

NATIONAL JUNIOR COLLEGE
SH2 Preliminary Examination for
General Certificate of Education Advanced Level
Higher 2

ECONOMICS**9570/01**

Paper 1

2 hours 30 minutes

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

An answer booklet will be provided with this question paper. You should follow the instructions on the front cover of the answer booklet. If you need additional answer paper ask the invigilator for a continuation booklet.

Answer **all** questions.

The number of marks is given in brackets [] at the end of each question or part question.

This document consists of **9** printed pages and **3** blank pages.



NATIONAL JUNIOR COLLEGE
Economics Department

Answer all questions.

Question 1: Feeding a net-zero world

Extract 1: Relationship between food systems and climate change

Food systems are generally defined as all the activities related to producing, transporting, consuming food, and their effects. They account for around a third of all global greenhouse gas emissions and the emissions are not evenly distributed within the food systems. Agriculture land-uses make up about 65% of food-related emissions, with the remainder driven by both downstream (e.g. transport, waste) and upstream (fuel production) activities.

Economic growth in developing countries and the accompanying large increase in consumption for animal-based proteins are expected to sizeably increase emissions from food systems in the coming years. Without urgent action, food system emissions are expected to grow by about 30 – 40% by 2050. This means that even if all other fossil-fuel emissions stopped now, emissions from food systems alone would prevent the world from achieving climate change target.

But, affordable and availability of food is essential for food security. Maintaining this and ensuring its resilience in the face of climate change and increasing international tensions is imperative. Recent events have underscored the importance of this issue, with high cost of food contributing to the cost-of-living crisis following Russia's invasion of Ukraine, and the increasing number and severity of extreme weather events. Agriculture is by its nature affected by climatic conditions, particularly rain-fed agriculture. These impacts are being increasingly felt today. Recently in 2022, Europe experienced its driest summer on record, leading to a drop in agricultural yields of up to 16% compared to previous years.

Beyond agriculture, climate impacts are also being experienced in other parts of the food systems. Climate shocks affect not only agriculture farming, but also transportation of farmed goods, for example if extreme events such as floods and landslides damage key transport infrastructure.

Food systems will need to adapt to climate change which poses challenges for how food is produced and transported.

Source: adapted from Feeding a net-zero world, OECD, 8 September 2023

Extract 2: How can the UK reduce meat consumption and cut emissions?

Globally, 83% of farmland is taken up by livestock, and many are arguing for an overhaul of meat consumption to free up more land for nature.

In UK, there appears to be a downward trend in meat-eating but figures are still high. A report from last year found Britons have reduced meat consumption by 17% in the past decade. The increasing production of plant-based alternatives and their availability from being niche to widely available in most large supermarkets and restaurants has driven this decline. But strong public support has to be garnered given consumer sensitivities around food choices and cultural habits. Without strong public support, the switch to plant-based alternatives would be limited.

No doubt, some groups believe that the market will internalise the environmental costs if better information is provided, we can't just simply provide people with any information on the impacts of meat-eating. Information regarding environment impact may help people understand and oppose what meat consumption does to the environment but it doesn't seem to impact what and how much they actually eat. Generally, self-interested individuals will not think about the climate crisis when browsing supermarket shelves. Information must be targeted at how meat-eating would impact the individuals themselves (e.g. health costs arising from obesity) to change their behaviours.

A meat tax, or "sin taxes" would perhaps work by incentivising food manufacturers to put less meat in their food products (e.g. a sausage might have 60% meat instead of 70%). Yet most governments provide subsidies for livestock farming instead, with some groups saying a meat tax would damage the domestic livestock farming sector, risking the livelihood of the farmers. So, most governments have no appetite for a meat tax.

Source: adapted from How can the UK reduce meat consumption and cut emissions?, The Guardian, 16 August 2022

Extract 3: Making farming into restorer, not a destroyer of ecosystems

UK's farmers will receive government payments for environmental work and sustainable ways of food production. The Environmental Land Management Schemes (ELMS) aims to boost food production sustainably and improve the environment while boosting UK farmers' income as a result of doing the right thing for the environment.

The ELMS will comprise three payment schemes:

- The Sustainable Farming Incentive focuses on soil health and reducing the use of inputs such as chemical fertilisers and insecticides. It also includes payments for looking after hedgerows, grasslands and soils.
- The Landscape Recovery Scheme will pay landowners for ambitious large-scale rewilding projects. These will lead to vast tracts of land being managed to conserve species, provide habitats for wildlife and restore health to rivers and streams.
- The Countryside Stewardship Plus scheme will reward farmers for action to support climate change adaptation and help nature. It will reward farmers for taking coordinated actions, including natural flood management, wetland restoration and enhancing forest.

However, low-cost imports made to lesser environment standards continue to drive down the prices of domestically grown, sustainably produced food in the UK. The UK is also already a large net importer of food and the ELMS' ambition to maximise the value to society of the landscape may in reality mean that that increases further. The big danger is that we end up with an even more divided two-tier food system, where cheaper food from abroad, with huge environmental costs, replaces food that could be grown in nature-friendly ways in the UK.

Source: adapted from Farm subsidy plan 'risks increasing the UK's reliance on food imports', The Guardian, 09 January 2022

Extract 4: Cleaner and healthier food systems

Action to address issues in the food systems requires a focus on both supply and demand.

