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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?

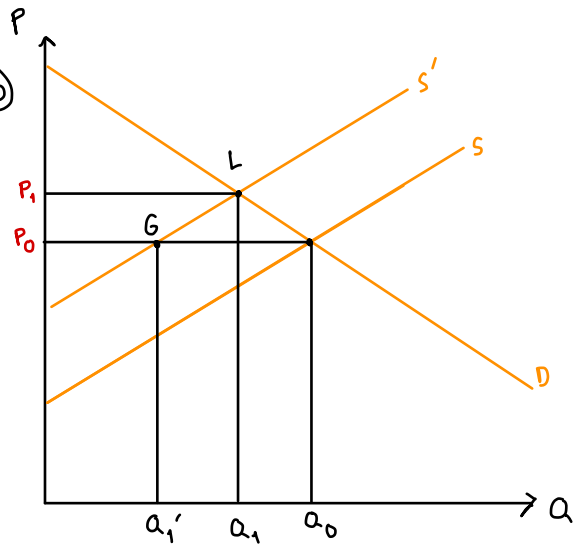
   b. What are the equilibrium price and quantity of tickets?

   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?

(3) (b)



steel price↑ ⟶ supply↓ ⟶ supply curve shift left

Determinant: price of input

At P_0, $Q_S = Q_D$ ⇒ Equilibrium

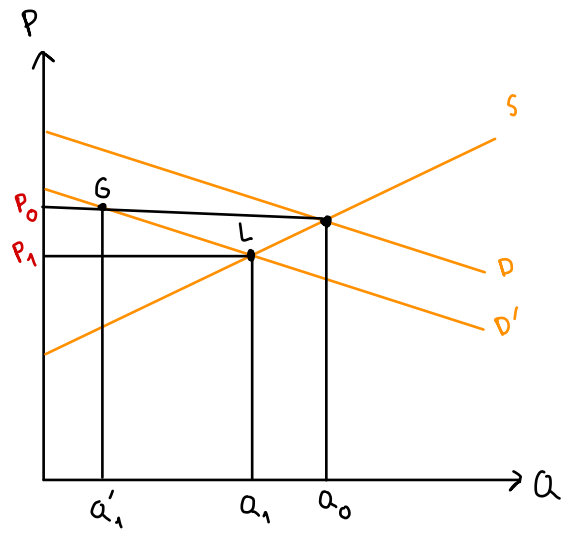
At P_0 and $S \to S'$, $Q_D > Q_{S'}$ ⇒ Excess demand (point G)

To equilibrium: Price↑ until P_1 then $Q_{S'} = Q_D$ (point L)

$\therefore Q_{S'} = Q_D$ is new equilibrium

$\therefore$ P↑ ∝ Quantity↓

(e)



People's wealth↓ ⟶ Demand↓ ⟶ Demand curve shift left

Determinant: lower income

At P_0, $Q_S = Q_D$ ⇒ Equilibrium

At P_0 and $D \to D'$ ⇒ $Q_S > Q_{D'}$ ⇒ Excess supply (point G)

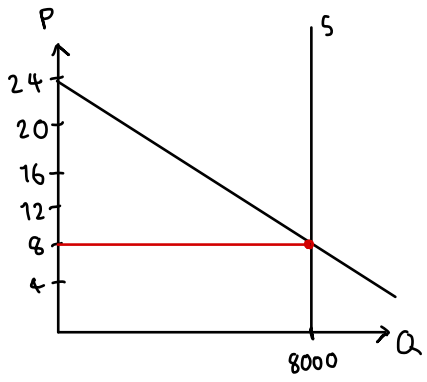
To equilibrium: Price↓ until P_1 then $Q_S = Q_{D'}$ (point L)

$\therefore Q_S = Q_{D'}$ is new equilibrium

$\therefore$ P↓ ∝ Quantity↓

11

ⓐ



This supply curve is unusual because there are 8,000 tickets for quantity supplied at every level of price. There are only 8,000 seats available and college is willing to sell at least 4$ per ticket.

ⓑ Supply curve: $X = 8{,}000$

Demand curve: $m = \frac{\Delta Y}{\Delta X} = \frac{\Delta P}{\Delta Q}$

$= \frac{8-4}{8{,}000-10{,}000} = \frac{4}{-2{,}000} = -\frac{1}{500}$

$P = \frac{-1}{500}Q + 24$ ← y-intercept

Equilibrium

$P_S = P_D \rightarrow Q_S = 8{,}000$ & $P = \frac{-Q}{500} + 24$

$P = \frac{-8{,}000}{500} + 24 = 8 \rightarrow P = 8$

Then $Q = \frac{(P-24)(500)}{-1} = 8{,}000$

∴ Ans. = (8,000, 8) ※

ⓒ new demand curve: $P = \begin{cases} \frac{-Q}{500} + 24; & 24 \geq P \geq 20,\ 2{,}000 \geq Q \geq 0 \\ \frac{-Q}{750} + \frac{68}{3}; & 20 > P \geq 0,\ 17{,}000 \geq Q > 2{,}000 \end{cases}$

find equation for $0 \leq P < 20$

$m = \frac{\Delta P}{\Delta Q} = \frac{8-4}{11{,}000-14{,}000} = \frac{-4}{3000} = \frac{-1}{750}$

$\therefore P(X) = \frac{-Q}{750} + b$

Find b: $12 = \frac{-8000}{750} + b$

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

∴ Equation for $0 \leq P < 20$ is $P(X) = \frac{-Q}{750} + \frac{68}{3}$

Equilibrium: $P_S = P_D \rightarrow Q = 8{,}000 \Rightarrow P = \frac{-Q}{750} + \frac{68}{3}$

$P = \frac{-8{,}000}{750} + \frac{68}{3} = 12$

∴ Equilibrium point = (8,000, 12)

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