

93402



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TOP SCHOLAR



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

QUALIFY FOR THE FUTURE WORLD
KIA NOHO TAKATŪ KI TŌ ĀMUA AO!

Scholarship 2019 Economics

2.00 p.m. Tuesday 12 November 2019

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.

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

Question	Score
ONE	
TWO	
THREE	
TOTAL	

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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: PETROL, ELASTICITIES AND ALLOCATIVE EFFICIENCY

Use information in Resources A to D, in the resource booklet, and your knowledge of micro-economic theory, to answer this question.

For a period of time in 2018 petrol prices rose steeply, with predictions that they could go even higher. High petrol prices are likely to impact on consumers' buying behaviour in a range of markets.

Analyse the changes in the market for petrol and the price elasticity of demand for petrol. Evaluate the impact that high petrol prices would have on allocative efficiency in the petrol and electric vehicle markets in the long term. Make sure you use appropriate economic models in your answer.

In your answer you should:

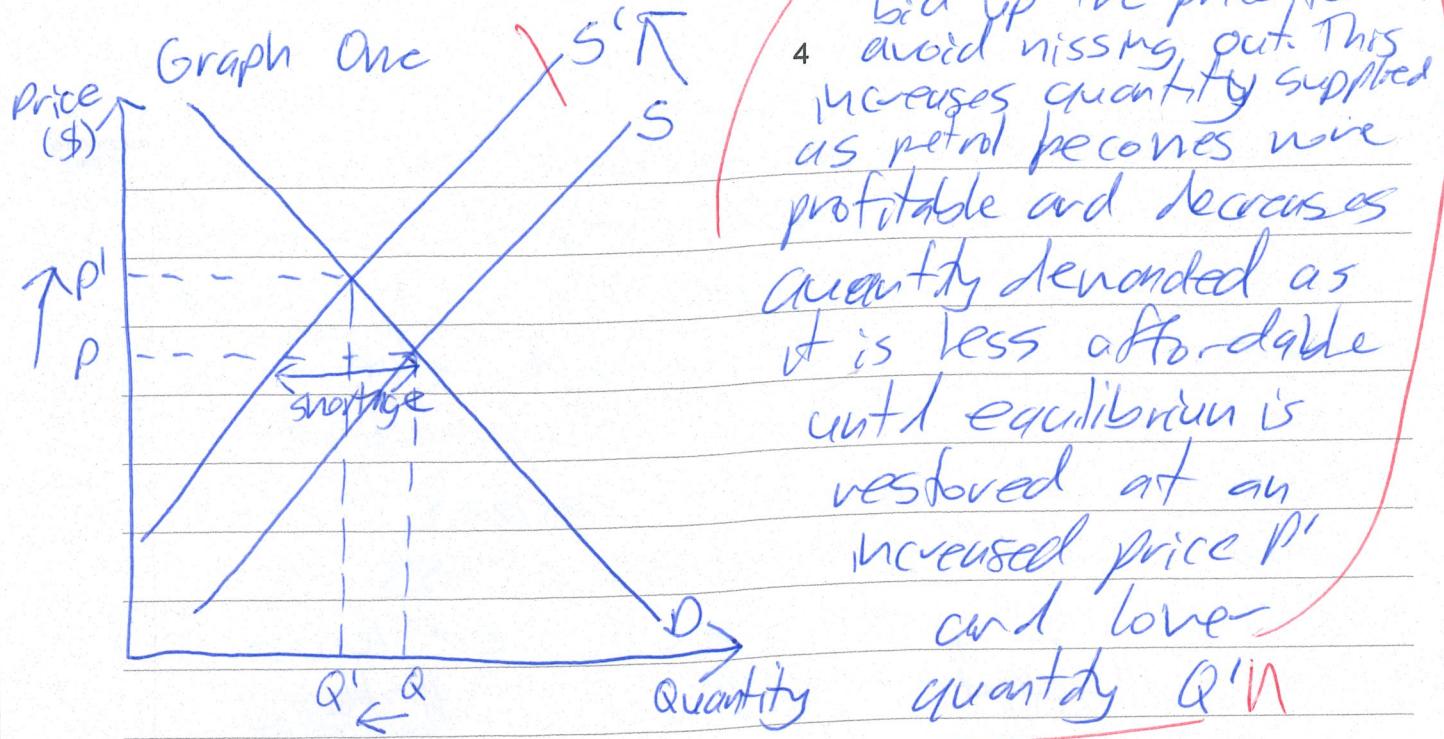
- analyse and explain the market changes that resulted in higher petrol prices in New Zealand in 2018
- explain why petrol has inelastic demand and analyse why price elasticity of demand for petrol differs in the short term compared with the long term
- evaluate how a persistently high price of petrol would impact the markets for petrol and electric vehicles in the long term, including changes to consumer surplus, producer surplus and allocative efficiency.

Use this space for planning your essay. This plan will NOT be marked.

PLANNING

Price ↑ supply decrease oil prices, dep NZ\$, tax
inelastic demand, few substitutes - necessity, time
↓ regions
long term increasing elasticity - substitutes, electric
longer proportion driven
reducing demand increasing supply petrol
increasing demand, increasing supply new technology
allocative efficiency still achieved
as market in equilibrium

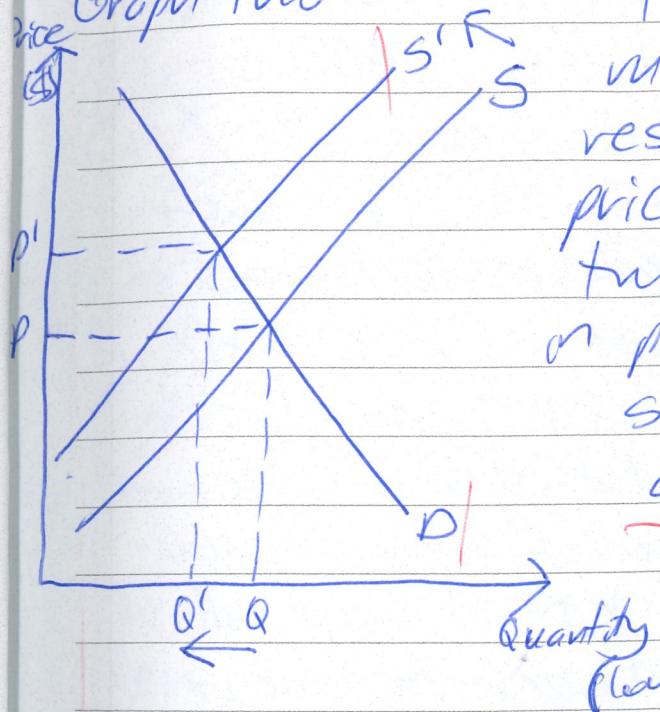
Petrol prices in New Zealand have been increasingly significantly over the past few years reaching a high of '\$2.40 per litre' in May 2018 (Resource A). There are some who believe that the price could even reach '\$3 per litre in the near future'. The main reasons for this has been the ~~addition~~ increasing costs to producers as oil prices have risen towards US\$100 ~~per~~ a barrel in 2018 which will force producers to raise prices to maintain profit margins. Additionally ~~additionally~~ there has been increased fuel tax levy (Resource A) which will effectively add to producers costs of production and this may increase in the future as the government looks to phase out petrol cars somewhat and encourage the purchase of electric cars. Also the NZ\$ has depreciated which is likely due to the current monetary policy which decreases interest rate differentials between NZ and overseas so NZ becomes less attractive for foreign investors. This will increase costs as oil is imported so will cost more in NZ\$. ~~and~~ ~~when~~ the NZ\$ is depreciating against foreign currency such as the US\$. Due to these increasing ~~fixed~~ costs of production the supply of petrol will decrease from S to S' shown on graph one. This causes a shortage at current market price P so consumers



Due to the inelastic nature of demand in the short term an increase in ~~the~~ price from P to P' causes a less proportionate decrease in quantity demanded. The reasons for the ~~high~~ inelasticity of demand which according to resource C in the short run is estimated to be 0.2 is due to a number of factors. These include the limited substitutes available as EV's are considered 'slow or financially unable to replace their cars (Resource D) additionally for those who don't live in cities the elasticity of demand is likely to be even lower as there is limited public transport. Also petrol is a necessity for a lot of people who require their cars to get around and wouldn't be able to go to work or do other activities without a car. Additionally it takes time for people to 'make the switch'

to EVs which also contributes to the ~~inelastic~~ inelastic nature of demand in the short run. The short run elasticity is shown on graph two with a high gradient (steep demand curve).

