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TOP SCHOLAR



Mana Tohu Mātauranga o Aotearoa
New Zealand Qualifications Authority

Scholarship 2024 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. The plan will NOT be marked.

QUESTION ONE: Allocative efficiency in the New Zealand market for eggs

Use information from **Resources A to F** to answer this question.

From the beginning of 2023, battery cages for farming eggs were banned, resulting in significant changes in the New Zealand market for eggs. These changes, along with ongoing increases in demand, were impacted by the inability of the egg industry to respond.

Analyse the impact of the Government’s policy of banning battery cages on allocative efficiency in the New Zealand market for eggs. Using elasticity of supply theory, evaluate the impact of increasing demand in the market for eggs on consumers, producers, and allocative efficiency in the short and long term.

In your answer, use appropriate economic models throughout to:

- explain the key features of the four different market structures. Identify and justify the market structure that exists in the New Zealand egg farming industry
- illustrate and analyse, using the supply and demand model, the impact of banning caged egg farming on the egg market and allocative efficiency at the beginning of 2023
- explain price elasticity of supply and evaluate the factors influencing price elasticity of supply in the short run and long run in the egg market
- evaluate how ongoing increases in the demand for eggs will impact the market price for eggs, consumer and producer surplus, and allocative efficiency in the short run and long run.

PLANNING

Perfect competition is a market structure in which many small firms exist. These firms are price takers who have ~~low~~ low to no barriers to entry and exit from the market. These firms sell homogeneous goods with perfect information.

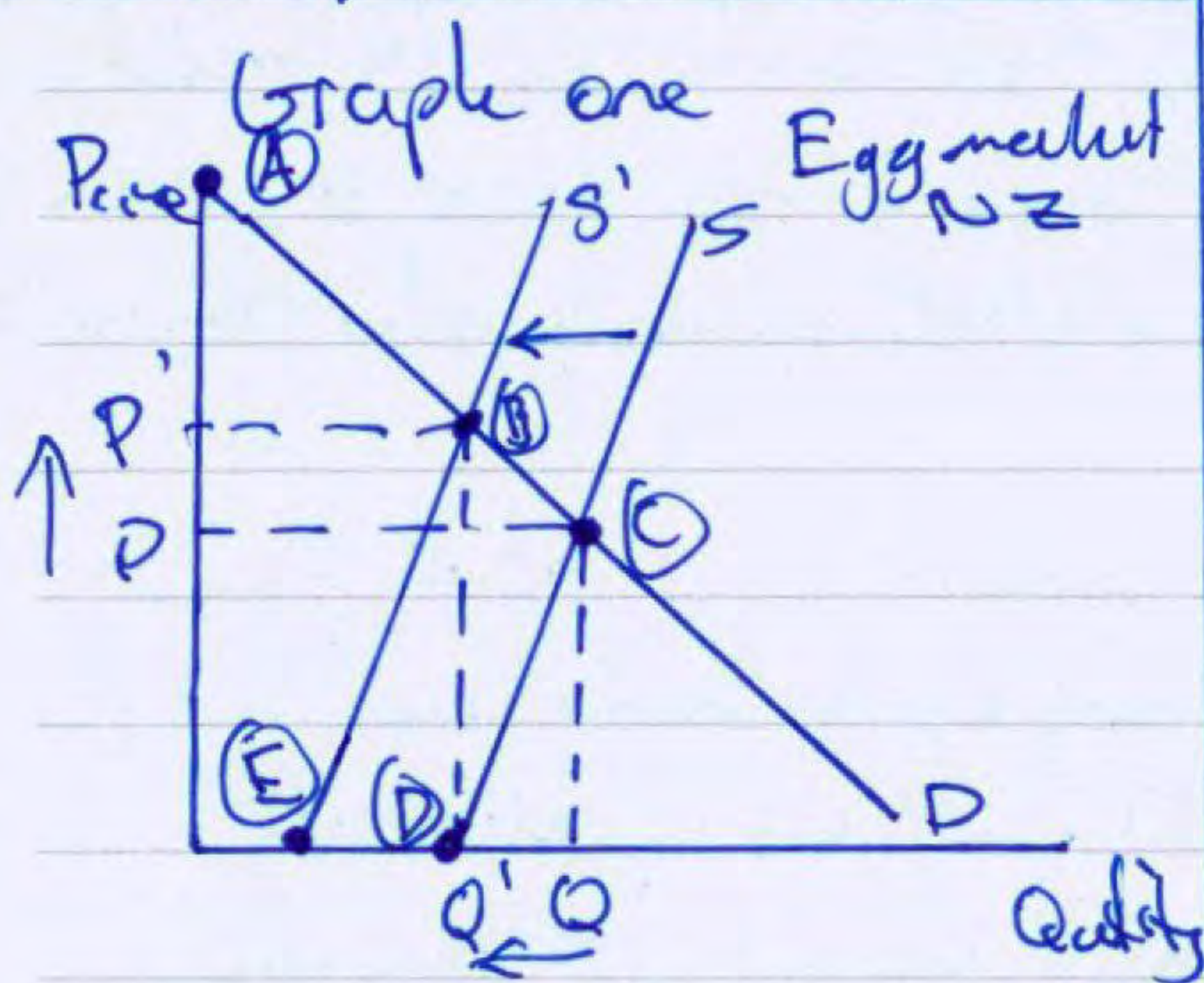
Monopolistic competition is where there are many small firms in the market who all sell slightly differentiated goods and have low barriers to entry with slight ability to control price.

An oligopoly is where few large firms exist in the market who all sell differentiated products, differentiated via non-price means (branding etc.), it has high barriers to entry.

A monopoly is where one large firm exists in the market. The firm are price makers, have very high barriers to entry and exit, they sell a differentiated product which no other firm sells.

We see that the New Zealand egg farming market exists as monopolistic competition - this is as there are "130 egg farms" (resource C) in New Zealand who sell ~~the~~ slightly differentiated products such as "free range" "colony" and "barn", these eggs are marketed differently as such (resource B) and ~~the~~ thus have points of difference in their ~~the~~ product, with the market having low barriers to entry/exit (lots of these small... farms are shutting down) (resource E) with many "small" firms present in the market.

By banning caged eggs to the NZ market we see significant changes to the egg market where as due to the decreased availability on hen or battery farm chickens and the thus increase in costs of production for hens as free range ~~eggs~~ chickens require more land to ~~enter~~ on. This rising cost of production in conjunction with "major moves" in the price of feed and chicks sees cost of (resource F) production increase, causing chicken farms to decrease their supply to the market as to reduce costs and increase profit ($P - C = P$), thus shifting their supply curve left from S to S' as shown on graph one. Consumer surplus is the difference between



what consumers are willing to pay and what they're actually paying. This decrease in supply causes consumer surplus (CS) to decrease from region ACP to region ABP' , this decrease coming as ~~although~~ the price of eggs moved from P to P' making ~~eggs~~ ^{less affordable} ~~more profitable~~.

and ~~less~~ surplus decreased from each unit, this ~~loss~~ ^{loss} in surplus was ~~also~~ also compensated by the decrease in quantity consumed from Q to Q' many less units consumed from which to gain surplus. Producer surplus is the difference between what ^{price} ~~producers~~ are willing to supply at and what price they're actually supplying at.

