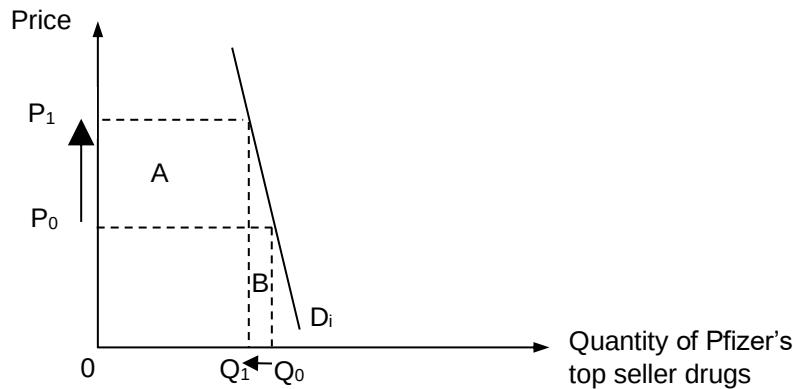


Anderson Serangoon Junior College
2024 JC1 H1 Economics Weighted Assessment 2
Suggested Answers

(a) (i)	With reference to Figure 1, describe the trend in average wholesale price (AWP) of brand-name drugs in the US from 2014 to 2023. [2]
	AWP generally increased consistently over the period. AWP increased at a faster rate till 2017 before slowing down. OR Rate of increase fell from 2017 to 2023. AWP generally increased at a decreasing rate
(ii)	With reference to Extract 1, explain one demand and one supply reason for the general trend identified above. [4]
	Drug prices have been rising over the years due to higher incomes as a result of steadily rising economic growth. This leads to an increase in purchasing power, which increase consumers' ability to consume and caused demand for pharmaceutical drugs to rise. The rising cost of raw materials, such as chemicals used to produce the drug, can also result in higher drug prices. When the prices of FOPs rise, expected profits drop, and producers become less willing and able to put up for sale the product and decrease supply. The simultaneous rise in demand and fall in supply cause a shortage, creating an upward pressure on price, and resulting in higher drug prices.
(b)	“Drug price hikes could help make up for lost revenue as doctor visits and new prescriptions plummeted during the global lockdown.” Using the concept of PED, explain why Pfizer plans to raise prices to make up for lost revenue and comment on the effectiveness of such a plan. [6]
	The global lockdown could have led to a decrease in revenue for drug manufacturers such as Pfizer due to reduction in number of doctor visits. Revenue is derived from $P \times Q$. R1 [4m]: Pfizer hence attempted to raise prices to compensate for the lost revenue. Extract 1 states that Pfizer plans to raise prices on some of its top sellers. Since these drugs are seen as “life savers” and “have worked well for many patients”, they are likely considered to be essentials with few substitutes. Therefore, demand for these drugs is price inelastic. Furthermore, these drugs are likely to be patented, preventing other firms from producing them. The lack of close substitutes makes the demand for these drugs price inelastic. Therefore, an increase in price will lead to a less than proportionate fall in quantity demanded. As shown in the diagram below, the increase in revenue from the higher price (Area A) is greater than the decrease in revenue from the reduced quantity demanded (Area B). Overall, the revenue increases, and Pfizer’s plans to raise prices could help make up for the initial lost revenue.



Comment [2m]:

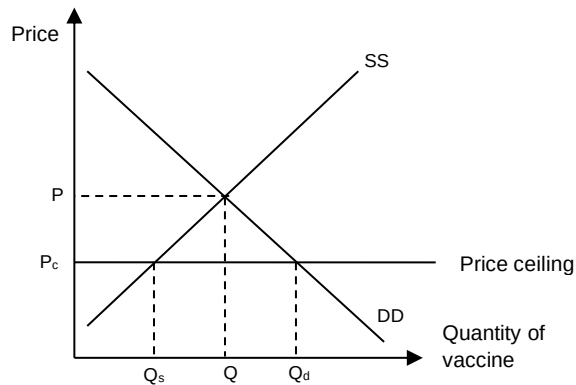
However, the effectiveness of Pfizer's plans could to "help make up for lost revenue" depends on (Choose 1):

- (a) The extent of the fall in total revenue due to the global lockdown. As stated, "doctor visits and new prescriptions plummeted during the global lockdown," indicating a large decrease in the demand for Pfizer's prescription drugs. Hence if the rise in TR from the increase in price is unable to offset the significant fall in demand, then Pfizer's plan will not be effective.
- (b) The above analysis using PED is on the basis of the assumption of ceteris paribus. In reality, other factors are also changing. For example, during the pandemic, other than the lockdown, there was also loss of jobs and fall in income, which could further reduce demand. As demand falls, both price and quantity fall, and if the decrease in total revenue is significant, then the price hikes alone might not be sufficient to make up for the lost revenue.
- (c) Alternatively, the effectiveness of such a plan would depend on the validity of the assumption that the demand for the drug is price inelastic. Extract 1 states that "there are patients who developed side-effects and had switched to other brands", indicating that substitutes are available for patients who are not suitable for Pfizer's top sellers. If demand is price elastic due to the availability of many substitutes, raising the price would cause a fall in total revenue instead because of the large decrease in quantity demanded. In this case, Pfizer's plans to raise prices for its top seller would not only not make up for lost revenue but might even reduce revenue overall revenue.

