# Chapter 6 Practice Problem Solutions

Elements of Microeconomics - Section 4

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## Question 1

This question will consider a market for coffee. Draw a graph of supply and demand in the market in which there is a market equilibrium at a price of $3 and quantity demanded of 100. In this example, assume price elasticity of supply is more elastic than price elasticity of demand.

### Part A

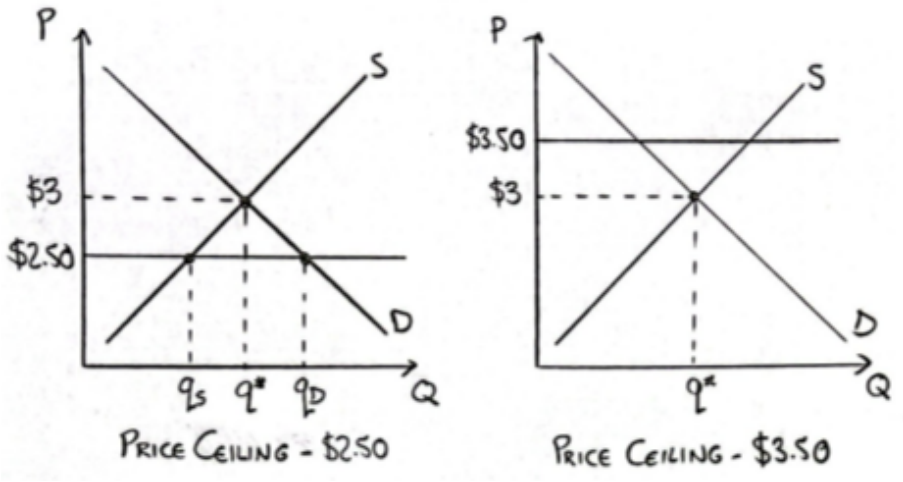
Consider two price ceilings:

- At $2.50
- At $3.50

In both of these cases depict graphically the new market outcome, and answer:

1. What happens to the new quantity demanded and supplied?
2. Does the policy cause a shortage or a surplus?
3. Is the policy binding? Why or why not?

**Answer**




- At $2.50:

1. Quantity demanded will increase and quantity supplied will decrease.
2. A shortage will be caused.
3. The policy is binding because the market equilibrium price is above the price ceiling. Therefore the ceiling mechanically lowers the price below equilibrium.

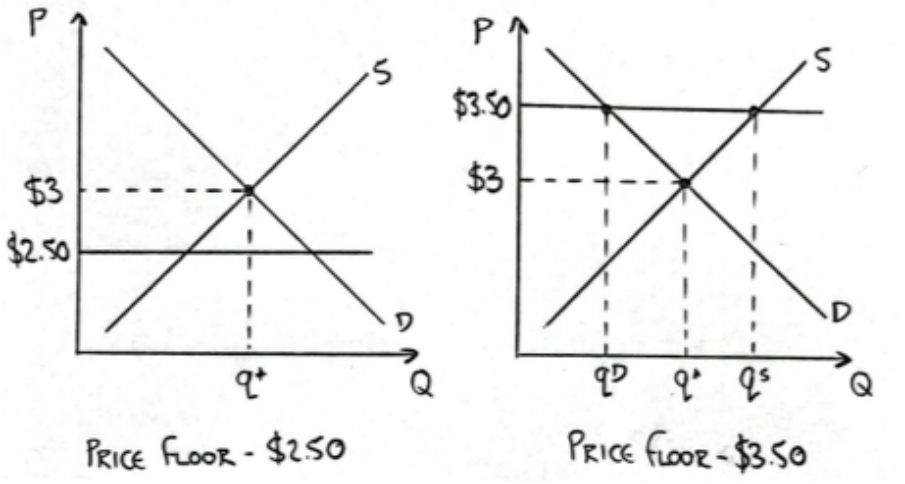
- At $3.50

1. Quantity demanded and quantity supplied will both remain the same.
2. No shortage nor surplus will be caused.
3. The policy is not binding because the market equilibrium price is below the price ceiling. Therefore the ceiling is never reached.

## Part B

Repeat the same exercise but for a price *floor* at $2.5 and $3.5.

**Answer**




- At $2.50:

1. Quantity demanded and quantity supplied will both remain the same
2. No shortage nor surplus will be caused
3. The policy is not binding because the market equilibrium price is above the price floor. Therefore the floor is never reached.