On the supply side, current subsidies are often not sufficiently aligned with climate and healthier living objectives, and present a barrier to achieving these goals. The UK government spends at least £1.5b a year subsidising livestock farming, ten times the UK's annual budget for planting trees. Meanwhile, despite a global explosion in demand for planet-friendly alternative proteins, the UK has only committed £90m in research and development to this sector.

Two particular avenues stand out to reorient subsidies towards better practices. One is to prioritise reforming support to the most emissions-intensive and carbohydrates-heavy products. For example, support given to rice – a product that is high in carbohydrates and is emissions-intensive due to methane produced by flooded paddies – should be removed. Another is to phase-out subsidies for harmful agricultural inputs, such as chemical fertiliser. The subsidies could be reoriented to fund low-emission and healthier solutions instead. These changes place stronger incentives for restructuring the farming sector away from high to lower-emissions production and towards production of healthier food.

Efforts to reorient subsidies are never easy. This is particularly the case for food-related subsidies given the tumultuous events of recent years. Measures need to consider potential impacts on food prices and producer incomes. Food prices have recently contributed considerably to the cost-of-living crisis and as a driver of inflation, due to supply disruptions and high prices following Russia's war against Ukraine, on top of climate-related disruptions to harvests in various parts of the world.

Governments must also explore policies that influence the demand side of food systems. This can include information and labelling schemes that aim to shift diets and preferences towards healthier products, for instance by providing information on the negative health impacts.

Source: adapted from Feeding a net-zero world, OECD, 8 September 2023

Questions

- (a) With reference to Extract 1, explain the reason for the large increase in consumption for animal-based proteins in developing countries. [2]
- (b) With reference to Extract 2, explain why there is “a downward trend in meat-eating but figures are still high” (Extract 2). [4]
- (c) With reference to Extract 3,
- (i) and using a demand and supply diagram, explain how the Environmental Land Management Schemes (ELMS) boost UK farmers' income as a result of doing the right thing for the environment. [4]
- (ii) explain the unintended consequence of UK's higher environment standards in food production on its economy. [2]
- (d) With reference to the information provided, discuss the view that providing information would reduce allocative inefficiency caused by imperfect information on “the demand side” (Extract 4) of UK's food systems. [8]
- (e) With reference to the information provided, discuss whether a reduction in subsidies given to high-emission food production should be implemented by the UK government to address the market failure on “the supply side” (Extract 4) of UK's food systems. [10]

[Total: 30]

Question 2: Economic challenges in Singapore

Extract 5: Singapore's economic growth slows to 3.8% in 2022; outlook darkens for 2023

Singapore's economy grew by 3.8% in 2022, slowing sharply from the 7.6% growth achieved a year earlier, according to advance estimates from the Ministry of Trade and Industry (MTI) on Tuesday.

Analysts said anaemic global growth due to high inflation and rising global interest rates has started to hit merchandise exports from Asia, pulling the region's manufacturing sector into recession territory. However, a relatively resilient services sector aided by the reopening tailwinds should mitigate the weakness in manufacturing and also keep unemployment low.

Still, much depends on the outlook of the global economy, which could turn gloomier. International Monetary Fund (IMF) managing director Kristalina Georgieva warned that 2023 will be a tougher year for the global economy than 2022. "We expect one-third of the world economy to be in recession," Dr Georgieva said in an interview on Sunday. "Why? Because the three big economies – the United States, the European Union and China – are all slowing down simultaneously."

Source: Straits Times, 3 January 2023

Table 1: Gini coefficient among resident employed households, Singapore, 2020 and 2023

	2020	2023
Household Income from Work Per Household Member	0.452	0.433
Household Income from Work Per Household Member (After Accounting for Government Transfers and Taxes)	0.375	0.371

Source: Singstat, accessed 14 May 2024

Extract 6: Workfare Supplement Scheme

Introduced in 2007, the Workfare Income Supplement (WIS) is a broad-based measure that tops up the salaries of lower-income workers to help them save for retirement. The recipient will receive 40% of WIS in cash and 60% in CPF contributions. WIS is targeted at Singaporean workers whose earnings are in the bottom 20%, with some support for those slightly above. The table below shows the maximum WIS amount an individual can receive each year, based on their age group.

Table 2: Increase in WIS from Year 2023

Age	Maximum Annual WIS	
	Year 2020	From Year 2023
30-34	Not applicable	\$2,100
35-44	\$1,700	\$3,000
45-54	\$2,500	\$3,600
55-59	\$3,300	
60 and above	\$4,000	\$4,200

Source: <https://www.cpf.gov.sg/member/growing-your-savings/government-support/workfare-income-supplement>, accessed 14 May 2024

Extract 7: Wage growth inevitable, but cannot outstrip productivity

A tight labour market means that wage increases are inevitable as employers compete to fill vacancies, but Singapore must continue to ensure that salaries rise in tandem with productivity. Failing to do so could lead to "a destabilising wage-price spiral, where higher wages feed directly into higher prices", said Deputy Prime Minister Lawrence Wong.

