

## Homework 6 – KEY

Average: 63.7 + 12pts GI bonus

Due on 20/2/2024, by 23:00

This assignment is optional but STRONGLY RECOMMENDED. If you do not submit the answers till the deadline, the score of your final exam will substitute for the score for this assignment. Submit only the correct letter for each task on eLearn under 'Quizzes' within 'COR2100-Economics and Society G7-8-9-10'. Note that the actual text of questions and answers is not supposed to appear on the eLearn quiz. You have unlimited attempts. The system is programmed to credit your last attempt. Be informed that if you submit an attempt and afterwards you re-open the quiz, you must submit your answers AGAIN. Otherwise, the system will grade the unfinished attempt with 0 (because it is the last one) and there is NOTHING I can do to fix this after the fact. Late homework or homework submitted outside eLearn cannot be accepted as this would violate SMU official policy for fairness and transparency in grading. This assignment is protected by Grade Insurance™: If the assignment's average turns out to be below 75, an equal amount of bonus points will be given to every work, for the average to become 75. Direct any homework questions to your TA.

- 1✓ Which of the following is most possible to be excludable?
- A. Police protection. *[You cannot exclude citizens who do not pay for it]*
  - B. The legal system. *[You cannot exclude a citizen from justice]*
  - 88%C. **Modern art.** *[Most art museums are not free]*
  - 10%D. The use of Cyrillic alphabet. *[You cannot exclude someone from using it]*
2. Which of the following is most likely to be a rival good?
- A. A series on Netflix. *[If I watch it, I do not preclude you from doing so]*
  - 24%B. An airshow. *[If I watch the show, you can watch it too]*
  - 15%C. The design of a t-shirt. *[One using it does not preclude others]*
  - 57%D. **A company logo.** *[If a company uses it, others cannot]*
3. Which of the following is accurate for government intervention in a PC market?
- 14%A. By imposing price ceilings and floors governments can reduce the market's DWL. *[In PC markets there is zero DWL]*
  - B. Price ceilings and floors are meaningless in PC markets. *[Price ceilings increase consumers' accessibility to some products, while price floors guarantee a minimum level of profits to producers]*
  - 74%C. **Price ceilings and floors ruin market's efficiency.** *[PC markets are fully efficient at equilibrium but price ceilings and floors prevent the market from equilibrating at the PC equilibrium]*
  - D. PC markets always achieve the socially desirable outcome. *[Incorrect, there are examples when prices are too low for farmers, etc.]*

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**Scenario 6.1:** In an attempt to increase its yearly profit from  $\pi_1$  to  $\pi_2$ , firm A needs a yearly investment of  $i$  dollars and creates an externality towards firm B that increases firm B's profits by  $d$  per year.

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- 4✓ According to scenario 6.1, which of the following is accurate if  $d > 0$  and  $i > 0$ ?
- 95%A. **The externality is positive.** *[Because it has a positive effect on firm B]*
  - B. The externality is negative.
  - C. The externality is neutral.
  - D. The externality is transitive.

5.\* According to scenario 6.1, if  $d = \$1,000$ ,  $i = \$400$ ,  $\pi_1 = \$1,500$  and  $\pi_2 = \$1,600$ , which of the following is most likely for firm B to do?

18%A. B will offer up to  $\pi_1 + \$1$  to buy A and proceed with the investment. [B will make  $d + \pi_2 - (\pi_1 + \$1) - i = \$699$ , A will accept because would not undertake the investment on its own and without the investment, A would make  $\$1,500$ ; with the sale A makes  $\$1,501$ ]

11%B. B will offer up to  $\pi_2 + \$1$  to buy A and proceed with the investment. [B will never pay  $\pi_2 + \$1$ , for something that can buy for only  $\pi_1 + \$1$ ]

64%C. B will pay  $i$  for firm A's investment. [B will make  $d - i = \$600$ ]

D. B will do nothing. [A will not undertake the investment because  $i > \pi_2 - \pi_1$  and B will make 0]

6.\* According to scenario 6.1, if  $d = \$1,000$ ,  $i = \$400$ ,  $\pi_1 = \$1,500$  and  $\pi_2 = \$2,100$ , which of the following is most likely for firm B to do?

