

ECONOMICS 53
Problem Set 8
Due before lecture on May 4

Part 1: Multiple Choice (30 Questions, 1 Point Each)

1. An externality is
 - A) The benefit that is received by buyers in a market
 - B) The cost that is paid by sellers in a market
 - C) The uncompensated impact of one person's actions on parties who are not market participants
 - D) The compensation paid to a firm's consultants

2. A negative production externality would generate
 - A) a marginal social cost curve (MSC) that is above and to the left of the marginal private cost curve (MPC).
 - B) a marginal social cost curve (MSC) that is below and to the right of the marginal private cost curve (MPC).
 - C) a marginal social benefit curve (MSB) that is above and to the right of the marginal private benefit curve (MPB)
 - D) a marginal social benefit curve (MSB) that is below and to the left of the marginal private benefit curve (MPB)

3. When an individual in Los Angeles (with its congested freeways) purchases a car, it generates
 - A) an efficient market outcome
 - B) a positive consumption externality
 - C) a negative consumption externality
 - D) a negative production externality

4. All of the following public policy responses would be effective in internalizing a negative production externality EXCEPT:
 - A) placing a tax on producers
 - B) an appellate court imposing an injunction in the production of the good
 - C) giving a subsidy to consumers
 - D) imposing a tradable permit market

5. The socially efficient amount of pollution is
 - A) zero
 - B) found where marginal private benefit (MPB) equals marginal private cost (MPC)
 - C) found where marginal social benefit (MSB) equals marginal social cost (MSC)
 - D) what the government decides is an appropriate amount.

6. For the Coase Theorem to work, all of the following must be true EXCEPT

- A) One party has clear rights
- B) The majority of concerned individuals participate
- C) Transaction costs are low
- D) only a few parties can be involved

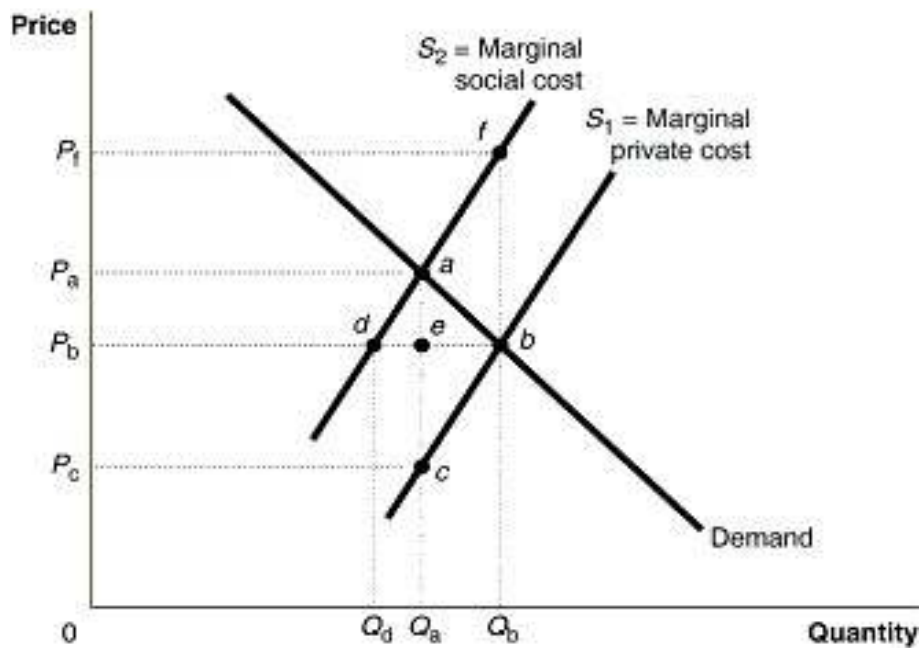
7. Private marginal costs

- A) are borne by producers of a good while marginal social costs are borne by the government.
- B) are borne by consumers of a good while marginal social costs are borne by government.
- C) are borne by producers of a good while marginal social costs are borne by society at large.
- D) are borne by producers of a good while marginal social costs are borne by those who cannot afford to purchase the good.

