J2 June Intensive Revision

**CSQ – Lesson 3 – Cost of Production / Market Structures – Q1**

**Healthcare in China and India**

**Table 1: Health expenditure per capita, 2009-2013**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 2009 | 2010 | 2011 | 2012 | 2013 |
| China | 189 | 216 | 274 | 322 | 367 |
| India | 46 | 54 | 61 | 58 | 61 |
| Japan | 3746 | 4115 | 4656 | 4787 | 3966 |

Source: The World Bank Group

## **Table 2: Selected healthcare indicators, 2013**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Life expectancy at birth (years) | Mortality rate, under 5 years  old (per 1000) | Immunization, measles (% of children ages 12-  23 month) | Improved sanitation facilities (% of population with access) |
| China | 75 | 13 | 99 | 65 |
| India | 66 | 53 | 74 | 38 |
| Japan | 83 | 3 | 95 | 100 |

Source: The World Bank Group

## **Figure 1: Market share of the top 10 drug companies in China and US in 2012**

USA

China

0%

10%

20%

30%

40%

50%

60%

Source: IMS Health

## **Extract 1: Why India trails China**

Modern India is, in many ways, a success. But beside slower growth, the far greater gap between India and China is in the provision of essential public services like education and healthcare – a failing that depresses living standards and is a persistent drag on growth.

India’s underperformance is due to a failure to learn from the examples of Asian economic development, in which rapid expansion of human capability is both a goal in itself and an integral element in achieving rapid growth.

Japan used investments in education and healthcare, to simultaneously enhance living standards and labour productivity and thus achieve rapid economic growth. Their development experiences remained and were followed, by Singapore and China in the early 1980s. There are strong economic returns that come from bettering human lives, especially at the bottom of the socioeconomic pyramid. For India to match China in its range of manufacturing capacity — its ability to produce gadgets of almost every kind, with increasing use of technology and better quality control — it needs a better-educated and healthier labour force at all levels of society. China’s healthier, more productive workforce and its resulting manufacturing capacity is a strong pull factor for foreign firms, when deciding where to locate their factories and firms. It has also allowed China to become the manufacturing hub of the world.

Source: *New York Times*, 19 June 2013

## **Extract 2: Things to know about India’s healthcare system**

In India, one of the fastest growing economies globally, a staggering 70% of the population still lives in rural areas and has no or limited access to hospitals and clinics. Many rely on herbal, alternative medicine and government programmes in rural health clinics as they do not know the importance of proper healthcare. Also, only a small percentage of the population has access to quality sanitation, which further exacerbates health problems due to easy spread of diseases. There is a growing need to fix its basic health concerns in the areas of HIV, malaria, tuberculosis, diarrhoea and mortality. For primary healthcare, the Indian government contributes only about 30% of the country’s total healthcare expenditure, the 11th lowest in the world in 2013.

Source: *Forbes India*, 9 September 2014

## **Extract 3: Drug companies face pressure despite China price pledge**

China’s leaders on Thursday said Beijing would lift maximum price controls on pharmaceuticals, a move long called for by drug companies and health experts to encourage both foreign and domestic firms to offer better drugs. According to consulting firm McKinsey & Co., the move could further open up the pharmaceutical industry. The industry totaled 655 billion yuan in drug sales last year, up 14% from 2013. The move “creates more incentives for foreign and local firms to develop more innovative drugs,” according to research firm China Global Insight.

The move is part of a broader government effort to create lower drug prices through free-market competition in the long term. Many drug companies might look to increase profits by raising prices, but they ultimately still compete on price and will be forced now to more greatly differentiate themselves through branding. China has long kept a tight rein on drug prices as part of its efforts to keep medical care affordable for its vast and ageing population. But the industry and experts have blamed price pressures for spurring some domestic manufacturers to cut corners such as using leather scraps to make gelatin capsules, leading to high levels of carcinogenic substances in their pills to maintain profits.

Authorities have been slowly stepping away from price restrictions, ending retail-price caps on low-cost medicine last year. But they have struggled to promote innovative drugs and ensure stable supplies.

