

Chapter 5 Assignment

1. The government decides to impose a price ceiling on a good, because it thinks the market determined price is “too high”. If the government imposes the price ceiling below the equilibrium price:
 - A) consumers will respond to the lower price and therefore wish to purchase more of the good than at the equilibrium price.
 - B) producers will respond to the lower price and therefore offer fewer units for sale.
 - C) consumers will purchase less of the good after the price ceiling is imposed.
 - D) ☒ all of the above will occur.
2. Suppose the government sets a price floor of \$2.85 per bushel on corn when the current price is \$2.55. This price floor will:
 - A) ☒ cause a surplus of corn.
 - B) cause a shortage of corn.
 - C) have no effect on the price of corn.
 - D) increase the supply of corn.
3. 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.

4. The number of taxicabs in Montreal is controlled by quota so as to not have too many taxicabs on the road. If this particular quota system were not in place, the price of a taxicab ride would:

- A) increase because of the higher safety hazards.
- B) not change from its current level.
- ☒ C) decrease.
- D) increase, but only slightly.

5. 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/she is willing to rent out the building.

6. Suppose the government decides to fight ~~obesity~~ ^{HEALTH} in Canada by imposing an ~~excise tax~~ ^{excise tax} on the saturated fat content of food. The effect of this tax would be:

- A) to lower the profits of ice cream suppliers.
- B) to increase revenue for the government.

c) to increase black-market activity.

☒ d) all of the above.

7. A rent ceiling must be set above the equilibrium rent to be binding.

A) True

☒ B) False

8. If trans-Atlantic airfares were set artificially high by an international treaty, airlines offered customers an inefficiently high quality of service.

A) True

☒ B) False

9. The demand price of a given quantity of donuts is the price at which consumers will demand that quantity of donuts. The supply price of donuts is the price at which donut producers will supply that quantity of donuts.

☒ A) True

B) False

10. In general, the incidence of an excise tax is shared between buyers and sellers.

☒ A) True

B) False

11. The following table shows demand and supply for a good.

Price	Q^D	Q^S	Q^S_{TAX}
10	3000	6000	5000
9	3500	5500	4500
8	4000	5000	4000
7	4500	4500	3500
6	5000	4000	3000
5	5500	3500	2500
4	6000	3000	2000
3	6500	2500	1500
2	7000	2000	0
1	7500	1500	0
0	8000	0	0

- What will the economic effect be of a price ceiling at \$5? *shortage of 2000*
- What will the economic effect be of a price ceiling at \$8? *No effect*

c. What will the economic effect be of a price floor at \$8? Surplus of 500

d. What will the economic effect be of a price floor at \$5? No effect

e. Suppose the government imposes a quota of 3500 units.

i. What will the demand price be?

\$9

ii. What will the supply price be?

\$5

iii. How much will the quota rent be per unit?

\$4

iv. What will the total quota rent be?

\$14000

f. Suppose instead of a quota the government imposes a tax of \$2 per unit. Fill in the right column in the table above.

i. What is the new equilibrium quantity?

4000

ii. What price will consumers be paying with the tax? \$8 What price will the producers be getting? \$6

iii. What is the consumer tax incidence?

\$2

iv. What is the producer tax incidence?