8. When there is a negative consumption externality in a free market,

- A) too much of the good is produced and consumed.
- B) too little of the good is produced and consumed.
- C) marginal social costs are greater than marginal private costs
- D) a socially efficient level of the good is produced and consumed.

Figure 1: Market with an Externality



Note: The demand is also the Marginal private benefit (MPB) and Marginal social benefit (MSB)

9. Figure 1 shows

- A) a negative production externality
- B) a negative consumption externality
- C) a positive production externality
- D) a positive consumption externality

10. Refer to Figure 1. Which of the following points represent market equilibrium?
- A) Point a
 - B) Point b
 - C) Point d
 - D) Point e
11. Refer to Figure 1. Which of the following points represents the socially optimal equilibrium?
- A) Point a
 - B) Point b
 - C) Point d
 - D) Point e
12. Refer to Figure 1. The deadweight loss due to this externality is represented by the triangle
- A) abc
 - B) aeb
 - C) abf
 - D) adb
13. An advantage of imposing a tax on the producer that generates pollution is that
- A) it forces the polluting producer to take into account the social cost of the pollution.
 - B) the government can keep tabs on exactly what is produced in an industry.
 - C) it will eliminate pollution.
 - D) a producer can pass the cost of the pollution to consumers.
14. Utilities are given a set level of permits to emit carbon dioxide. If a utility wants to pollute more than its allowance it could buy more permits in the market. Under what situation will a utility that wants to pollute more **NOT** purchase additional permits?
- A) if the market price of a permit is so low that it has virtually no resale value
 - B) if it is cheaper to burn heavy polluting energies than to switch to cleaner fuels
 - C) if it is cheaper to switch from heavy polluting energies to cleaner fuels than to purchase pollution permits
 - D) if there is an excess demand for permits in the market
15. A product is considered to be rivalry in consumption if
- A) you can keep those who did not pay for the item from enjoying its benefits.
 - B) you cannot keep those who did not pay for the item from enjoying its benefits.
 - C) your consumption of the product reduces the quantity available for others to consume.
 - D) it is jointly owned by all members of a community.
16. A product is considered to be nonexcludable if
- A) you can keep those who did not pay for the item from enjoying its benefits.
 - B) you cannot keep those who did not pay for the item from enjoying its benefits.
 - C) your consumption of the product reduces the quantity available for others to consume.
 - D) it is jointly owned by all members of a community

17. Private goods are
- A) both rival in consumption and excludable
 - B) neither rival in consumption nor excludable
 - C) rival in consumption but not excludable
 - D) not rival in consumption but excludable
18. Which of the following displays these two characteristics: rivalry and nonexcludability?
- A) a public good.
 - B) a private good.
 - C) a natural monopoly
 - D) a common resource.
19. Public goods are difficult for a private market to provide due to
- A) the drop in the bucket problem
 - B) the rival in consumption problem
 - C) the free-rider problem
 - D) Both A and C
21. Private producers have no incentive to provide public goods because
- A) the government subsidy granted is usually insufficient to enable private producer to make a profit.
 - B) production of huge quantities of public goods entails huge fixed costs.
 - C) they cannot avoid the tragedy of the commons.
 - D) once produced, it will not be possible to exclude those who do not pay for the good
22. How does the construction of a market demand curve for a private good differ from that for a public good?
- A) There is no difference; in both cases the demand curve is determined by adding up the price each consumer is willing to pay for each quantity of the good.
 - B) There is no difference; in both cases the demand curve is determined by adding up the quantities demanded by each consumer at each price
 - C) The market demand curve for a private good is determined by adding up the quantities demanded by each consumer at each price but the market demand curve for a public good is determined by adding up the price each consumer is willing to pay for each quantity of the good.
 - D) The market demand curve for a private good is determined by adding up the price each consumer is willing to pay for each quantity of the good but the market demand curve for a public good is determined by adding up the quantities demanded by each consumer at each price.
23. Most economic models assume that
- A) sellers have more information about the product they are selling than do buyers.
 - B) buyers and sellers have the same amount of information about the product.
 - C) buyers and sellers have too little information about the product.
 - D) buyers have more information about the product they are buying than do sellers.
24. Asymmetric information is not a problem
- A) in the used car market.
 - B) in stock market transactions.
 - C) when selling health or life insurance.
 - D) when buying a pineapple

