increase. In total, this results in approximately 114% of the original tax relief being spent in the economy ($M = 1/(1-MPC) \Rightarrow M = 100\% \times 1/0.84\% \Rightarrow M = 114\%$). ~~Thus~~ This is an approximation because, although the average consumer has an expected MPC of 0.16, this differs significantly between consumers. Low income consumers have a much higher MPC and will therefore spend more, increasing GDP more. 114% is not much more than 100%, and could therefore easily vary to less than 100%. In this case, the decrease to government spending more than offsets the increase to household spending. If households spend more than 100% of the initial tax relief, then household spending was greater than the decrease to government spending. Therefore AD would increase or decrease, so the result is uncertain. Figure 3 shows both cases.



(Clearly, inflation would increase or decrease to PL₁ or PL₂ respectively.

Real GDP would also go both ways: Y₁ (increase) Y₂ (decrease).

Since the multiplier calculated 114%, and move in AD to AD₁, and therefore an increase in inflation is more likely. However, any change will be very small.

If both a contracting ~~monetary~~ ~~policy~~ policy and a neutral fiscal policy are used in conjunction, the effects would be similar to just using a contracting monetary policy. However, during a ~~short~~ period of high OCR, it may be seen that the MPC will decrease as MPS increases due to high interest rates. If this is the case, then the fiscally neutral tax cuts will result in a decrease to AD as savings to government spending will outweigh increases to household spending. This will minimize the AD to AD₂ shift as Figure 3.

In combination with the ~~effects~~ ~~of~~ a high OCR, AD will decrease significantly. ~~Now~~ This will result in a large decrease to price level and inflation. Therefore helping the government and reserve bank achieve the goal of price stability (1-3% p.a with a limit of 2%).

Thus, if used in conjunction, both policies would complement each other resulting in a larger decrease to inflationary pressures than if either policy was used on its own. (This assumes MPS increases to more than 0.84

during OCR increases). Therefore using both policies at once is more effective at reducing high inflation rates, than each policy would be on its own.

Extra space if required.
Write the question number(s) if applicable.

QUESTION
NUMBER

Extra space if required.
Write the question number(s) if applicable.

QUESTION
NUMBER

Extra space if required.
Write the question number(s) if applicable.

QUESTION
NUMBER

93402

Acknowledgements

Material from the following sources has been adapted for use in this assessment:

Question 2

Ministry of Transport. (2021). *The congestion question*. <https://www.transport.govt.nz/area-of-interest/auckland/the-congestion-question>. CC-by-4.0

Question 3

The Treasury. (2022). *FEU Special Topic – Inflation and fiscal policy*. <https://www.treasury.govt.nz/publications/research-and-commentary/rangitaki-blog/feu-special-topic-inflation-and-fiscal-policy>. CC-BY-4.0