2023 H2 A level Paper 2 Question 2

Bad weather and falls in consumer incomes can have different impacts on the prices of agricultural products such as vegetables, rice and grain.

(a) Explain the different impacts on the prices of vegetables due to bad weather and falls in consumer incomes. [10]

(b) Discuss the effectiveness of different measures that might ensure stability of food prices to consumers. [15]

Part (a) - Question Analysis

Approach	**Command Word**	Explain – Make clear
	Start point	• Bad weather • Fall in consumer incomes
	End Point	Different impacts on prices of vegetables
Content and Context	**Content**	• Price mechanism • Price elasticity of demand (PED) • Income elasticity of demand (YED) or Price elasticity of supply (PES)
	Context	Vegetables market.

Introduction

Equilibrium prices in a market are determined by interaction of demand and supply curves in the market. In this essay, the different effects on the changes in demand and supply on the equilibrium price for the market of vegetables will be elaborated. The events impacting the vegetables market include bad weather and falls in consumer incomes.

Requirement 1: How bad weather impacted price of vegetables

- The output of some agricultural products is severely affected by variation in weather conditions.
- Bad weather conditions such as floods due to monsoons, soaring temperatures and drought because of global warming could bring a poor harvest and producers are now less able to produce vegetables at each and every price level.
- Decrease in supply of fresh vegetables is represented by a leftward shift of the supply curve from SS_0 to SS_1.
- In addition, the demand for vegetables is highly price inelastic due to the high degree of necessity as a source of fibre in one's diet.
- At the original price P_0, quantity supplied exceeds quantity demanded and a shortage exists leading to an upward pressure on prices. Since demand for vegetables is price inelastic, an increase in price leads to a more than proportionate decrease in quantity demanded of vegetables.
- Hence, a sharp increase in price of vegetables is observed as seen by the increase in price from P_0 to P_1 in Fig 1.

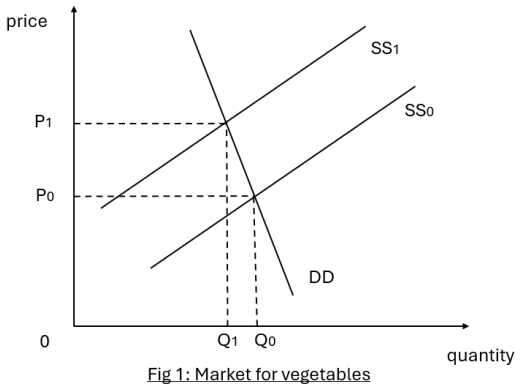

Fig 1: Market for vegetables

Requirement 2: How falls in consumer incomes impacted price of vegetables

- With a decrease in consumer incomes, perhaps due to an economic recession, there will be a decrease in disposable income (i.e., income after taxes and subsidies) and hence purchasing power.
- Assuming vegetables are normal goods, this leads to a decrease in demand, and a decrease in equilibrium price.
- Represented by a leftward shift of the demand curve from DD_0 to DD_1.

Use either the PES or YED explanation:

- At the original price P_0, quantity supplied exceeds quantity demanded and a surplus exists. Given that supply for vegetables is highly price inelastic due to the nature of vegetables as an agricultural good with long gestation period, even if price of vegetables were to increase, the vegetable firm/farmer will not be as responsive in increasing the quantity supplied and there is a less than proportionate fall in quantity supplied.
- Hence, a sharp decrease in price of vegetables is observed as seen by the increase in price from P_0 to P_1 in Fig 2.1.

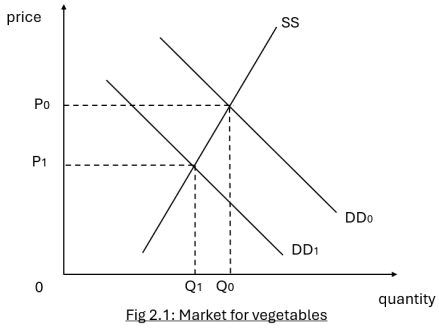

Fig 2.1: Market for vegetables

OR

- Assuming vegetables are necessities given their essential status in a typical diet, the demand for vegetables is likely to be highly income inelastic (i.e., positive YED, 0<YED<1), a decrease in consumer incomes will lead to a less than proportionate decrease in demand for vegetables as seen in Fig 2.2 from DD_0 to DD_1
- This results in a relatively small decrease in the equilibrium price of vegetables from P_0 to P_1.