Source: *The Wall Street Journal*, 5 March 2015

## **Extract 4: China: A soaring demand for quality medical care**

Despite the Chinese healthcare system running at full speed over the past few decades, it can’t move fast enough to keep up with the country’s social and economic changes. China’s per capita GDP grew more than 25-fold from 1980 to 2011; its life expectancy rose by nine years; its infant mortality rate quartered. By the end of last year, China's elderly comprised 14 percent of its population. That figure is expected to grow to 25 percent by 2030. It is an appealing market for pharmaceutical firms and medical-equipment makers; with spending in the industry expected to nearly triple to $1 trillion by 2020 from $357 billion in 2011**.**

Yet, hospitals are not keeping up well enough. Those who need the essential, basic services are unable to seek treatment, including this growing elderly population. China has a lack of doctors and that has led to bottlenecks at hospitals, with frustrated patients who want to receive better medical attention resort to bribing doctors.

The Chinese government has poured billions of dollars into healthcare reform in recent years, and the system has improved accordingly. Yet the price of basic medical services has also risen, with patients still paying the same amount as they did before despite subsidies. Thus, China has one of the highest savings rates in the world – about 50% – largely because families fear catastrophic healthcare costs.

Therefore, China will increase its healthcare subsidies by 19 percent this year to deepen social reforms and strengthen safety nets. Authorities will also use new technologies, new training regimens for doctors, reduce the cost of drugs and medical checks, and increase the availability of doctors in rural areas, with the total number of doctors doubling by 2020. Yet, many feel that these measures are still insufficient as these resources are likely to move into more lucrative sectors like cosmetics and cardiology, rather than the much-needed general family medicine.

Sources: *The Guardian*, 29 October 2014 and *Reuters,* 9 May 2015

## **Questions**

(a)

1. Compare the trend of health expenditure per capita between India and China from 2009 to 2013. [2]
2. What conclusion would you draw from Tables 1 and 2 about the relationship between health expenditure and healthcare outcomes? Explain your answer. [4]

(b) Assess whether implementing measures similar to those undertaken by the Chinese government is the most appropriate way for the Indian government to achieve better healthcare outcomes. [8]

(c) Identify the market structure of the pharmaceutical industry in China and USA. [2]

(d)

1. Explain the possible barriers to entry for the pharmaceutical industry. [4]
2. Discuss how the market structure of the pharmaceutical industry in China will affect the ability of firms in this industry to make excess profits in the long run when the Chinese government removes price controls. [10]

[Total: 30]

**Suggested Answers**

**(a)(i) Compare the trend of health expenditure per capita between India and China from 2009 to 2013. [2]**

Similarity

The health expenditure per capita in both China and India shows increasing trends from 2009 to 2013.

Difference

China’s health expenditure per capita is consistently increasing while India’s fell once in 2012.

OR

China’s health expenditure per capita is increasing faster than India’s (94% versus 33%)

**(a)(ii) What conclusion would you draw from Tables 1 and 2 about the relationship between health expenditure and healthcare outcomes? Explain your answer. [4]**

Explain relationship

There is a positive relationship between health expenditure per capita and healthcare outcomes. Higher per capita spending on health would lead to better healthcare outcomes as more spending on healthcare would mean people can get protected and treated against diseases and illnesses.

Explain evidence

China has a larger spending on health expenditure per capita than India and better healthcare outcome in terms **lower mortality rate of children under 5 years old.** This could be due to China having higher % of children whom are immunized against measles hence they are less likely to be infected and grow up healthily.

