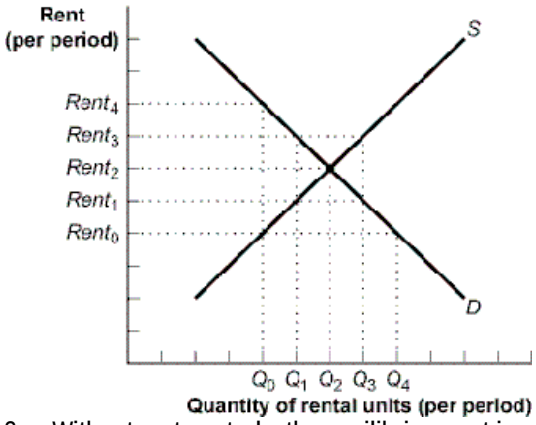
Price and Quantity Controls

Practice Problems

1. Rapidly increasing health costs have been a major political concern for several decades. Suppose that to control rising health costs the government sets the maximum price for a normal doctor's visit at $20, but the current market price is $40. Then:
   A. more people will try to visit the doctor, but the doctor will see fewer patients.
   B. the same number of people will try to visit the doctor, and the doctor will see the same number of patients.
   C. more people will be able to see the doctor, since the price is lower.
   D. fewer people will try to see the doctor, and the doctors will see fewer patients.
   E. fewer people will try to see the doctor, and the doctor will see the same number of patients.

2. Suppose the government of Coffeeland sets coffee prices at $1 per pound, when the market price is $10. The government's actions will:
   A. improve efficiency since the low prices will force producers to find cheaper production methods.
   B. result in coffee surpluses even in a coffee-rich country.
   C. cause coffee shortages even in a coffee-rich country.
   D. improve equality between rich and poor since the poor can now afford coffee.
   E. be ineffective as the market price will return to $10 per pound.

Use the graph below to answer questions 3-5.



3. Without rent controls, the equilibrium rent is _____ .
   A. $Rent_4$
   B. $Rent_1$
   C. $Rent_2$
   D. $Rent_3$
   E. *Rent0*

4. If rent controls are imposed, they will most likely be set at either _____ or _____.
   A. $Rent_0$; $Rent_1$
   B. $Rent_1$; $Rent_3$
   C. $Rent_3$; $Rent_4$
   D. $Rent_2$; $Rent_4$
   E. *Rent2; Rent3*

5. If rent controls are set at $Rent_3$:
   A. the shortage of rental units is the distance $Q_3 - Q_1$.
   B. some renters would be willing to pay a price as high as $Rent_4$ for Q_3 units.
   C. no one would have to pay a higher actual price than $Rent_0$, nor would anyone be willing to do so.
   D. rent would remain at $Rent_2$.
   E. the surplus of rental units is the distance $Q_3 - Q_1$.

6. The market for apples is in equilibrium at a price of $0.50 per pound. If the government imposes a price floor in the market at a price of $0.40 per pound, then:
   A. quantity demanded will decrease.
   B. quantity supplied will increase.
   C. there will be a shortage of the good.
   D. the price floor will not affect the market price or output.
   E. there will be a surplus of the good.

Use the table below to answer question 7.

Market for Butter		
P	Q_p	Q_s
$1.20	9.0	12.0
$1.10	9.5	11.0
$1.00	10.0	10.0
$0.90	10.5	9.0
$0.80	11.0	8.0

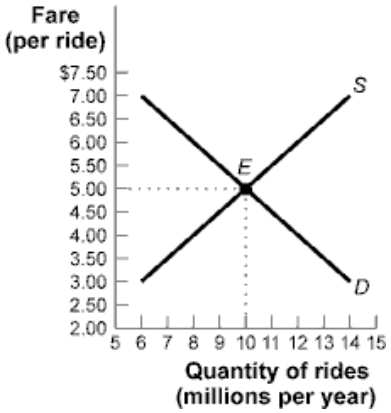
Note: P = Price per lb in $; Q_p = Quantity demanded in millions of lbs; Q_s = Quantity supplied in millions of lbs.

