Week 1 – Introduction

Guillem Riambau. Introduction to Economic Analysis: Demand and Supply.

NUS – EC1101E

January 26, 2020


Why does an iPhone 11 cost $1,889.00?


Why does an iPhone 11 cost $1,889.00?
Why does a blueberry muffin cost $4 at NUS and $5 at the CBD?


Why does an iPhone 11 cost $1,889.00?
Why does a blueberry muffin cost $4 at NUS and $5 at the CBD?
Why is grab more expensive on Friday evenings (especially when it rains)?

Some useful reminders

All materials are posted on LumiNUS:

- Weekly readings are here
- Pre-lecture videos are here
- Problem sets (for tutorials) are here
- Next week **two tutorials** for everyone. Tuesday AND either Thursday or Friday.

Some useful reminders

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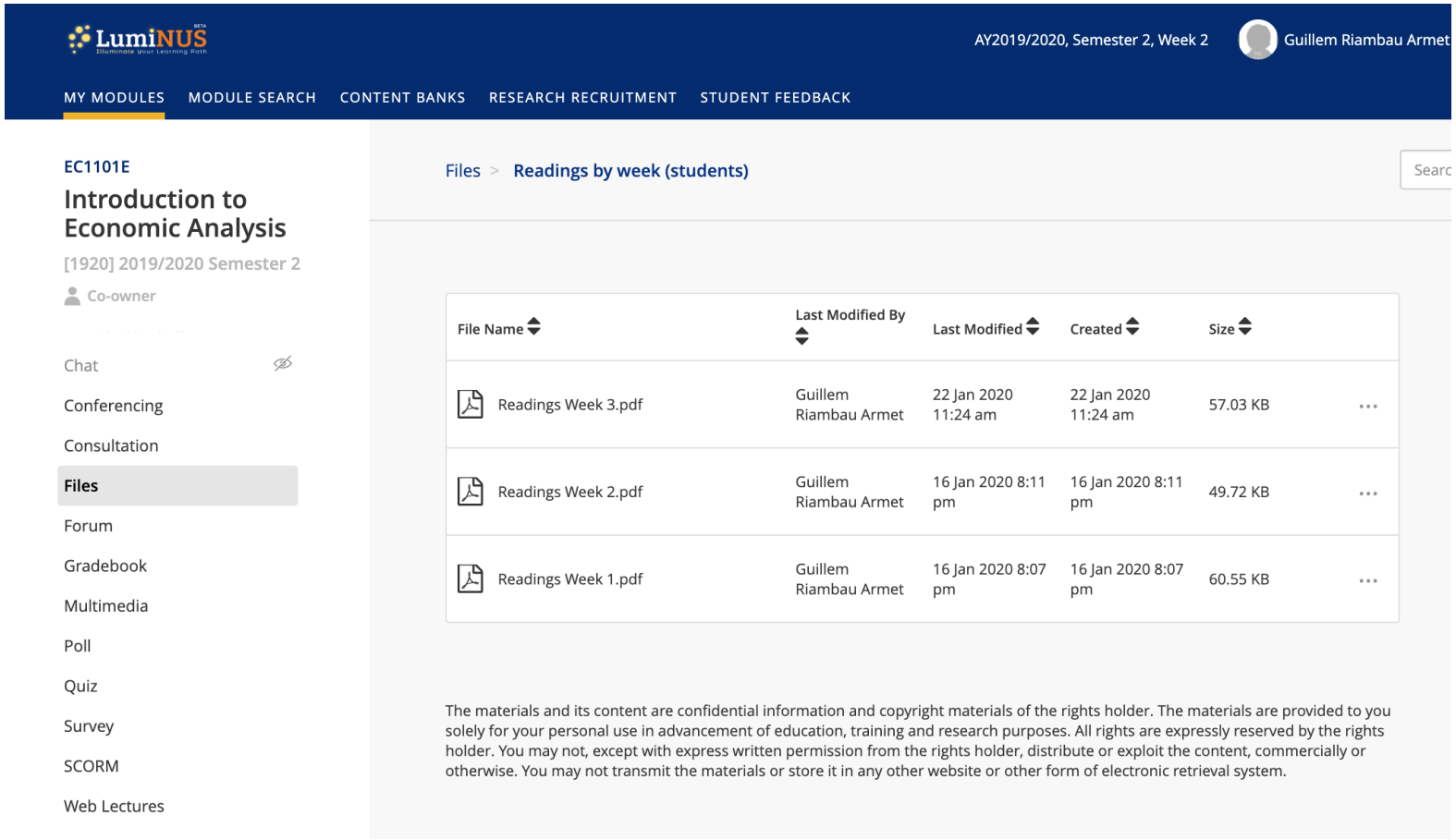