China has also better healthcare outcome than India in term of **higher life expectancy at birth.** A reason could be because China has better sanitation facilities than India which resulted in the Chinese being able to live more hygienically and less susceptible to diseases which resulted in

**(b) Assess whether implementing measures similar to those undertaken by the Chinese government is the most appropriate way for the Indian government to achieve better healthcare outcomes. [8]**

**(strengths and weakness of the solutions for use in India – consider the situation in India)**

**Introduction**

Measures adopted by the Chinese government to improve healthcare outcomes of life expectancy at birth and infant mortality rate

1. Increase in healthcare subsidies
2. Increase number of doctors in rural areas
3. Use new technologies

# Development

**Discuss whether India should implement the above measures taken by China.**

* Describe the mechanism of the measures
* Assess the strengths and weaknesses
* Consider the situation in India

1. **Increase in healthcare subsidies**

India should increase healthcare subsidies as health expenditure per capita in India is much lower than in China and Japan. Table 1 and 2 has shown that there is a positive relationship between health expenditure and healthcare outcome. **An increase in healthcare subsidies which makes healthcare services more affordable would be able to increase consumption of healthcare which improve healthcare outcome as people get treated for their medical condition.** A subsidy is a payment made by the government to producers in order to lower their cost of production. By subsidizing the production of healthcare, the **supply will increase** and equilibrium price lowers and equilibrium quantity increases. Alternatively, subsidies could also be given to consumers. The increase in healthcare subsidies would be the most helpful for the low income workers as healthcare may be too expensive for them as **majority of Indian population still lives in rural area.**

Increasing subsidies may impose a **large burden on India’s government budget** as the demand for healthcare is likely to be price inelastic. Hence a large amount of subsidies is required to increase consumption on healthcare significantly to improve healthcare outcome.

This may be not a serious problem as the spending on healthcare need not increase significantly. The Indian government currently spends only about 30% of the country’s total healthcare spending on primary healthcare, the 11th lowest in the world in 2013 (Extract 2). Hence the Indian government could just reallocate more of the total healthcare spending towards primary healthcare.

# Increase number of doctors in rural area

India should also increase number of doctors in rural area as 70% of Indian population still lives in rural area. There may be a lack of doctors in the rural area as there is **limited or no access to hospital and clinics** (Extract 2) to meet the huge demand and resulted in low consumption of healthcare and therefore poorer healthcare outcome. India government could subsidize the training of new doctors so that the cost of a medical degree is lower and **supply of doctors would increase**. With the increase in supply of doctors, **more people could get access to doctors** and get treated.

However, training of doctors takes time and healthcare outcome may only improve in the long term. Hence it may not be the most appropriate measure if healthcare outcomes were to improve quickly.

While increasing number of doctors would mean more people could get treated at a cheaper price, it may not be the most appropriate measure as it does not solve the problem of poor sanitation in India which increased the possibilities of people getting infected.

1. **Use new technologies**

India could also use new technologies to improve its healthcare outcomes. The use of new technologies would **improve the quality of healthcare services** and productivity level, thus allowing more patients to be treated more effectively. Examples include the use of more advanced medical equipment which allows doctors to detect diseases more accurately and prescribe the correct drugs so that people become healthier and can live longer.

However, the use of new technologies could increase the price of healthcare services as the cost of these new technologies may be passed onto the consumers. Price of healthcare services would increase if productivity level does not increase sufficiently. The rural population may not have the purchasing power to pay for the better quality healthcare services even with the increase in subsidies. Moreover, **India lacks basic healthcare services and not higher quality healthcare services** hence it may not be the most appropriate measure.

**Conclusion**

**India should only implement the measures which can tackle the root causes of its poorer healthcare outcome.** From the data given, India faces inadequacies in terms of quality sanitation and knowledge of proper healthcare (imperfect information). Hence increasing subsidies and using new technology may not be the appropriate measures. Increasing number of doctors in the rural area would be more appropriate especially if the doctors can impart knowledge about proper healthcare to the Indians rural population

Other policies may be more appropriate such as **education and legislation on compulsory vaccination** as these policies tackle the root causes of the problem directly. Awareness campaigns about proper healthcare could be conducted in the rural area so that the Indian would visit the doctor to receive proper treatment instead of relying on herbal and alternative medicine. A law may be enacted to ensure all children are immunized against measles to protect themselves from the deadly disease.

Why India can copy the measures introduced in China?

