

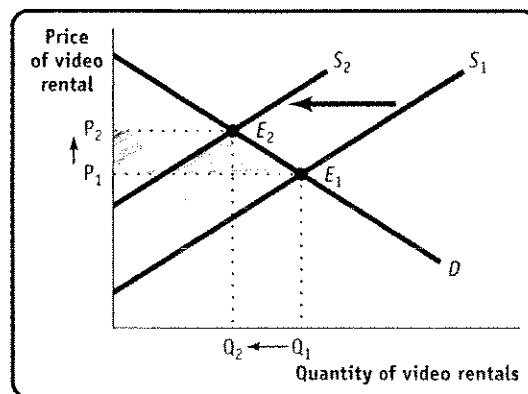
Unit IV

Consumer and Producer Surplus (KW Chapter 6)

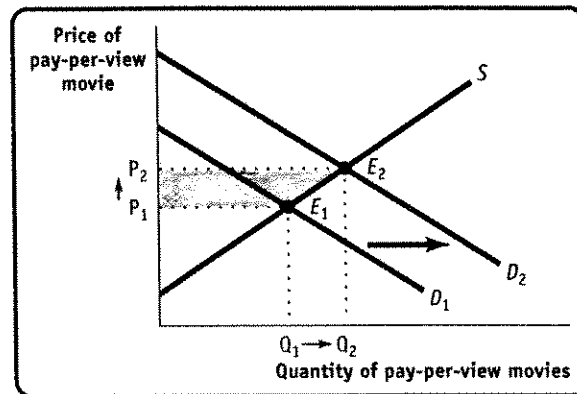
1.
 - a. Paul's consumer surplus is \$5. This is the difference between how much he is willing to pay (\$10) and how much he does pay (\$5).
 - b. Since Robin's willingness to pay is \$10 and the price of the CD is \$10, she gets no consumer surplus if she buys the CD.
 - c. No trade will take place since Phil's willingness to pay is less than the price. So no consumer surplus is created.

2.
 - a. Bob will receive no producer surplus since the price paid for the trains is equal to his cost.
 - b. No trade will take place since Jenny's cost is \$1,500, which is higher than the price of \$1,200 she is offered. So no producer surplus is created.
 - c. Sanjay's cost is zero. The price he is paid for his time is \$80,000, so his producer surplus is \$80,000.

3.
 - a. The payment to writers will increase the cost of providing video rentals. In the accompanying diagram, the supply curve shifts leftward from S_1 to S_2 , the equilibrium price of video rentals rises from P_1 to P_2 and the quantity of video rentals bought and sold falls from Q_1 to Q_2 . As a result, consumer surplus will decrease by the shaded amount. The writers' agreement will not be popular with consumers.

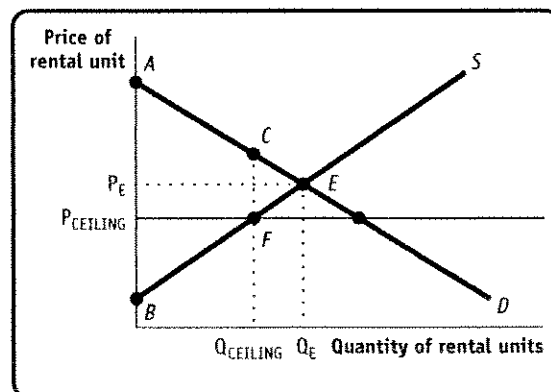


- b. The higher price of video rentals will make pay-per-view movies more popular. They are substitute goods, and the demand for them will increase when the price of video rentals rises. In the accompanying diagram, demand shifts rightward from D_1 to D_2 . The price rises from P_1 to P_2 , and the equilibrium quantity rises from Q_1 to Q_2 . Producer surplus will increase by the shaded amount. This change will be popular with the cable television companies that show pay-per-view movies.



5.

- a. Before the introduction of the rent ceiling, the market is in equilibrium at a price of P_E and a quantity of Q_E . Consumer surplus is the area P_EEA . Producer surplus is the area P_EBE . The rent ceiling at $P_{CEILING}$ leads to a reduction in the quantity from Q_E to $Q_{CEILING}$. Consumer surplus is the area $P_{CEILING}FCA$. Producer surplus is the area $P_{CEILING}BF$.



- b. It is not clear whether consumers are better off with the rent ceiling: The consumers who rent housing both before and after the introduction of the price ceiling gain consumer surplus. However, some consumers who used to rent housing can no longer do so after the introduction of the price ceiling, and they lose all consumer surplus. It is clear that the policy will be unpopular with landlords: producer surplus decreases unambiguously.

- c. The deadweight loss from this policy is the area CFE: it is a measure of how much consumer surplus and producer surplus is lost because of the introduction of the rent ceiling.

6.

- a. Ari will buy four servings of pasta. His consumer surplus is equal to \$12, that is: $(\$10 - \$4) + (\$8 - \$4) + (\$6 - \$4) + (\$4 - \$4) = \$12$.
- b. Ari will buy three servings of pasta. His consumer surplus is $(\$10 - \$6) + (\$8 - \$6) + (\$6 - \$6) = \$6$, so his consumer surplus falls by \$6, from \$12 to \$6.
- c. If there is an “all you can eat” special, the price Ari pays per serving is zero. Therefore, he will eat six servings of pasta. The total amount he is willing to pay for those six servings is \$30: the sum of the amount he is willing to pay for each individual serving. Since he actually pays \$25, his consumer surplus is \$5.
- d. When there is an “all you can eat” special, Ari will consume six servings. His consumer surplus from consuming six servings is \$30. Therefore, the most he is willing to pay for an “all you can eat” special is \$30. This is the highest price you can charge for the special.

8.

- a. The tax drives a wedge between the price paid by consumers and the price received by producers. Consumers now pay \$9, and producers receive \$5. After the imposition of the tax, the quantity bought and sold will therefore be one pizza.
- b. Consumer surplus is now zero (the one consumer who still buys a pizza at \$9 has a willingness to pay of just \$9, so that the consumer surplus is $\$9 - \$9 = \$0$). Compared to the situation before the imposition of the tax where the equilibrium price was \$7, consumer surplus has been reduced by \$3. Similarly, the producer of the one pizza has a cost of \$5, and this is the price he receives, so producer surplus is also zero: compared to the situation before, it has decreased by \$3.
- c. Collegetown earns a tax of \$4 per pizza sold, that is, a total tax revenue of \$4.
- d. Total surplus has been decreased by \$6. Of those \$6, the town earns \$4 in revenue, but \$2 of surplus is lost. That is the deadweight loss from this tax.

9.

- a. After the imposition of the price floor, the price of pizza is \$8. The demand schedule tells you that the quantity bought and sold is now two pizzas.

- b. At a price of \$8, consumer surplus is now $(\$9 - \$8) + (\$8 - \$8) = \$1$.
Producer surplus is $(\$8 - \$5) + (\$8 - \$6) = \$5$.

11.

- a. At a price of \$4, the taxi driver supplies 40 rides. His producer surplus is therefore $\frac{1}{2} \times \$4 \times 40 = \80 .
- b. Since the taxi driver's producer surplus is \$80, this is the most he is willing to pay to supply 40 rides at \$4. And it is therefore the most the city can charge him as a licensing fee.
- c. At a price of \$8, the taxi driver supplies 80 rides. His producer surplus is therefore $\frac{1}{2} \times \$8 \times 80 = \320 . Therefore, \$320 is the most the city can charge as a licensing fee when the price per ride is \$8.