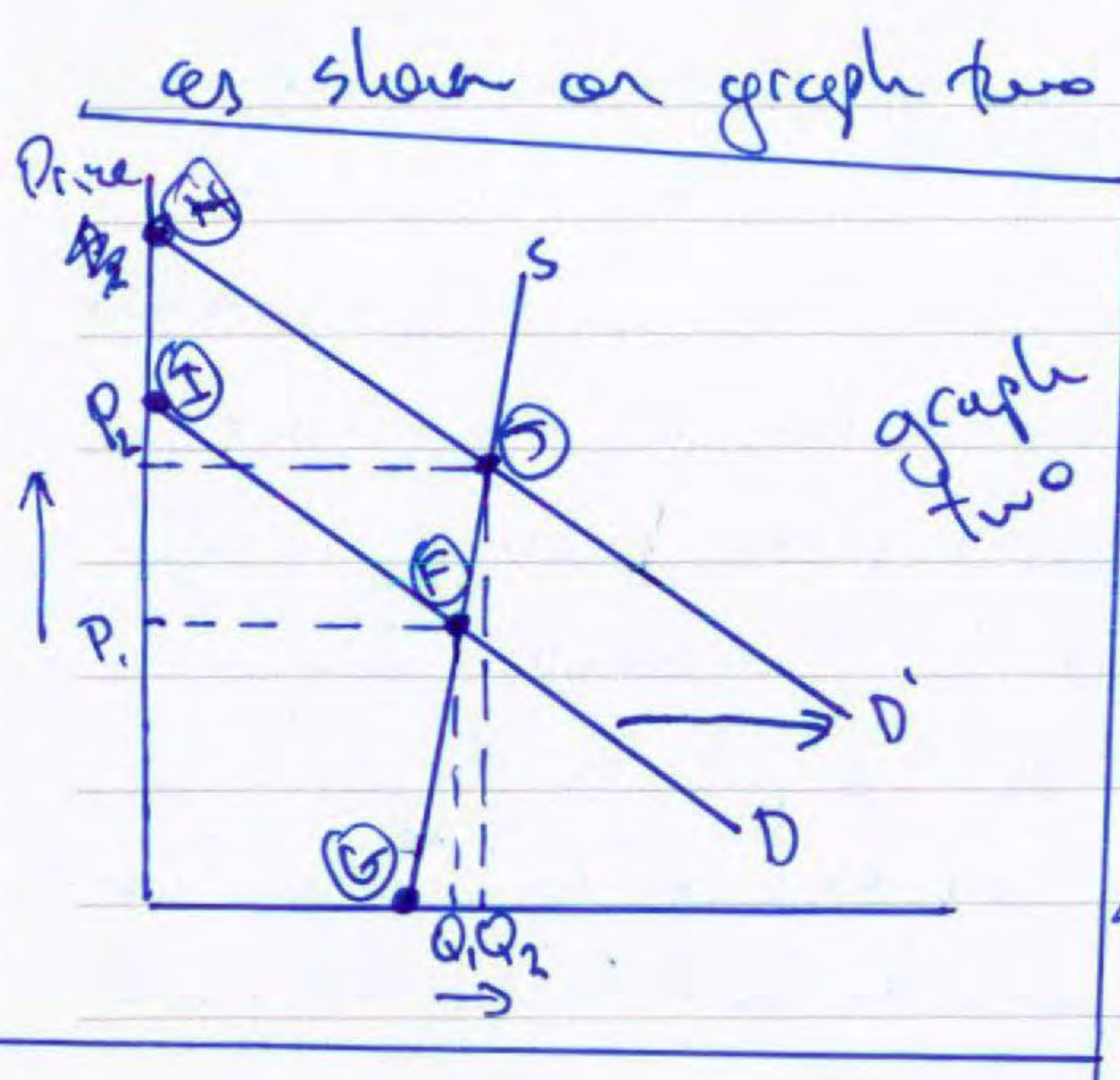
due to the decreased supply of eggs PS decreases from area $PCCD$ to area $P'B'E$. This occurs as although prices of eggs increases making the eggs more profitable this more profit derived from each ~~egg~~ ^{egg}, this is offset by the losses in PS due to decreasing quantity supplied from Q to Q' meaning less goods sold from which to gain a surplus, ~~this~~ thus making PS decrease in size. The market for eggs before and after the decreased supply is allocatively efficient as both CS and PS are maximised before and after the shift with no deadweight loss (surpluses lost to the market) present in the market, although the total CS and PS area does decline after the decrease in supply.

a measure of

Price elasticity of supply (PES) is the responsiveness of quantity supplied by a firm to changes in price. In the short run PES is relatively inelastic as the factors of production have at least one factor fixed and thus the mobility of factors of production and ability to respond to changes in price by changing quantity supplied is lesser. This is opposed to the long run where no factors of production are fixed and all factors can be changed allowing for a relatively elastic supply curve and high responsiveness in quantity supplied to changes in price. This is seen in the egg market as short run PES is inelastic as it takes 18 weeks for them to start laying eggs (resource E) which ~~this~~ thus makes the short run where it is likely that both labour in the form of chickens and the land available to farmers would be difficult to change in the short run as neither the number of eggs laying

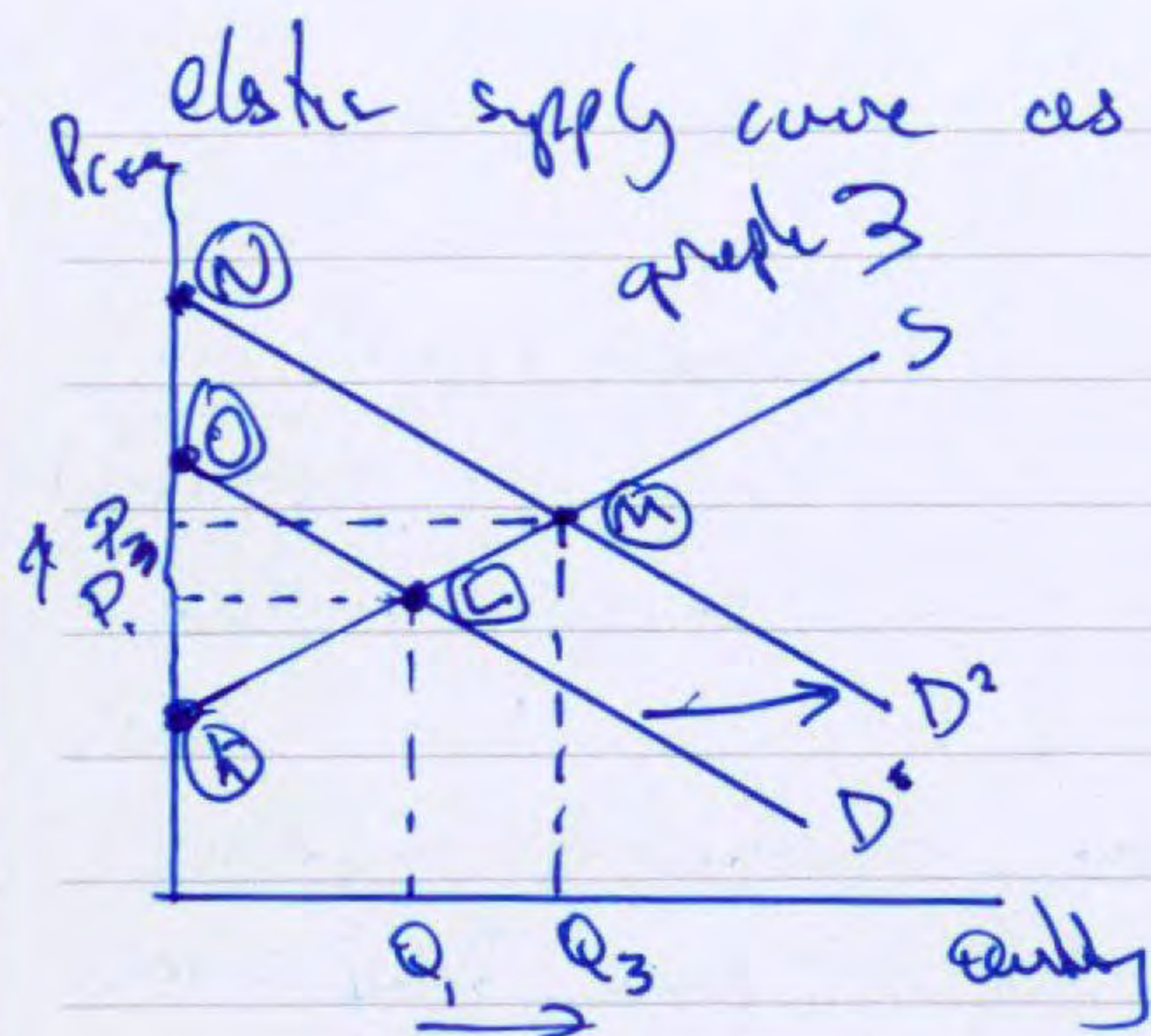
chickens nor the ~~ex~~ amount of land available to the farms to raise, house, and provide space to the new chickens (due to "2012" law on no longer battery farming which would have made land a ~~less~~ more acceptable factor of production or less ~~a~~ ~~needed~~ land is needed for battery farming). As it takes a long time to buy new land in New Zealand due to land ad expense, ~~as~~ along with the 18 weeks of egg laying to start we see supply is likely highly inelastic in the short run as is stated in resource E "it is impossible to quickly boost production". However in the long run we see that with greater freedom and availability to shift factors of production, the egg farms in NZ are likely to have a relatively more elastic PES or supply curve as they have ample time to raise new chickens and ~~purchase~~ purchase new land or capital allowing them to be highly responsive in their quantity supplied to changes in price.

