

# Problem Set 2

## Principles of Economics

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### Elasticity

1. The ability of firms to enter and exit a market over time means that, in the long run,
  - (a) the demand curve is more elastic.
  - (b) the supply curve is more elastic.
  - (c) the demand curve is less elastic.
  - (d) the supply curve is less elastic.
2. If an increase in the price of a good has no impact on the total revenue in that market, demand must be
  - (a) price inelastic.
  - (b) price elastic.
  - (c) unit price elastic.
  - (d) all of the above.
3. Suppose we are studying the market for Jello and news came out that eating Jello is detrimental to one's health. Given this, we can say that we could, in theory,
  - (a) calculate both the price elasticity of demand for Jello and the price elasticity of supply.
  - (b) calculate the price elasticity of supply for Jello, but not the price elasticity of demand.
  - (c) calculate the price elasticity of demand for Jello, but not the price elasticity of supply.
  - (d) not calculate either the price elasticity of demand for Jello or the price elasticity of supply.
4. Suppose that the price of cotton increases. In the market for oversized t-shirts, the total revenue received by sellers will \_\_\_\_\_ if the \_\_\_\_\_.
  - (a) increase; demand curve is inelastic
  - (b) decrease; supply curve is inelastic
  - (c) increase; demand curve is elastic
  - (d) increase; supply curve is elastic

5. If consumers always spend 15% of their income on food, the the income elasticity of demand for food is
- (a) 0.15
  - (b) 1.00
  - (c) 1.15
  - (d) 1.50
  - (e) none of the above.
6. Suppose the price of beans rises from \$10 to \$12. As a result, the quantity demanded of porridge falls by 10%. What is the cross-price elasticity between the two goods?
- (a) 1.818
  - (b)  $-1.818$
  - (c) .55
  - (d)  $-.55$
7. Since chocolate chip cookies and oatmeal raisin cookies are substitutes, the cross-price elasticity of demand between the goods is
- (a) negative.
  - (b) positive.
  - (c) zero.
  - (d) impossible to discern without more information.
8. For which pairs of goods is the cross-price elasticity most likely to be negative?
- (a) pens and pencils
  - (b) car tires and coffee
  - (c) peanut butter and jelly
  - (d) new textbooks and used textbooks
9. If supply is price inelastic, the value of the price elasticity of supply must be
- (a) zero.
  - (b) less than 1.
  - (c) greater than 1.
  - (d) infinite.
  - (e) none of the above.
10. Amusement park owners increase the price of ferris wheel rides on Coney Island. Total revenue from ferris wheel rides will
- (a) increase regardless of the elasticity of demand for ferris wheel rides.
  - (b) increase if demand for ferris wheel rides is elastic.
  - (c) decrease if demand for ferris wheel rides is inelastic.
  - (d) increase if demand for ferris wheel rides is inelastic.

11. If the absolute value of the price elasticity of demand is .5, then when the price of good  $X$  rises by 20%
- (a) the quantity demanded of good  $X$  rises by 40%.
  - (b) the quantity demanded of good  $X$  rises by 10%.
  - (c) the quantity demanded of good  $X$  falls by 10%.
  - (d) the quantity demanded of good  $X$  falls by 40%.
12. If demand is linear, then price elasticity of demand is
- (a) constant along the demand curve.
  - (b) inelastic in the upper portion and elastic in the lower portion.
  - (c) elastic in the upper portion and inelastic in the lower portion.
  - (d) elastic throughout.
  - (e) inelastic throughout.
13. If the price elasticity of supply is .8, and prices increased by 5%, then quantity supplied would
- (a) increase by 4%.
  - (b) decrease by 4%.
  - (c) increase by 6.25%.
  - (d) decrease by 6.25%.
14. As individuals lose their jobs, they buy fewer romance novels. Which of the following might be the income elasticity of demand for romance novels?
- (a)  $-1.32$
  - (b) .54
  - (c)  $-.30$
  - (d) Either (a) or (c)
15. When the price of bubble gum is \$.50, the quantity demanded is 400 packs per day. When the price falls to \$.40, quantity demanded is 600. Given this, we can say that demand for bubble gum is
- (a) inelastic.
  - (b) elastic.
  - (c) unit elastic.
  - (d) perfectly inelastic.
  - (e) perfectly elastic.
16. Consider public policy aimed at smoking.
- (a) Studies indicate the price elasticity of demand for cigarettes is about 0.4. If a pack of smokes currently costs \$2 and the government wants to reduce smoking by 20%, by how much should it increase the price (in percentage terms)?
  - (b) If the government permanently increases the price of cigarettes, will the policy have a larger effect on smoking one year from now or five years from now? Draw a graph to support your answer.
  - (c) Studies also find that teens have a higher price elasticity of demand than do adults. Why might this be true?