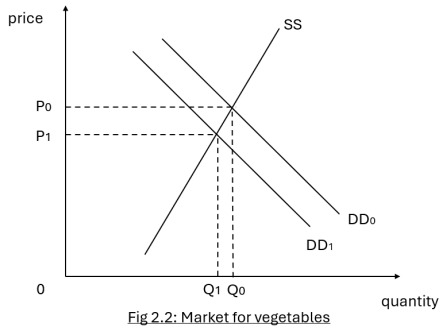

Fig 2.2: Market for vegetables

Conclusion

- Bad weather has resulted in a significant rise in prices of vegetables due to demand being highly price inelastic.
- On the other hand, the fall in consumer income has resulted in a fall in prices of vegetables.

Mark Scheme

Level	Knowledge, Understanding, Application, Analysis	Marks
L3	Full display of AO1, AO2 and AO3 skills: For an answer that shows well-developed explanation of why a decrease in consumer incomes AND bad weather result in different impacts on prices of vegetables. • clear and accurate explanation of how changes in DD and SS, supported with the use of elasticity concepts to analyse the impact in prices of vegetables • supported with appropriate diagrammatic analysis	8-10
L2	Uneven display of AO1, AO2 and AO3 skills: For an answer that shows under-developed explanation of why a decrease in consumer incomes AND bad weather result in different impacts on prices of vegetables. • lacks depth of analysis (i.e., limited effective use of relevant economic analysis or gaps in diagrammatic analysis) • lacks scope in explaining either event	5-7
L1	Limited display of AO1 and AO2 skills: For an answer that shows limited knowledge of why a decrease in consumer incomes AND bad weather result in different impacts on prices of vegetables. • listing of points, unexplained statements, or descriptive response • many conceptual errors (i.e., using AD/AS analysis, use PED with shift in demand, use XED etc) • smattering of points	1-4

(b) Discuss the effectiveness of different measures that might ensure stability of food prices to consumers. [15]

Part (b) - Question Analysis

Approach	**Command Word**	Discuss → balanced answer + evaluation
	Start point	Policy measures
	End Point	Stability of food prices to consumers
Content and Context	**Content**	HAL of policy measures (not exhaustive and limited to these): • Price ceiling • Producer subsidies
	Context	Food market

Introduction

- Government's microeconomic objective of equity: Ensure stability of food prices, considered basic necessity especially for lower income households.
- Due to bad weather conditions and falls in consumer incomes, there are different impacts on prices of vegetables as explained in part (a). These events would also result in a similar impacts on the prices of other food products.
- Brief overview of essay: policies of price ceiling and producer subsidies will be elaborated on to ensure stability of food prices.

Requirement 1: Price ceiling is an effective policy to ensure stability of food prices to consumers.

- [H] A price ceiling is a legally established maximum price that prohibits producers from selling the good above the maximum price set. It is set below the equilibrium price in the market.
- According to Figure 3, the price ceiling is set at $P_{MAX.}$
- Price of food falls from P to P_{MAX}.
- Consumers are now more willing and able to buy food at Pmax → Shortage $Q_{MAX}Q_2$ is created, where quantity demanded (Q_2) exceeds quantity supplied (Q_{MAX}).

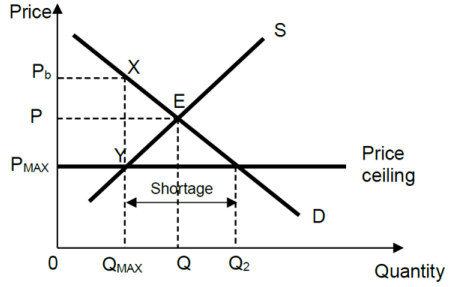

Figure 3: Market for food with price ceiling

- In times of bad weather and prices of food increases significantly (i.e., at P), price ceiling will be effective in ensuring food prices remain stable (i.e., price falls from P to P_{MAX}).

Intermediate evaluation

- [A] The price ceiling, which is compulsory by law, can take effect immediately to ensure the affordability of food in Singapore, which is a basic necessity. Hence, policy may be highly effective in ensuring the stability of food prices.