~~The~~ We see "rising" demand for eggs over the ~~past decade~~ year in NZ with the tastes and preferences of consumers changing as they become increasingly relevant in "weight loss programs" and being "cost effective source of protein" (resource D). This change in tastes and preferences has led to an increase in demand for eggs in the short ~~run~~ to a large extent with some ~~ex~~ customers "panic buying" eggs (resource E) only exacerbating the issue as demand increases to a large extent. This occurs in the short run



although the price of the eggs has increased from P_1 to P_2 making eggs less affordable and less surplus derived from each egg, this is somewhat offset by the increase in quantity consumed from Q_1 to Q_2 many more goods from which to gain a surplus are consumed. The ~~market area~~ area of PS increases from $P_1 F G$ to $P_2 J G$ as the price of the good increases from P_1 to P_2 making eggs more profitable and more surplus derived from each good whilst quantity consumed increased from Q_1 to Q_2 making more eggs sold from which to gain surplus. The market remains allocatively efficient as both CS and PS are maximised at all times before and after the ~~increase~~ increased demand, with no DWL present, however the total area of surplus ~~increases~~ increases from IFG to HJG making the market more allocatively efficient as the area of surplus $HJFI$ is gained.

In the long run with an increased demand for eggs in the NZ market we see demand shift ~~right~~ increase and shift right from D to D^2 whilst facing a relatively



elastic supply curve as seen on graph 3. We see this effect the price level of eggs in the market to a lesser proportion than in the short run as price increases from P_1 to P_3 , a smaller proportional change than P_1 to P_2 . This also causes CS to increase from region $P_1 L O$ to region

$P_3 M N$. This occurs as ~~if~~ although price increases from P_1 to P_3 making the good less affordable this less supply derived per egg, the quantity of eggs consumed increases from Q_1 to Q_3 this is the increase in eggs consumed from which to gain a surplus offsets the price loss from increased price. ~~PS increases~~ This CS long run increase is opposite inverse to that of the short run CS. PS moves from area $K L P_1$ to area $K M P_3$. This is as price increases making the good relatively more profitable and more surplus derived per egg sold as well as more eggs are sold as quantity increases from Q_1 to Q_3 meaning more ~~goods~~ from which to derive surplus is derived. This increase in PS is to a lesser extent than the PS increase in the short run making long run better for CS but worse for PS. Allocative efficiency is maintained in the market with the increased demand as both CS and PS remain maximised with no DWL present in the market. The net surplus area does increase ~~from~~ from $K L O$ to $K M N$ after the increased

demand to the market, thus making the market more allocatively efficient.

We see that the price of eggs in the market increased more sharply in the short run (P_1 to P_2) as seen in resource F from late 2021 to 2022, ~~the~~ with the price increases in the long run flattening out and being less proportional in size (P_1 to P_3 in the long run) this resource F proving that PES is relatively more ~~elastic~~ inelastic in the short run.

QUESTION TWO: Cost of living crisis and the consumers price index (CPI)

Use information from **Resources G to L** to answer this question.

During 2022 and 2023, the cost of living crisis was the most important issue facing many New Zealand households. The inflation rate reached 7.2%; however, some categories within the CPI experienced higher price rises than other categories. The impact of a high inflation rate on a household's living standards was therefore affected by its spending pattern.

Explain how the high rate of inflation throughout 2022 and 2023 has negatively affected the cost of living for different types of households in New Zealand. Evaluate the effectiveness and equity of government intervention policies to resolve the cost of living crisis for different households.

In your answer, use appropriate economic models throughout to:

- explain the difference between an increase in the price of a particular market and an increase in the consumers price index
- explain how high inflation has negatively affected households, and explain why the impact on different household types has been uneven
- use the Lorenz curve model to analyse the impact, effectiveness, and equity of the three policies from Resource L on reducing the cost of living crisis for households
- evaluate which policy would be most effective at reducing the cost of living crisis for New Zealand households while improving equity.