20%A. B will offer up to  $\pi_1 + \$1$  to buy A and proceed with the investment. [A will not accept because with the investment A would make  $\$2,100 - \$400 = \$1,700$ ; with the sale A makes  $\$1,501$ ]

20%B. B will offer up to  $\pi_2 + \$1$  to buy A and proceed with the investment. [B would make  $d + \pi_2 - (\pi_2 + \$1) - i = \$699$ ]

35%C. B will pay  $i$  for firm A's investment. [B will make  $d - i = \$600$ ]

25%D. B will do nothing.  
[A will undertake the investment anyways because  $i < \pi_2 - \pi_1$ , and B would make  $\$1,000$ ]

7! According to scenario 6.1, if  $d = \$1,000$ ,  $i = \$1,200$ ,  $\pi_1 = \$1,500$  and  $\pi_2 = \$1,600$ , which of the following is most likely for firm B to do?

A. B will offer up to  $\pi_1 + \$1$  to buy A and proceed with the investment.

B. B will offer up to  $\pi_2 + \$1$  to buy A and proceed with the investment.

C. B will pay  $i$  for firm A's investment.

91%D. B will do nothing.

[A will not undertake the investment because  $i > \pi_2 - \pi_1$ . B will not pay for the investment because  $d < i$ . In general, here the net joint benefit from the investment is  $d + \pi_2 - \pi_1 - i = -\$100$ . This investment is not worth it]

8. According to scenario 6.1, if  $d = \$1,000$ ,  $i = \$400$ ,  $\pi_1 = \$1,500$  and  $\pi_2 = \$1,600$ , how much should B want to pay to incentivize firm A to invest?

A. Around 101 dollars.

B. Around 201 dollars.

53%C. Around 301 dollars.

23%D. Around 401 dollars.

11%E. None of the above.

[A's benefit from the investment is  $(\pi_2 - \pi_1) - i = -\$300$ , so A will not undertake the investment alone. B could supplement  $\$301$  to A to make A's benefit from the investment  $\$1$ . Then, B makes  $d - \$301 = \$699$ , otherwise B makes 0. B has no reason to offer more than  $\$301$ ]

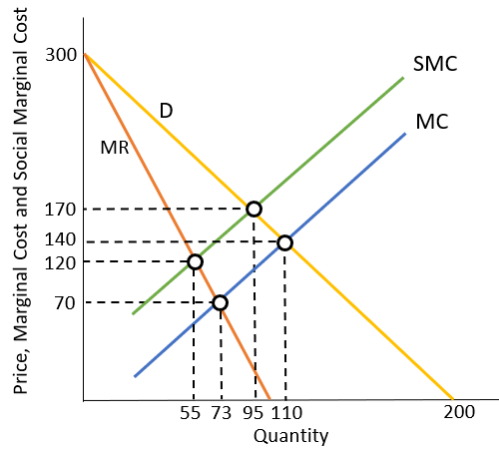
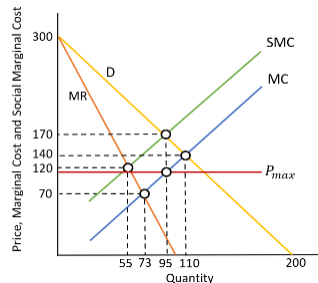


Figure 6.1: The demand, marginal cost and social marginal cost for a PC market.

9. Which of the following is most likely to be depicted in figure 6.1?
- 56%A. Water pollution due to fertilizers from wheat farming. *[Possible, since the figure depicts a negative production externality]*
  - 37%B. The harm caused to passive smokers when others consume cigarettes. *[This is a negative externality of consumption (it would appear in demand and social demand)]*
  - C. Lowered risk of infection in the society if other people get vaccinated. *[This is a positive externality of consumption (it would appear in demand and social demand)]*
  - D. A new hospital providing health services improves the productivity of the area's workforce. *[This is a positive externality]*
10. According to figure 6.1, what quantity will be produced if there is no government intervention?
- A. Around 55 units.
  - 27%B. Around 73 units.
  - C. Around 95 units.
  - 66%D. Around 110 units. *[Since the market is perfectly competitive and the supply is given by the MC, without government intervention, the market equilibrates at 110 units, where demand is equal to supply]*
11. According to figure 6.1, how much is the socially optimal quantity?
- 20%A. Around 55 units.
  - B. Around 73 units.
  - 73%C. Around 95 units. *[The socially optimal quantity is given by the point at which social marginal cost is equal to the demand or at 95 units]*
  - D. Around 110 units.