Mr Wong noted that Singapore faces a range of challenges such as rising inflation, retreating globalisation and worrying signs of potential economic slowdown across major economies such as the US, Europe and China. In this milieu, Singapore will lose its global competitiveness if its wages rise too quickly, he said. "This will hurt both employers and employees, and it will be the most vulnerable workers who will ultimately bear the brunt if companies cannot sustain themselves," he said.

One of the reasons for Singapore's wage increases is its rapid economic growth in 2021. The tight labour market could pose a real risk that wages would spin out of control, undoing the progress that it had made in attracting foreign investors. The National Wages Council's (NWC) annual recommendations have ensured that wages move in tandem with productivity and economic performance, Mr Wong said.

That is why, more than ever, the NWC has an important role to play in bringing its partners together to champion fair, inclusive and sustainable growth for all, said Mr Wong, who is also Finance Minister. He noted that the NWC – a tripartite body comprising employer, employee and government representatives – was set up in 1972 under similar conditions.

The tripartite partners must now redouble their efforts to encourage skills upgrading and productivity improvements across all sectors of the economy, he said, as that is the only way to ensure sustainable wage growth and improve Singaporeans' welfare. To this end, the 23 industry transformation road maps will help prepare firms and workers for the future, while SkillsFuture helps workers acquire new skills. But each business must consider how these strategies apply to them, and chart their own concrete action plans to stay relevant, Mr Wong added.

Singapore also needs to keep at the work of reducing income inequality and ensuring that wage gaps across society do not move too far apart, he said. Part of the strategy is increasing the Workfare Income Supplement (WIS), expanding progressive wages to more sectors.

Source: Straits Times, 29 September 2022

Extract 8: The impact of artificial intelligence on growth and employment

The use of artificial intelligence (AI) for day-to-day tasks has increased rapidly over the last decade and ChatGPT (developed by OpenAI) is a prime example of this, with the popular generative AI used by more than a billion users for everyday tasks like coding and writing. AI-powered technologies can now perform a range of tasks, including retrieving information, coordinating logistics, providing financial services, translating complex documents, writing business reports, preparing legal briefs, and even diagnosing diseases. Moreover, they are likely to improve the efficiency and accuracy of these tasks due to their ability to learn and improve via the use of machine learning.

AI is generally acknowledged to be an engine of productivity and growth. With its ability to process and analyse enormous volumes of data, it has the potential to boost the efficiency of business operations. The McKinsey Global Institute predicts that around 70% of companies will adopt at least one type of AI technology by 2030. Price Waterhouse Coopers predicts that AI could increase global GDP by 14% in 2030.

Researchers identified the implications of AI on the labour market into two broad categories: a doomsayer's perspective and an optimist's perspective. Doomsayers believe that labour substitution by AI will harm employment. Frey and Osborne estimate that 47% of total US employment is at risk of losing jobs to automation over the next decade. Optimists believe that AI and robotics will have created up to 90 million jobs by 2025, indicating a strong positive labour market impact. The World Economic Forum concluded in October 2020 that while AI would likely take away 85 million jobs globally by 2025, it would also generate 97 million new jobs in fields ranging from big data and machine learning to information security and digital marketing.

Source: CEPR, 20 June 2023

Extract 9: Income tax cuts

Even as the United States (US) economy shows signs of slowing down, many states around the US are flush with cash, with their so-called rainy day funds estimated to reach a record high of \$136.8 billion this fiscal year.

The drive to cut state taxes has accelerated during the pandemic. During the past two years, dozens of states reduced their income tax rates or created new tax credits and rebates, partly as their coffers overflowed due to strong economic growth and billions in federal pandemic aid. Of those, 21 states cut their personal tax rates, with more contemplating deeper or new income tax reductions in 2023, according to the Tax Foundation.

State lawmakers say they are proposing tax cuts for a number of reasons: To make their states more economically competitive with others; to boost economic growth; or to boost taxpayers who are struggling with inflation.

But Auxier, a senior policy analyst at the Tax Policy Centre, said voters should examine whether these tax strategies match up with lawmakers' objectives, noting that the cuts might not actually accomplish their stated goals. For instance, reductions in income tax rates are often portrayed as helping put money back into ordinary workers' pockets. Yet in the 11 states that cut individual income tax rates in 2022, the biggest direct benefits were enjoyed by the highest-earning households. By comparison, lower- and middle-income households received only a modest or no benefit. The reason: Higher-income households pay the most in taxes, while some low-income households pay no taxes. That means a tax cut wouldn't provide those individuals with any benefit.

Source: CBS News, 9 February 2023

Questions

(a) Explain how a rise in productivity reduces the average costs of a firm. [2]

(b) Extract 5 highlights that Singapore's outlook darkens for 2023 and 'warned that 2023 will be a tougher year for the global economy than 2022.'

Explain how 'one-third of the world economy (would) be in recession' is expected to affect Singapore's economic growth negatively in 2023. [4]

(c) Explain how 'increasing the Workfare Income Supplement' has affected income inequality in 2023. [2]

(d) With reference to Extract 7 and using a demand and supply diagram, explain **one** reason for the rising labour wages in 2021. [4]

(e) Extract 7 explains that wage increases are inevitable.

Discuss the extent to which rising wages outpacing productivity growth will negatively impact Singapore's global competitiveness. [8]

(f) Extract 8 highlights that 'AI is generally acknowledged to be an engine of productivity and growth.'