- Next week **two tutorials** for everyone. Tuesday AND either Thursday or Friday.
- Recall attendance is compulsory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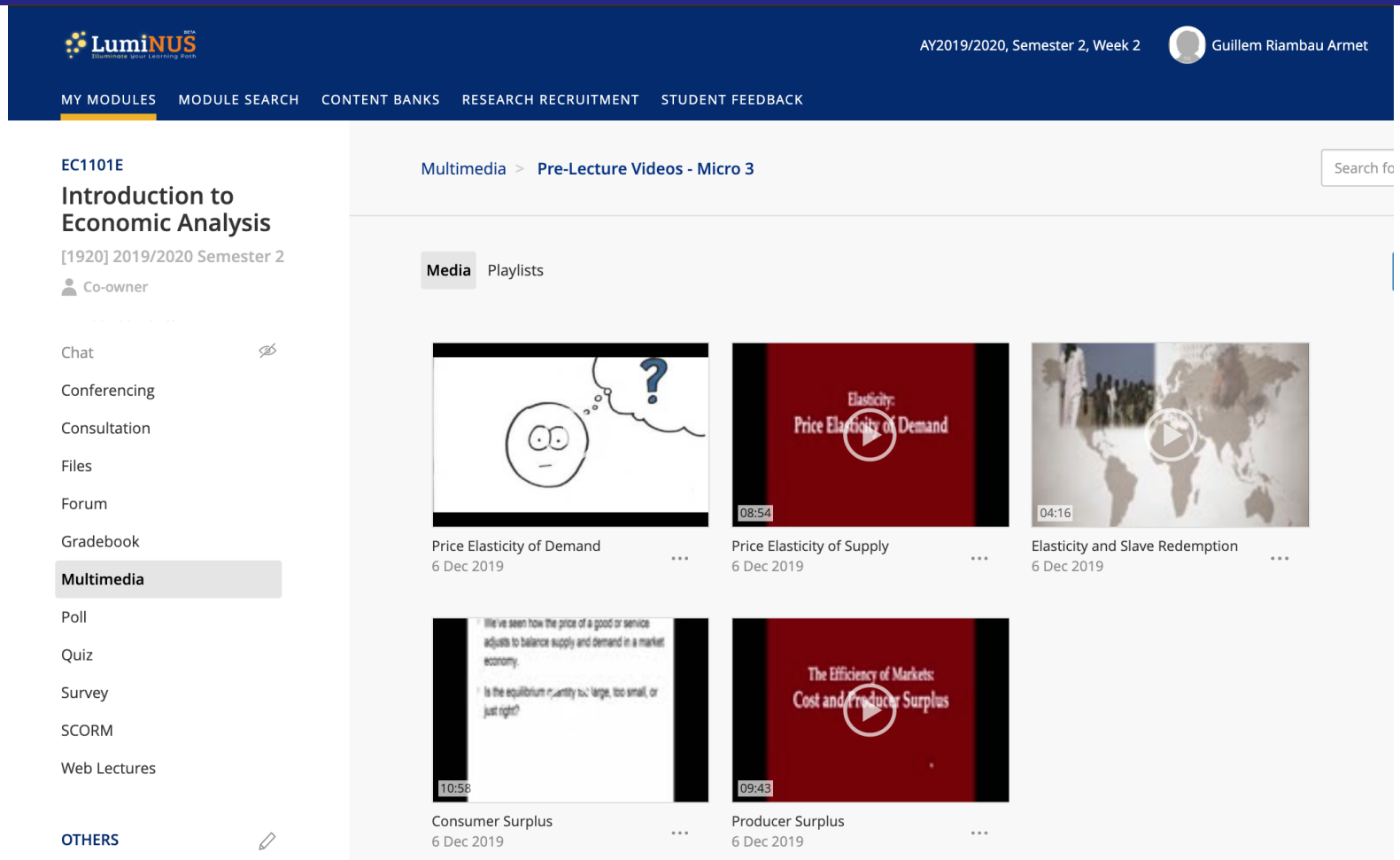
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Price Elasticity of Demand
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Elasticity:
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Price Elasticity of Supply
6 Dec 2019
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Elasticity and Slave Redemption
6 Dec 2019
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Consumer Surplus
6 Dec 2019
The Efficiency of Markets:
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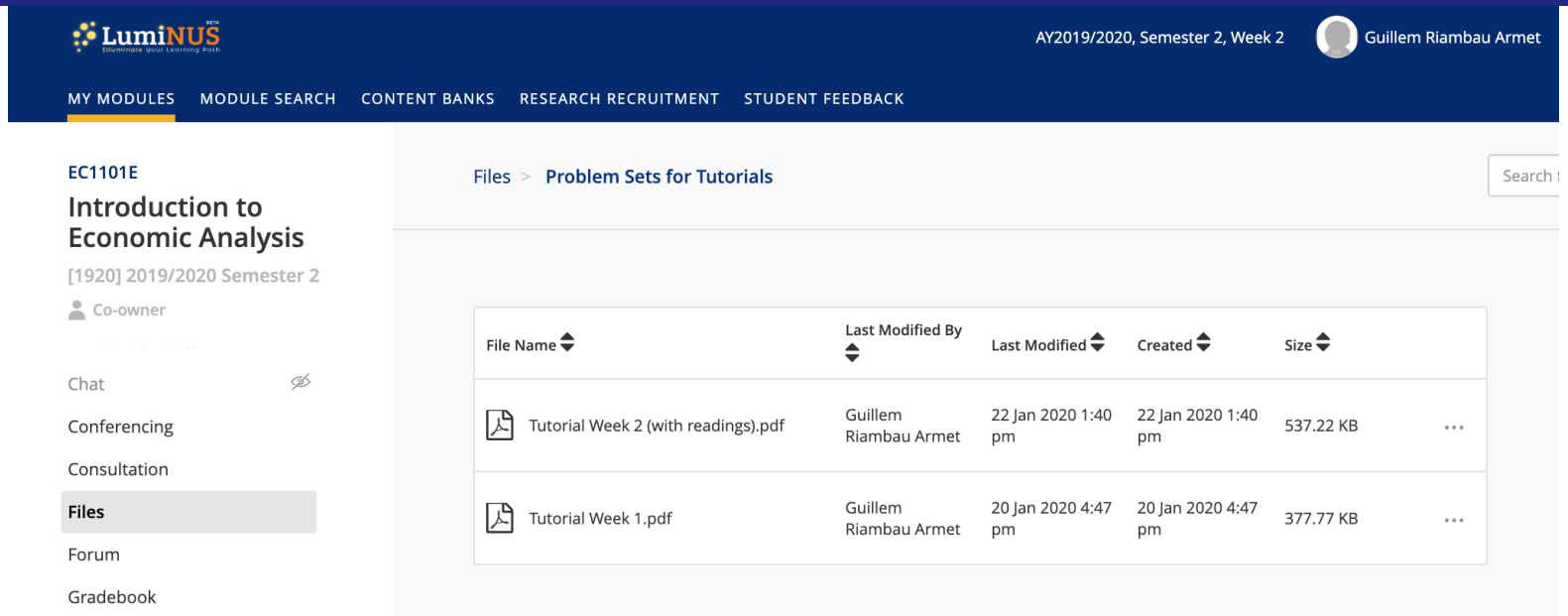
Producer Surplus
6 Dec 2019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Goals