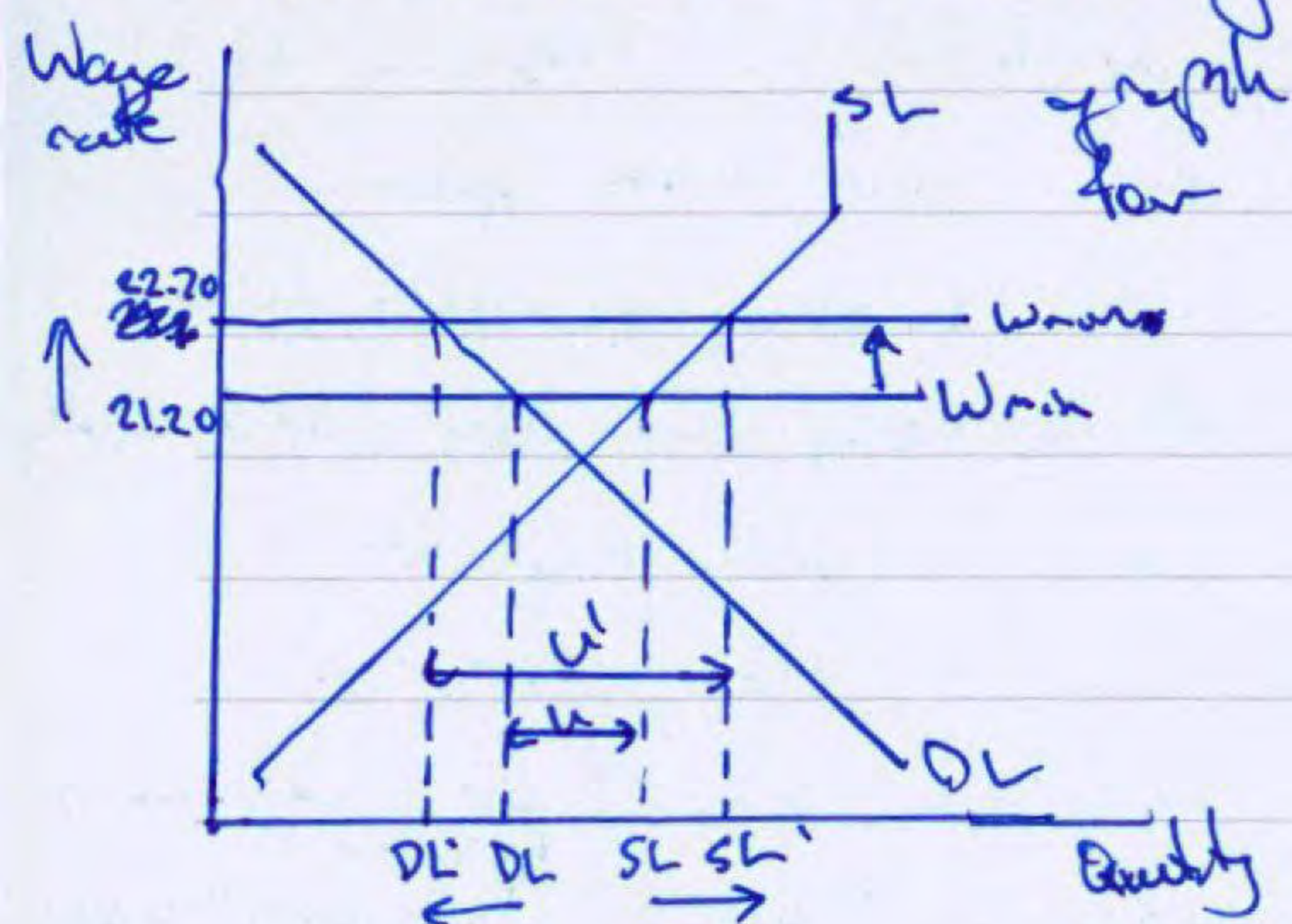
PLANNING

An increase in the price of a particular market is the price increase for a singular good or service for which there exists a market. This is opposed to the CPI which is a weighted basket of goods measuring the relative price of commonly bought necessities items in relation to money, thus an increase in the CPI could mean an increase in multiple markets for multiple goods.

High inflation has negatively impacted households as inflation has eroded the value of the New Zealand dollar, and thus the value of each and every household's savings has been eroded. The increase in grocery prices by "13.2%" and interest rates by "28.8%" (resource H) sees that every household will now hold less spending power or purchasing power with their money as each dollar buys them relatively less goods and services. This has disproportionately affected households who have a high marginal propensity to spend as they are feeling as though they are getting less for each dollar they spend. We also see those households with ~~mortgages~~ "precariously large mortgages" (resource 5) disproportionately impacted as the rising interest rates make the mortgage payments significantly higher, with the interest ~~costs~~ ^{payments} increases of 28.8% significantly greater than that of "beneficiary households" whose cost of living increased by only "6.5%" (resource H). This has occurred as inflation costs has occurred in ways which exceed the CPI increases, as seen in graph resource H ~~and~~, telling us that the costs for goods and services not necessarily

of necessity rises as in the CPI are increasing to a greater extent and therefore impacting high income earners to a greater degree as they are ~~less likely~~ ~~to be~~ spending a lower proportion of their income on goods/services in the CPI than lower income households.

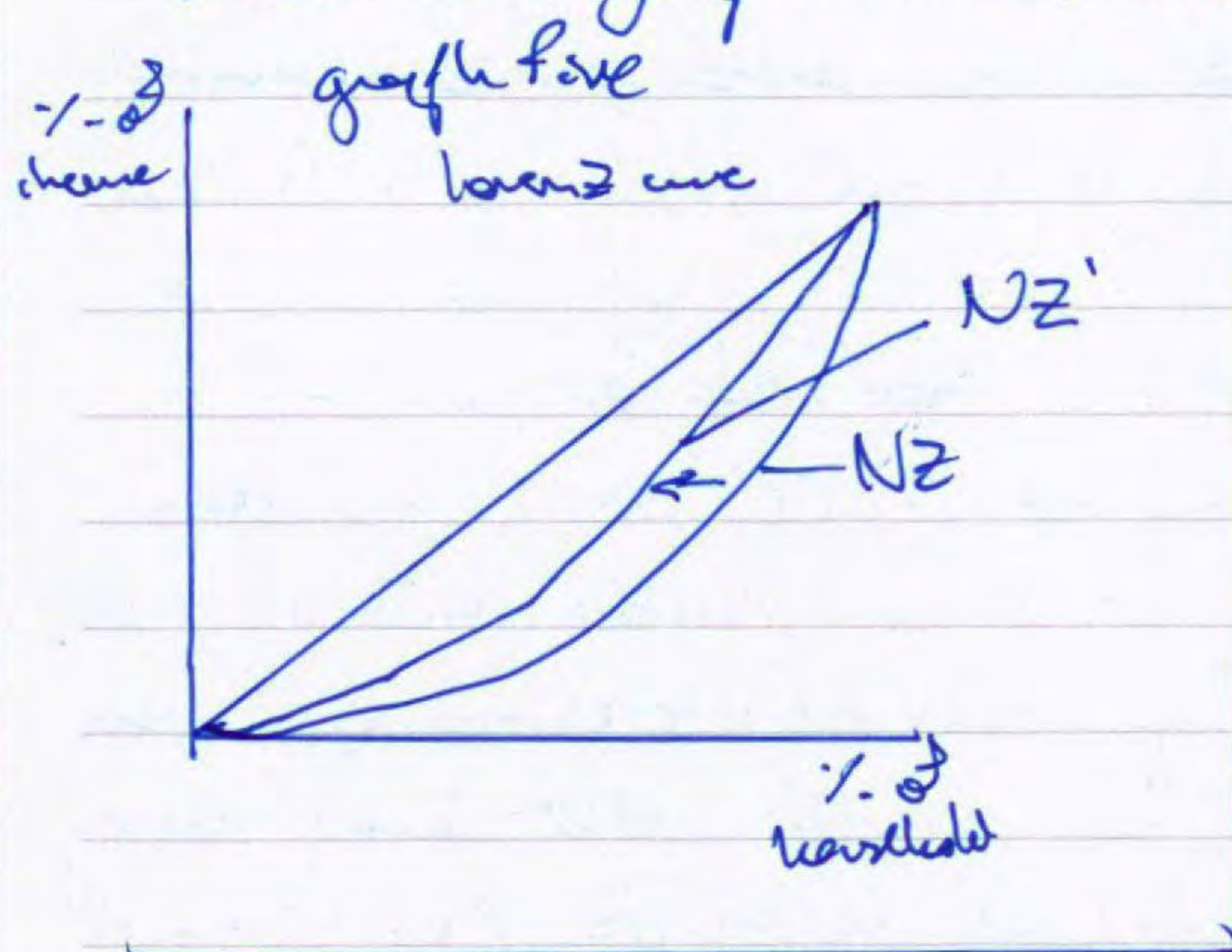
We see that one policy able to be implemented to reduce the cost of living crisis would be that of increasing minimum wage. By increasing minimum wage we see ~~an effect on~~ the wage rate minimum on our ~~labour~~ ~~market~~ graph increase from \$21.20 to \$22.70 as shown below on graph for.



minimum wage rate we would see that the wage rate in New Zealand would increase ~~of about~~ with relatively more households bringing home a relatively greater wage. This would lead to a greater number of people choosing to work as they now have

a greater incentive to do so, being motivated to work at the wage rate of \$22.70 rather than \$21.20. This is shown as the supply of labour increases from SL to SL'. This would mean that more households would have greater income levels and thus have greater purchasing power and disposable ~~income~~ income. This would however possibly lead to the

increased unemployment of the New Zealand work force as due to the increase in minimum wage the demand for labour decreases from DL to DL' , making unemployment on the supply of labour in the economy increase from u to u' , potentially making this policy ineffective. This policy is however likely to see a small increase in employment and wage rates for lower income households, thus decreasing the gap coefficient and moving NZ closer to the line of absolute equality on the Lorenz curve as NZ shifts to NZ' as shown on graph 1. This would cause a greater