7. If the government imposes a price floor of $0.90 per pound of butter, the quantity of butter actually purchased will be:
   A. 10.5 million pounds.
   B. 9.0 million pounds.
   C. 1.5 million pounds.
   D. 8.0 million pounds.
   E. 10.0 million pounds.

8. Suppose that a binding price floor is in place in a particular market. If the market is deregulated and the price floor is removed, then which of the following effects could occur?
   A. The quantity demanded would decrease and the quantity supplied would increase.
   B. An excess demand would develop.
   C. There would be a decrease in the quality of the good supplied.
   D. There would be an increase in the quality of the good supplied.
   E. The quantity supplied would increase.

9. Suppose the government sets a price floor below the current price of the good. This price floor will:
   A. result in an excess supply of the good.
   B. result in an excess demand for the good.
   C. have no effect on the price of the good.
   D. increase the quantity supplied of the good.
   E. create inefficiency.

Use the graph and table below to answer questions 10-11.



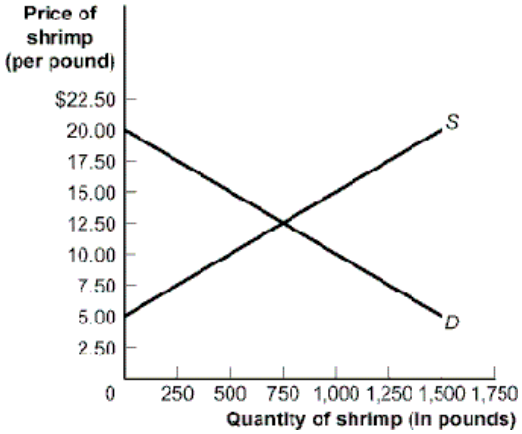
Fare (per ride)	Quantity Demanded (millions of per year)	Quantity Supplied (millions of per year)
$7.00	6	14
$6.50	7	13
$6.00	8	12
$5.50	9	11
$5.00	10	10
$4.50	11	9
$4.00	12	8
$3.50	13	7
$3.00	14	6

10. The figure represents a competitive market for taxi rides. If a government quota limit at 6 million rides is now imposed on this market (in the name of quality), then the quota rent that will accrue to the owner of a taxi medallion will be _____, but there will be a missed opportunity (inefficiency) to consumers of _____.
    A. $1 per ride; 1 million rides
    B. $2 per ride; 2 million rides
    C. $3 per ride; 3 million rides
    D. $4 per ride; 4 million rides
    E. $3 per ride; 4 million rides

11. The figure represents a competitive market for taxi rides. If a government quota limit at 9 million rides is now imposed on this market (in the name of quality), then the quota rent that will accrue to the owner of a taxi medallion will be _____, but there will be a missed opportunity (inefficiency) to consumers of _____.
    A. $0.50 per ride; 1 million rides
    B. $2 per ride; 2 million rides
    C. $3 per ride; 3 million rides
    D. $4 per ride; 4 million rides
    E. $1 per ride; 1 million rides

12. Government intervention in the form of price floors or price ceilings will:
    A. always enhance the efficiency of the market.
    B. result in either surpluses or shortages.
    C. move the market toward its equilibrium quantity more quickly.
    D. often be seen as necessary to decrease the existence of black markets.
    E. always benefit consumers at the expense of producers.

Use the graph below to answer question 13.



13. If the government wants to limit shrimp sales to 500 pounds, it could impose a:
    A. price floor of $15.
    B. price floor of $10.
    C. price ceiling of $10.
    D. price floor of $15 or a price ceiling of $10.
    E. impose a price ceiling of $5.

Use the table below to answer questions 14-15.

Price	Quantity Demanded	Quantity Supplied
$0	100	25
5	90	40
10	80	55
15	70	70
20	60	85

14. A government-imposed price ceiling equal to $5 would result in:
    A. the equilibrium quantity being bought and sold in this market.
    B. excess demand.
    C. excess supply.
    D. a surplus occurring in this market.
    E. an efficient allocation of resources in the market.

15. A price floor imposed by the government equal to $20 would result in:
    A. excess demand in the amount of $20.
    B. excess supply in the amount of $25.
    C. no change in the market.
    D. an equilibrium quantity.
    E. allocative efficiency.