Graph Two



This means in the short run consumers are less responsive to changes in the price as shown on graph two with a large increase in price but a relatively smaller ~~small~~ decrease in quantity from Q to Q'

(longer than one year)

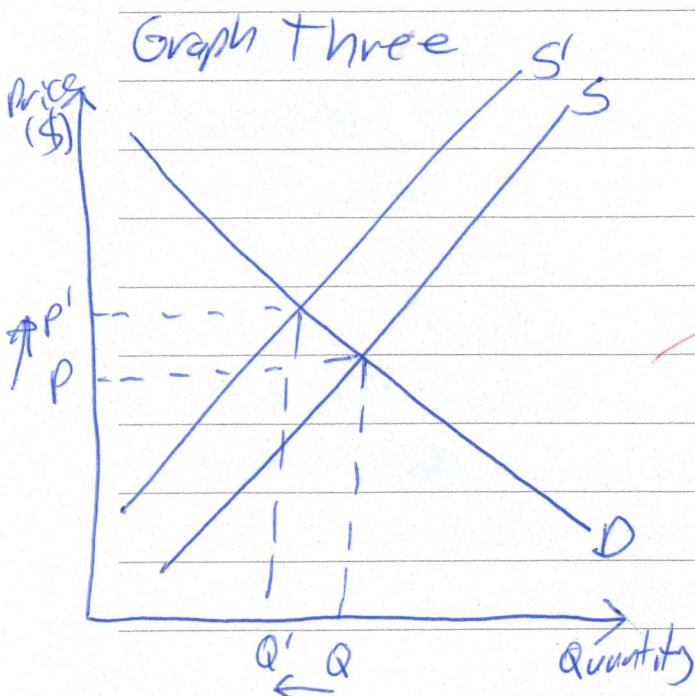
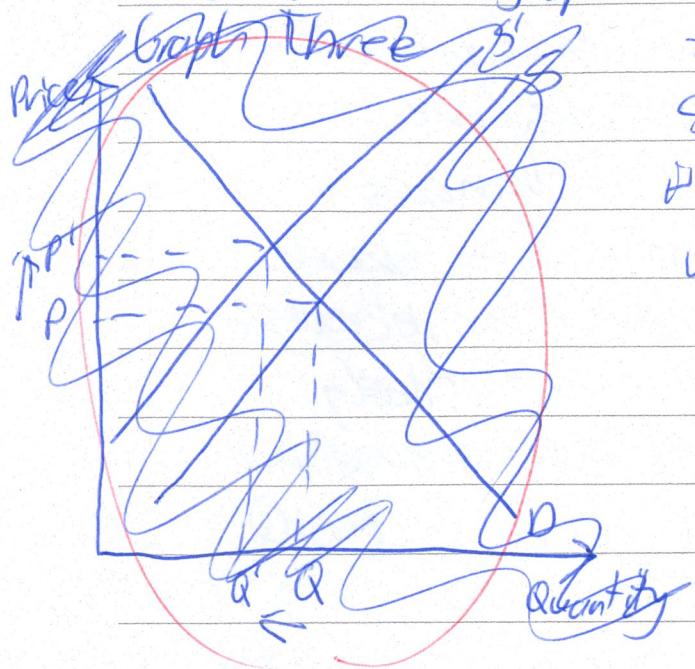
In the long run the elasticity of demand will increase to 0.6 (Resource C) even though this is still inelastic demand as PED < 1 it is more elastic than the short run.

~~The~~ ~~long~~ ~~run~~ The reasons for this ~~big~~ change in elasticity is ~~not~~ due to the time frame that consumers have to switch consumption patterns. As resource D says 'consumers may also be responsive to changes in the price of petrol' this is due to petrol being a high proportion of income for many so where consumers can they will seek to reduce consumption and switch to substitutes such as EV's, public transport

says 'consumers may also be responsive to changes in the price of petrol' this is due to petrol being a high proportion of income for many so where consumers can they will seek to reduce consumption and switch to substitutes such as EV's, public transport

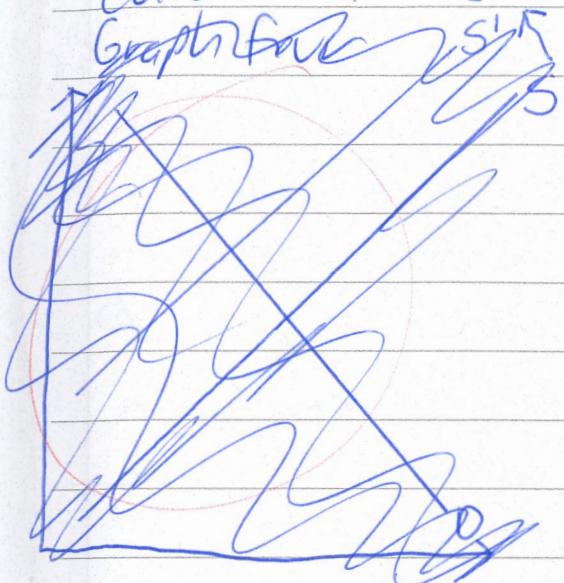
or bikes/walking. These factors all lead to increased elasticity of demand in the long run which is shown by the relatively flatter demand curve on graph three. Although as noted earlier the demand is still inelastic as there are some consumers who rely on petrol cars such as tradespeople, farmers who need trucks, etc. which aren't currently available in electric.

So an increase in price from P to P' there will be a larger decrease in quantity demanded from Q to Q' than in the short run.

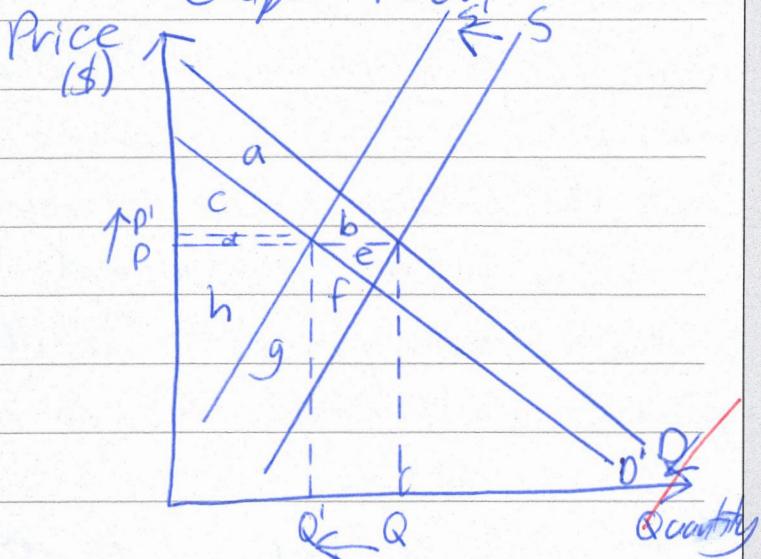


In the long run with persistent rises in petrol prices the demand for petrol is likely to decrease as 84% of respondents agreed that EVs are the "way of the future" and

many consumers are looking to get one soon (Resource D). This ~~caused~~ decrease in demand is shown on graph four by the demand curve shifting to the left from D to D'



