

Self-Test 6 (KEY)

Market Failure & Intervention

The tasks in this self-test are designed to be solvable by any student who has mastered the material. The answers provided are written instructionally to walk you through the problem-solving process for each task. A well-prepared student should score between 9 and 11 out of 12 without assistance from AI or others. A 12 out of 12 — without help — requires outlier performance or sheer luck. This self-test is optional, and your result will not count towards your grade. Direct any questions to your section's TA.

1. Which of the following is a market failure?

- A. Diseconomies of scale. *[An inevitable feature of production technology]*
- B. Excludable goods. *[Excludability is a property of most private goods]*
- C. The production of beef emits methane. *[Methane is a natural byproduct of cattle digestion — it is not a market failure on its own. It would be if production of beef exceeded the social optimal level]*
- D. The high price of black caviar. *[High prices reflect scarcity and consumer willingness to pay — the market is functioning as intended]*
- E. **None of the above.** *[A market failure requires the market to produce a socially inefficient outcome — none of the above meet this criterion unambiguously. Sneaky question, I know!]*

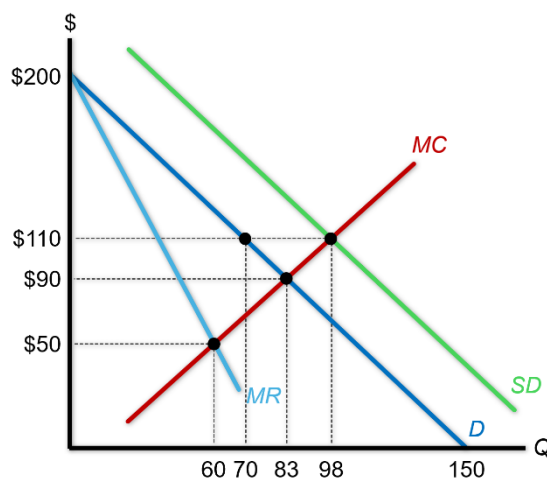


Figure 6. 1

2. Which of the following is most likely to be depicted in Figure 6.1?

- A. **A positive externality from the consumption of the good.** *[The social demand curve (SD) lies above the private demand curve (D), indicating that society values each unit more than individual consumers do]*
- B. A negative externality from the consumption of the good. *[A negative consumption externality would place SD below D, not above it]*
- C. A positive externality from the production of the good. *[A production externality would shift the MC curve, not the demand curve]*
- D. A negative externality from the production of the good. *[Same reasoning as above]*

3. What quantity will be produced in the PC market of Figure 6.1 and what is the socially optimal quantity?
- Market quantity = 60; socially optimal quantity = 83.
 - Market quantity = 83; socially optimal quantity = 60.
 - Market quantity = 98; socially optimal quantity = 83.
 - Market quantity = 83; socially optimal quantity = 98.**
 - Market quantity = 60; socially optimal quantity = 98.

[The market produces at $D = MC$, where $q = 83$. The social optimal is at $SD = MC$, where $q = 98$]

4. A price floor at \$110 would solve the externality in the PC market of Figure 6.1.

- True.
- False.**

[A price floor at \$110 would reduce the quantity demanded below 83 — further away from the socially optimal quantity of 98. This worsens the underproduction problem rather than solving it]

5. Which of the following could alleviate the externality in the PC market of Figure 6.1?

- A subsidy to buyers.** *[A subsidy lowers the effective price for buyers, shifting D closer to SD toward the socially optimal quantity of 98]*
- A per unit tax on the product. *[A tax would shift MC further up, reducing market quantity below 83, widening the gap with the social optimum of 98]*
- A price ceiling. *[A binding price ceiling reduces the quantity supplied, moving further away from the social optimum]*
- All of the above.

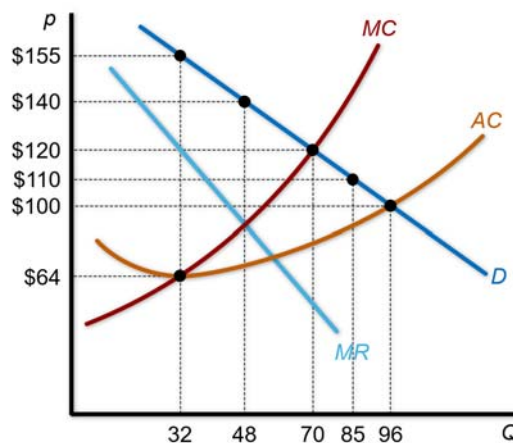


Figure 6. 2

6. Regarding the monopoly depicted in Figure 6.2, how much should a price ceiling be to eliminate the deadweight loss?

- Around \$64.
- Around \$74.
- Around \$100.
- Around \$120.**
- Around \$140.
- No price ceiling ensures zero deadweight loss.