* Large population size and therefore need a centralized approach to introduce healthcare services
* Affluent income and high saving rate – potential market demand for healthcare
* Big countries with many rural areas
* The influence of the pharmaceutical firms

**(c) Identify the market structure of the pharmaceutical industry in China and USA. [2]**

The market structure of the pharmaceutical industry in China is **monopolistic competition** while the market structure of the pharmaceutical industry in USA is **Oligopoly.**

**Why MC in China? – because of price control – cannot set price to raise revenue and profit – therefore no incentive to innovate to create barriers to entry**

**Why oligopolistic in US? – patent rights**

**(d)(i) Explain the possible barriers to entry for the pharmaceutical industry. [4]**

Explain any two types of barriers to entry

One of the possible barrier to entry is **patent.** Patent is a set of exclusive rights granted by a sovereign state to an inventor or assignee for a limited period of time in exchange for detailed public disclosure of an invention. Pharmaceutical firms can apply for patent for new drugs created through R&D. Hence existing and new pharmaceutical firms will not be able to manufacture the drugs until the patent expired, giving the firm monopoly power.

Another possible barrier to entry is that of **branding.** Larger existing firms have the financial ability to engage in product differentiation through advertising due to their ability to reap supernormal profit in the short run. Smaller new entrants may not have the brand loyalty to compete with these firms especially if the drugs sold are similar (selling drugs whose patents have expired)

**Significant internal economies of scale** can prevent the entry of new firms. The pharmaceutical industry is a highly capital intensive industry where huge amount of money is devoted into R&D of new drugs in order to dominate the market. Potential new entrants may not have the startup fund and researchers to enter the industry. Large firm are also able to spread out its R&D cost over a larger output. Large pharmaceutical firms can also reap marketing economies of scale where the firm can spread its advertising cost over a large output and lower its average cost.

**Safely regulation** can be a form of barrier to entry for the pharmaceutical industry. Pharmaceutical firms are subjected to very stringent testing by authorities due to the huge potential health hazard a clinically unproven drug can bring to people. New firms may not have the expertise and technology to attain the necessary safety standards to enter the industry.

**(d)(ii) Discuss how the market structure of the pharmaceutical industry in China will affect the ability of firms in this industry to make excess profits in the long run when the Chinese government removes price controls. [10]**

**Structure of discussion**

1. **Explain how price control works and its impact on removal – how it makes the market become more oligopolistic ( have higher degree of market power**
2. **How the big foreign firms will gain**
   1. **– how it allows the firm to create higher BTEs to set price**
   2. **– how it raises their profitability**
3. **How the small local firms will lose out but can merge to be able to raise competitiveness**

Introduction

Explain how price control works in the pharmaceutical industry in China and its implication on the likely types of profits pharmaceutical firms are likely to make currently

Price control in the pharmaceutical industry in China refers to a price ceiling or maximum price legislation in order to keep drug prices low so that medical care is affordable (Extract 3) Hence **a price below the market equilibrium price is imposed by the government.**

As the market structure of the pharmaceutical industry in China currently is monopolistic competition due to weak barriers to entry, there are many small firms selling slightly differentiated drugs. **Weak market power and the price ceiling meant that pharmaceutical firms in China are likely to make only normal profits (or a small amount of supernormal profit) currently.**

With removal of the price control, the firms in this industry has incentive to grow and create BTEs higher profit

**Development: Discuss how the removal of price control would affect the ability of different pharmaceutical firms to make excess profit in the long run**

Key idea: **The ability to make excess or supernormal profit in the long run depends on the strength of the barriers of entry which would ultimately determine the market structure of the industry.** The higher the barriers to entry, the more market power the firms have and the more able the firms can make excess profits in the long run.