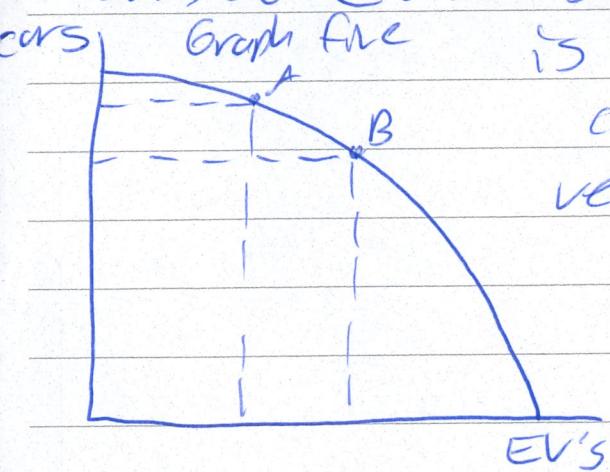
Graph four



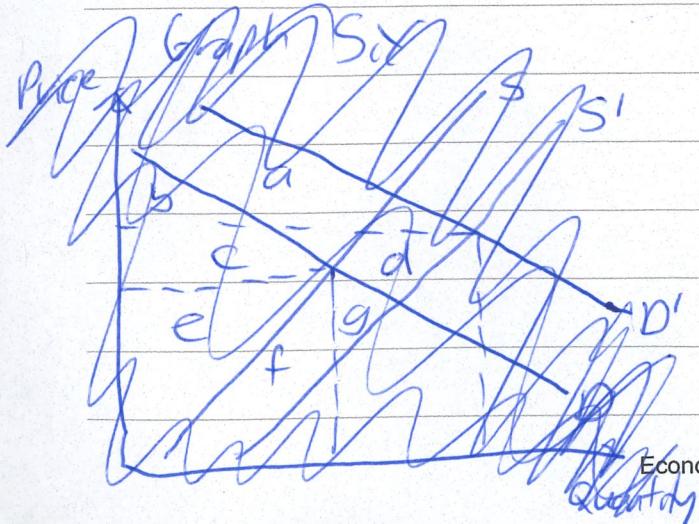
This is combined with a decrease in supply from S to S' due to higher costs of production. These changes will cause the quantity to decrease from D to D' and the price to rise from P to P' due to the shift in supply being greater than demand as not all consumers can make the switch to EV's. This will cause consumer surplus to decrease as the difference between marginal utility (demand) and the price (P to P') decreases due to rising prices and decreasing marginal utility. Additionally the number of units from which consumer surplus is obtained decreases Q to Q'. This reduces consumer surplus from the area (a+b+c+d) to just c which is a large decrease. Producer surplus also decreases

as the difference between marginal costs (supply) and price decreases ~~means~~ also the number of units from which a surplus is obtained decreases from Q to Q' . This decreases producer surplus from the area ~~eh,fg~~ to h. Allocative efficiency is still achieved as the market is operating in equilibrium so the sum of consumer and producer surplus is maximized. The decrease in total surpluses represents the changing demands by consumers and thus is allocatively efficient.

In the long run the resources of car manufacturers will be switched from ~~the~~ internal cars to EV's shown on graph f. This



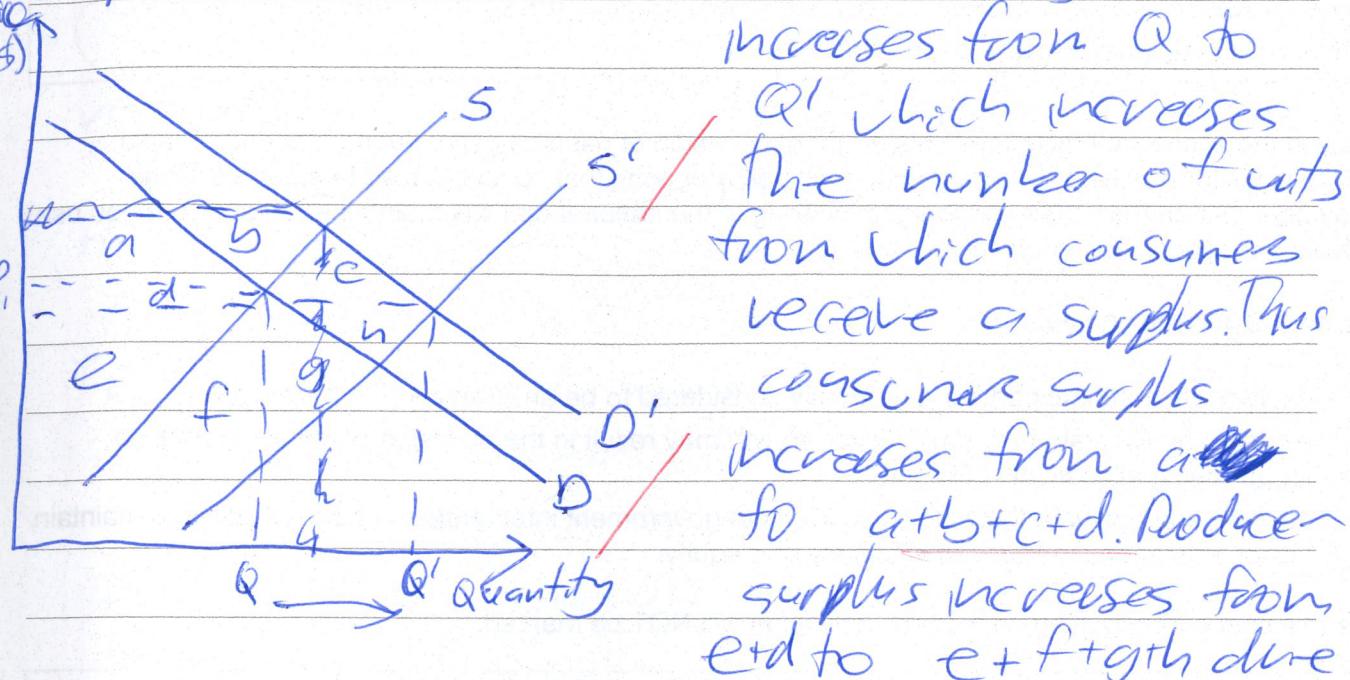
is due to the changing consumer preferences and reduced profitability of petrol cars. This will increase the supply of EV's from S to S' on graph. Additionally the demand increases from D to D' due to the increased ~~free~~ costs of using petrol cars. This will cause



to increase as there is a greater difference between price paid and marginal utility.

Graph six

Also the quantity consumed



increases from Q to Q' which increases the number of units from which consumers receive a surplus. Thus consumer surplus increases from ~~a+b+c+d~~ to $a+b+c+d$. Producer surplus increases from $e+f+g+h+i$ to $e+f+g+h$ due

to increased difference between marginal costs and price received and increased quantity from Q to Q' increases units from which they receive a surplus. Overall these changes will still result in allocative efficiency being achieved in the market for EV's as there is no deadweight loss and the sum of consumer and producer surplus is maximised. \square

It can be seen that increases in petrol prices will cause an increase in consumption of electric vehicles and decrease in consumption of petrol while allocative efficiency is still achieved in both markets with the long term changes representing a fair allocation of resources \square

QUESTION TWO: NATIONAL PARKS

Use information from **Resources E to I**, in the resource booklet, and your knowledge of micro-economic theory, to answer this question.

A rapid rise in visitor numbers to New Zealand has put pressure on the national parks' infrastructure, such as walking tracks.

Analyse the allocative efficiency of government provision of national parks during a period of rapid growth in visitor numbers. Evaluate economic policy options that could be used to ensure that the enjoyment gained from the experience of walking in the national parks is maintained. Make sure you use appropriate economic models in your answer.

In your answer you should:

- explain why national parks are generally considered to be an example of a public good
- explain and illustrate how rapid visitor growth may result in the provision of national parks no longer being allocatively efficient
- analyse and evaluate three possible forms of government intervention in national parks to maintain visitor enjoyment, in terms of efficiency and equity.

Use this space for planning your essay. This plan will NOT be marked.