- At $3.50

1. Quantity demanded will decrease and quantity supplied will increase
2. A suplus will be caused
3. The policy is binding because the market equilibrium price is below the price floor. Therefore the floor mechanically raises the price above equilibrium

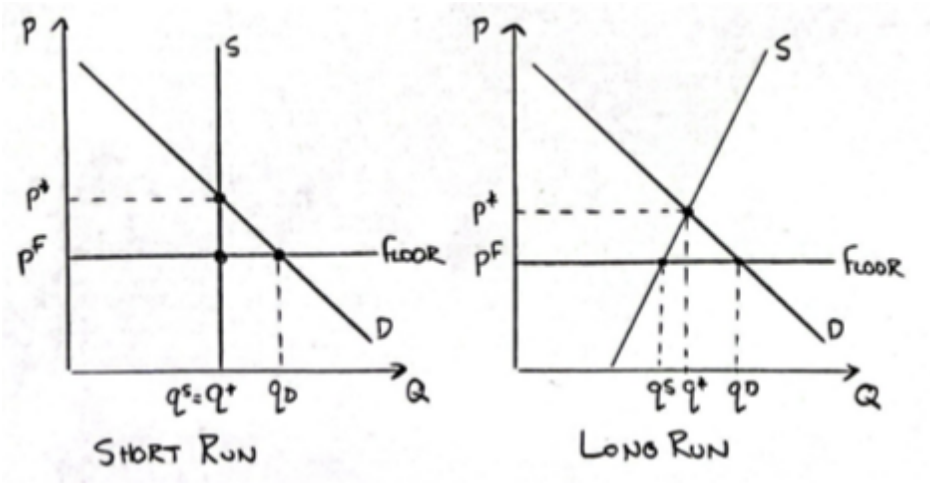
# Question 2

## Part A

Consider the market for Orioles tickets. Draw two graphs illustrating how the market may look in the short-run and in the long-run. Think about:

1. Which side of the market is elastic?
2. Which side of the market is inelastic?
3. What might be different with elasticities in the short run and the long run?

**Answer**




Recall that the supply side for sports tickets in the short run is perfectly inelastic. We cannot increase or decrease the supply of seats in the stadium in the short run. In the long run however, we may add seats to the stadium or downsize making the supply side more elastic. It will still be relatively inelastic however. The demand side of the market will be relatively elastic compared to the supply side both in the short run and the long run.

## Part B

Suppose Baltimore City imposes a *binding* price floor on tickets:

1. What is the impact in the short-run?
2. What is the impact in the long-run?
3. Is the impact larger in the short-run or long-run? Why?

**Answer**

Both in the short run and the long run, a binding price floor will lower the price and increase demand. This will result in a shortage of tickets. The shortage will be larger in the long run when supply is not perfectly inelastic. In the short run, the Orioles cannot reduce their supply. However, in the long run, it is more beneficial for them to decrease the size of their stadium and reduce supply of seats. This will exasperate the shortage and make it larger.

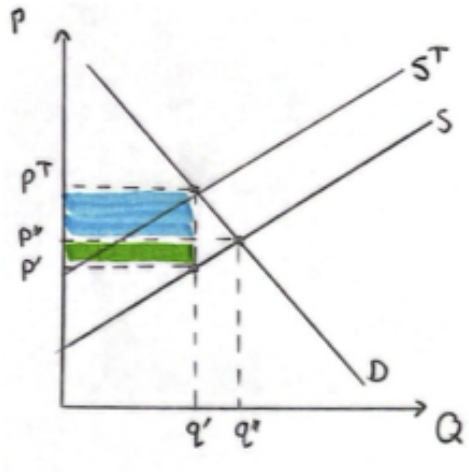
# Question 3

Let's consider the coffee market from Question 1 again. Instead of price controls (rare in advanced economies), consider a tax of $0.50 per cup applied to **suppliers**:

1. Does this shift supply or demand curves?
2. What will happen to equilibrium price and quantity?
3. What portion falls on consumers and what falls on suppliers?

Draw a graph to illustrate the intuition behind your answers (We are not looking for specific numbers since you are not provided with functions). Make sure to draw the tax wedge, labeling the portion falling on consumers and on suppliers. (Recall that we are assuming that price elasticity of supply is more elastic than price elasticity of demand.)

**Answer**

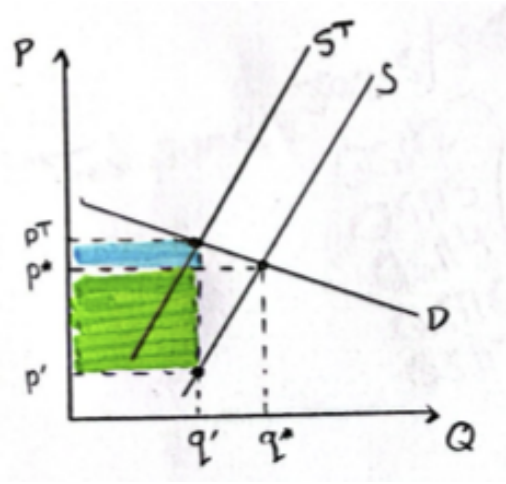



The supply curve will shift left, the equilibrium quantity will fall, and the equilibrium price will rise. As supply is more elastic than demand, the tax incidence on consumers will be greater than that on suppliers.