12.\* According to figure 6.1, what could the government do in order for the socially optimal quantity to be produced?

- 83%A. Impose a per unit tax. *[May reduce the quantity closer to the social optimal]*
- B. Impose a price ceiling. *[As we can see at the diagram below, a price ceiling at  $P_{max}$  would result in the consumption of 95 units, which is the social optimal quantity]*
- 10%C. **Both A and B.**
- D. None of the above.



13. Which of the following is a main characteristic of a natural monopoly?

- 24%A. The largest supplier in an industry has an overwhelming advantage over potential competitors. *[This is common to many markets]*
- B. The largest supplier in an industry has the ability to impose barriers of entry to potential competitors. *[This is common to all oligopolistic markets]*
- 56%C. **Increasing production keeps lowering the average costs.** *[Natural monopoly by definition exists in a particular market if a single firm can serve that market at lower cost than two or more firms]*
- 13%D. It is impossible to have more than one firm producing the good. *[It is possible, but inefficient]*

14. In which way does the Competition and Consumer Commission of Singapore differ from the Competition Commissions in many other countries?

- A. CCCS forbids the abuse of dominant position of some firms. *[This is actually what Competition Commissions are supposed to do in every country]*
- 53%B. **CCCS has the right to fine firms directly.**
- C. CCCS can prohibit the merger of two big companies. *[This is very common in most countries]*
- 42%D. All of the above.

15. Which of the following illicit tactics is most possible to show up in the aftermath of a natural disaster?

- A. Price discrimination.
- B. Price tying.
- 98%C. **Price gouging.**
- D. Predatory pricing. *[During a crisis the price of certain goods, such as food, tend to increase to abnormal levels mostly due to temporary increases in demand rather than increases in suppliers' costs]*

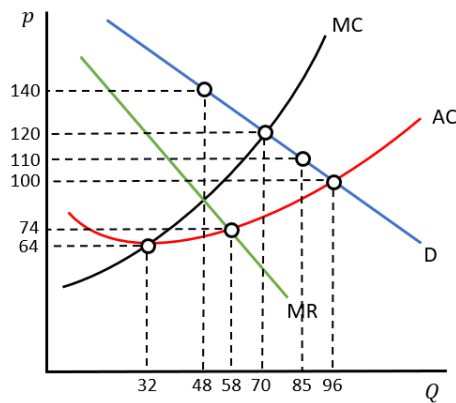


Figure 6.2: The demand and cost functions for a monopoly.

16. According to figure 6.2, if a regulator sets a price ceiling at \$150, how many units will the seller produce?
- A. Below 32 units.
  - 34% B. Below 48 units.
  - 59% C. **Around 48 units.**
  - D. Around 58 units.
  - E. Around 70 units.
- [The price ceiling at \$150 is a non-binding restriction. It does not prevent the profit maximizing price of \$140, where  $MC = MR$ ]*
17. According to figure 6.2, how much should a price ceiling be to eliminate the DWL?
- A. Around \$64.
  - B. Around \$74.
  - C. Around \$100.
  - 91% D. **Around \$120.**
  - E. Around \$140.
  - F. No price ensures zero DWL.
- [At the price ceiling of \$120,  $D = S$  (given by the MC) and there will be no DWL]*
18. According to figure 6.2, if the regulator sets a price ceiling of \$110, how many units will the seller produce?
- A. 32 units or less.
  - B. More than 32 but up to 48 units.
  - 55% C. **More than 48 but up to 70 units.**
  - 27% D. More than 70 but up to 85 units.
  - 16% E. 85 units or above.
- [If the regulator sets the price ceiling of \$110,  $MR = MC$  happens between 48 and 70 units]*
19. According to figure 6.2, what price ceiling should the regulator set to force the seller produce at least 96 units?
- A. \$74 or less.
  - 23% B. More than \$74 but up to \$100.
  - C. More than \$100 but up to \$120.
  - D. \$120 or above.
  - 68% E. **It is impossible to force the seller to produce 96 units.**
- [Any price ceiling above \$100 will make the seller produce less than 70 units because  $MR = MC$  cannot occur above 70 units]*

20 ✓ Which of the following is most likely to be a public good?

A. A public clinic. *[A clinic has limited capacity and cannot provide services to all citizens, so non-rivalry is not satisfied]*

76% **B. A lighthouse.** *[Both non-rival and non-excludable]*

22% C. Both A and B.

D. None of the above.