PLANNING

-public good - non-excludable by price, non-rival

increased MB over capacity DUL
 fee - inefficient DUL
 - inequitable everyone pays same amount
 booking system - inefficient
 - inequitable as some people can't extend walkways and network - efficient
 - inequitable for payers of entrance fees

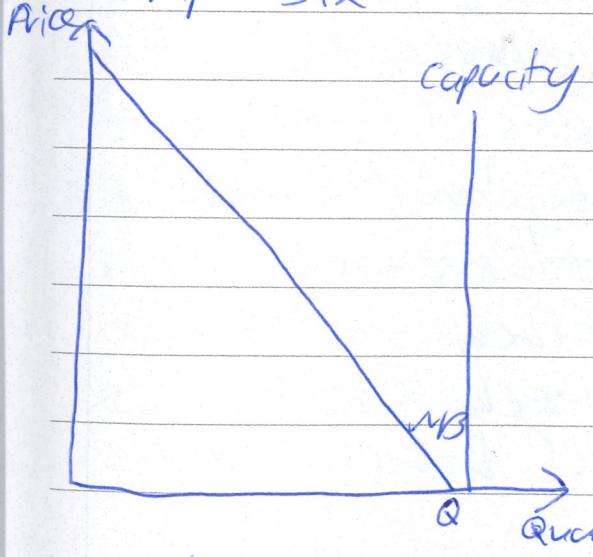
National parks

11

~~National parks~~ are generally considered to be public goods as they are non-excludable by price as 'all New Zealanders' national parks can be accessed for recreational purposes! Additionally national parks could be considered non-rival due to the ~~most~~ ~~last~~ nature of them as they cover almost 30 000 square kilometers. This means that someone's ~~use~~ use of a national park isn't going to limit or deplete its use for someone else. This results in a market structure shown below on graph six. This shows that

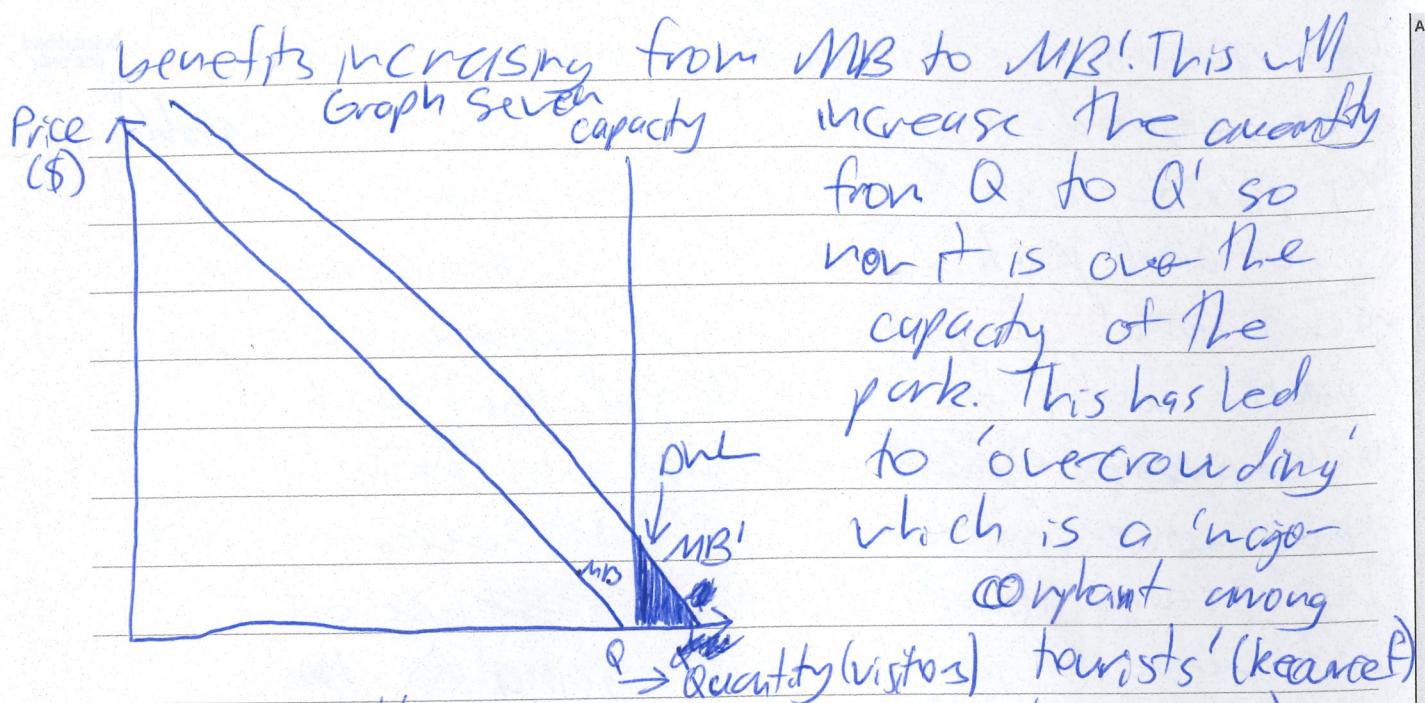
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Graph six



There is no cost as $MC = 0$ and MB are downward sloping to reflect the diminishing marginal utility of consumers who use the national park. This results in a quantity

of Q which is allocatively efficient as consumer surplus is maximised. However due to the 'tourism boom' there is increasing demand (MB) for national parks such as the Tongariro crossing with visitors increasing 'tenfold since 1990' and reaching '125 000 in 2013'. This is shown on graph seven by the marginal



This results in a deadweight loss (DNL) as consumer surplus is not longer maximised.

~~With the decrease in~~ As a result the provision of national parks is not longer allocatively efficient which represents a market failure.

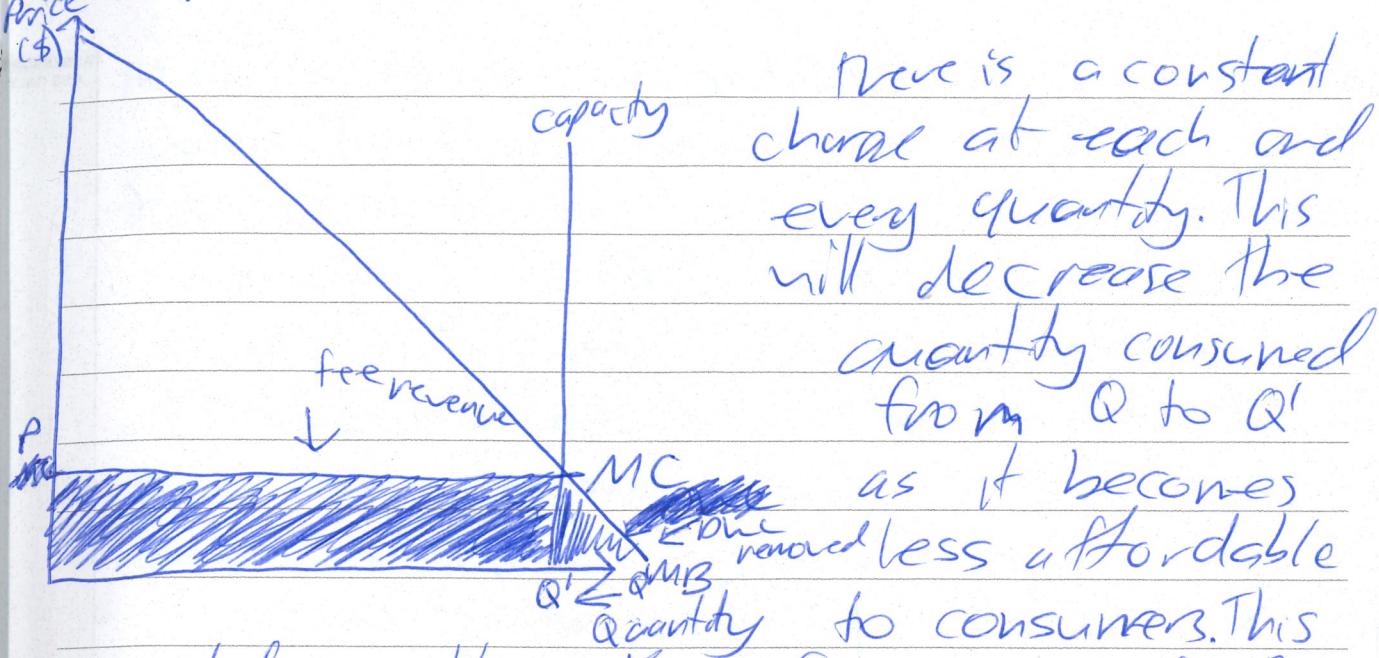
The government will likely have to intervene to correct this market failure and achieve allocative efficiency as NZ is receiving negative feedback from tourists on 'online reviews' which could affect tourism industry in New Zealand which is a key industry in providing jobs and income to NZ.

