

HW#4 From Problem and Applications of Mankiw book, Chapter 4 The Market Forces of Supply and Demand

#1 Answer only part (b) and (e). Follow the instruction of the question and, in addition, and describe the market mechanism that causes the change in the market equilibrium.

3. Consider the market for minivans. For each of the events listed here, identify which of the determinants of demand or supply are affected. Also indicate whether demand or supply increases or decreases. Then draw a diagram to show the effect on the price and quantity of minivans.

~~a. People decide to have more children.~~

b. A strike by steelworkers raises steel prices.

~~c. Engineers develop new automated machinery for the production of minivans.~~

~~d. The price of sports utility vehicles rises~~

e. A stock market crash lowers people's wealth.

#

11. Suppose that the price of basketball tickets at your college is determined by market forces. Currently, the demand and supply schedules are as follows:

Price	Quantity Demanded	Quantity Supplied
\$4	10,000 tickets	8,000 tickets
8	8,000	8,000
12	6,000	8,000
16	4,000	8,000
20	2,000	8,000

- a. Draw the demand and supply curves. What is unusual about this supply curve? Why might this be true?
- b. What are the equilibrium price and quantity of tickets?
- c. Your college plans to increase total enrollment next year by 5,000 students. The additional students will have the following demand schedule:

Price	Quantity Demanded
\$4	4,000 tickets
8	3,000
12	2,000
16	1,000
20	0

Now add the old demand schedule and the demand schedule for the new students to calculate the new demand schedule for the entire college. What will be the new equilibrium price and quantity?

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~~a. People decide to have more children.~~

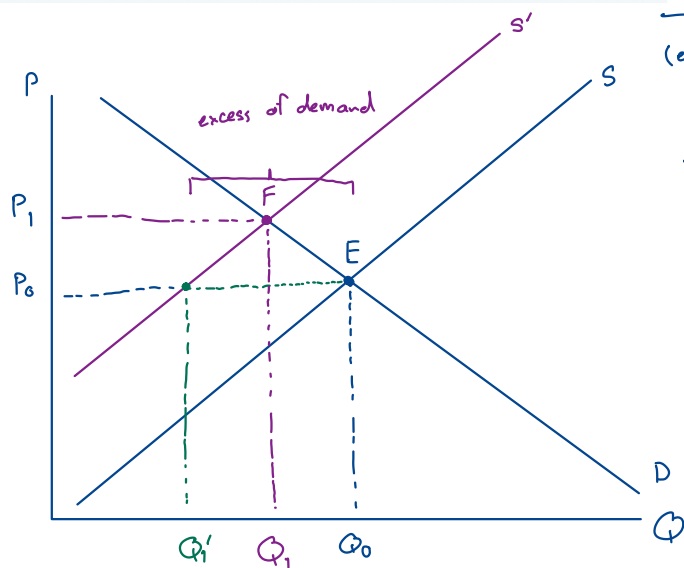
b. A strike by steelworkers raises steel prices.

~~c. Engineers develop new automated machinery for the production of minivans.~~

~~d. The price of sports utility vehicles rises.~~

e. A stock market crash lowers people's wealth.

b)



→ steel Price increase → supply decrease → supply shift left (effect by price of input)

• Eq at $E(Q_0, P_0)$

• when S decrease $\Rightarrow Q_D = Q_0$ (stay the same)

• Q_S decrease from Q_0 to Q_1

• Excess of Demand = $Q_S - Q_D = Q_1 - Q_0 \Rightarrow \text{demand} > \text{supply} \Rightarrow \text{Price market increase}$

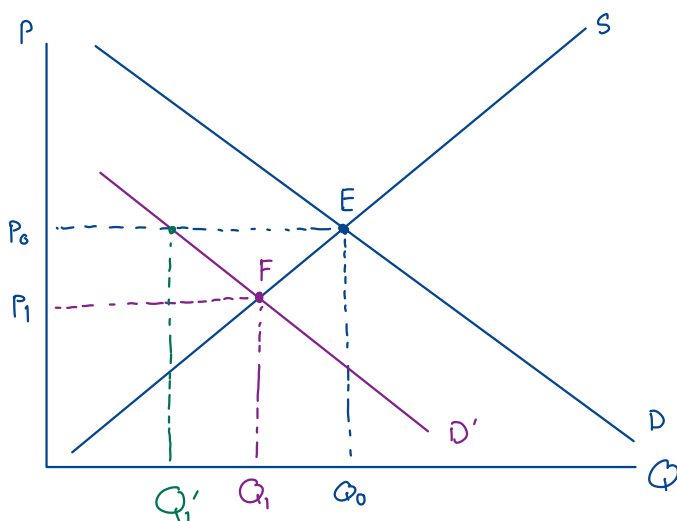
• Increase to $F(P_1, Q_1)$

• $Q_D = Q_S$, Excess $D = 0$

• in equilibrium condition

$\therefore S$ decrease, P increase

e)