Discuss whether embracing AI or decreasing income tax rates (Extract 9) is better for enhancing inclusive economic growth in a country amidst the global slowdown in economic growth. [10]

[Total: 30]

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NJC 2024 SH2 H2 Econs P1 Suggested Answers

Case Study Question 1

Suggested Answers

- (a) With reference to Extract 1, explain the reason for the large increase in consumption for animal-based proteins in developing countries. [2]
- When there is economic growth, households have higher income, thus resulting in an increase in demand for normal goods. [1]
 - In developing countries where incomes are low, animal-based proteins are considered luxury goods. Therefore, there is a significant increase in demand for animal-based proteins. [1]
- (b) With reference to Extract 2, explain why there is “a downward trend in meat-eating but figures are still high” (Extract 2). [4]
- “The recent development of plant-based meat” (Extract 2) led to a decrease in the prices of plant-based meat. [1]
 - Plant-based meat is considered substitute in consumption to meat. [1]
 - When prices of plant-based meat decrease, there is a decrease in demand for meat, hence explaining the downward trend. [1]
 - Nevertheless, “the figures are still high” because there is a lack of / weak public support (Extract 2) due to “cultural habits” (Extract 2), thus the decrease in demand is insignificant. [1]
- (c) With reference to Extract 3,
- (i) and using a demand and supply diagram, explain how the Environmental Land Management Schemes (ELMS) boost UK farmers’ income as a result of doing the right thing for the environment. [4]
- “Do the right thing for the environment, for example looking after hedgerows, grasslands and soils / large-scale rewilding projects / natural flood management, wetland restoration and enhancing forest (Extract 3), would increase the cost of food production to UK’s farmers. The increase in cost of production would reduce the income of UK’s farmer. [1]
 - Government payments via the ELMS help lower the cost of food production when the farmers adhere to the higher environmental standards. This would increase the production of food as illustrated by the shift of the supply curve from S_0 to S_1 in Diagram 2. [1]

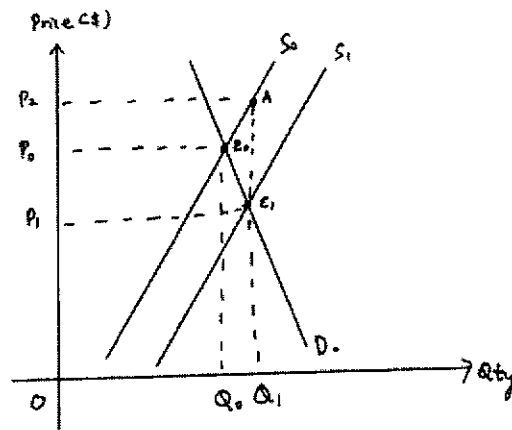


Diagram 1: The market for farmed goods

- As a result, no doubt UK's farmer pre-subsidy revenue decreases from area $P_0E_0Q_0$ to area $P_1E_1Q_1$, UK's farmer post-subsidy revenue increases from area $P_0E_0Q_0$ to area $(P_1E_1Q_1 + P_0E_0AP_2)$. [1]
 - A well-labelled and well-referred to diagram. [1]
- (ii) explain the unintended consequence of UK's higher environment standards in food production on its economy. [2]
- UK's higher environment standards in food production would increase the cost of food production to UK's farmers and the farmers would pass on the higher costs in terms of higher prices to consumers. [1]
 - UK's consumers would thus switch from purchasing the relatively more expensive domestically produced food to the relatively cheaper imported food thus increasing UK's import expenditure (M) and hence decreases UK's (X-M). [1]
- (d) With reference to the information provided, discuss the view that providing information would reduce allocative inefficiency caused by imperfect information on "the demand side" (Extract 4) of UK's food systems. [8]
- The existence of imperfect information regarding the health costs arising from obesity due to meat-eating (Extract 2) has resulted in allocative inefficiency on the demand side of UK's food system.
 - As a result of the imperfect information regarding the health costs, consumers underestimated their private cost of meat-eating. For example, obesity and its related health issues that would require expensive medical treatments.
 - The existence of the imperfect information thus results in a divergence between $MPC_{perceived}$ and MPC_{actual} as illustrated in Diagram 2 where $MPC_{actual} > MPC_{perceived}$.