25. Consider a used car market in which half the cars are good and half are bad (lemons). A rational buyer in this market should initially

- A) offer to pay a price equal to the most she would pay for a lemon.
- B) save up and buy a new car.
- C) offer to pay a price equal to the most she would pay for a good car.
- D) offer to pay a price somewhere between the price she would pay for a good car and the price she would pay for a lemon.

26. When asymmetric information affects a relationship between two parties, it is always the case that

- A) neither party is well informed
- B) one party is better informed than the other party
- C) both parties are equally well informed
- D) the government is better informed than either of the two parties

27. Which of the following is a way by which adverse selection can be reduced in the used car market?

- A) government regulation of the prices for used cars
- B) sellers revealing the true condition of the car
- C) buyers revealing how much they are willing to spend
- D) offering a warranty on the cars sold

28. What do the following have in common?

- I. Federal deposit insurance made savings and loans more willing to take on risky loans.
 - II. Federally subsidized flood insurance encourages citizens to build homes on flood plains.
 - III Autos leased with service contracts tend to encourage leasers to abuse their vehicles.
- A) the moral hazard problem
 - B) asymmetric information
 - C) drop in the bucket problem
 - D) the adverse selection problem

29. Warranties, education, extracurricular activities are all examples of

- A) market signals.
- B) risk premiums.
- C) tools that can correct the moral hazard problem.
- D) incentives.

30. You and two friends are going to the movies and are going to one of three movies: A, B, or C. You prefer movie A to movie B and movie B to movie C. One of your friends prefers movie B to movie C and movie C to movie A. Your other friend prefers movie C to movie A and movie A to movie B. The three of you decide to use majority rule voting to decide which movie you will see. If you first have a vote between movies A and B and then between the winner of that vote and movie C, then movie _____ will win. However, if you first vote between movies A and C and then between the winner of that vote and movie B, then movie _____ will win. This is an example of the _____.

- A) C; B; voting paradox
- B) B; C; impossibility theorem
- C) A; C; voting paradox
- D) A; B; majority rule voting

Part II: Short Answers (70Points)

Question 1: Externality (Algebraic Example) (18 Points)

Dunder-Mifflin is a regional paper mill in Scranton, PA. It has the following supply and demand curves:

$$P = 80 - 0.0005Q^d \text{ (marginal private benefit = MPB)}$$

$$P = 0.0005Q^s - 20 \text{ (marginal private cost = MPC)}$$

Where Q is measured in hundred-pound lots, and P is price per hundred pound lot. There is currently no attempt to regulate the dumping of paper waste product into streams and rivers by Dunder-Mifflin. As a result the dumping is widespread.

If the cost of the dumping were taken into account the marginal social cost curve (MSC) would be $MSC = 0.0007Q - 20$. Since the externality is on the production side and not on the consumption side the marginal social benefit curve (MSB) is equal to MPB.

(a) Calculate the resulting market equilibrium price and output. (4 Points)

(b) Sketch a graph showing the market equilibrium situation. (You should find the X and Y intercepts of the supply and demand curves) (4 Points)

(c) Calculate the socially optimal level for price and output. Is Dunder-Mifflin producing too much, too little or just the right amount of paper. Show graphically in your graph from Part(b) the socially optimal level. (4 Points)

(d) Show the deadweight loss graphically in your graph from Part (b). (3 Points)

(e) Discuss at least 3 ways in which society can get Dunder-Mifflin to produce at the socially optimal level of production. (3 Points)

Question 2: Economics of Uncertainty (10 Points)

Table 1 shows the relationship between income and total utility for Jane.