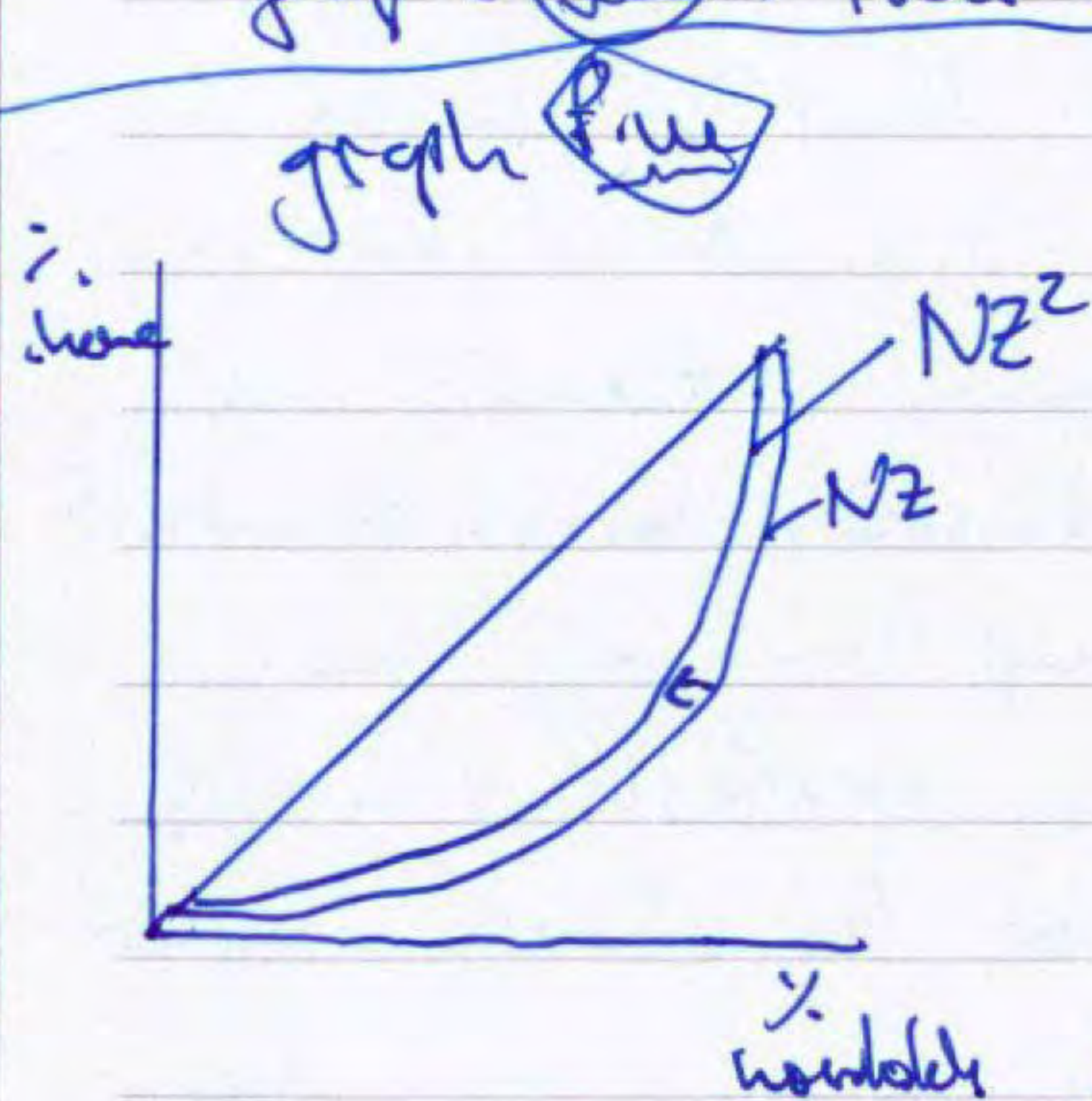
proportion of NZ households to hold a greater proportion of income. This may be an effective policy for lower income households however would be ineffective and possibly harmful for higher income earners as higher income earners do not

earn minimum wage and thus see no wage rate increase and no purchasing power increase, whilst unemployment increases from u to u' making them more likely to be unemployed and thus with an even lower (no) income. This is a highly inequitable or unfair economic policy as although it aids those who are "poor" and "particularly" harmed by inflation (resource 5), we do see that the rate of inflation and the cost of living crisis is affecting higher income households as previously discussed, and therefore is inequitable as it does not similarly help

high and low income earners and does not help those who are most affected. We also see it is inequitable as it does not help those who are on low means but not maximum wage, for example those earning \$24 hourly are not aided by the policy and ~~are~~ are even more likely to be made ~~redundant~~ redundant as employment increases.

Another possible policy is that of raising income tax thresholds. This would have the impact of taxing the incomes of households ~~to a lesser extent through PAYE~~ ~~as on each dollar over the same rates except~~ ~~difficultly~~ by raising the yearly income which an individual must be earning to tax them at the next tax rate. We see that this impacts ~~of~~ the ^{income level} ~~rate~~ of the NZ economy as earners have less PAYE tax taken from their paycheck and are thus provided with a greater level of income both disposable and discretionary, increasing their purchasing power. This would affect lower income households to a greater extent as a greater proportion of their income would be being taxed to a lesser extent as those on low incomes will have the increased threshold value be a greater proportion of income. This will benefit low income households as they will have less taxed income and more ~~disposable~~ income to be able to purchase necessary goods, ~~decreasing~~ increasing their purchasing power. This impacts high income earners to a lesser extent as it provides tax relief to those high earners as less of their income is taken through PAYE. This level of taxation reversal