## Price Controls and Taxes

- Suppose a per unit tax of \$.50 is imposed on buyers of Pepsi. As a result, the price buyers end up paying is \$1.25 for each can. Moreover, the amount Pepsi-Cola receives for every can of Pepsi sold decreases by \$.15. Given this, we can say that \_\_\_\_\_ bear most of the tax burden and the equilibrium price of Pepsi before the tax was imposed was \_\_\_\_\_.  
 (a) sellers; \$.75  
 (b) buyers; \$.90  
 (c) sellers; \$.90  
 (d) buyers; \$.75
- Consider Figure 2.

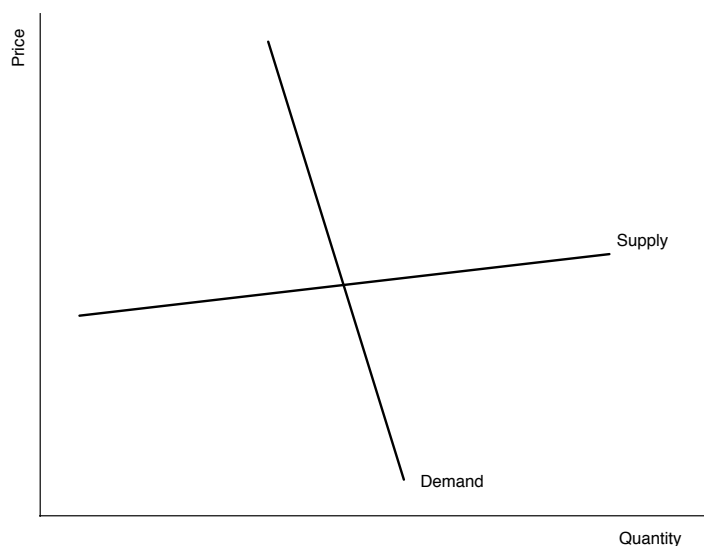


Figure 2: Market for Coke

- If the government imposes a \$5 per unit tax on sellers in this market,
- the burden of the tax will be split evenly between buyers and sellers in the market.
  - the burden of the tax will be greater for sellers than for buyers in the market.
  - the burden of the tax will be greater for buyers than for sellers in the market.
  - the split of the tax burden cannot be determined from this information.
- A tax of \$4 is imposed by the government. Use Table 1 to answer the question below.

Table 1: Unit Taxes

	Price with no tax	Price with \$4/unit tax on sellers
Price paid by buyers	\$55	?
Price received by sellers	\$55	\$53.50

Because of this tax, buyers are paying \_\_\_\_\_ per unit and sellers are receiving \_\_\_\_\_ per unit.

- (a) \$4 less; \$4 more
  - (b) \$2 more; \$2 less
  - (c) \$2.50 more; \$1.50 less
  - (d) \$4 more; \$4 less
4. For a price ceiling to be a binding constraint on the market, the government must set it
- (a) above the equilibrium price.
  - (b) below the equilibrium price.
  - (c) precisely at the equilibrium price.
  - (d) at any price because all price ceilings are binding constraints.
5. A binding price ceiling creates
- (a) a shortage.
  - (b) a surplus.
  - (c) an equilibrium.
  - (d) a shortage or surplus depending on whether the price ceiling is set above or below the equilibrium market price.
6. The minimum wage in Los Angeles was recently increased from \$9/hour to \$15/hour. This increase in the minimum wage will cause employment to fall by 10% if \_\_\_\_\_ and results in a(n) \_\_\_\_\_ in total wage payments.
- (a) labor supply is inelastic; increase
  - (b) labor demand is inelastic; increase
  - (c) labor demand is elastic; decrease
  - (d) labor supply is elastic; decrease
7. Which of the following is true if the government places a price ceiling on gasoline at \$1.50 per gallon and the equilibrium price is \$1.00 per gallon.
- (a) There will be a shortage of gasoline.
  - (b) There will be a surplus of gasoline.
  - (c) A significant increase in the supply of gasoline could cause the price ceiling to become a binding constraint.
  - (d) A significant increase in the demand for gasoline could cause the price ceiling to become a binding constraint.
8. Suppose a tax is placed on DVDs. If the sellers end up bearing most of the tax burden, we know that
- (a) demand is more inelastic than supply.
  - (b) supply is more inelastic than demand.
  - (c) the government levied the tax on buyers.
  - (d) the government levied the tax on sellers.