- [L] However, a price ceiling may not be the best policy as the shortage $Q_{MAX}Q_2$ may lead to unintended consequences - the formation of black markets, where producers ignore the price restriction and sell illegally above the maximum price.
- Sellers who are able to obtain Q_{MAX} amount of food, are able to sell them up to price P_b (Fig 3), as consumers are willing and able to pay up to that price.
- Assuming that the demand for food is price inelastic due to the high degree of necessity, the problem of black market is likely to be greater as consumers are willing to pay an even higher price to obtain essential food supplies.
- The existence of the black market will worsen the affordability of food, and the stability of food prices, especially to the lower income group as only the richer households will be able to buy food.

Requirement 2: Producer subsidies is an effective policy to ensure stability of food prices to consumers.

- [H] A producer subsidy is an amount of money given to food producers to lower their cost of production.

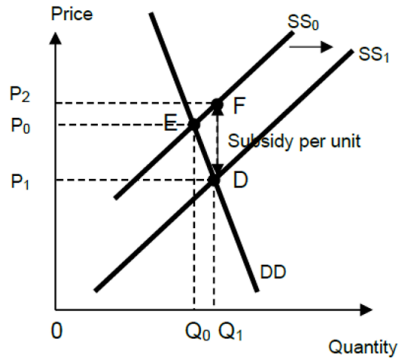

Figure 4: Market for food with producer subsidy

- A subsidy per unit of DF or P_1P_2 (Fig. 4) reduces the cost of production and causes the supply of food to increase from SS_0 to SS_1.
- As the equilibrium price of food falls from P_0 to P_1, this ensures stability of food prices especially during times of bad weather where prices of food increases sharply.

Intermediate evaluation

- [A] This policy continues to allow the free market and price mechanism to operate and clear any surplus or shortage. This avoids the negative side-effects associated of price controls like price ceiling.
- [L] However, subsidies for food would increase the burden on the government's budget, incurring opportunity cost. This is especially so when the Singapore government faces many competing needs, from healthcare and infrastructure for example.
- As a result of competing needs, the government might provide lesser producer subsidies, limiting the effectiveness of this policy as a means to ensure stability of food prices.

Summative conclusion

- In conclusion, subsidies may be a better measure to ensure stability of food prices to consumers than price ceiling as subsidies do not cause distortions to the market which may lead to significant welfare loss to society.
- Nonetheless, both subsidies and price control can only be used as a short-term policy as they are not sustainable due to budget strain and distortions to market respectively.
- In the longer run, the government can consider other policies like stockpiling, diversification of supply and research and development (R&D) to increase resistance of crops from bad weather.
- Take R&D for example, it improves the agricultural technology and solves the root cause of the issue owing to global warming. Crop varieties being resistant from bad weather would ensure that supply will not decrease as significantly, and hence ensuring stability of food prices to consumers.

Mark Scheme

Level	Knowledge, Understanding, Application, Analysis	Marks
L3	Full display of AO1, AO2 and AO3 skills: For an answer that shows well-developed explanation of the effectiveness of measures in ensuring stability of food prices to consumers • well-supported with diagrammatic analysis • well-supported with relevant examples	8-10
L2	Uneven display of AO1, AO2 and AO3 skills: For an answer that shows under-developed explanation of the effectiveness of measures in ensuring stability of food prices to consumers • lacks depth of analysis (i.e. limited effective use of relevant economic analysis or gaps in diagrammatic analysis) • lacks appropriate examples	5-7
L1	Limited display of AO1 and AO2 skills: For an answer that shows limited knowledge of effectiveness of measures in ensuring stability of food prices to consumers • listing of points, unexplained statements, or descriptive response • many conceptual errors • Smattering of points	1-4

	Evaluation	Marks
E3	For an answer that builds on appropriate analysis to evaluate and synthesizes economic arguments to arrive at well-reasoned judgements on which measure is more effective in ensuring stability of food prices to consumers.	5
E2	For an answer that makes some attempt at evaluation or a conclusion on which measure is more effective in ensuring stability of food prices to consumers but does not explain the judgement or base it on analysis.	3-4
E1	For an answer that gives superficial evaluative statement(s) without supporting analysis and elaboration on which measure is more effective in ensuring stability of food prices to consumers.	1-2