

Year 5 Weighted Assessment 1 [Mock Paper] Economics (Higher 1) 8843

SUGGESTED ANSWER

Question 1

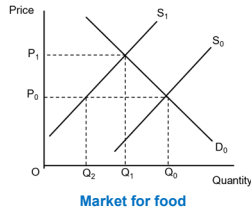
Undoubtedly, the use of mineral fertilizers has played a key and historical role in raising agricultural productivity, thus contributing to food security globally. The fallout of Russia's invasion of Ukraine has seen fertilizer prices soar, adding to farmers' costs, and further inflating food prices. In this context, rapidly increasing fertilizers prices lower affordability and reduce fertilizer use by farmers, leading to additional issues of food availability and compounding the food access problem.

- (a) Using a demand-supply diagram, explain the effect of Russia's invasion of Ukraine on the market for food. [5]

"effect... on the market" apply market dd-ss analysis (including graph & market adjustment process) to explain the effect on eqm P & Q
i.e. the PEEL link back to the question is through changes in eqm P & Q

[Trigger] Russia's invasion of Ukraine would lead to a decrease in the supply of food.

[GERMSO] Fertilizer is a key factor input in the production of food. As "fertilizer prices soar", this raises the marginal cost relative to marginal revenue. Rational producers reduce supply to avoid marginal loss.



[MAP] The decrease in supply (S_0 to S_1), holding demand constant (D_0), creates a shortage of Q_0Q_1 at the original equilibrium price P_0 , exerting an upward pressure on price. As price rises, quantity demanded declines while quantity supplied increases. The adjustment will continue up to the point where Qd balances Qs and the shortage is eliminated. <L> Resultantly, equilibrium price rises to P_1 while equilibrium quantity declines to Q_1 .

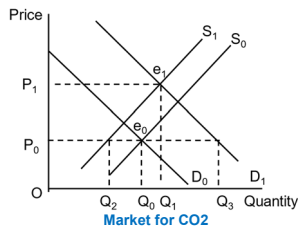
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FACTOR 2: Supply factor

[Trigger] Maintenance shutdowns has also reduced the supply of CO₂.

[GERMSO] The shutdown at industrial facilities limits the ability of producers to supply CO₂ to the market.



[MAP] The simultaneous increase in demand (D_0 to D_1) and decrease in supply (S_0 to S_1) create a shortage of Q_2Q_3 at the original equilibrium price P_0 , exerting an upward pressure on price. As price rises, quantity demanded declines while quantity supplied increases. The adjustment will continue up to the point where Qd balances Qs and the shortage is eliminated.

<L> The simultaneous increase in demand and decrease in supply have a reinforcing effect on market price – by causing a larger shortage – in turn exerting a larger upward pressure on price (P_0 to P_1).

Question 3

The nationwide shortage of CO₂ has sent food and beverage companies racing to keep operations running by hunting for alternate supplies. Regional suppliers with gas to spare say they are shipping CO₂ as much as three times farther than normal to meet the needs of new customers, while other suppliers are sending trucks hundreds of miles farther afield to secure supplies for customers.

Using example from the above extract, explain the incentive function of the price mechanism. [2]

"price mechanism" To first clarify the price change – increase or decrease

"incentive function of price mechanism" From crs POV or prs POV?

- Extract focuses on producers' POV => to emphasize profit motive
- Incentive function from prs POV = higher price incentivizes increase Qs, vice versa

The "nationwide shortage of CO₂" exerts an upward pressure on the price of CO₂. As prices increase, the units of output that can only be produced at higher marginal cost (e.g. CO₂ produced three times farther, sending trucks hundreds of miles further afield) now become profitable at higher prices, <L> incentivising firms to increase quantity supplied to capture the positive marginal profits.

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- (b) Using the concept of price elasticity of demand, explain the effect of a(i) on the consumer expenditure on food. [3]

"price elasticity of demand"

- To relate to specific PED determinant(s) ADAPTO
- Include both reason and reasoning
- Include the phrase "more / less than proportionate"

"consumer expenditure" Apply formula: cr expenditure = $P \times Q$

[PED: ADAPTO] Demand for food is likely to be price inelastic. As a necessity, consumers are unable to forgo the consumption of food (for sustenance) despite price increases. Thus the increase in price (P_0 to P_1) would bring about only a less than proportionate decrease in quantity demanded (Q_0 to Q_1).