9. A tax placed on a good that is a necessity for consumers will likely generate a tax burden that
- (a) falls more heavily on buyers.
  - (b) falls more heavily on sellers.
  - (c) falls entirely on sellers.
  - (d) is evenly distributed between buyers and sellers.
10. Which side of the market is more likely to lobby government for a price floor?
- (a) Neither buyers or sellers desire a price floor.
  - (b) Both buyers and sellers desire a price floor.
  - (c) The sellers.
  - (d) The buyers.
11. The surplus caused by a binding price floor will be greatest if
- (a) both supply and demand are elastic.
  - (b) supply is inelastic and demand is elastic.
  - (c) demand is inelastic and supply is elastic.
  - (d) both supply and demand are inelastic.
12. Refer to Figure 3, which shows the market for laptop computers.

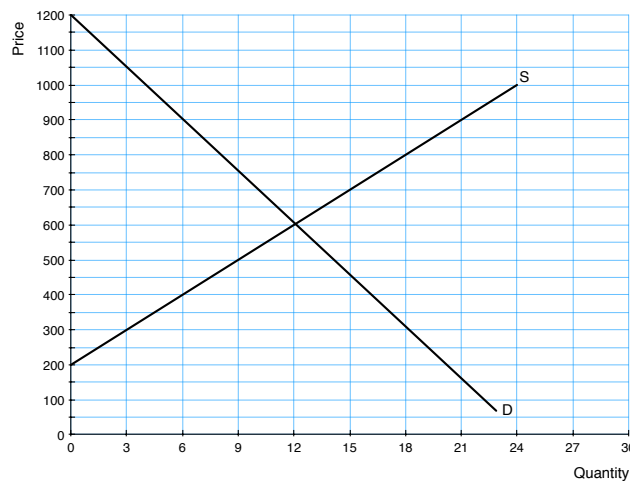


Figure 3: Market for Laptops

- If a tax of \$500 is imposed on buyers, then the share of the tax bore by consumers is
- (a) \$200.
  - (b) \$300.
  - (c) \$500.
  - (d) \$900.

13. Which of the following statements about a binding price ceiling is true?
- (a) The surplus created by the price ceiling is greater in the short run than in the long run.
  - (b) The surplus created by the price ceiling is greater in the long run than in the short run.
  - (c) The shortage created by the price ceiling is greater in the short run than in the long run.
  - (d) The shortage created by the price ceiling is greater in the long run than in the long run.
14. A tax collected from the buyers of a good shifts the
- (a) demand curve upward by the size of the per-unit tax.
  - (b) demand curve downward by the size of the per-unit tax.
  - (c) supply curve upward by the size of the per-unit tax.
  - (d) supply curve downward by the size of the per-unit tax.
15. Suppose the equilibrium price for apartments is \$500 per month and the government imposes rent controls of \$250. Which of the following is *unlikely* to occur as a result of the rent controls.
- (a) There will be a shortage of housing.
  - (b) Landlords may discriminate among apartment renters.
  - (c) Landlords may be offered bribes to rent apartments.
  - (d) The quality of apartments will improve.
  - (e) There may be long lines of buyers waiting for apartments.
16. Let's return to our study of the minimum wage.
- (a) Suppose the minimum wage is above the market equilibrium wage in the market for unskilled labor. Draw a supply-and-demand diagram showing the market wage, the number of workers that are employed, and the number of workers who are unemployed. Also show the total wage payments to unskilled workers.
  - (b) What would be the effect of an increase in the minimum wage on employment? Does this change depend on the elasticity of demand, supply, both, or neither? Use a graph to support your answer.
  - (c) What would be the effect of an increase in the minimum wage on unemployment? Does this change depend on the elasticity of demand, supply, both, or neither? Use a graph to support your answer.
  - (d) Now consider the effect of an increase in the minimum wage on wage payments. What would happen to total wage payments if the demand for unskilled labor was inelastic? How does the elasticity of labor supply impact wage payments?