One possible intervention is the use of fees to use the most popular walkways. The effect of this would be to raise the Marginal cost to MC on graph eight. This will raise the price to P as

Graph Eight

13

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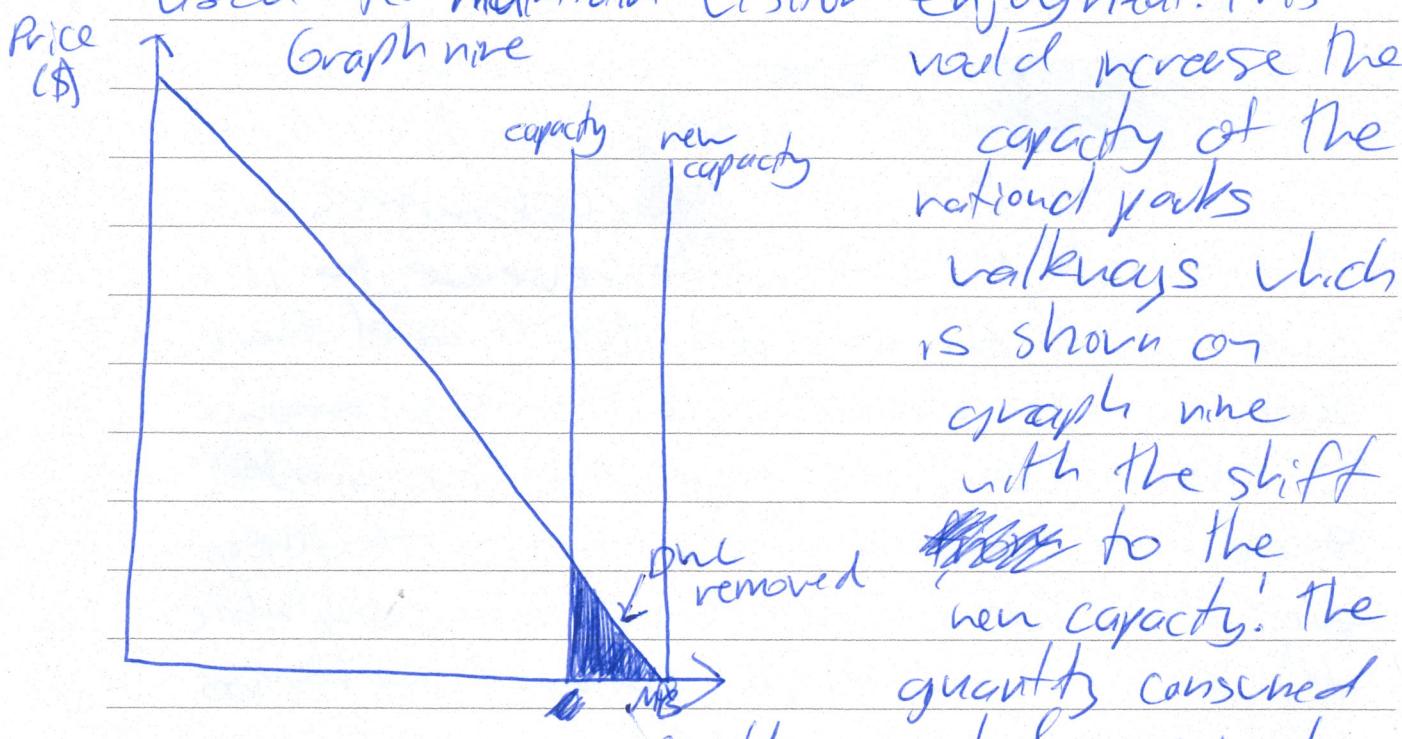


There is a constant charge at each and every quantity. This will decrease the quantity consumed from Q to Q'

as it becomes less affordable quantity to consumers. This would result in ~~less~~ fee revenue to the government shown shaded and there would be a deadweight loss removed as shown on the graph as the market is now achieving allocative efficiency.

However this policy would not be equitable (fair) as it results in national parks no longer being non-excludable by price as now consumers can be charged a price (P) for their use. This will affect low-income households more as they may not be able to afford these fees whereas those on high-incomes should have no issues around affordability. Additionally this is not equitable for New Zealand citizens who pay taxes for the upkeep of the parks as they still have to pay the same fees as tourists. This would therefore have a greater negative effect on some consumers more than others.

hence why it is inequitable. The benefit of this policy is that the revenue generated from the fees can be used to improve or extend the national parks walkway's network. This is another policy that could be used to maintain visitor enjoyment. This would increase the

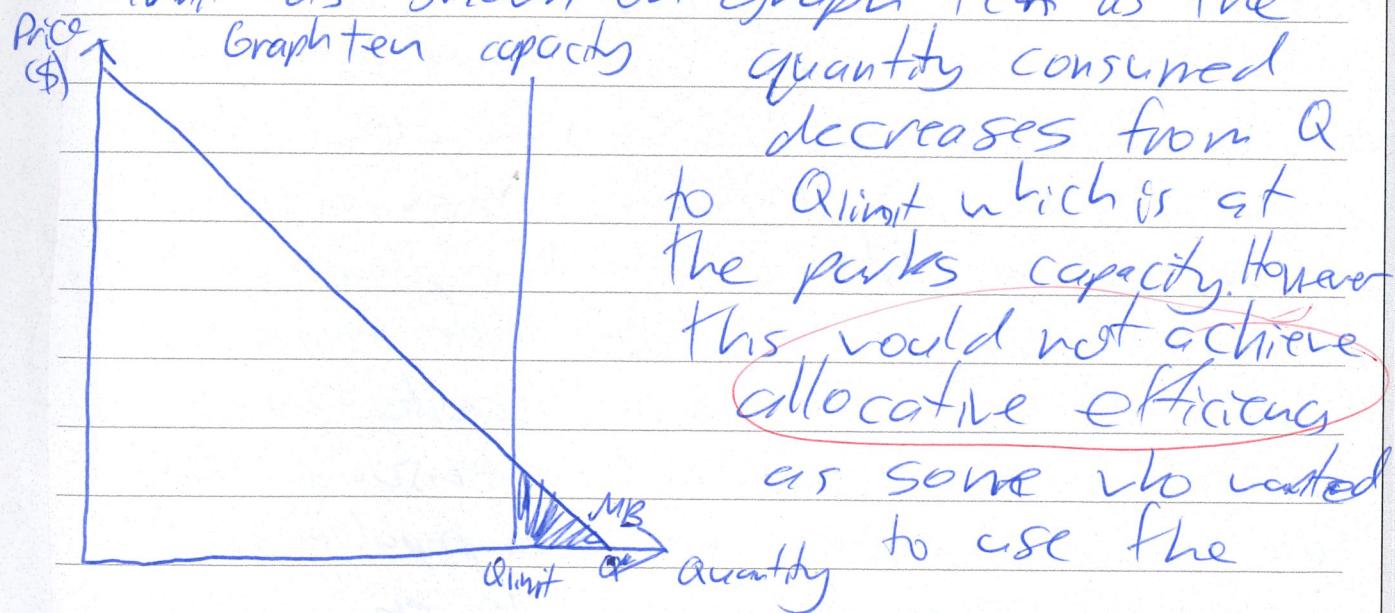


capacity of the national parks walkways which is shown on graph nine with the shift ~~to the~~ to the new capacity. The quantity consumed would remain at

a however the deadweight loss that was there before is removed. This policy would therefore achieve allocative efficiency in the national parks as the total surpluses are maximised. This policy is equitable in some respects as those who want to use the parks can do so without having to pay and there is not overcrowding as it is far enough away from users. However there will likely be an opportunity cost of increased spending on national parks with lower spending

In other areas such as health, education, infrastructure, or lighter taxation. This is inevitable for many ~~new~~ ~~old~~ orders as not all will benefit from the upgraded national parks and some may be affected by the reduced spending in other areas of the economy.