<L> Consumer expenditure, given by $P \times Q$, must therefore increase.

Question 2

Roughly 70% of carbon dioxide (CO₂) produced in the U.S. is used for food and beverages. The gas puts the pop in soft drinks and the fizz in beer, and is turned into dry ice to keep food frozen. During the summer, demand for products such as beer and soda increases, and high temperatures this year have intensified that demand. On the other hand, maintenance shutdowns at industrial facilities that produce CO₂ gas are expected to keep supplies tight.

Using a supply and demand diagram, explain the impact of the mentioned factors on the price of CO₂. [6]

"mentioned factors"

- At least 2 factors: 1 dd + 1 ss or 2 dd or 2 ss factors?
- Consider also whether the 2 factors have "reinforcing" or "offsetting" effect on eqm P

"effect... on the price"

Price = market price
=> apply market dd-ss analysis (including graph & market adjustment process) to explain the effect on eqm P

In the case of simultaneous dd & ss changes + qn focus on P only

- If the 2 changes have a reinforcing effect on P => need not make a case about relative magnitude of the dd and ss changes
- If the 2 changes have offsetting effect on P => to either (i) present both cases of $|dd \Delta| > |ss \Delta|$ and $|dd \Delta| < |ss \Delta|$ (ii) present the more likely case with substantiation

FACTOR 1: Demand factor

[Trigger] The high summer temperature has driven up the demand for CO₂.

[EGYPTO] The higher temperatures has shifted consumers' t&p towards food items such as beer and soda. This in turn raises the derived demand for CO₂, a key factor input in the production of such goods, by profit-maximising producers seeking to meet the rising demand for beer and soda.

Question 4

It was estimated that the global demand for surgical masks was possibly several times higher during the COVID-19 pandemic. To make matters worse, the closure of airports and factories all over the world brought about a major disruption to global supply chains and the transportation of raw materials. This meant that existing production struggled to keep up with the demand for surgical masks, causing the global price of masks to rise sharply.

Using a demand-supply diagram and the concept of price elasticity of supply, explain why there was a sharp rise in the global price of surgical masks. [6]

"sharp rise... price"

To explain both the direction & magnitude of price change

Price = market price

=> apply market dd-ss analysis (including graph & market adjustment process) to explain the effect on eqm P

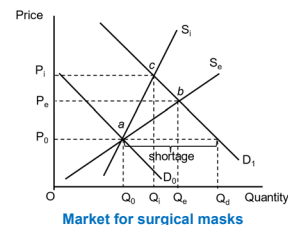
"price elasticity of supply"

- To relate to specific PES determinant(s) TEAMO
- Include both reason and reasoning
- Include the phrase "more / less than proportionate"

[Trigger] COVID-19 pandemic drove up demand for surgical masks, raising it "several times higher".

[EGYPTO] Consumers' t&p shifted towards masks to reduce infection. At the same time, government policy in many countries have also mandated the wearing of masks in public places. This increases the number of consumers in the market, adding to market demand.

[PES: TEAMO] During this period, supply of surgical mask was likely to be price inelastic. The mobility of fops was greatly limited with the disruption to the "transportation of raw materials". As resources are unable to flow into the mask-producing industry through expansion of existing firms, even as the price increases, there would most likely be only a less than proportionate increase in quantity supplied.



[MAP] The increase in demand (D_0 to D_1), holding demand constant, creates a shortage of Q_0Q_2 at the original equilibrium price P_0 , exerting an upward pressure on price. As price rises, quantity demanded declines while quantity supplied increases. The adjustment will continue up to the point where Qd balances Qs and the shortage is eliminated. <L> Given a more inelastic supply curve (S_1), the resultant price increase in price is sharper (P_0P_1) compared to the case of a more price elastic supply (S_0) where price increase is less acute (P_0P_a).

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