## Government Policy and Welfare

1. In a market with a binding price ceiling, an increase in the ceiling will \_\_\_\_\_ the quantity supplied, \_\_\_\_\_, the quantity demanded, and reduce the \_\_\_\_\_.
  - (a) increase; decrease; surplus
  - (b) decrease; increase; surplus
  - (c) increase; decrease; shortage
  - (d) decrease; increase; shortage
2. A market is currently at equilibrium. A price ceiling above the equilibrium price is imposed, leading to \_\_\_\_\_ in producer surplus and \_\_\_\_\_ in total surplus.
  - (a) a decrease; an increase
  - (b) an increase; an increase
  - (c) a decrease; a decrease
  - (d) no change; no change
3. Marianne pays Natalie \$50 to mow her lawn every week. When the government levies a mowing tax of \$10 on Natalie, she raises her price to \$60. Marianne continues to hire her at the higher price. What is the change in producer surplus, consumer surplus, and deadweight loss?
  - (a) \$0, \$0, \$10
  - (b) \$0, -\$10, \$0
  - (c) +\$10, -\$10, +\$10
  - (d) +\$10, -\$10, \$0

Refer to Figure 5 for questions 4 and 5.

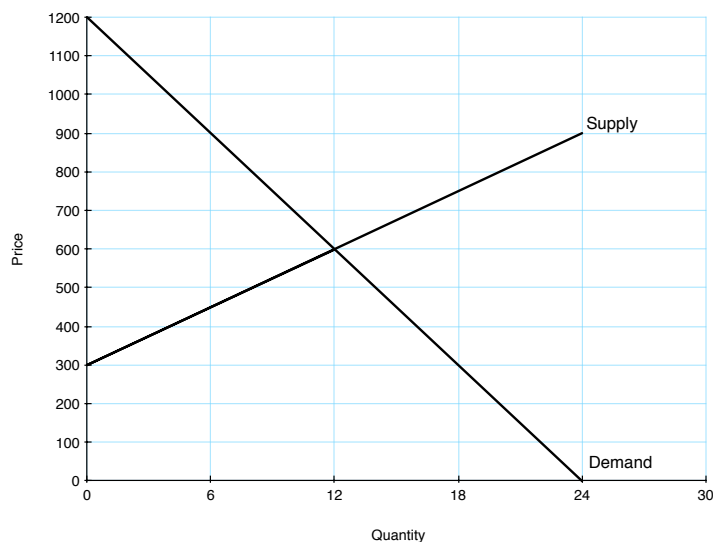


Figure 5: Market for Surface Tablets



4. If the government imposes a price floor of \$900, then consumer surplus would \_\_\_\_\_ by \_\_\_\_\_.
- (a) increase; \$900
  - (b) decrease; \$2700
  - (c) increase; \$2700
  - (d) decrease; \$900
5. As a result of this price floor, the total revenue earned by firms \_\_\_\_\_ because \_\_\_\_\_.
- (a) increased; supply is inelastic
  - (b) decreased; demand is inelastic
  - (c) increased; demand is inelastic
  - (d) decreased; demand is elastic
6. Deadweight losses due to a tax are greatest when
- (a) both supply and demand are relatively inelastic.
  - (b) both supply and demand are relatively elastic.
  - (c) supply is elastic and demand is inelastic.
  - (d) demand is elastic and supply is inelastic.
7. Which of the following would likely cause the greatest deadweight loss?
- (a) A tax on cigarettes.
  - (b) A tax on salt.
  - (c) A tax on cruise tickets.
  - (d) A tax on gasoline.
8. Since the supply of unimproved land is relatively inelastic, a tax on unimproved land would generate a
- (a) large deadweight loss and the burden of the tax would fall on the renter.
  - (b) small deadweight loss and the burden of the tax would fall on the renter.
  - (c) large deadweight loss and the burden of the tax would fall on the landlord.
  - (d) small deadweight loss and the burden of the tax would fall on the landlord.
9. When a tax on a good starts small and is gradually increased, tax revenue will
- (a) rise.
  - (b) fall.
  - (c) first rise and then fall.
  - (d) first fall and then rise.
  - (e) None of the above.