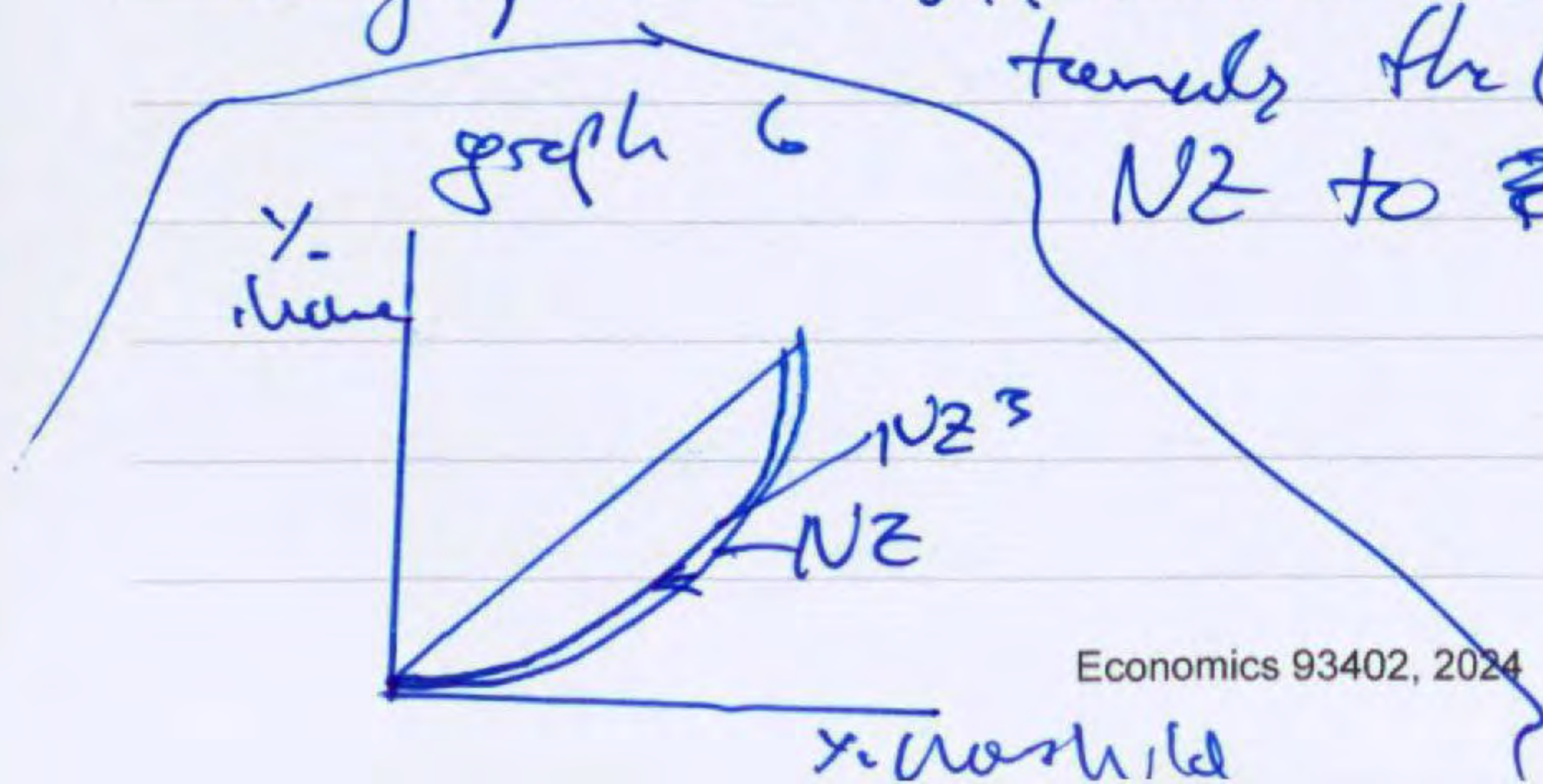
causes them to have a higher take home income and thus have greater income levels to be able to purchase necessity goods and have a greater proportion left over for savings or interest payments on mortgages, making them more able to cope with rising interest rates whilst still retaining purchasing power. This is lower loss effective on high income households and moves the gini coefficient lower or NZ shifts NZ's position from NZ to NZ^2 on the Lorenz curve as lower income households are disproportionately benefited by the policy, this means that ~~that~~ a greater % of households ~~can~~ earn a greater % of income in NZ, as seen in graph (line), this is also why the policy is regressive



as it disproportionately affects lower income earners whilst affecting high income earners to a lesser extent. This is an unequal scenario as it means the lower your income or the lower the tax bracket you're in the greater the benefit of the policy to your relative income.

The final proposed policy is that of a cost of living payment of \$350 to those earning below \$20,000. This payment would have the impact of creating a one off increase in the disposable and disposable income of households. This singular one off payment would temporarily increase the ~~take~~ income of all sub \$20,000 annual incomes on the NZ

economy making them gain ~~at~~ a level of purchasing power for a short period of time as the FSO is able to make the income of the households relatively higher ~~to~~ ~~which~~ whilst the FSO has been deposited and not spent. This would be an effective policy for very low income earners who ~~to~~ be in absolute poverty (cannot afford the necessary goods) as they would now be able to ~~increase~~ increase their standard of living as their purchasing power and capacity to purchase the basket of necessary goods increases. For middle income earners such as those on ~~the~~ 60-70,000 a year, they would be affected on a very little ~~way~~ ~~as~~ they are likely to ~~be~~ ~~they~~ see the \$350 move in more once off as a smaller proportional increase to their income and the purchasing power, with FSO helping them possible for a once off such as interest on mortgage payments, however would in no way help them long term. This is an entirely inequitable policy as although it benefits low income households to a large extent the adverse impact on high income earners and low income or middle income earners makes the situation unfair as they are equally affected by the inflation and cost of living crisis. This income shift or how the middle income households is reflected in graph 6 - With the NZ economy moving marginally towards the line of equality from NZ to $\approx$ NZ.



We see that raising tax income thresholds are the most effective at fighting the cost of living crisis. This is as it benefits both high and low income earners making it the most equitable policy, with benefit of increased incomes increasing purchasing power and negating the effects of inflation felt by the ~~lowest~~^{largest} proportional number of people in the NZ economy as both high and low income earners are benefited, as opposed to the other ~~two~~ two policies which affected mainly low income households. This policy is also the most effective as it targets those who are being most affected by the cost of living crisis in the form of high income households with the ~~greatest~~^{greatest} proportion of inflation ~~and~~^{affecting their} spending. This policy is also a long term solution with permanent effect rather than a one off payment, and although minimum wage increase moves NZ closest to the line of equality (NZ_{11} is closer than NZ_{12}), it does not have potential negative ramifications such as increased unemployment like the minimum wage increase does.

QUESTION THREE: Increasing net migration at different stages of the business cycle

Use information from **Resources M to S** to answer this question.

New Zealand had a record net migration gain of 110 200 in the year ended August 2023. Experts hold differing views about the inflationary impact of increasing net migration. A Productivity Commission report warns, “The relationship between productivity and immigration requires a balance of trade-offs between government objectives and a consideration of short-run and long-run impacts”.

Analyse the impact on the New Zealand economy of increasing net migration at high and low levels of output. Evaluate the extent to which pursuing a policy of increasing net migration could simultaneously reduce high inflation levels and achieve other government macro-economic goals.

In your answer, use appropriate economic models throughout to:

- explain the shape of the aggregate supply (AS) curve and how a shortage of labour at full employment contributes to a high level of inflation
- discuss the advantages and disadvantages of increasing net migration for the New Zealand economy
- analyse and evaluate, using the AS/AD model, the impact of increasing net migration on the three government macro-economic goals in Resource S, in particular in reducing high inflation, in an economy operating near full capacity compared to one operating at low output levels.

PLANNING



The AS curve is one sloped with a highly inelastic top part. This ~~is~~ along with an elastic bottom part. This is as the increase in ~~output~~ or employment of more labour/factors of production requires less effort or spending at lower levels of output. This is why at full employment where labour is nearly fully utilized and there is a labour shortage, it takes relatively greater effort or spending to ~~the~~ gain marginal gains in productivity or add another labourer; this is why at the top or rightmost part of the AS curve it is highly inelastic and this small changes in Y or output create large or high responsiveness to increases in ~~the~~ price level or PL causing inflation.