→ stock market crash/ lower wealth (lower income) → demand decrease → demand shift left

• Eq at $E(Q_0, P_0)$

• when D decrease to $D' \Rightarrow Q_S = Q_0$ (stay the same)

• Q_D decrease from Q_0 to Q_1'

• Excess of Supply: $Q_S - Q_D = Q_0 - Q_1' \Rightarrow \text{supply} > \text{demand} \Rightarrow \text{Price market decrease}$

• Decrease until $F(Q_1, P_1)$

• $Q_S = Q_D$, Excess of Supply = 0

• in equilibrium condition

$\therefore D$ decrease, P decrease

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- Draw the demand and supply curves. What is unusual about this supply curve? Why might this be true?
- What are the equilibrium price and quantity of tickets?
- Your college plans to increase total enrollment next year by 5,000 students. The additional students will have the following demand schedule:

Demand Equation

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{8 - 4}{8000 - 10,000}$$

$$= -\frac{4}{2000}$$

$$= -\frac{1}{500}$$

$$y = mx + b$$

$$4 = -\frac{1}{500}(10000) + b$$

$$4 = -20 + b$$

$$b = 24$$

$$\therefore y = -\frac{1}{500}x + 24$$

Supply Equation

$$m = \frac{y_2 - y_1}{x_2 - x_1} \quad \therefore x = 8,000$$

$$= \frac{8 - 4}{8000 - 8000}$$

$$= \frac{4}{0}$$

$$= \infty$$

b)

$$\text{demand} = \text{supply}$$

$$y = -\frac{1}{500}x + 24 \quad / \quad x = 8000$$

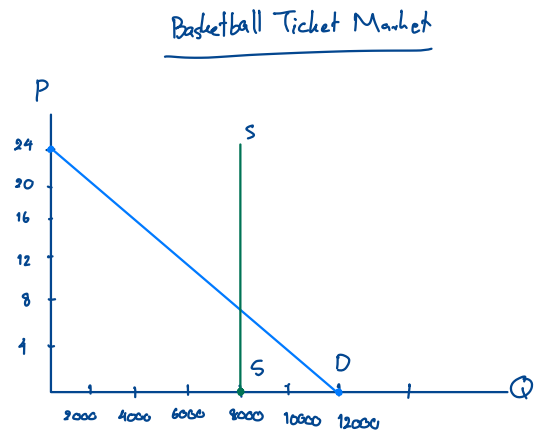
$$y = -\frac{1}{500}(8000) + 24$$

$$y = -16 + 24$$

$$y = 8$$

$\therefore$ The market equilibrium is when Quantity: 8,000 tickets and Price: \$8

a)



Supply curve has an infinity slope. One of the reasons that supply curve is at 8000 amount at all price because there are limited seats available.

Price	Quantity Demanded	
\$4	4,000 tickets	+ 10,000
8	3,000	+ 8,000
12	2,000	+ 6,000
16	1,000	+ 4,000
20	0	+ 2,000

14,000
11,000
8,000
5,000
2,000

Now add the old demand schedule and the demand schedule for the new students to calculate the new demand schedule for the entire college. What will be the new equilibrium price and quantity?

c)

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{8 - 4}{11,000 - 14,000}$$

$$= \frac{-4}{3,000}$$

$$= -\frac{1}{750}$$

$$y = mx + b$$

$$4 = -\frac{1}{750}(14,000) + b$$

$$4 = \frac{-56}{3} + b$$

$$b = \frac{68}{3}$$

$$y = -\frac{1}{750}(8000) + \frac{68}{3}$$

$$= 12$$

$\therefore$ New equilibrium is at

Price = 12\$ and Q = 8000 tickets