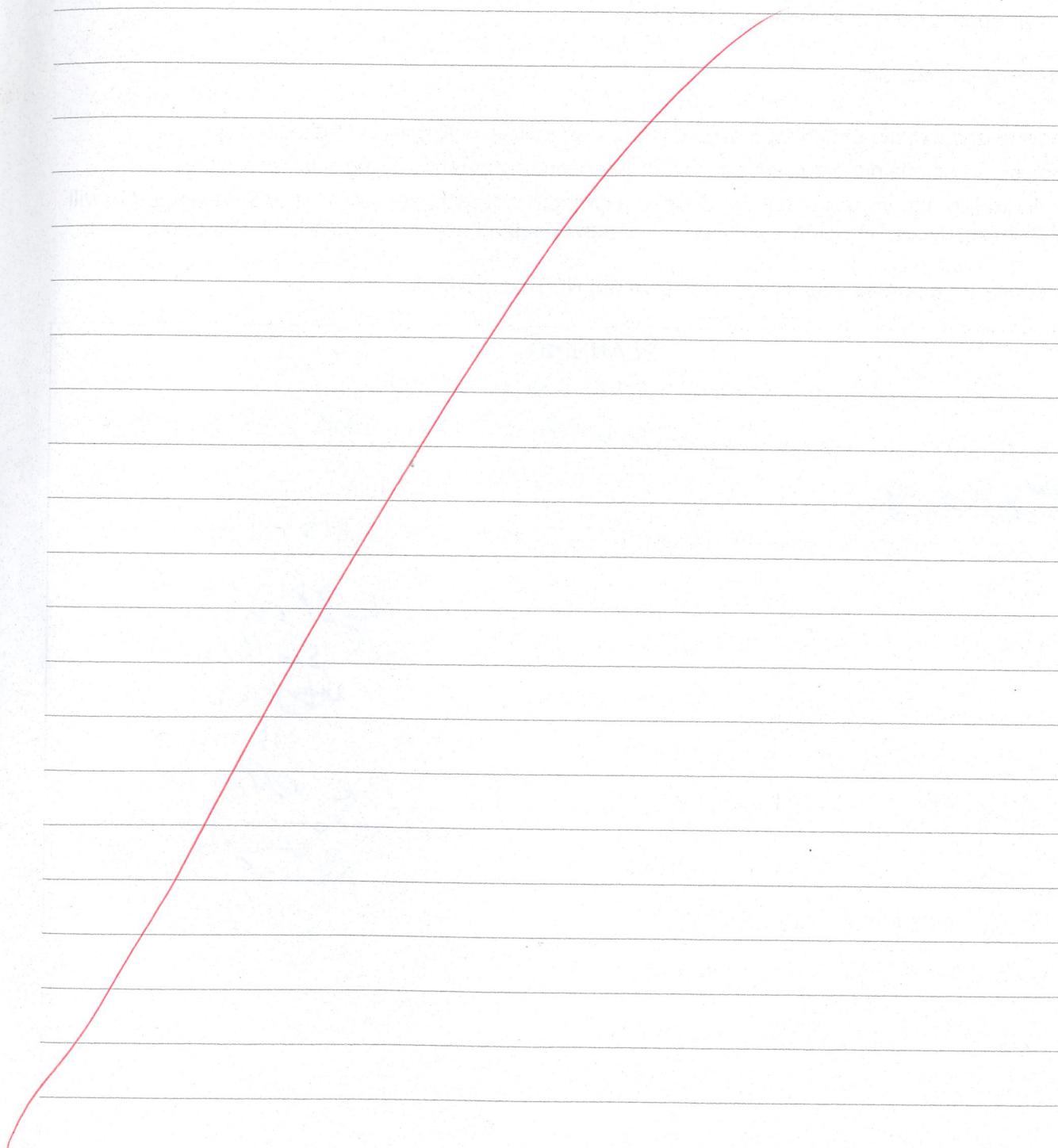
A third policy to limit the number of visitors is a booking system for the national parks. This would create a limit as shown on graph ten as the



As shown on graph ten as the quantity consumed decreases from Q to Q_{limit} which is at the parks capacity. However this would not achieve allocative efficiency as some who wanted to use the

national parks at no cost would miss out resulting in a deadweight loss as shown on the graph. This would be equitable as ~~the~~ everyone would have the same chance of booking and so even though some may miss out, it doesn't benefit one group over another hence why it is an equitable policy.

The best option for the government to maintain visitor enjoyment is to use the fees for the visitors in the short term as this achieves allocative efficiency and also raises funds which can then be applied to upgrading and expanding the national parks in the long run. Thus allocative efficiency is achieved in both the short and long runs as the ~~more~~ net social welfare is maximised. Also ~~this is~~ this is equitable in the long run because those who use the park will fund its improvement while those who don't are paying for it through taxes and everyone will be able to use the parks in the long run not matter their income levels and this ensures equity. Thus it is the best option to ensure that the national parks remain a popular and uncrowded place for visitors to enjoy the 'natural' Leit�al forest, wildlife and landscapes' (Resource E)



QUESTION THREE: FISCAL STIMULUS AND THE NEW ZEALAND ECONOMY

Use information from Resources J and K, in the resource booklet, and your knowledge of macro-economic theory to answer this question.

The government has introduced a number of new fiscal policies that will impact the New Zealand economy over the next few years.

Analyse the impact of these policies on the New Zealand economy and evaluate how the effect on economic growth, employment and price stability will depend on the position of the economy. Make sure you use appropriate economic models in your answer.

In your answer you should:

- analyse and explain the effect that EACH of these policies will have on the economy
- analyse and explain the current position of the economy in terms of the business cycle
- evaluate how the impact of these policies on economic growth, employment and price stability will be different depending on the position of the New Zealand economy in the business cycle.

Use this space for planning your essay. This plan will NOT be marked.

PLANNING

families package increased spending
 infrastructure spending - increased as and AS - production

~~overcapacity~~

R and D increased investment lower costs

- close to full employment 'limited availability of skilled workers'
 business cycle - downturn

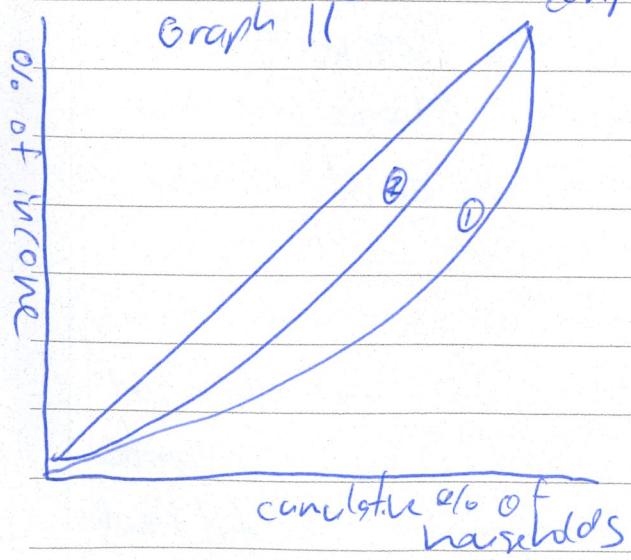
if there was a recession then the effect
 on economic growth
 and
 employment
 would be greater



A policy that the government is using to provide more income to families across New Zealand is the families package which includes 'winter-energy payment, Best Start payment and increasing paid parental leave' (Resource T) This will increase the incomes of families across New Zealand with most going to 'low-income households'. This will increase consumption of goods and services as these families have a 'high marginal propensity to spend rather than save' so will increase spending on electricity, food, clothing which are all necessities and will be the primary needs for low income families to ensure they can increase their standard of living. This would reverse the equality of income distribution shown on graph eleven as the income distribution shifts from

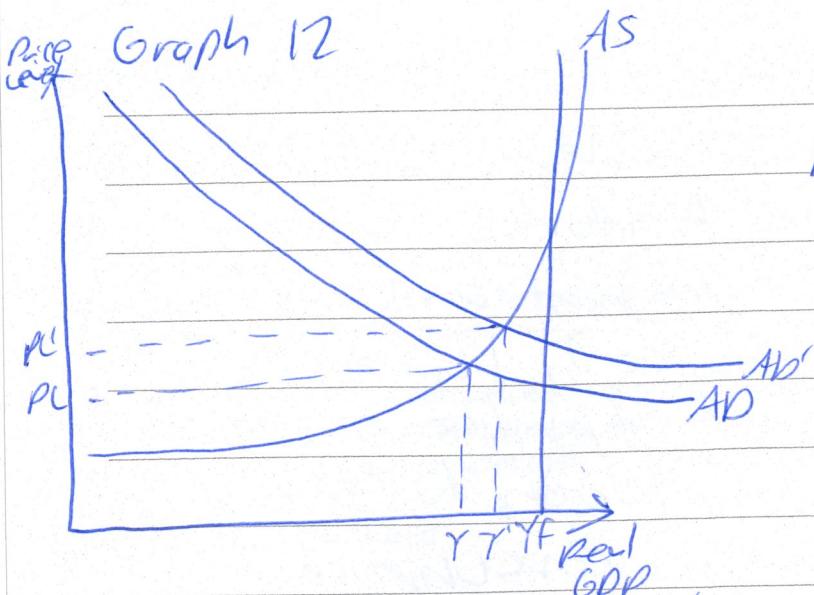
① to ②

Graph 11



complete equality and this increases equity as low income households are at a disadvantage when it comes to ~~school~~ school and health etc.

