

PJC 2017 H2 Prelim Exam Paper 1

Question 1: Pharmaceutical Industry and Healthcare

- (a) (i) Using Table 1, compare the trends of total health spending per capita and government spending on health per capita in Singapore between 2010 and 2014. [2]

Suggested answer:

Both the total health spending per capita and government spending on health per capita increased between 2010 and 2014.

Government spending on health per capita rose at a faster rate than the increase in total health spending per capita.

Other accepted answer:

Total health spending per capita is increasing at a decreasing rate while government spending on health per capita is increasing at an increasing rate.

- (a) (ii) Identify a reason for the difference in the trends observed in (a)(i). [1]

Suggested answer:

Singapore is facing an ageing population and government would be giving more subsidies for aged patients, resulting in faster increase in government spending on health per capita than total health spending per capita. OR

With the introduction of MediShield Life, government would be giving more subsidies for people to purchase it, resulting in faster increase in government spending on health per capita than total health spending per capita.

- (b) Explain the type of market structure that pharmaceutical companies are likely to operate in. [2]

Suggested answer:

The market structure that pharmaceutical companies are likely to operate in is oligopoly.

In the pharmaceutical industry, there are high barriers to entry such as high innovation cost/ high cost of developing new medicine, ability to reap economies of scale (EOS) and the existence of patents. These high barriers to entry could result in few large firms producing a drug with large market share. OR

The mutual interdependence between the pharmaceutical companies results in collusion or mergers to reduce competition and uncertainty. These are the typical behaviour in an oligopolistic market structure.

- (c) Explain whether the high price of pharmaceutical drug is caused by demand or supply factors. [4]

Suggested answer:

According to extract 1, the high price of pharmaceutical drug could be caused by high research and development (R&D) cost which is a supply factor. High R&D cost raise cost of production which shifts supply curve leftwards, leading to increase in price.

Pharmaceutical companies also market/advertise their drugs to ensure demand. Such marketing influences taste and preferences which increases demand, shifting demand

curve rightwards, leading to increase in price.

Demand factor likely to be the main factor causing high price of pharmaceutical drug as the cost of innovation is mainly fixed cost rather than variable cost, thus supply does not rise by large extent.

- (d) “The lack of generic insulin has hindered price competition for the key diabetes [3] medicine.”

Explain the likely effect on the profits earned by the producer of insulin following the entry of generic insulin.

Suggested answer:

The entry of generic insulin increases the number of substitutes available. This reduces the market share of the producer of the original insulin and demand falls, also making the demand becoming more price elastic. The equilibrium price and quantity falls, leading to fall in total revenue. Assuming ceteris paribus, fall in total revenue leads to fall in profits.

- (e) Discuss the factors that will influence the US government’s decision to approve the [8] merger between two larger pharmaceutical firms such as Pfizer and Allergan.

Suggested answer:

US government has the objective of maximizing society welfare and will thus consider the impact on society when making the decision.

In terms of costs, consumer welfare may fall as the merger of Pfizer and Allergan will give the merged firm significant market share in the pharmaceutical industry, granting them higher market power which makes their demand more price-inelastic. This allows the merged firm to raise price to earn higher total revenue, leading to lower consumer welfare. With fewer firms in the market, there is also greater ability to collude informally via price leadership. There will be less price competition taking place, leading to consumers facing higher prices and lower consumer surplus. The higher price above MC worsens allocative inefficiency and causes welfare loss to society. Furthermore, the merged firm being able to earn greater supernormal profits in the long run, also worsens income distribution between producers and consumers.

In terms of benefits, there exist some benefits to consumers. According to extract 1, the merger allows the merged firm to cut cost and reap economies of scale. This is so as the merged firm would have larger market share and hence producing on a larger scale. This allows the merged firm to enjoy cost savings from large scale production. AC and MC falls, leading to the fall in equilibrium price and quantity increases, raising consumer welfare. The supernormal profits earned by the merged firm will also increase their ability to pay for high cost of innovation. New drugs could be produced as a result, increasing consumer welfare and also leading to greater dynamic efficiency in the economy.

There are also some unintended consequences arising from the merger. The merger will mean less resource will be devoted for marketing and advertising purposes, leading to less wastage of resources. There could also possibly be less mis-branding taking place, reducing the market failure that arises from imperfect information. Thus from the microeconomic perspective, the merger provides some advantages.

Evaluation

Thorough long term cost-benefit analysis is necessary to decide whether to approve the merger between Pfizer and Allergan. In particular, the US government has to consider whether the medical needs of patients would be compromised due to the merger. If the

merger goes through, mitigating policies such as healthcare subsidy to lower-income households should be implemented to ensure pharmaceutical drugs/medicines remain affordable to patients.

- (f) Discuss whether the Singapore government's policies in the healthcare market can be justified. [10]

Suggested answer:

Singapore government's policies in the healthcare market can be justified.

Singapore government has implemented MediShield Life, setting up the Agency for Care Effectiveness (Ace) and moral suasion via campaigns to encourage Singaporeans to adopt healthy living and to go for regular health screenings. These policies can be justified.