16. The quota rent refers to:
    A. the difference between the demand price and the supply price at the quota limit.
    B. the rent received by landlords who own rent-controlled apartments.
    C. the opportunity cost of using a quota-controlled service, or of buying a good that is subject to an import quota.
    D. the minimum rent that the owner of a building must receive before he or she is willing to rent out the building.
    E. the difference between the demand price at the quota limit and the market equilibrium price.

Use the table below to answer questions 17-19.

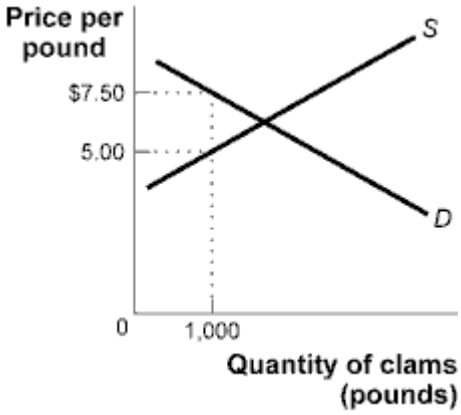
Table 9-2 The Market for Acupuncture		
Price per Treatment	Quantity Treatments Demanded (monthly)	Quantity Treatments Supplied (monthly)
$50	100	20
100	80	40
150	60	60
200	40	80
250	20	100

17. A small town has a thriving market for acupuncture treatments. In an effort to regulate this market, the town requires each acupuncture therapist to purchase a license. Initially, the government issues only enough licenses to provide for 20 treatments per month. This quota creates a quota rent equal to:
    A. $50.
    B. $100.
    C. $150.
    D. $250
    E. $200.

18. The production quota of 20 acupuncture treatments prevents mutually beneficial transactions because there are _____ additional transactions that people would like to make but would not take place given the quota.
    A. 80
    B. 60
    C. 40
    D. 20
    E. 100

19. A small town has a thriving market for acupuncture treatments. In an effort to regulate this market, the town requires each acupuncture therapist to purchase a license. Initially the government issues only enough licenses to provide for 20 treatments per month. Suppose this quota is in place for many years and, over time, the population of the town has substantially grown. This would result in:
    A. larger quota rents and more missed opportunities as the demand curve has shifted to the left.
    B. larger quota rents and more transactions as the supply curve has shifted to the right.
    C. larger quota rents and more missed opportunities as the demand curve has shifted to the right.
    D. smaller quota rents and more missed opportunities as the demand curve has shifted to the right.
    E. larger quota rents and more transactions as the supply curve has shifted to the left.

Use the graph below to answer question 20.

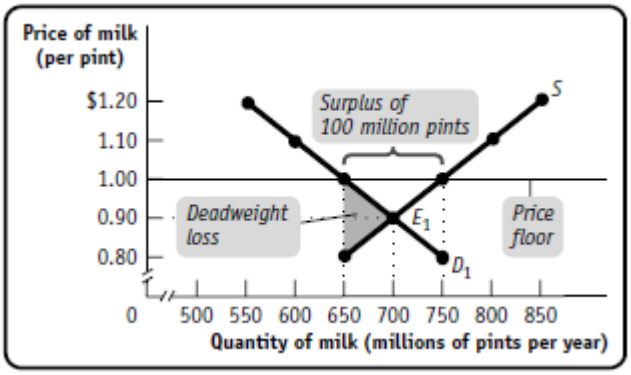


20. The government imposes a quota limiting sales of clams to 1,000 pounds. According to the figure, the quota rent per pound in this case is:
    A. $7.50.
    B. $5.00.
    C. $2500
    D. $2.50.
    E. The quota rent cannot be determined from the information provided.

21. If a quota is set above the equilibrium quantity, there will be:
    A. incentives for illegal activities.
    B. missed opportunities in the form of mutually beneficial transactions that don't occur.
    C. a supply price for the quantity transacted that will exceed the demand price of the quantity transacted.
    D. no effect from the quota.
    E. a lower price than the market equilibrium price.