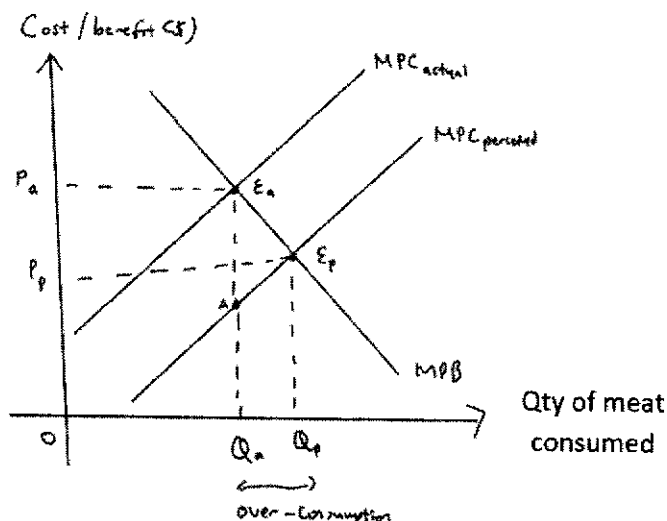


Diagram 2: Costs and benefits of meat-eating from consumers perspective

- The free-market equilibrium level of consumption is at Q_p where $MPC_{perceived}=MPB$ but the socially optimal level of consumption is at Q_a where $MPC_{actual}=MPB$. The latter assumed the inexistence of externalities thus $MPC=MSC$ because $MEC=0$ and $MPB=MSB$ because $MEB=0$.
 - Since $Q_a < Q_p$, there is an over-consumption of meat by $Q_a Q_p$.
 - The over-consumption results in allocative inefficiency illustrated by a deadweight loss of triangle $E_a E_p A$.
-
- Information providing regarding the true full costs of meat-eating (e.g. health costs such as obesity and its related health issues that would require expensive medical treatments), if successful, will change consumers' taste and preferences away from eating meat (i.e. decrease in demand for meat) and towards more plant-based alternatives because of the increase in their marginal private cost of meat-eating as illustrated by the shift of $MPC_{perceived}$ closer to MPC_{actual} .
 - As a result, meat-eating would reduce from Q_p towards Q_a , decreasing the over-consumption thus reducing the deadweight loss. Therefore, information providing can be used to reduce allocative inefficiency caused by imperfect information on the demand side of UK's food systems.
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- In conclusion, whether information providing would reduce the allocative inefficiency caused by imperfect information on the demand side of UK's food system depends on the nature of information provided.
 - Information must be targeted at how meat-eating would impact the individuals themselves (e.g. health costs arising from obesity) to be effective (also suggested in Extract 4 Paragraph 5).
- (e) With reference to the information provided, discuss whether a reduction in subsidies given to high-emission food production should be implemented by the UK government to address the market failure on "the supply side" (Extract 4) of UK's food systems. [10]
- No doubt the reduction in subsidies given to high-emission food production can address the market failure on the supply side of UK's food system, it will bring about unintended consequences.

- Whether the UK should reduce the subsidies on high-emission food depends on whether the subsidies can be reoriented to low-emission food production to minimise the unintended consequences.
- Negative production externalities in the case of, for example meat (i.e. animal-based proteins) production, are spill over costs associated with meat production to third parties who are not directly involved in the production nor consumption of meat, and no compensation is involved.
- Meat production have private benefits to firms such the revenue earned from the sale of meat and private costs to firms such as wage expenditure to process / transport the meat and the expenditure on animal feeds.
- However, meat production also has external costs to third parties such as vegetarian rising from health-related illnesses (and their treatments) associated with greenhouse gas emissions (Extract 1) such as heat stress and elevated blood pressure
- Meat is often over-produced resulting in deadweight loss because the external costs are not internalised by meat producers who care only about their private benefits and costs.
- The private benefits and the private costs can be illustrated by MPB and MPC in Diagram 3 respectively.