\$2

v. What is the government's revenue from the tax? \$2 · 4000 = \$8000

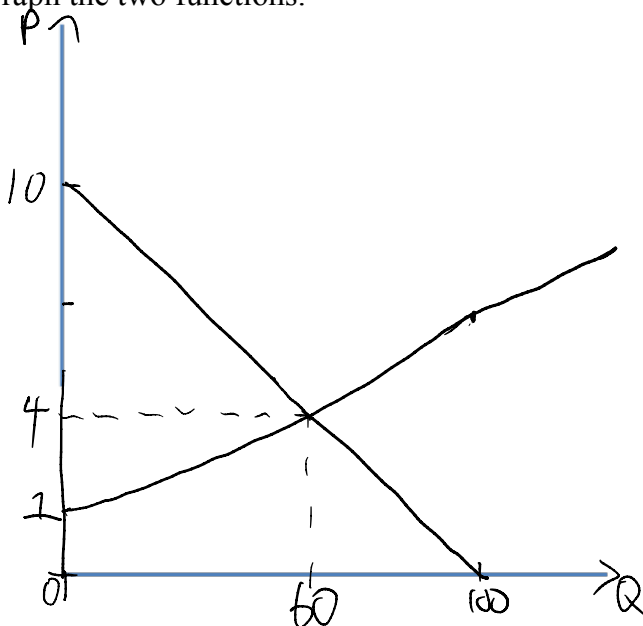
12. Using equations: Suppose a demand function is $Q^D = 100 - 10P$ and a supply function is $Q^S = 20P - 20$.

- a. Invert both equations to the graphing form, where P is shown as a function of Q .

Demand function: $P = -\frac{1}{10}Q^D + 10$

Supply function: $P = \frac{1}{20}Q^S + 1$

- b. Graph the two functions.



- c. Calculate the equilibrium price and quantity.

$$100 - 10P = 20P - 20$$

$$30P = 120$$

$$P = 4$$

Price = \$4

$$\text{Quantity} = \underline{60}$$

- d. Calculate the shortage if there is a price ceiling of \$3.

$$Q^S = 20 \cdot 3 - 20 = 40$$

$$Q^D = 100 - 10 \cdot 3 = 70$$

$$\text{Shortage} = \underline{30}$$

- e. Calculate the surplus if there is a price floor of \$6.

$$Q^S = 20 \cdot 6 - 20 = 100$$

$$Q^D = 100 - 10 \cdot 6 = 40$$

$$\text{Surplus} = \underline{60}$$

- f. Calculate the demand price, supply price, and total quota rent if a quota is set at $Q = 30$.

$$\text{Demand price} = \underline{-\frac{1}{10} \cdot 30 + 10 = \$7}$$

$$\text{Supply price} = \underline{\frac{1}{20} \cdot 30 + 1 = \$2.5}$$

$$\text{Total quota rent} = \underline{(7 - 2.5)30 = \$135}$$

- g. Calculate the equilibrium quantity, demand price, supply price, and total tax revenue if a tax of \$3 is set per unit.

$$P = \frac{1}{20}Q + 4$$

$$-\frac{1}{10}Q + 10 = \frac{1}{20}Q + 4$$

$$6 = \frac{3}{20}Q$$

$$Q = 40$$

Equilibrium quantity = 40

Demand price = \$6

Supply price = \$3

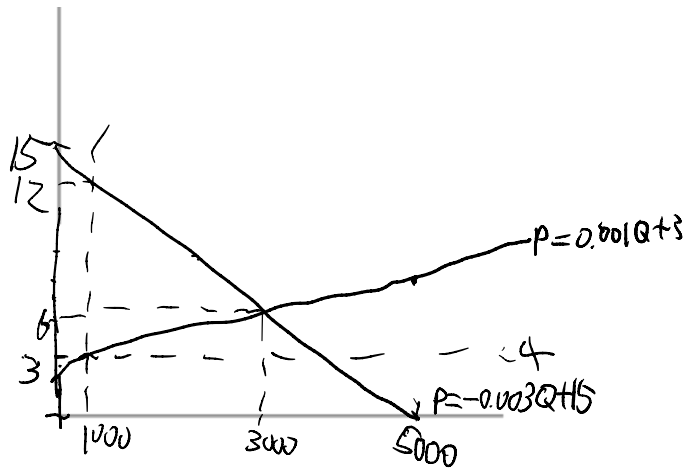
Total tax revenue = \$120

13. In the market for litres of ice cream, the demand function is $P = 15 - 0.003Q$ and the supply function is $P = 3 + 0.001Q$.