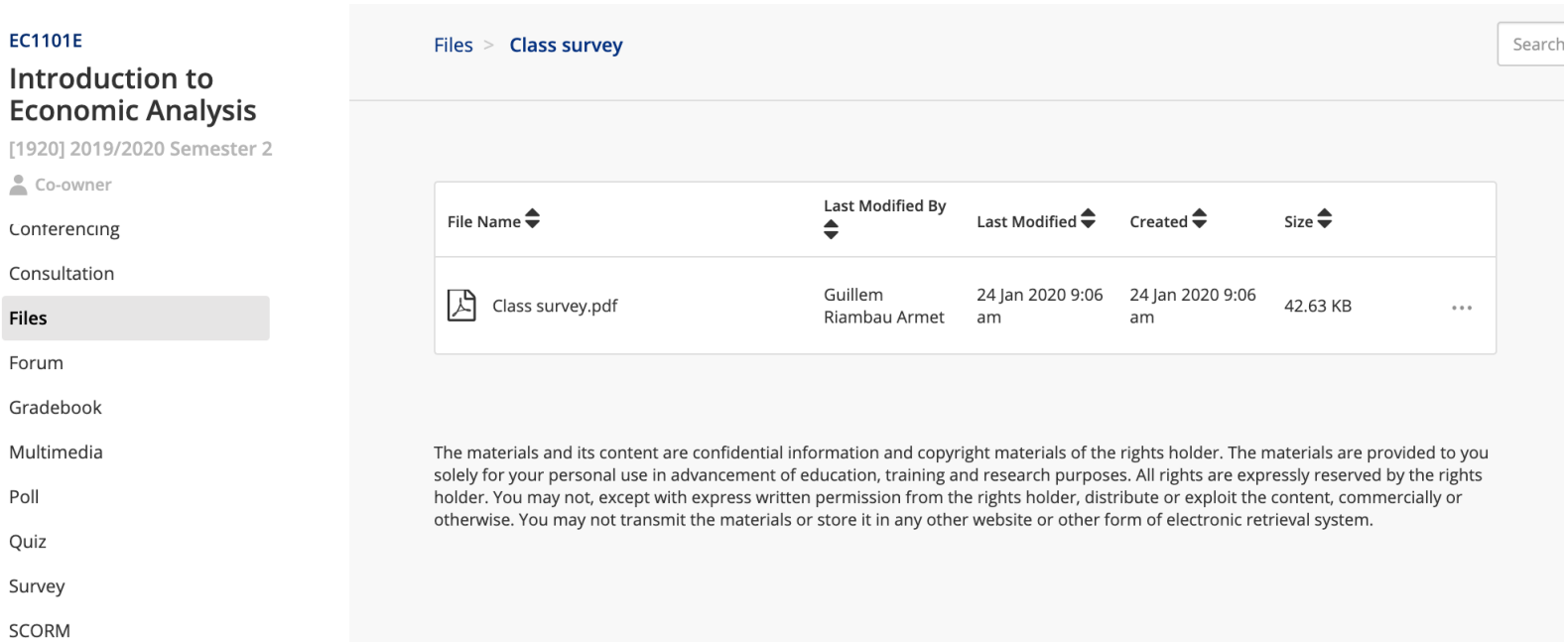
By the end of this lecture you should...