10. When a tax distorts incentives to buyers and sellers so that fewer goods are produced and sold, the tax has
- (a) increased efficiency.
  - (b) decreased equity.
  - (c) generated no tax revenue.
  - (d) caused a deadweight loss.
11. If the government wishes to impose a \$5 per unit tax on sellers, but wishes to minimize the deadweight losses resulting from the tax, it should impose the tax on a market
- (a) with elastic demand and inelastic supply.
  - (b) with inelastic demand and elastic supply.
  - (c) with inelastic demand and inelastic supply.
  - (d) with elastic demand and elastic supply.
12. Suppose a price ceiling of \$300 is imposed in the market shown in Figure 6.

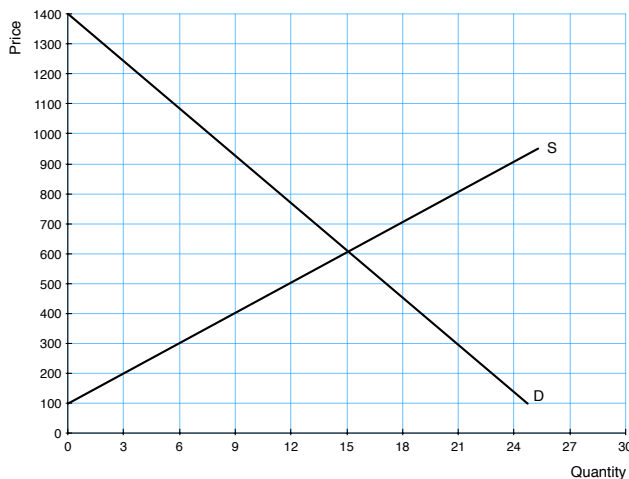


Figure 6: Market for Surface Tablets

- As a result, there is a \_\_\_\_\_ and deadweight losses of \_\_\_\_\_.
- (a) shortage of 15 units; \$7,200
  - (b) surplus of 6 units; \$7,200
  - (c) shortage of 6 units; \$3,600
  - (d) surplus of 15 units; \$3,600
  - (e) None of the above.
13. The many identical residents of Salisbury love drinking Cheerwine. Each resident has a certain willingness to pay for each can they consume as shown in Table 2.

Table 2: WTP for Cheerwine

Can	WTP
1st can	\$5
2nd can	\$4
3rd can	\$3
4th can	\$2
5th can	\$1
>5 cans	\$0

- The cost of producing Cheerwine is \$1.50. The competitive suppliers sell at this price and have a perfectly elastic supply curve. How many cans will each person consume? What is the total surplus per person in this market?
- Producing Cheerwine creates pollution. Each can has an external cost of \$1. Taking this additional cost into account, what is the total surplus per person?
- Mayor Woodson imposes a \$1 tax on Cheerwine. What is the consumption per person now? Calculate consumer surplus, the external cost, government revenue, and total surplus per person.

## Externalities

- David's cat causes Carlos to sneeze. David values his cat's companionship at \$400 a year. Carlos has to pay for tissues and allergy medication due to the cat that cost him \$500 a year. According to the Coase Theorem,
  - David should pay Carlos \$400 so he may keep his cat.
  - David should pay Carlos \$500 for his tissues and medication.
  - Carlos should pay David \$410 to give away his cat.
  - None of the above.
- If the production of a good yields a positive externality, then the social benefit curve lies \_\_\_\_\_ the demand curve, and the socially optimal quantity is \_\_\_\_\_ the market equilibrium quantity.
  - above; greater
  - above; less
  - below; greater
  - below; less
- The market equilibrium is not efficient when the consumption of a good creates external costs, which cause social costs to be
  - less than the private cost.
  - greater than the private cost.
  - less than the total cost.
  - greater than the total cost.