Additionally increased consumption will increase aggregate demand from AD to AD₁ shown on graph twelve



This increases the price level from a ~~re~~ P_1 , showing demand pull inflation, also Real GDP increases from Y to Y' showing economic growth. Employment also increases as more goods and services are produced which increases the demand for labour which is derived from demand for goods and services. The recessionary gap decreases due to higher employment as the economy is operating closer to full employment (Y_F).)

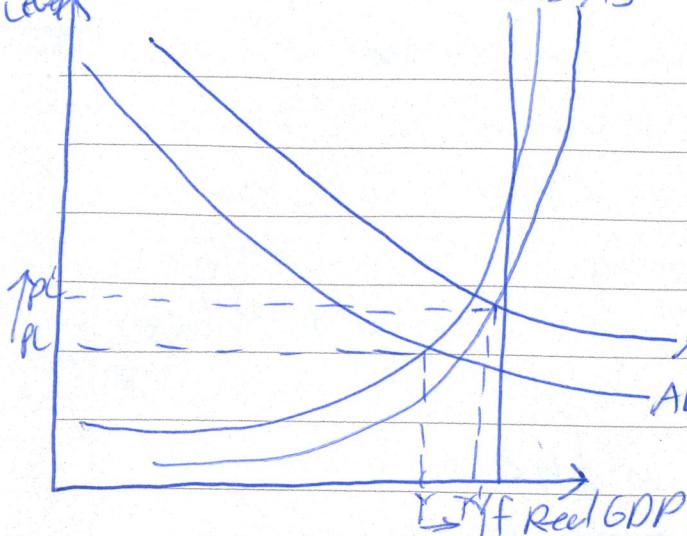
The second policy that has been implemented by the government is an expansionary fiscal policy through increasing infrastructure investment by '\$4 billion this year... and rising to \$47 billion in 10 years time. This will increase aggregate demand through ~~flow-on~~ effect to consumers with higher incomes and producers will increase investment in regions such as Gisborne and ~~Marlborough~~. So the initial injection will be multiplied by increased consumption and investment as well which will raise aggregate demand from AD to AD' on graph 13. Additionally these projects will raise productivity... in the regions due to better infrastructure decreasing time delays

Price Level
Graph 13

AS AS₁

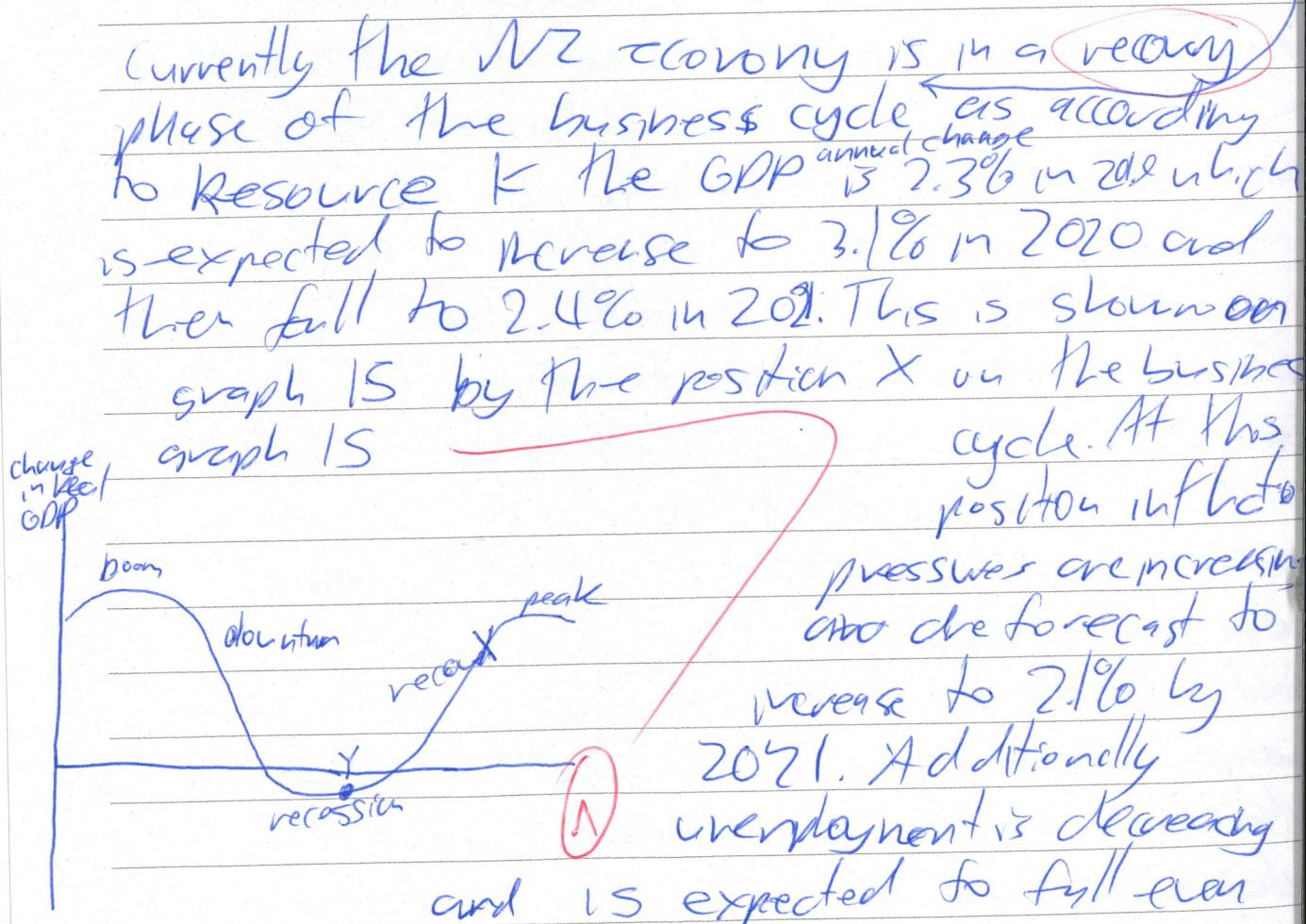
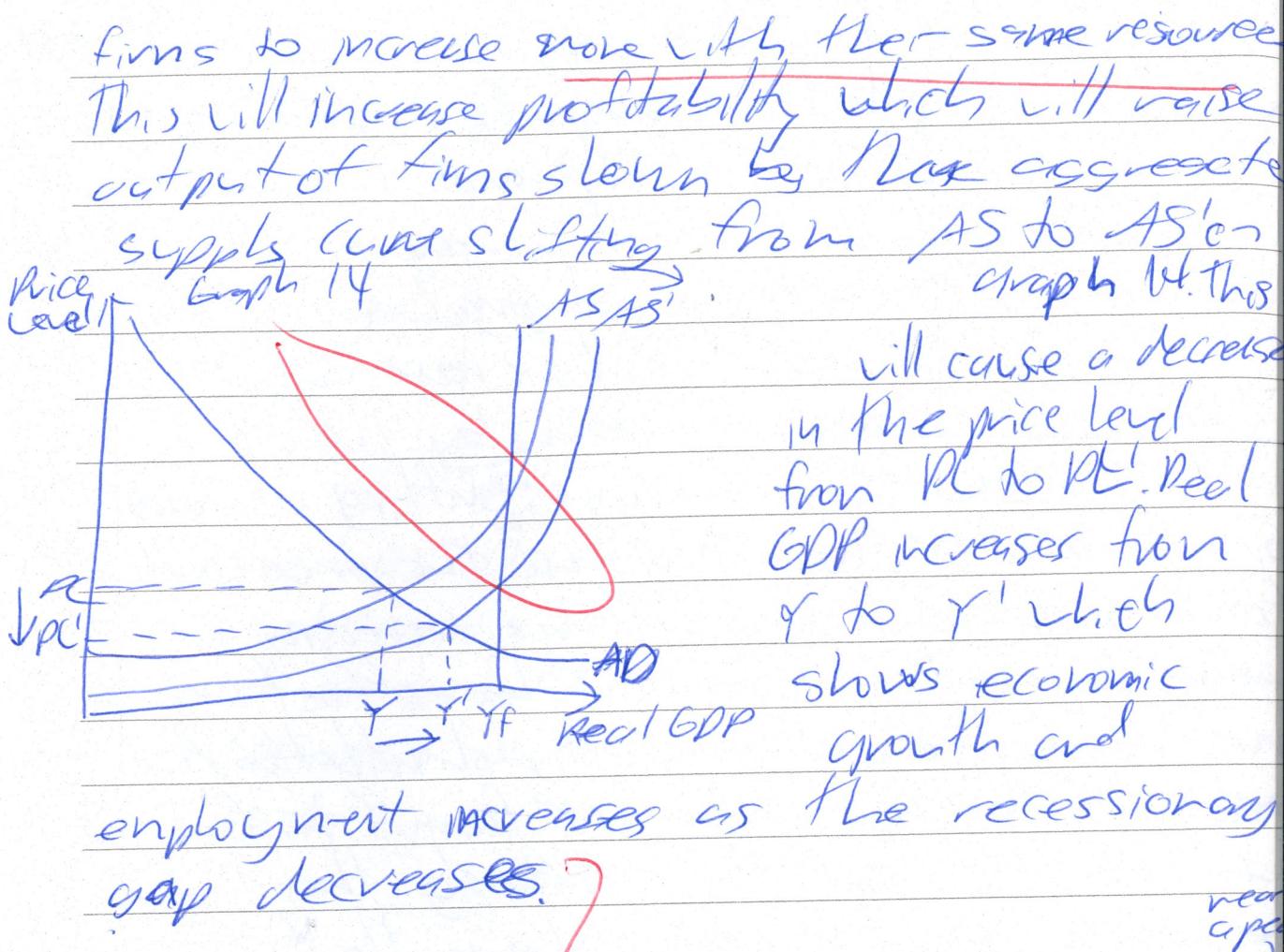
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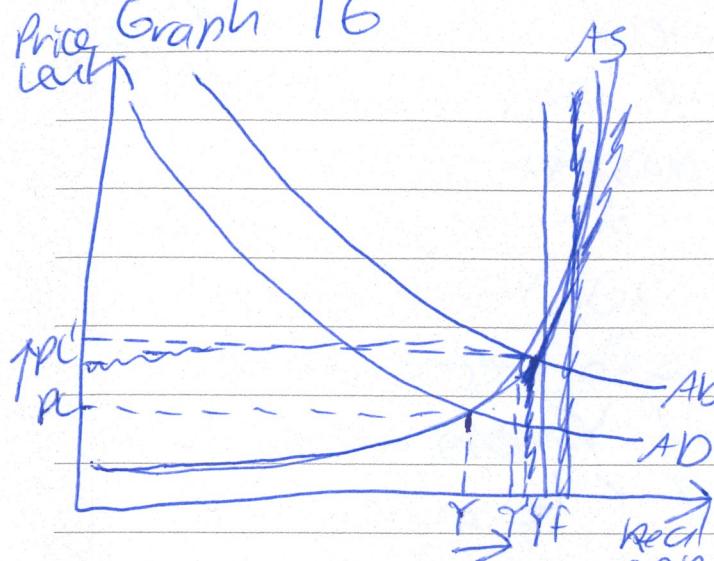
and costs for firms when transporting goods by ship and train. This will increase profitability of producers so they will increase output shown by the AS curve shifting outwards from AS to AS₁. This will increase the price level from PL to PL' however the increasing demand-pull inflation will be offset somewhat by the decreasing cost push inflation. Also there is an increase in Real GDP from Y to Y' showing economic growth. Additionally the recessionary gap decreases showing that employment has increased which is due to this policy 'generate new jobs and skills' in industries such as construction.)

