Discussion 3

1 Topics

- Determinants of demand and supply.
- A movement along the demand (supply) curve versus a shift of the demand (supply) curve.
- Aggregate individual demand (supply) curves to get market demand (supply) curve.
- Market equilibrium.
- Consumer surplus (CS) and producer surplus (PS).
- Price floor, price ceiling and deadweight loss

2 Exercises

2.1 Determinants of demand.

Consider the case of Five Guys on State Street. They know that they face a downward sloping demand for regular cheeseburgers. The manager hires you to predict the following scenarios. Make a graph showing the changes described and identify which determinant of demand is invoked in each scenario.

- The reduction of the price in cheeseburgers leads to a downward movement along the demand curve of cheeseburgers.
- A new campaign for weight loss successfully persuades people that cheeseburgers are very unhealthy, leading to a left shift of the demand curve of cheeseburgers.
- French fries are often purchased together with cheeseburgers, and the price of French fries decreases, resulting in a right shift of the demand of cheeseburgers.
- The price of Wendy's cheeseburgers decreases. This leads to a a left shift of the demand curve of cheeseburgers.

2.2 Predict what happens to supply curve, demand curve, equilibrium price, and equilibrium quantity.

For each of the following markets, predict the change in price and quantity sold using a supply-and-demand graph: You should draw the curves to get to answers that are presented here.

- Predict the changes in the market for beef when chicken becomes cheaper.

- Predict the changes in the market for coffee when cream becomes cheaper.

- Predict the changes in the market for automobiles when workers' unions successfully raises workers' wages by 20%.

2.3 Aggregate supply and aggregate demand in the tutoring market.

Suppose Andy and Elise are supplying labor in the tutoring market. Joohyun and Hiro are potential buyers in this market.

Andy has the following supply curve: $P_a = 10Q_a$, where P_a is the hourly price Andy charges, and Q_a is the total hours that Andy supplies. Elise's labor supply curve is identical to Andy's: $P_e = 10Q_e$.

On the demand side, Joohyun has the following demand for tutoring hours: $P_j = 100 - \frac{1}{4}Q_j$, where P_j is the hourly price Joohyun pays, and Q_j is the total number of hours demanded by Joohyun. Hiro has the following demand: $P_h = 125 - \frac{1}{2}Q_h$.

1. Suppose Andy and Elise are the only tutors in this market. What is the aggregate market supply curve?

2. Suppose Hiro and Joohyun are the only buyers in this market. What is the aggregate market demand curve? Graph individual demand curves and market demand curve.

3. Find market equilibrium.

2.4 Trade

Consider the pumpkin market in USA. Suppose the domestic demand for pumpkins is given by $Q = 100 - 2P$, and the domestic supply is given by $Q = 2P - 20$. Consider this market opening up to trade. For simplicity assume the USA's pumpkin output is negligible in the world pumpkin market, so its presence does not affect the world price.

1. If the world price for pumpkins is \$40, what will be the quantity demanded and supplied in the domestic market? Will the US have excess demand or supply? How large is it? Find consumer and producer surplus. How do they change (qualitatively) compared to the closed market case?

2. If the world price for pumpkins is \$10, what will be the quantity demanded and supplied in the domestic market? Will the US have excess demand or supply? How large is it? How much will consumer and producer surplus change compared to the closed market case?

3. Suppose that the world price for pumpkins is \$10, and now the US government implements a tariff of \$10, then how many pumpkins will be imported? How much revenue is raised for the government? What is the deadweight loss caused by the tariff? Illustrate on a diagram.

3 Multiple Choice Practice

3.1 Problem 1

Amy's demand for blood oranges is characterized by the equation $y = 10–x$ (assume x is on the horizontal axis). Suppose her income increases from \$200/month to \$400/month. How does her demand for the oranges change in response to the change in income?

(a) It shifts the demand curve upward to $y = 20 - x$.

(b) The demand curch does not shift, but she moves to a point further to the left on her demand curve.

(c) It shifts the demand curve downward to $y = 5 - x$.

(d) It shifts the demand curve, but we cannot determine the exact magnitude of shift.

3.2 Problem 2

The local market for pizza is characterized by the following equations:

$$Q_D = 80 - 2P$$

$$Q_S = .5P - 5$$

What are the equilibrium price and quantity?

(a) P = 12, Q = 34

(b) P = 34, Q = 12

(c) P = 24, Q = 22

(d) P = 22, Q = 36

3.3 Problem 3

Suppose that the market for hotdogs is in equilibrium. What happens to equilibrium price and quantity of hotdogs under the following scenarios?

3.3.1

The price of a hamburger rises.

(a) Equilibrium price of hotdogs rises, equilibrium quantity of hotdogs rises

(b) Equilibrium price of hotdogs rises, equilibrium quantity of hotdogs falls

(c) Equilibrium price of hotdogs falls, equilibrium quantity of hotdogs rises

(d) Equilibrium price of hotdogs falls, equilibrium quantity of hotdogs falls

3.3.2

Workers' wages at hot dog shops increase and the prices of ketchup, mustard, and relish fall (ketchups, mustards, and relishes are complements to hotdogs, and are to be purchased separately from hotdogs).

(a) Equilibrium price falls, equilibrium quantity may rise or fall

(b) Equilibrium price rises, equilibrium quantity may rise or fall

(c) Equilibrium price may rise or fall, equilibrium quantity falls

(d) Equilibrium price may rise or fall, equilibrium quantity rises

(e) Equilibrium price may rise or fall, equilibrium quantity may rise or fall

3.4 Problem 4

Assume that the demand curve and the supply curve in a market are linear. When a market price is $10, a firm produces 40 units, but at that price, there is an excess demand of 20 units. Furthermore, when the market price is $20, a firm produces 80 units, but there is an excess supply of 30 units.

1. What is the equation of the demand curve in this market?

   (a) Q = 4P
   (b) Q = 70 – P
   (c) P = 40 -Q
   (d) Q = 70 -2P

2. What is the equation of the supply curve in this market?

   (a) Q = 4P
   (b) Q = 70 – P
   (c) P = 10 +1/4 Q
   (d) Q = 4P -10

3. What is the equilibrium price in this market?

   (a) $12.
   (b) $14.
   (c) $16.
   (d) $18.

4. Which of the following is an effective price floor in this market?

   (a) $10.
   (b) $12.
   (c) $14.
   (d) $16.

5. What of the following describes a consequence of this price floor?

   I. It will cause deadweight loss.
   II. There will be a shortage of this good.
   III. There will be a surplus of this good.

   (a) I and II
   (b) I and III
   (c) II and III
   (d) III only