4. Which of the following statements is TRUE?
- (a) The government should tax goods with either positive or negative externalities.
  - (b) The government should tax goods with negative externalities and subsidize goods with positive externalities.
  - (c) The government should subsidize goods with either positive or negative externalities.
  - (d) The government should tax goods with positive externalities and subsidize goods with negative externalities.
5. According to the Coase Theorem, private parties can solve the problem of externalities if
- (a) each affected party has equal power in the negotiations.
  - (b) the party affected by the externality has the initial property right to be left alone.
  - (c) there are no transaction costs.
  - (d) the government requires them to negotiate with each other.
  - (e) there are a large number of affected parties.
6. Refer to Figure 7.

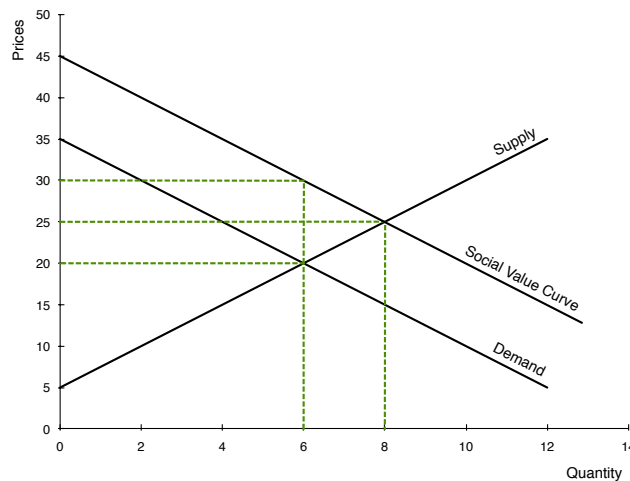


Figure 7: A Market Externality

If the quantity exchanged in the market increased from the 6 units to 8 units, then the total external benefit realized would increase by \_\_\_\_\_, while deadweight losses would decrease by \_\_\_\_\_.

- (a) \$20; \$20
- (b) \$10; \$20
- (c) \$10; \$10
- (d) \$20; \$10

7. In the absence of intervention, negative externalities lead markets to produce
- (a) efficient output levels, and positive externalities lead markets to produce greater than efficient output levels.
  - (b) smaller than efficient output levels, and positive externalities lead markets to produce greater than efficient output levels.
  - (c) greater than efficient output levels, and positive externalities lead markets to produce smaller than efficient output levels.
  - (d) greater than efficient output levels, and positive externalities lead markets to produce efficient output levels.
8. In order to eliminate the deadweight losses associated with a negative market externality, the government should impose a per unit tax \_\_\_\_\_.
- (a) equal to the total external cost
  - (b) less than the total external cost
  - (c) greater than the per unit external cost.
  - (d) equal to the per unit external cost.
  - (e) None of the above.
9. Negative externalities lead markets to produce
- (a) efficient output levels, and positive externalities lead markets to produce greater than efficient output levels.
  - (b) smaller than efficient output levels, and positive externalities lead markets to produce greater than efficient output levels.
  - (c) greater than efficient output levels, and positive externalities lead markets to produce smaller than efficient output levels.
  - (d) greater than efficient output levels, and positive externalities lead markets to produce efficient output levels.
10. Suppose a positive externality is present in the market for cookies. What is the relationship between the typical market equilibrium quantity and the socially optimal quantity of cookies to produced?
- (a) They are equal.
  - (b) The market equilibrium quantity is greater than the socially optimal quantity.
  - (c) The market equilibrium quantity is less than the socially optimal quantity.
  - (d) There is not enough information to answer the question.