Income	Total Utility
\$0	0
\$20,000	25
\$40,000	45
\$60,000	60
\$80,000	70

Suppose that Jane has a $\frac{1}{3}$ chance of becoming disabled in any given year. If she does become disabled, she will earn \$0. If Jane does not become disabled, she will earn her usual salary of \$60,000.

(a) What is Jane's expected income? (2 Points)

(b) What is Jane's expected utility? (3 Points)

(c) Suppose that Jane has the opportunity to purchase disability insurance that will pay her full salary of \$60,000 in the event that she becomes disabled. The insurance will cost \$20,000 a year. If Jane was risk-averse would she purchase the insurance? Explain your answer. (5 Points)

Question 3: Public Goods (12 Points)

The city of Sparseville has only 3 citizens living there: Mr. Miyagi, Mr. T and Mrs. Butterworth. The local county board is thinking of creating a regional park in Sparseville for the citizens to enjoy. They send a survey to each of the local residents asking them how much they would be willing to pay for each acre of this proposed park. The results of the survey is shown below.

Number of Acres	Mr. Miyagi's Willingness to Pay	Mr. T's Willingness to Pay	Mrs. Butterworth's Willingness to Pay
1	\$180	\$140	\$150
2	\$160	\$130	\$130
3	\$140	\$120	\$110
4	\$120	\$110	\$90
5	\$100	\$100	\$70
6	\$80	\$90	\$50
7	\$60	\$80	\$30
8	\$40	\$70	\$20

(a) Given the information above derive a market demand schedule for this public good. (4 Points)

Number of Acres	Willingness to Pay
1	
2	
3	
4	
5	
6	
7	
8	

(b) Sketch the market demand curve for this public good. (4 Points)

Assume that the market supply curve (marginal cost curve) of this public good is given by the following supply schedule

Number of Acres	Price per Acre (\$)
1	\$260
2	\$280
3	\$300
4	\$320
5	\$340
6	\$380
7	\$380
8	\$400

(c) What is the optimal number of acres that will be created for this regional park? Explain. (4 Point

Question 4: Adverse Selection (15 Points)

You are in the market for a used 2006 Honda Accord. You know that half of the 2006 Accords are lemons (bad cars) and half are good cars. If you could be assured that the Accord you were buying were a good car, you would be willing to pay up to \$10,000. On the other hand, you would only be willing to pay \$2,000 for a lemon. You have no ability to discern whether any particular Accord is a lemon or a peach. Sellers of Accords, on the other hand, are likely to know whether their particular car is a lemon or a peach. Suppose sellers of lemons will sell their cars for \$1,500 or more and sellers of good cars will be willing to sell their cars for \$8,500 or more.

(a) As a buyer, how much would you be willing to offer for a used 2006 Honda Accord (5 Points)

(b) Over time, what will happen to the market for used Honda Accords? Explain in detail. (10 Points)

Question #5: Expected Value (5 Points)

The California lottery currently has a jackpot of \$2.9 million. If the probability of winning the jackpot is 1.8 million to one and the cost of one lottery ticket is \$1.00 should you buy 1 ticket? Explain.

Question #6: Characteristics of Goods (10 Points; 2 Points each)

For each of the following goods comment on (1) excludability characteristic and (2) rivalry characteristic. Also indicate whether the good is a private good, a public good, a common resource, or a natural monopoly.

(a) Dinner at Red Lobster

(b) A congested freeway (such as I-80) in the Bay Area

(c) An uncongested freeway (such as I-5) between Stockton and Sacramento

(d) national defense

(e) Online college courses at the University of Phoenix