MediShield Life was meant to help Singaporeans with rising healthcare costs as well as because of Singapore's ageing population. MediShield Life is a healthcare insurance policy that offers protection for everyone, even the very old, for life. MediShield Life pays for more of patient's hospital bills and patients will have to pay less, helping Singaporeans cope with rising healthcare costs. Such policy which covers the elderly also aim to help elderly in Singapore sustain the level of healthcare service that they can enjoy, aiding them in enjoying longer healthy lives. MediShield Life is also intended to address inequity issues by ensuring everyone is covered and no one is left behind. With this policy, PMB could also increase and converge with SMB and the external benefits of healthcare can then be internalized.

Ace was set up to reduce imperfect information. Patients and physicians may have viewed certain medication to have higher perceived benefit than actual benefit, possibly due to the mis-branding by pharmaceutical companies. This leads to the divergence between perceived PMB and actual PMB, leading to overconsumption/over-provision of the medication, leading to deadweight loss (DWL) as shown by the shaded area in Figure 1 below.

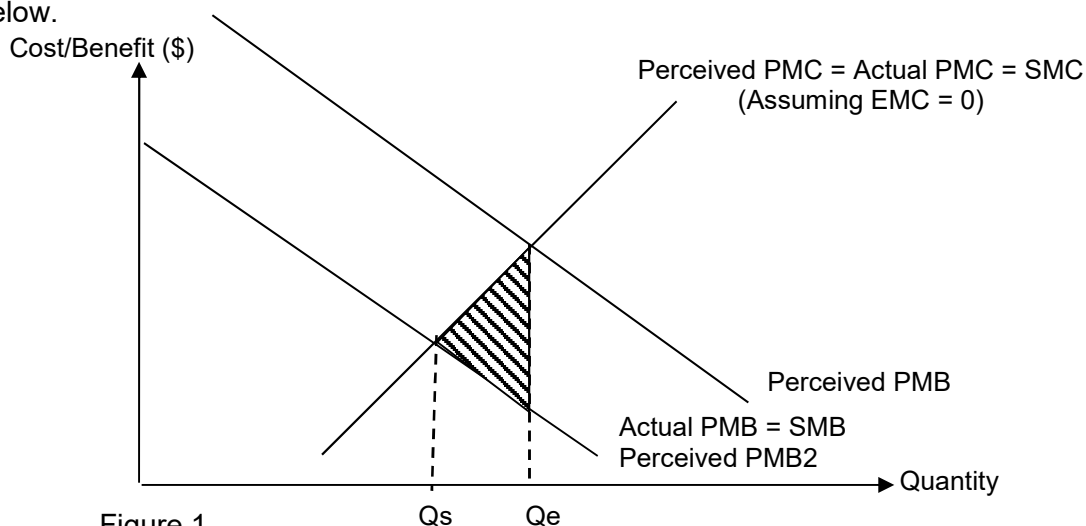


Figure 1

Ace will plug the information gap and fill patients and physicians with more accurate information on medication, allowing them to make more informed treatment decisions. Such policy will shift perceived PMB to perceived PMB2 which coincides with actual PMB, eliminating DWL and market failure arising from imperfect information. This policy also complements MediShield Life in terms of lowering healthcare cost as Ace is meant to help patients get the most out of what they are paying for their medication.

Singapore government is also adopting moral suasion on healthier living and more regular health screening to combat diabetes. Diabetes is a disease which is linked to lifestyle factors and patients may have to take the diabetes medicine for life. Furthermore, according to extract 2, diabetes can in turn lead to damages to heart, kidney and blood vessels. It is thus a costly disease for patients as well as for the government. It is intended that with moral suasion, Singaporeans can make better lifestyle choices and allow perceived PMB of healthcare services such as health screening to rise and converge with actual PMB, addressing imperfect information. Singaporeans will then adopt healthier lifestyle habits, preventing the incidence of diabetes. This reduces the healthcare burden on Singaporeans and also on the government.

The policies adopted are not without limitations. With MediShield Life being a healthcare insurance policy, it could possibly lead to 'buffet syndrome' (perceived PMC < actual PMC), where patients consume healthcare more than what they required, as most of the cost is paid by insurance company. Overconsumption of healthcare procedures results. Such healthcare insurance policy could potentially cause moral hazard issues as well. Patients, knowing that they are covered by insurance, may take riskier behaviors, such as unhealthy lifestyle habits. They now have less incentive to take care of their health, knowing the healthcare costs will be borne by insurance company and not by themselves.

Campaigns on healthy living are costly and can put a strain on limited government resources. In addition, success of moral suasion depends a lot on the mindset of Singaporeans and their commitment level in wanting to change their lifestyle habits. Singaporeans' mindset may be rigid due to cultural and social norms. It also takes a long time to see the result of the policy.

In view of Singapore's ageing population, rising healthcare costs and market failure due to imperfect information, the three policies adopted by the Singapore government are justified. In particular, it is important that the Singapore government cushions the rise in healthcare cost as it is affecting medical tourism. Other than the above policies, more can also be done to ensure Singapore medical hub provides quality medical treatments that are better than neighbouring countries such that medical tourists continue to come to Singapore, boosting Singapore's export revenue (X). Optimistic outlook for medical tourism also attract greater investments by pharmaceutical firms into Singapore, increasing investment (I). Increase in X and I increase aggregate demand (AD), leading to higher real GDP for the Singapore economy.