# Large foreign pharmaceutical firms

The removal of price controls would increase the market prices of drugs and **increase the amount of profits pharmaceutical firms would make**. **Bigger foreign firms may now also choose to enter** the Chinese pharmaceutical market and they are able to do so due to the weak barriers to entry. US pharmaceutical firms are likely to be bigger as the US pharmaceutical industry is an oligopolistic one. They **have the financial capabilities and technological know-how to innovate hence erecting higher barriers to entry in the industry.**

Initially the price controls stifled innovation as there are no incentives for firms to engage in R&D to create new drugs so that they could charge a higher price for it to make higher revenue. The price control will not cover the cost of R&D poured into the innovation. Now due to the removal of price controls, there is now incentive and ability to innovate. As the new drug has no or few substitutes, demand would be price inelastic and a price increase would result in a less than proportionate decrease in quantity demanded. Demand would also increase if the new drug is able to cure illness faster or even provide a cure where no existing drugs can do so. **Firms could then apply for patent** to be the sole manufacturers for an extended period of time and earn supernormal profit. These **supernormal profits can then be reinvested into R&D so that further innovation can take place and stronger barriers to entry can be erected.** This may then result in an oligopolistic market in the long run where firms are more able to make excess profits in the long run.

Furthermore, these large foreign pharmaceutical have **existing brand name and financial abilities to engage in large scale advertising which can create brand loyalty**, hence lowering the price elasticity of demand. Demand for the firm’s product would also increase as consumers switch from rival firms. The firm can then increase price and receive more revenue. Assuming the revenue earned is more than the cost of the advertising, profit would increase. The **increased in brand loyalty also erect a higher barrier of entry in the industry and blocked off potential entrants, enhancing the ability to make excess profit in the long run.**

Draw and describe the big firms will gain supernormal profit due this barriers to entry.

# Existing firms

The removal of price control would increase the profit of the existing firms. To compete with the potential entrant of large foreign pharmaceutical firms, these firms could use the supernormal profit earned to engage in R&D to innovate new drugs as well as advertising. Hence the ability of these firms to make excess profits depends on:

* 1. The **extent of the increase in supernormal profit due to the removal of price control.** Both require huge monetary outlay and the increase in supernormal profit may not be enough for the firms to engage in R&D or advertising.
  2. What the firms do with the increase in supernormal profit. **Without innovation, any advertising is likely to focus on branding where perceived differences are created between rival firms.** This would only result in **slight product differentiation and barriers of entry would remain weak.** Thus the firms are unlikely to make much supernormal profits in the long run
  3. **Whether the firms merged.** Merging allows these existing firms to compete more effectively with the larger foreign firms through reaping more internal economies of scale and tapping on existing brand loyalty. Smaller firms would not be able to compete on both quality of drugs and prices hence they would be driven out of the market.

# Conclusion

The **capital intensive nature of the industry means that it is likely to be oligopolistic when the government removed price control and allows free market forces to work.** Hence, the removal of price control enhance the firms’ abilities to make excess profits in the long run but not all existing firms would be able to make excess profit in the long run as the smaller inefficient firms are unlikely to survive. Moreover, innovation takes time and there is no guarantee that it will be successful as there is high risk involved. Given that China is still a developing country with less expertise and infrastructure on R&D, the likelihood of successful innovation is reduced.

Whether Pharmaceutical firms in China can make excess profit in the long run when the Chinese government removes price controls also depends on

* + 1. **Strength of patents:** The stronger the patent, the more likely innovation will take place and potential entrants are less able to enter the market. Hence the more able Pharmaceutical firms in China can make excess profit in the long run. Extract 3 pointed out that the regulation in china is not very strong as firms are able to cut corners using inappropriate material in their drug manufacturing process. Hence firms may not be willing to engage in R&D if they feel that the Intellectual Property law is not strong enough
    2. **How open the Chinese government is towards foreign firms.** The more open the Chinese government is towards foreign firms, the more likely innovation will take place and potential entrants are less able to enter the market. Hence, the more able Pharmaceutical firms in China can make excess profit in the long run. Although the entrant of big foreign pharmaceutical firms could bring about more innovation and thus dynamic efficiency, this would lead to the closure of domestic pharmaceutical firms and thus bring about unemployment. Hence additional government regulation (protectionism) may be imposed to protect the domestic producers and slow down the rate of innovation.