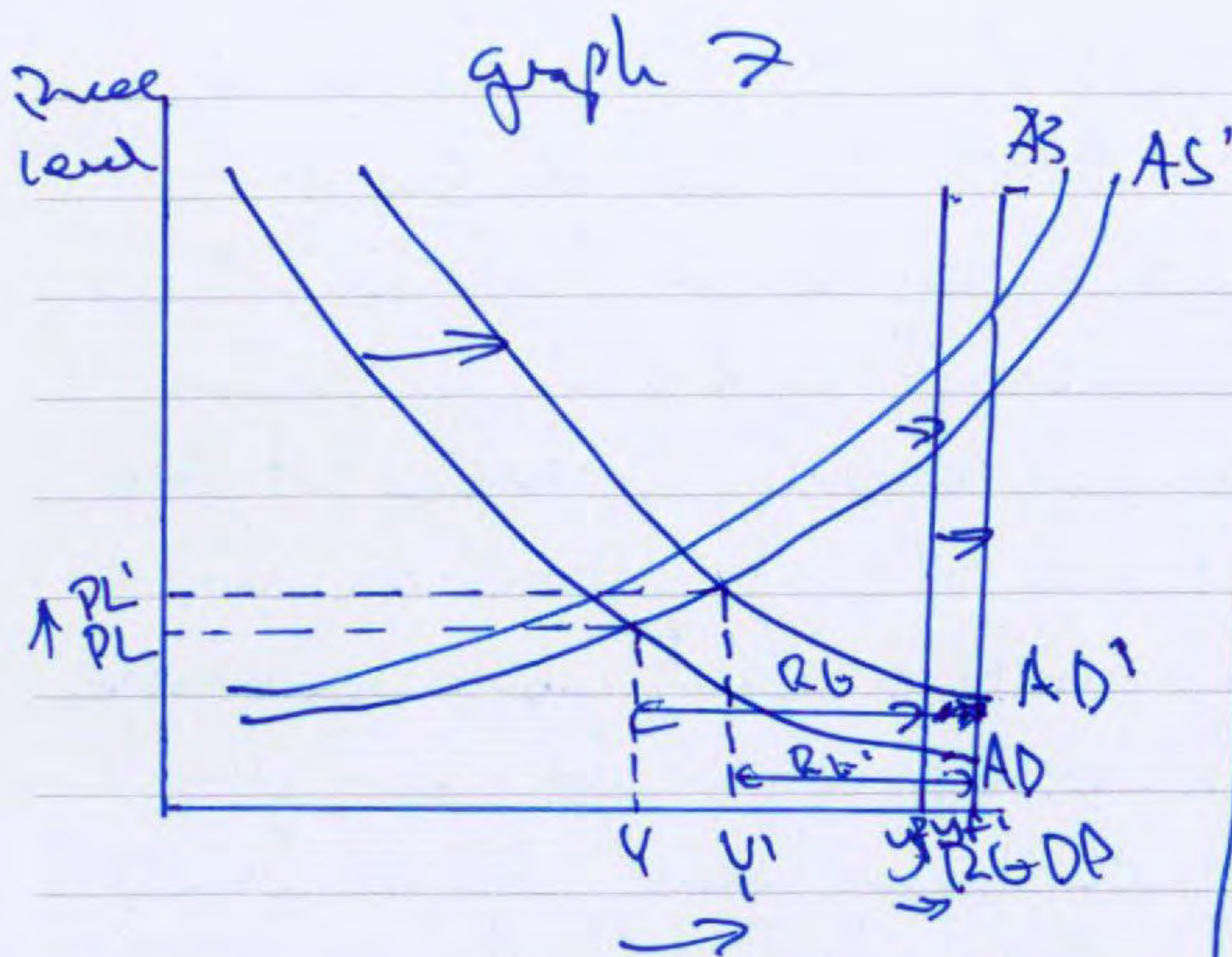
The advantages of migration for the NZ economy are that they will help to increase the "capacity of the economy" (resource N) this is as with increased ~~migration~~ migration we see that there are a greater number of available workers for NZ firms to hire and can therefore ~~the~~ increase the productivity of firms and the level of employment in the NZ economy with NZ firms able to fill the "shortage of people" (resource Q) which has existed for firms prior to the migration influx. This would allow firms to be open longer and ~~as~~ have less domestic supply chain issues as there would be workers ~~employed~~ available to complete the work often missed out on due to staff shortages. * Extra point

The disadvantages of migration for the NZ economy may be that of exacerbating the demand pull inflation

the NZ economy or expanding with an annual inflation rate of "6.7%" (source 2). This would further erode the value of currency savings and would drive further spending ~~as~~ making the rate of inflation even higher. This may cause a loss of wage responsiveness in the NZ economy as with greater ~~of~~ "inflationary pressures" from migrants, we may see workers demand higher wages, leading to greater spending, making inflation even worse as AD is increased (computer) and price levels rise further, starting the cycle again. We also see the negative impact of putting greater pressure on the already struggling "health" ^(source 3) and education" sectors. This pressure on these sectors may cause them to be less efficient and thus function less effectively. The final negative impact we may see is demand pressure on wage rates in NZ as with greater supply of labour to the market the availability of workers is less scarce and the attraction needed to find a worker ~~for~~ through high wages decreases requiring lower wage rates to attract employees. This leads ~~to demand~~ to "wage growth slowing" (source 2).

We see that by having high levels of net migration that the level of consumption spending in the economy increases, with migrants learning and purchasing houses, paying rent, purchasing essential items to set up to live and having greater number of people in NZ (net migration of 110,200 people 2023) causes them to bring their overseas currency to NZ and spend it

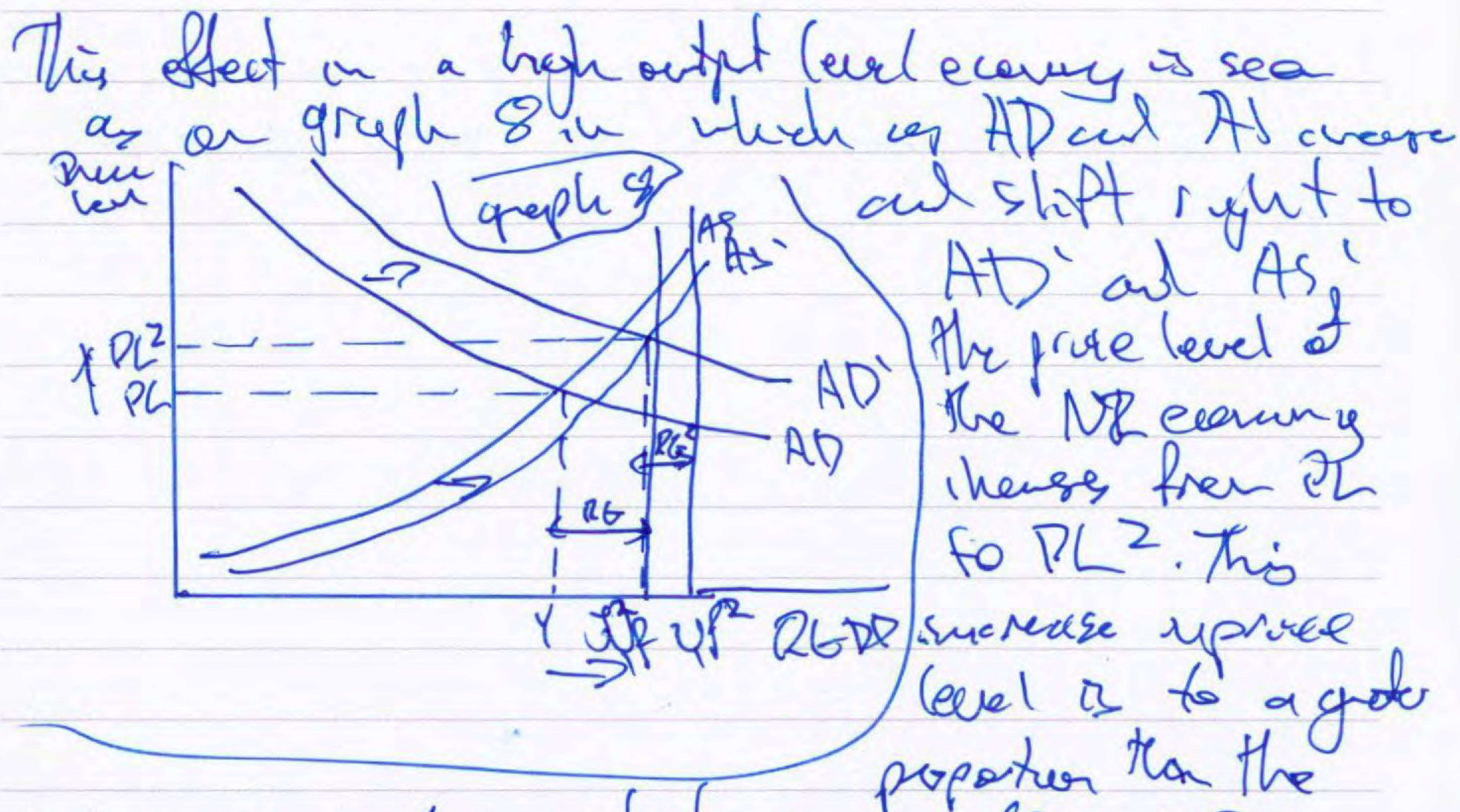
as the consumer base in NZ grows and thus the level of consumption spending increases. We also see that due to the inflationary expectations created by the increased net migration will lead to increased consumption spending due to fears of eroding savings and knowledge (prediction) that the dollar will be worth more rather than later. This may also be worked via the multiplier effect which sees one person's spending, or the increased spending in the economy due to high migration, become another person's income which is then spent and so on and so forth, thus only heightening the increase in the value of C or consumption spending in the NZ economy. This may also cause G as some migrants may claim subsidies on housing or other services provided by the government. ~~and~~ An increase in imports may also ~~occur~~ as migrants demand more imported goods as not all necessary goods are available in NZ, thus increasing import payments and decreasing $(X - M)$, however only to a minor extent. This decrease in C and G and minor decrease in $(X - M)$ will lead to a large increase in AD in the NZ economy $(C + G + I \neq X - M)$ while AS also moves to a lesser extent as productivity is increased as cost of production is lowered (wage rate downward pressure) and more factors of production (labour) are ~~being~~ readily available. This increase in AD and AS is shown on graph 7 on the next page, in an economy operating at low output levels.