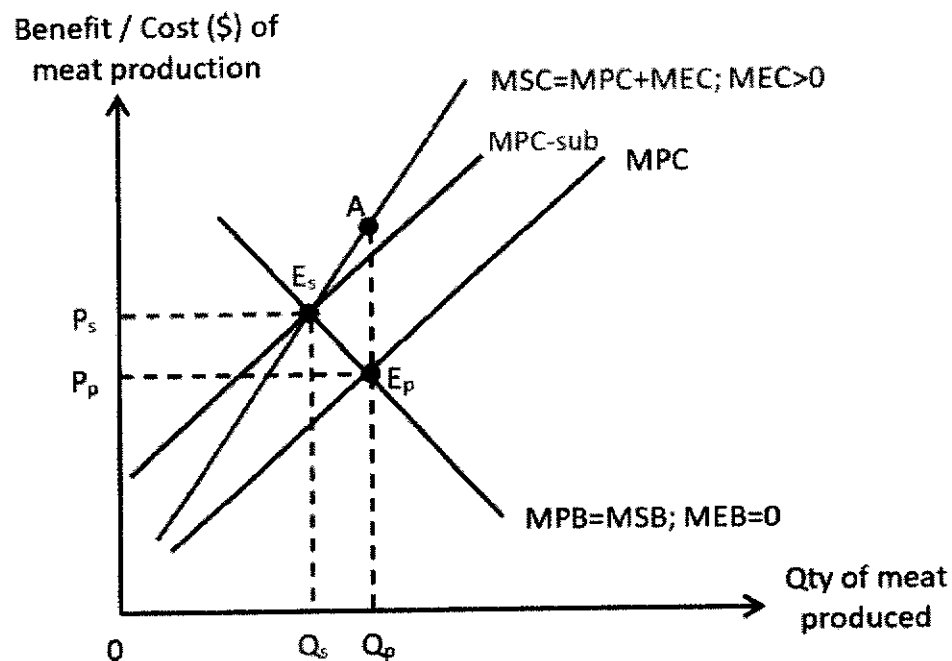


Diagram 3: Negative externalities from meat production

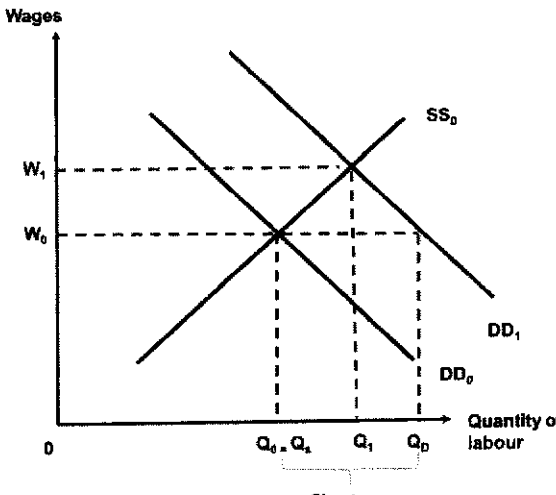
- The private production level is achieved at E_p where $MPB=MPC$ with production level Q_p and price P_p .
- The existence of external costs results in a divergence between MPC and MSC by the amount MEC because the individuals fail to internalise the external costs.
- Assuming no external benefit and hence $MEB=0$, $MPB=MSB$. Social optimality is achieved at E_s where $MSB=MSC$ with production level Q_s and price P_s .
- Since $Q_s < Q_p$, there is an over-production of meat by $Q_s Q_p$.

- The over-production due to negative externalities results in allocative inefficiency illustrated by a deadweight loss of triangle E_sAE_p .
- A reduction in production subsidies for livestock farming (Extract 4) would increase the private cost of meat producers, thus the private cost would increase by the value of the marginal external cost as illustrated from MPC to MPC-Sub.
- As a result, meat production would reduce from Q_p to social optimal level Q_s , eliminating the deadweight loss.
- However, the reduction in subsidies on meat production would worsen UK's cost of living crisis as mentioned in Extract 4 because it would lead to higher price for meat as illustrated from P_p to P_s in diagram 3. Given that UK is a western country with strong meat eating cultural habits (Extract 2) thus expenditure on meat takes up a large proportion of UK residents' living expenditure, the increase in consumption expenditure on meat would contribute a significant increase in their cost of living. Assuming income nominal unchanged per capita (assuming population size remain the same), the reduction in the subsidies would lower UK's material standard of living as lesser needs and wants can be met. That explains why "measures need to consider potential impacts on food prices" (Extract 4).
- Furthermore, the increase in price of meat produced in UK (due to the reduction on subsidies on meat production) would lead to a loss of price competitiveness of meat produced in UK. With reference to answer in c(ii), the relatively higher price would cause UK's consumers to switch from purchasing the relatively more expensive domestically produced food to the relatively cheaper imported food thus increasing UK's import expenditure (M) and hence decreases UK's balance of trade (X-M) surplus / increases UK's balance of trade (X-M) deficit, leading to the unintended consequence on UK's economy mentioned in Extract 3.
- In addition, the reduction on subsidies on meat production would damage the domestic livestock farming sector, risking the livelihood of the farmers (Extract 2; similar to that of having a meat tax on production). This is because with the reduction in subsidies, meat producers (including livestock farmers) would now have to pay for that part of the cost previously covered by the subsidies and thus increase their cost of production. Given Profit = Total revenue - Total cost, profit and thus income of meat producers would decrease, assuming total revenue unchanged. That explains why "measures need to consider potential impacts on ... producer incomes" (Extract 4).
- In conclusion, no doubt a reduction in subsidies given to high-emission food production could reduce allocation inefficiency thus address the market failure on the supply side of UK's food systems, it can have unintended consequences on UK's cost of living / UK's balance of trade / livelihood of UK's food farmers.
- Whether the reduction in subsidies should be implemented depends on whether the subsidies can be / are reoriented to low-emission food production.

Case Study Question 2

Suggested Answers

(a)	Explain how a rise in productivity reduces the average costs of a firm.	[2]
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	<ul style="list-style-type: none"> • A rise in productivity means that a firm can produce more with the same amount of resources. [1] • With the total costs remaining the same and output increased, average costs would fall. [1]
(b)	<p>Extract 1 highlights that Singapore’s outlook darkens for 2023 and ‘warned that 2023 will be a tougher year for the global economy than 2022.’</p> <p>Explain how ‘one-third of the world economy (would) be in recession’ is expected to affect Singapore’s economic growth negatively in 2023. [4]</p>
	<ul style="list-style-type: none"> • If the world economy really goes into recession in 2023, Singapore’s trading partners will be experiencing falling national income. [1] • This will result in a reduction their demand for Singapore’s exports. Hence, Singapore is expected to face a fall in export revenue. Assuming Singapore’s import expenditure remains unchanged, it is expected a fall in net exports (X-M). [1] • With the expected decrease in AD, national income is expected to decrease in Singapore in 2023. [1] • Singapore’s national income would decrease by more than proportionately via the reverse multiplier effect. Hence, Singapore will also have a negative economic growth or fall in national income. [1]
(c)	<p>Explain how ‘increasing the Workfare Income Supplement’ has affected income inequality in 2023. [2]</p>
	<ul style="list-style-type: none"> • WIS will increase the disposable income of lower-income workers. [1] • Hence, it reduces the income inequality as seen from Table 1 where the Gini Coefficient has reduced in 2023. [1]
(d)	<p>With reference to Extract 3 and using a demand and supply diagram, explain one reason for the rising labour wages in 2021. [4]</p>
	<ul style="list-style-type: none"> • Given the rapid economic growth in 2021, this implies an increase in income. Hence, demand for goods increases. [1] • Hence, the demand for labour increases from DD_0 to DD_1 (figure 1), [1] • Hence, causing upward pressure on wages and this had led to a rise in labour wages in 2021. [1] • Diagram [1] <div style="text-align: center;">  <p>The diagram is a coordinate system with 'Wages' on the vertical axis and 'Quantity of labour' on the horizontal axis. The origin is marked '0'. An upward-sloping supply curve is labeled SS_0. Two downward-sloping demand curves are shown: the lower one is DD_0 and the upper one is DD_1. The initial equilibrium point is at the intersection of SS_0 and DD_0, with a wage level W_0 and quantity Q_0. The new equilibrium point is at the intersection of SS_0 and DD_1, with a higher wage level W_1 and a higher quantity Q_1. Dashed lines connect these points to their respective values on the axes. A horizontal bracket between Q_0 and Q_1 is labeled 'Shortage', indicating that at the initial wage W_0, the quantity demanded (Q_1) exceeds the quantity supplied (Q_0).</p> </div> <p>Figure 1: Labour Market</p>