22. The accompanying table shows hypothetical demand and supply schedules for milk per year. The U.S. government decides that the incomes of dairy farmers should be maintained at a level that allows the traditional family dairy farm to survive. So it implements a price floor of $1 per pint by buying surplus milk until the market price is $1 per pint.

a. In a diagram, show the deadweight loss from the inefficiently low quantity bought and sold.



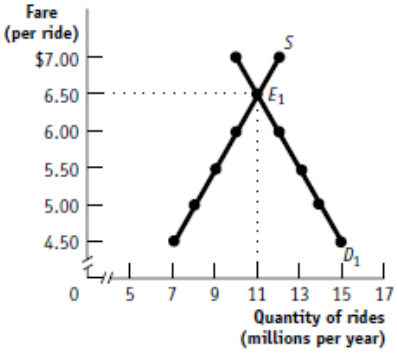
b. How much surplus milk will be produced as a result of this policy?

With demand of D1 and supply of S, the equilibrium would be at point E1 in the accompanying diagram. However, with a price floor at $1, the quantity supplied is 750 million pints and the quantity demanded is 650 million pints. So the policy causes a surplus of milk of 100 million pints per year.

c. What will be the cost to the government of this policy?

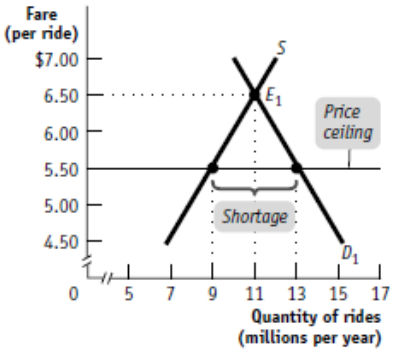
Some milk producers are inefficient: if the price were allowed to reach equilibrium, they would find it too costly to produce. In their absence, milk would be produced only by the most efficient producers. Furthermore, resources are being wasted: although no milk is poured away outright, the government spends significant amounts of money on purchases of milk. This is money that might be used more effectively for purposes other than providing cheap milk to schoolchildren, such as improving the quality of public schools.

23. In order to ingratiate himself with voters, the mayor of Gotham City decides to lower the price of taxi rides. Assume, for simplicity, that all taxi rides are the same distance and therefore cost the same amount. The accompanying table shows the demand and supply schedules for taxi rides.



a. Assume that there are no restrictions on the number of taxi rides that can be supplied. Find the equilibrium price and quantity.

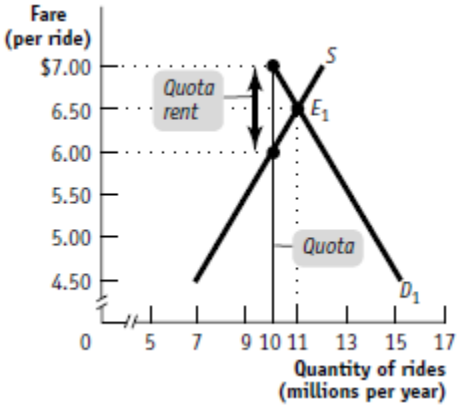
The equilibrium price is $6.50; at that price, the quantity demanded equals the quantity supplied—11 million taxi rides per year. The demand and supply curves (D1 and S) illustrate this initial situation.



b. Suppose that the mayor sets a price ceiling at $5.50. How large is the shortage of rides? Illustrate with a diagram. Who loses and who benefits from this policy?

With a price ceiling of $5.50, the quantity supplied is 9 million taxi rides and the quantity de**manded is 13 million. So the shortage is 13 million − 9** million = 4 million. Taxi drivers clearly lose out: there are fewer taxi rides supplied than before, and at a lower price. The impact on consumers is unclear: fewer people now manage to get rides, but those who do, get them at a lower price.

c. Suppose that the mayor now decides to ingratiate himself with taxi drivers. He announces a policy in which operating licenses are given to existing taxi drivers; the number of licenses is restricted such that only 10 million rides per year can be given. Illustrate the effect of this policy on the market, and indicate the resulting price and quantity transacted. What is the quota rent per ride?



The accompanying diagram illustrates the effect of the quota of 10 million taxi rides. The quantity of taxi rides is now 10 million, at a price of $7. The quota rent per ride is $1.