As we can see in graph seven due to increased net migration aggregate demand has moved from AD to AD' shifting right while AS has moved slightly right to AS'. This has caused price level

to increase from PL to PL'. This increase in price level in the economy would have the effect of increasing inflation and thus increasing inflation from the high inflation economy of an annual 6.7% increase. This high inflation NZ economy having its inflation rate increased to a value greater than 6.7%, would not be in keeping with the key macro economic goals of the NZ govt of keeping the rate of inflation between 1-3% over the medium term. This would however help support growth positively as it serves to move GDP from Y to Y', moving the rate of growth in the NZ economy, thus increasing the NZ economy's rate of growth to a value greater than that of the current -0.2%, thus this would aid the NZ govt in the ~~policy~~ goal of achieving sustainable economic growth as the growth rate is increased. This effect is ~~positive~~ ^{neutral} as the recessionary gap ~~does not~~ does not change in size or although the output of the NZ economy ~~increases~~

increases full capacity also increases and the Y^f shifts right to $Y^{f'}$ being employment ~~or~~ the RG relatively smaller in size ($RG = RG'$).



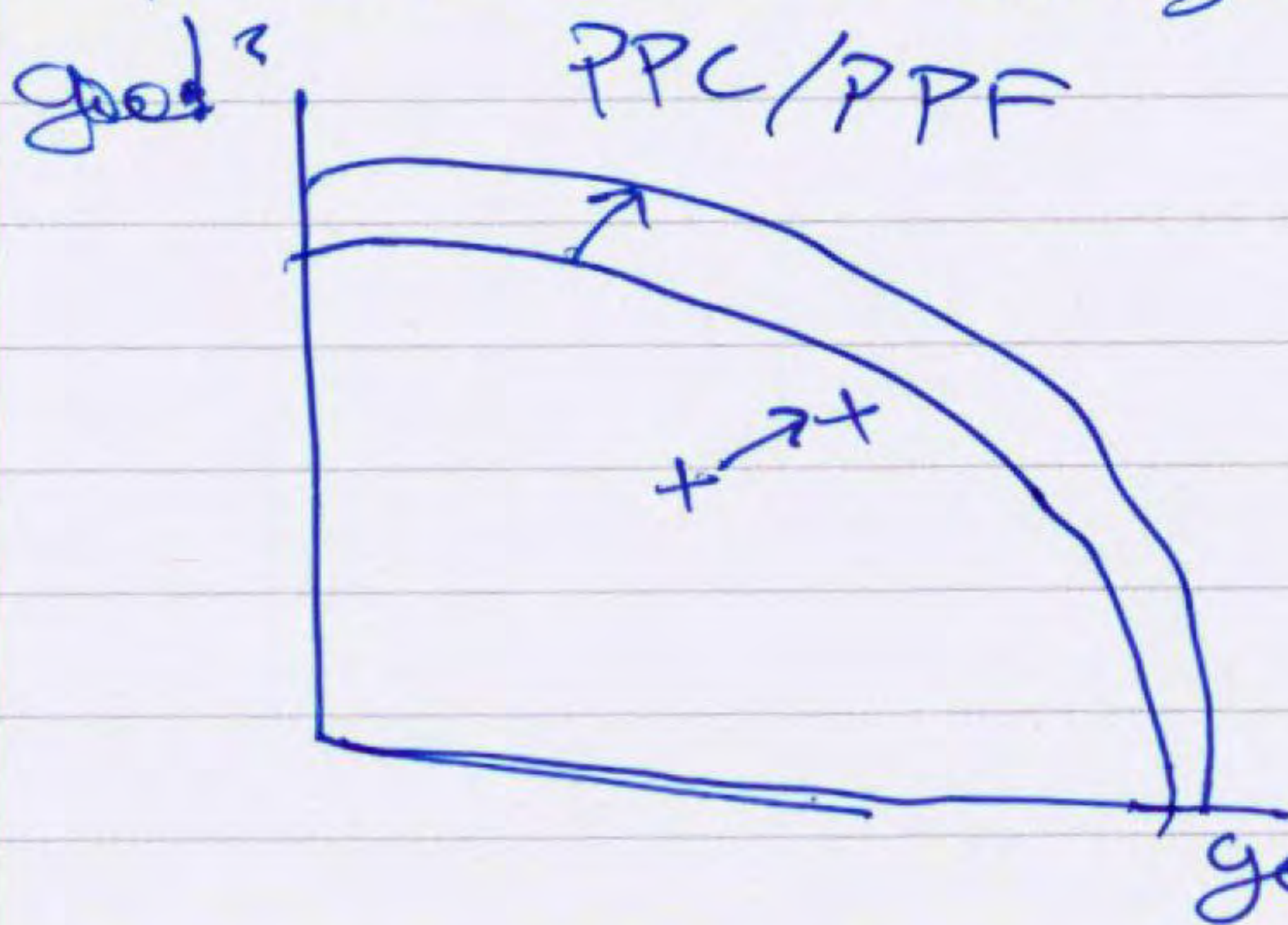
change in a low output economy (PL to $PL^2 > PL$ to PL') meaning that the increased price level in a high output economy would see a greater increase in the rate of inflation than the rate of inflation in a high inflation economy further away from the 1-3% goal ~~and~~ than that at risk mitigation in a low output economy. This risk mitigation positively influences growth as it ~~see~~ increased RGDP from Y to Y^2 meaning that the output or growth of the NZ economy has increased and NZ is moving further towards positive economic growth and thus meeting the macro economic goals of the NZ economy, due to a greater extent than the low output economy as Y to $Y^2 > Y$ to Y' . This also

profoundly impacts output which the low output economy does not with RG decreasing to RG^2 meaning that the ~~and~~ utilization of ~~the~~ resource ~~of~~ ^{total} is greater in that of a high output economy than a low output one with the rate of unemployment being lower in the high output economy.

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

QUESTION
NUMBER

- (3) ~~As~~ This moves the NE economy to a more productive and one with greater possible production in the economy as shown below.



As seen from the PPF curve due to migration increases the possible production frontier shifts outwards as the possible level of employment in the economy

increases what the point of operation also ~~also~~ increases to resource use or more resources available are being used (labour).