(e) Extract 3 explains that wage increases are inevitable.

Discuss the extent to which rising wages outpacing productivity will negatively impact Singapore's global competitiveness. [8]

- If the rising wages outpace productivity growth, average cost of production per unit would increase.
- Firms now faces higher average cost of production per unit.
- Hence, the fall in SRAS where SRAS curve shifts upwards from SRAS₁ to SRAS₂ will bring about an increase in general price level from P₁ to P₂. This has a negative impact on price stability.

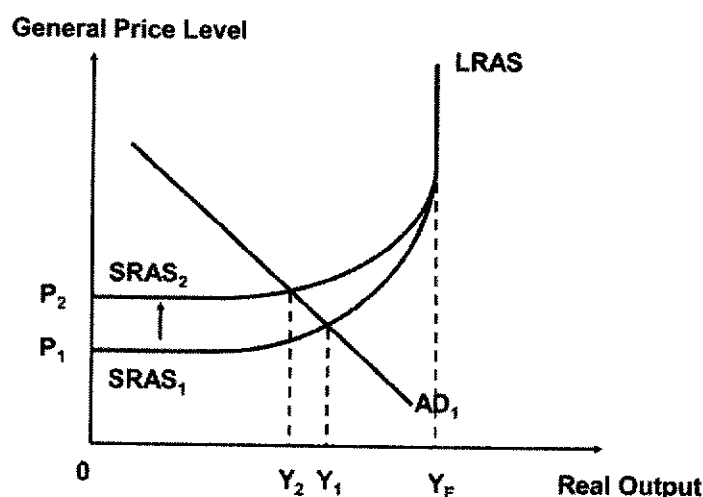


Figure 2: Decrease in SRAS

- The rise in GPL will have a negative impact for an export-reliant economy like Singapore, as the higher rate of inflation in relation to other trade rivals will cause a fall in Singapore's export price competitiveness.
- As a result, export revenue falls, assuming ceteris paribus, net exports will fall. Hence, Singapore will experience a worsening of its balance of trade.
- However, if Singapore is still able to maintain or improve its export competitiveness in terms of quality, this may help to mitigate the decrease in net exports from the loss of price competitiveness as explained earlier.
- The higher average cost of production per unit due to the higher wage rates > productivity growth may affect the decision of foreign investors (FDI) who are considering investing in the country.
- The higher cost of hiring labour may also lead to an outflow of FDIs from the economy if this higher cost has negatively impacted the profitability of the investments in the economy.
- However, given that Singapore's FDIs are largely capital-intensive, the rising wages outpace productivity growth will have less negative impact on the decrease in FDI into Singapore.

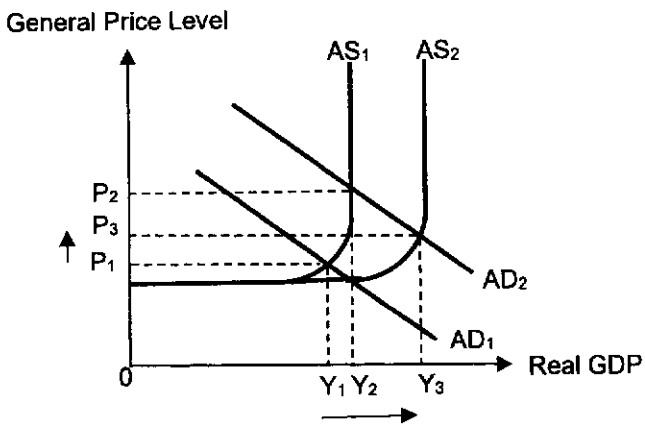
- Rising wages outpace productivity growth will definitely have a significant negative impact on the Singapore's economy – cost push inflation, worsening of balance of trade, negative economic growth and higher unemployment.
- However, the negative impacts on the economy can be mitigated via several government interventions.

(f) Extract 4 highlights that 'AI is generally acknowledged to be an engine of productivity and growth.'