The third policy is 'tax rebates from the research and development tax credit' with businesses receiving '12.5 cents in the dollar back' for every dollar spent provided it is more than \$100000. This will likely ~~encourage~~ encourage businesses to invest in research and development which will help us increase our productivity and boost wages'. (Resource 7). Productivity can increase through increased developments of new technology which can allow



further to 3.7% by 2021 from 4.5% in 2017. The current position of the business cycle will affect the fiscal policy's impact on the macro-economic goals.

Graph 16

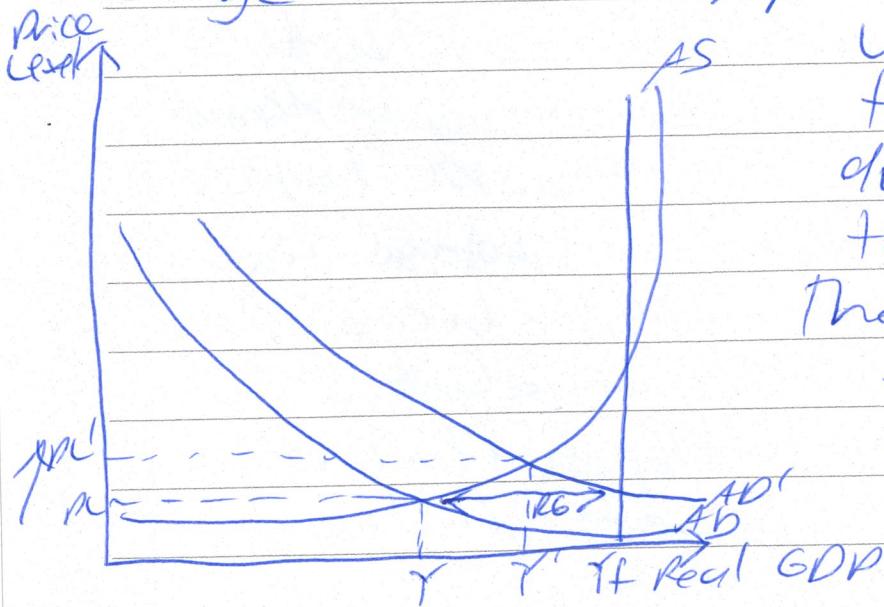


By considering only the short term effects of these policies which is increased government spending and consumption and hence an increase in AD the effects of this policy are shown on graph 16. Due

to there being a 'limited availability of skilled workers and necessary equipment' the economy is operating with a relatively small recessionary gap and this means that when there is an increase in aggregate demand the increase in the price level from PL to PL' is more substantial than the increase in Real GDP from Y to Y'. This is because there is constraints on the economies ability to increase production especially in the construction industry as Graph K suggests with the construction peaking around 2020. This means there will be input prices such as labour and materials that are bid up and so prices rise without production increasing.

by the same proportion. Therefore price stability may not be achieved as there is a substantial increase in the price level which may be greater than the 1-3% range. Economic growth and employment are increased however these won't be large increases due to the current position of the NZ economy.)

If the economy was in a recession on the business cycle (point Y on graph) then these policies would be more effective at achieving all three goals of price stability, employment and economic growth. This is shown on graph V with the economy operating with a large recessionary gap (RG). This means



When AD increases from AD to AD' due to the short term effects of the government fiscal policies there will be a large increase in Real GDP and

employment from Y to Y' and only minimal increases in the price level from P_0 to P_1 . This is because there are many unemployed

and underutilised resources so firms can increase output fairly easily to respond to changes in demand. Therefore these policies are more effective when the economy is in a recession as the price stability can be achieved due to the increase in the price level being within the 1-3% range. Also there is large increases in both real GDP from r to r' and employment as the recessionary gap decreases from RG to RG' .

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

QUESTION
NUMBER

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QUESTION
NUMBER

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