Therefore, while Pfizer's plan to raise prices to increase total revenue is a sound strategy, its effectiveness could vary depending on several factors.

(c) Using a diagram, explain the effects of a "price cap" on the market for vaccine. [3]

A price cap is a price ceiling that is a legal maximum on the price that the good can be sold at. It is set below the market equilibrium price.



The price of vaccine is capped at P_c , which is below the market equilibrium price, P_0 , as seen in the diagram. With the fall in price to P_c , the quantity demanded, Q_d , will be in excess of the quantity supplied, Q_s . A shortage of vaccine by the amount $Q_d - Q_s$ thus occurs with the introduction of a “price cap” on vaccine. Quantity traded will now thus fall from Q to Q_s .

(d) Explain how the presence of positive externalities leads to failure in the market for COVID-19 vaccination. [5]

Governments intervene in the market for COVID-19 vaccination due to the presence of positive externalities.

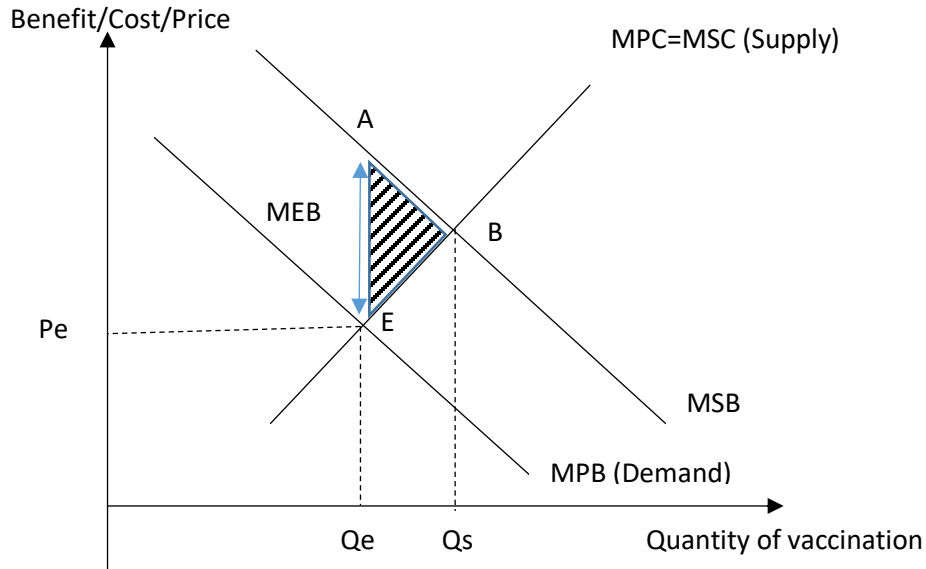
Assuming a perfectly competitive market, the demand curve reflects the marginal private benefits (MPB) of consuming an additional unit of vaccination, which is that “it protects the individual and prevents one from getting COVID-19”, as stated in Extract 3. The supply curve reflects the marginal private costs (MPC) of producing an additional unit of vaccination such as the cost of labour and capital.

In the free market, consumers and producers being rational and self-interested will seek to maximise their utility and profits. They consider only their private costs and benefits when deciding how much to consume/produce. This means that the free market equilibrium, where demand meets supply or when $MPB = MPC$ is at Q_e .

However, the consumption of vaccination generates positive externalities, ie marginal external benefits (MEB) to third parties such as “the people whom the person being vaccinated comes into contact with”. “Once enough people have been vaccinated, those who have not been vaccinated are sheltered by those who have.” As vaccinated individuals have lower risk of being infected with COVID-19, people around them such as their family members and co-workers are therefore less likely to contract the virus from them. However, this external benefit is ignored by consumers who are only concerned with pursuing their own self-interest.

The MEB results in divergence between marginal social benefit (MSB) and MPB. Hence the MSB curve is above the MPB curve and $MSB = MPB + MEB$.

However, the socially optimal level of consumption of education is at Q_s where marginal social cost (MSC) = MSB. As $Q_e < Q_s$, there is under-consumption of vaccination.



$Q_s Q_e$ represents an under-consumption of vaccination. From Q_e to Q_s , the MSB is greater than the MSC, indicating that the additional benefit to society is more than the cost to society of producing these units. By summing the excess of the marginal social benefit over the marginal social cost for $Q_e Q_s$, we arrive at a monetary measure of **total deadweight loss to society** equal to the **area ABE**. Thus, society welfare is not maximised when society under-consumed vaccination.