Discuss whether embracing AI or decrease in income tax rates (Extract 5) is better for enhancing inclusive economic growth in a country amidst the global slowdown in economic growth. [10]

- Inclusive growth refers to a rate of growth that is sustained over a period of time.
- The investment in AI by the firms will direct increase in AD since I is a component of AD. This increase in investment would trigger the multiplier effect, which will increase AD and real GDP by a multiplied amount. The AD curve will shift rightwards from AD₁ to AD₂ in figure below. Real GDP increases from Y₁ to Y₂.
- AI can help to increase the productivity.
- The improvement in labour productivity from embracing AI also increases the LRAS, as shown by the rightwards shift of the AS curve from AS₁ to AS₂, thus achieving potential growth.

Figure 4: Sustained growth due to embracing of AI



- As national income rises, a government's tax revenue increase. This allows the government to spend more on social assistance programmes to help the needy families or individuals through redistributive policies like WIS schemes in Singapore.
- However, embracing AI could displace many jobs formerly done by humans, where jobs are usually those that are repetitive and manual and can now be handled more efficiently by AI and technology. Hence, AI has reduced demand for low-skilled labour and led to technological unemployment among low skilled worker.
- As mentioned in Extract 5 '21 states cut their personal tax rates'.
- When the government decreases income tax, disposable income will rise for households and this increases consumption and AD would increase.
- As a result there would be a more than proportionate increase in national income based on the multiplier process.

- However, with a reduction in income tax rates, it might not achieve inclusive growth. As mentioned in Extract 5, 'in the 11 states that cut individual income tax rates in 2022, the biggest direct benefits were enjoyed by the highest-earning households, Auxier's analysis found. By comparison, lower- and middle-income households received only a modest or no benefit.
- Both policies are effective in enhancing inclusive economic growth. Maybe tax cut is better policy due to the global slowdown in economic growth. As more countries face a slowdown in economic growth, they are reducing their consumption of domestic goods and demand for imported goods. Given the fall in external demand, countries like US might be more inward looking by using cut in personal income taxes to increase actual economic growth.

Essay Question 1

Lithium currently plays a significant role in the production of lithium batteries widely used in electric vehicles (EVs), but recent research into alternatives such as sodium-ion batteries could also enable their use in EVs. To encourage more consumers to purchase EVs in a push for environmental sustainability, some governments have introduced direct subsidies on EVs. Others are exploring to increase taxes on internal combustion engine vehicles (ICEVs).

- (a) With the aid of a diagram, explain a likely impact of a rise in the price of lithium on the overall consumer expenditure on EVs. [10]
- (b) Discuss whether government policies or advancements in battery technologies will have a greater impact on the market for EVs in the long run. [15]

Suggested Answers

Part (a)

Lithium currently plays a significant role in the production of lithium batteries widely used in electric vehicles (EVs), but recent research into alternatives such as sodium-ion batteries could also enable their use in EVs. To encourage more consumers to purchase EVs in a push for environmental sustainability, some governments have introduced direct subsidies on EVs. Others are exploring to increase taxes on internal combustion engine vehicles (ICEVs).

- (a) With the aid of a diagram, explain a likely impact of a rise in the price of lithium on the overall consumer expenditure on EVs. [10]

Introduction

- A rise in the price of lithium could raise the cost of production of lithium batteries and thus EVs, thereby decreasing its supply.

Requirement 1

- When the price of lithium rises, this would lead to a rise in cost of production for EVs.
- Thus, this would lead to a fall in supply of EVs, which is indicated by a leftward shift of the supply curve from S_0 to S_1 .
- As a result, the price of EVs would increase to P_1 .
- When price of EVs increase, the quantity demanded for EVs will fall.

- Equilibrium price of EVs increase from P_0 to P_1 , whilst equilibrium quantity of EVs decreases from Q_0 to Q_1 .

Requirement 2

- The impact on overall consumer expenditure on EVs depends on the price elasticity of demand for EVs.
- Price elasticity of demand measures the responsiveness of consumers to a change in the price of a good, and is given by the formula $\frac{\% \text{ change in qty demanded}}{\% \text{ change in price}}$.
- In the case of EVs, PED could be > 1 , i.e. demand for EVs is price elastic. This is because there are many available substitutes for EVs.
- Since $PED > 1$ for EVs, then this implies that quantity demanded decreases more than proportionately to a rise in price.
- As such, overall consumer expenditure on EVs would fall, since the rise in expenditure due to a rise in equilibrium price is outweighed by the fall in expenditure due to the fall in equilibrium quantity.

Illustration with a diagram is expected.

Conclusion

- In conclusion, overall consumer expenditure on EVs would likely decrease due to a rise in the price of lithium.

Part (b)

- (b) Discuss whether government policies or advancements in battery technologies will have a greater impact on the market for EVs in the long run. [15]

Introduction

- When considering the impact of events on a market, we look at the changes to both equilibrium price and quantity.
- Long run refers to the timeframe where all factors are variable and can be adjusted.

Requirement 1

- Direct subsidies given to consumers on the purchase of EVs would increase the demand for EVs.
- An increase in taxes on ICEVs would also increase the demand for EVs, as EVs and ICEVs are substitutes in consumption, i.e. XED is positive.
- Thus, both government policies seek to increase the demand for EVs. An increase in demand for EVs (as reflected by a rightward shift in demand curve from D_0 to D_1) would result in an increase in both equilibrium price (from P_0 to P_1) and equilibrium quantity (from Q_0 to Q_1).

Evaluation