11. Consider Figure 8, which reflects the market for Surface Tablets in United States.

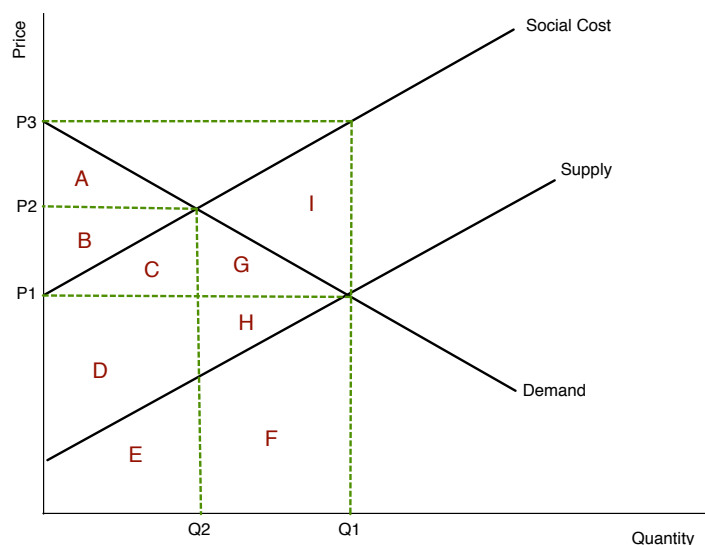


Figure 8: Market for Surface Tablets

- What price and quantity combination represents the market price and number of units produced?
- At the market quantity, what area (or combination of areas) represents the total external cost to society?
- What is the social optimum quantity of Surface Tablets that should be produced?
- At the social optimum, what area (or combination of areas) represents the total surplus realized by society?
- A policy advisor suggests that in order to reach the social optimum point, a per-unit tax of  $(P3 - P2)$  should be imposed. Do you agree or disagree? Why?

## Public Goods

- Which of following is an example of a common resource?
  - Residential housing
  - National defense
  - Restaurant meals
  - Fish in the ocean
- A neighborhood street is considering purchasing and installing doggy clean up stations in order to keep their lawns clean. Table 3 shows the willingness to pay of each family for each additional station.

Table 3: Willingness to Pay for Doggy Stations

Stations	Weiners Family	George Family	Heron Family
1st station	\$500	\$600	\$400
2nd station	400	450	300
3rd station	300	350	150
4th station	150	200	50
5th station	100	150	0

If each doggy station costs \$500, how many stations should the street install in order to maximize total surplus?

- (a) 2 stations
  - (b) 0 stations
  - (c) 3 stations
  - (d) 1 stations
  - (e) > 3 stations
3. Public goods are
- (a) efficiently provided by market forces.
  - (b) underprovided in the absence of government.
  - (c) overused in the absence of government.
  - (d) a type of natural monopoly.
4. Which of the following examples demonstrates the free rider problem?
- (a) Josh downloads the podcast *Serial*, but never contributes to NPR, its producer.
  - (b) Liz Lemon is upset that she and Jack Donaghy pay the same amount at the toll booth, even though she only uses the road for 5 miles, while he uses it for 25 miles.
  - (c) Due to a lack of clearly defined property rights, ocean creatures tend to be overfished.
  - (d) Kristina, Jane, and Andrea rent three movies and enforce that the costs are split evenly, even though Jane is only willing to pay her share for two movies.
5. An AM transmission of a baseball game is a \_\_\_\_\_ because it is \_\_\_\_\_.
- (a) private good; rival and excludable
  - (b) club good; rival and non-excludable
  - (c) public good; non-rival and non-excludable
  - (d) common resource; non-rival and excludable
6. If one person's consumption of a good diminishes other people's use of the good, the good is said to be
- (a) a common resource.
  - (b) a good produced by a natural monopoly.
  - (c) rival in consumption.
  - (d) excludable.

7. Suppose each of 20 neighbors on a street values street repairs at \$3,000. The cost of street repair is \$40,000. Which of the following statements is true?
- (a) It is not efficient to have the street repaired.
  - (b) It is efficient for each neighbor to pay \$3,000 to repair the section of street in front of his/her home.
  - (c) It is efficient for the government to tax the residents \$2,000 each and repair the road.
  - (d) None of the above is true.
8. Public goods are difficult for a private market to provide due to
- (a) the public goods problem.
  - (b) the rivalness problem.
  - (c) the Tragedy of the Commons.
  - (d) the free-rider problem.
9. A positive externality affects market efficiency in a manner similar to a
- (a) private good.
  - (b) public good.
  - (c) common resource.
  - (d) rival good.
10. When markets fail to allocate resources efficiently, the ultimate source of the problem is usually
- (a) that prices are not high enough so people overconsume.
  - (b) that prices are not low enough so firms overproduce.
  - (c) that property rights have not been well established.
  - (d) government regulation.