- A) If the government imposes a price ceiling of \$4 per litre calculate consumer surplus, producer surplus, total surplus, and deadweight loss. Show on the graph below.

$$P = 0.001Q + 7$$





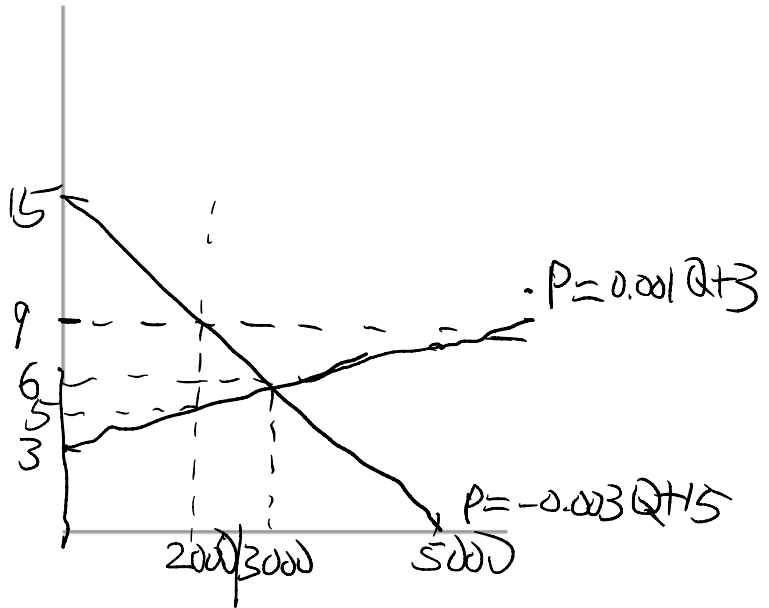
$$CS = \frac{(15-12)1000}{2} + \frac{(12-4)1000}{2} = 1500 + 8000 = 9500$$

$$PS = \frac{(4-3)1000}{2} = 500$$

$$TS = 10000$$

$$DWL = \frac{(12-4)(3000-1000)}{2} = 8000$$

- B) If the government imposes a price floor of \$9 per litre calculate consumer surplus, producer surplus, total surplus, and deadweight loss. Show on the graph below.



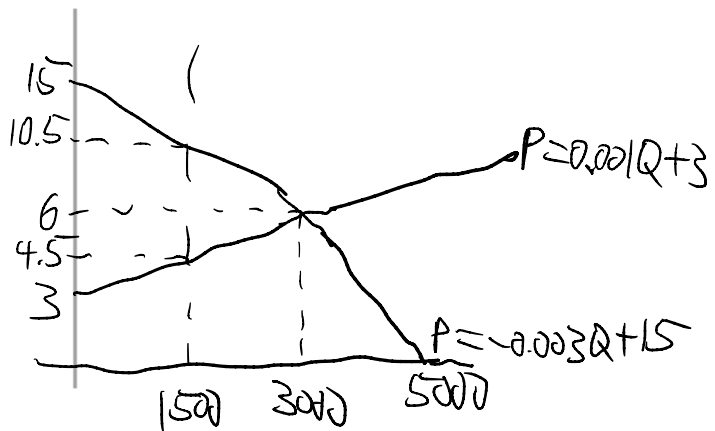
$$CS = \underline{6000}$$

$$PS = \underline{2000 + 8000 = 10000}$$

$$TS = \underline{16000}$$

$$DWL = \underline{2000}$$

- c) If the government imposes a quota of 1500 litres calculate consumer surplus, producer surplus, total surplus, the total quota rent and deadweight loss. Show on the graph below.



$$CS = \underline{3375}$$

$$PS = \underline{10125}$$

$$TS = \underline{13500}$$

$$\underline{9000} \quad \text{Total Quota Rent} =$$

$$DWL = \underline{4500}$$