[To eliminate DWL, the price ceiling must force the monopolist to produce the competitive quantity where $D = MC$. From the graph, this occurs at $Q = 58$ and $P = \$120$. A price ceiling at \$120 makes the perceived demand curve horizontal up to $Q = 58$, forcing the monopolist to price at MC and eliminating the DWL]

7. Regarding the monopoly depicted in Figure 6.2, how much should a price ceiling be to make the seller produce 85 units?
- A. Around \$64.
 - B. Around \$74.
 - C. Around \$100.
 - D. Around \$120.
 - E. Around \$140.
 - F. No price ceiling ensures production of 85 units.**
[The demand curve yields $Q = 85$ at $p = \$100$. However, at a price ceiling $p \leq \$100$, the perceived demand for the firm would become horizontal at \$100, intersecting with MC at $Q < 70$. This means that for a price ceiling $p \leq \$100$ the monopolist would maximize profit at a quantity smaller than 85. In fact, in this graph, no price ceiling can incentivize the monopolist to produce more than the PC quantity of 70 units]
8. Regarding the monopoly depicted in Figure 6.2, what quantity would the seller produce if a price ceiling of \$155 was implemented?
- A. Zero.
 - B. Around 32 units.
 - C. Around 48 units.**
 - D. Around 70 units.
- [A price ceiling of \$155 is above the monopoly price of \$140, so it is non-binding. The monopolist continues to maximize profit where $MR = MC$, producing 48 units at \$140]*
9. Which of the following is false for a natural monopoly?
- A. If entry of more firms occurred, it would be suboptimal from a societal point of view. *[True — economies of scale mean one firm can produce at lower cost than multiple firms]*
 - B. It needs to be subsidized if it produces the socially optimal quantity. *[True — at $P = MC$, price falls below AC, generating losses that require a subsidy]*
 - C. Regulation may improve its economic efficiency. *[True — a price ceiling $P \leq MC$ would eliminate the deadweight loss]*
 - D. Its marginal cost is increasing when it intersects with the demand curve.** *[False — in a natural monopoly, MC lies below the declining AC throughout the relevant range, and is typically decreasing at the point where it intersects demand]*
 - E. A significant part of its cost is fixed. *[True — high fixed costs relative to variable costs generate the declining AC that defines a natural monopoly]*
10. In which way does the Competition and Consumer Commission of Singapore (CCCS) differ from competition commissions in many other countries?
- A. CCCS forbids the abuse of dominant position of some firms. *[Prohibiting abuse of dominant position is standard practice for competition commissions globally]*
 - B. CCCS has the right to fine firms directly.** *[In most countries, competition commissions must pursue fines through the courts. CCCS can impose fines directly on firms without court proceedings — discussed in the video lecture]*
 - C. CCCS can prohibit the merger of two large companies. *[Merger control is standard practice in most jurisdictions]*
 - D. All of the above.

11. Which of the following is most likely to be punishable under antitrust law in Singapore, US and EU?
- A. Charging a price below your competitor's average cost. *[This may simply reflect greater efficiency — predatory pricing refers to pricing below your own cost, not your competitor's]*
 - B. Charging a price 800% above your own marginal cost. *[High markups are not illegal per se — firms with market power are allowed to charge above MC]*
 - C. Spending heavily on research and development to render competitors' products obsolete and push them out of the market. *[Competing through innovation is explicitly protected as competition on the merits]*
 - D. All of the above.
 - E. **None of the above.**
12. Many enjoy vaping but vaping causes serious health complications that strain the country's health system, depleting scarce resources. Which of the following could resolve the externality?
- A. A price floor on vapes. *[A price floor does reduce consumption but any revenue generated goes to vape sellers]*
 - B. A price ceiling on vapes. *[A price ceiling below the market price lowers the price and increases consumption — worsening the externality]*
 - C. A sales tax on vapes. *[A tax reduces consumption but does not eliminate it. Given that demand for vaping is likely inelastic, the reduction may be quite small]*
 - D. **A ban on vapes.** *[The question implies the socially optimal quantity of vaping is zero. A ban is the only policy that fully resolves the externality]*

Good afternoon! When you find yourself unable to start something because of procrastination, offer the following deal to yourself: "I will start really doing it for just half an hour and if after that I still do not want to do it, I will leave it aside for today". Most of the times this trick works and you will be able to beat procrastination and start doing stuff. Procrastination is not so much a fear of doing things but rather a fear of starting them. "The beginning is the half of everything" ancient Greeks used to say. They were right! It works with everything, including this homework ;)

Kosmas

Please report any typos, mistakes, or suggestions for improvement to kmarinakis@smu.edu.sg.