## Part B

How would the incidence of the tax change if the price elasticity of demand is more elastic than the price elasticity of supply? Draw a graph to illustrate.

**Answer**

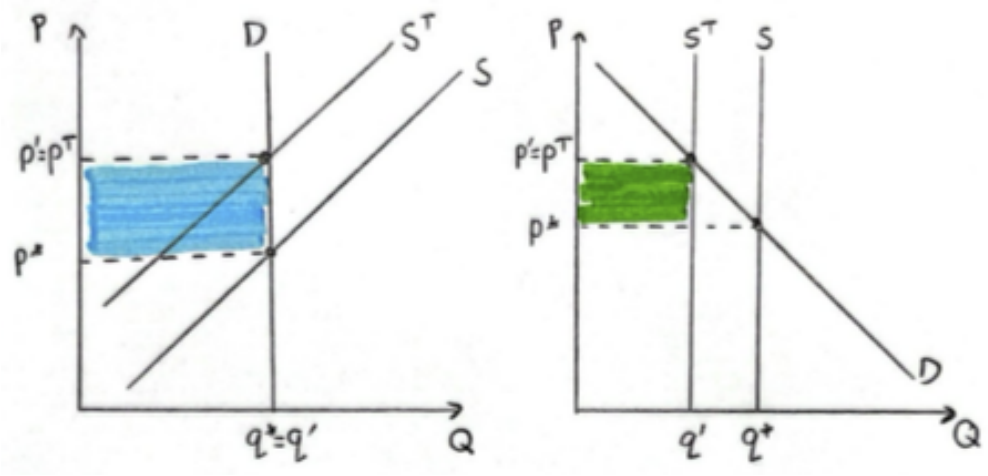



As demand is now more elastic than supply, the tax incidence on suppliers will be greater than that on consumers.

## Part C

Draw two graphs to illustrate the same tax when demand is perfectly inelastic, and when supply is perfectly inelastic. Explain the intuition for who bears the tax burden and why.

**Answer**

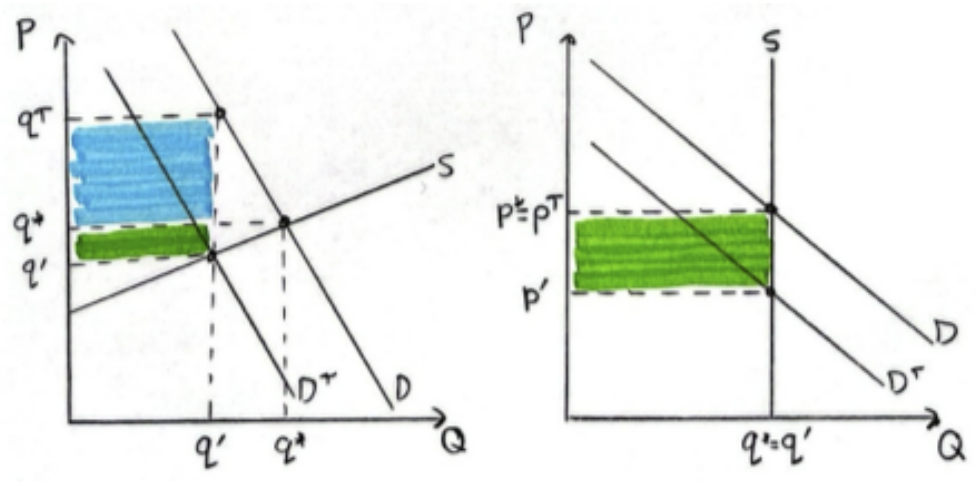


If demand is perfectly inelastic then the entire burden of the tax will fall on the consumers. This makes intuitive sense because perfectly inelastic demand means that consumers are willing to consume the same amount of the good no matter the cost. Therefore, the suppliers can pass all the tax incidence through to the consumers without having to change the quantity they are supplying. If supply is perfectly inelastic, supplies will bear the full burden of the tax. Similar intuition follows.

## Part D

Repeat this exercise, but considering the tax as levied on consumers rather than producers. Does the tax burden depend on how the tax is imposed?

**Answer**




Now the demand curve shifts left rather than the supply curve. The equilibrium price and quantity will both fall. If we have the same elasticities as in parts A, B, and C, the incidence should remain the same. Imposing the tax either on the consumers or the suppliers does not change the incidence of the tax. I have show the case of inelatic demand and elastic supply, and the case of perfectly inelastic supply. You should be able to infer from parts A, B, and C the remaining two graphs.