- ...understand what can affect consumers' demand for a good
- ...understand what can affect producers' supply for a good
- ...be able to tell what happens in market prices and quantities purchased after observing a change
- (i.e., how are prices determined)

Key concepts

- Demand vs. quantity demanded
- Law of demand
- Supply vs. Quantity supplied
- Law of supply

Preliminaries: a note on markets



Preliminaries: a note on markets

Why are doctors paid so much?

Why do coins have ridges?

Preliminaries: a note on markets

- (Imaginary) Space where buyers and sellers carry out their transactions
- Perfectly competitive markets

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  - Goods are standardized
  - There's always another seller next door / there's always another buyer down the line
  - Prices are given

Preliminaries: a note on markets

- (Imaginary) Space where buyers and sellers carry out their transactions
- Perfectly competitive markets
  - Goods are standardized
  - There's always another seller next door / there's always another buyer down the line
  - Prices are given
- Perhaps not fully realistic
- But most markets are close to perfectly competitive
- Our models are useful to explain market dynamics

Goal: understand prices and quantities sold/bought

- Step 1. How much are consumers *willing to pay?*
- Step 2. How much are producers *willing to sell?*
- Step 3. What happens when they meet.








How much are they willing to pay for the **first** muffin?


How much are they willing to pay for the **second** muffin?


How much are they willing to pay for the **third** muffin?


How much are they willing to pay for the **fourth** muffin?

			
	**$6**		
	**$5**		
	**$4**		
	**$1**		

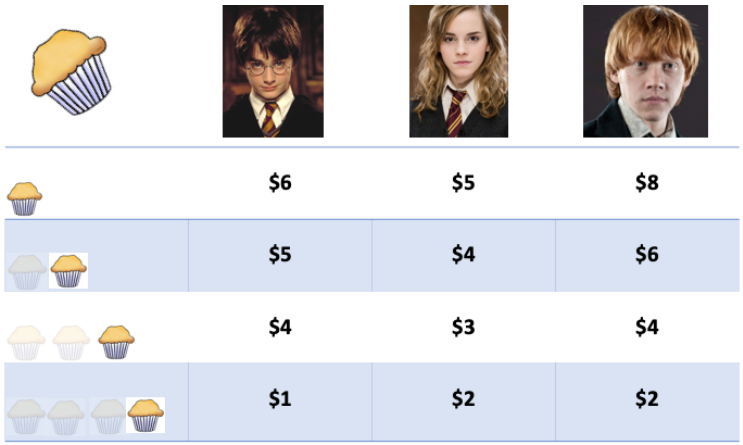
			
	$6	$5	
	$5	$4	
	$4	$3	
	$1	$2	

			
	$6	$5	$8
	$5	$4	$6
	$4	$3	$4
	$1	$2	$2

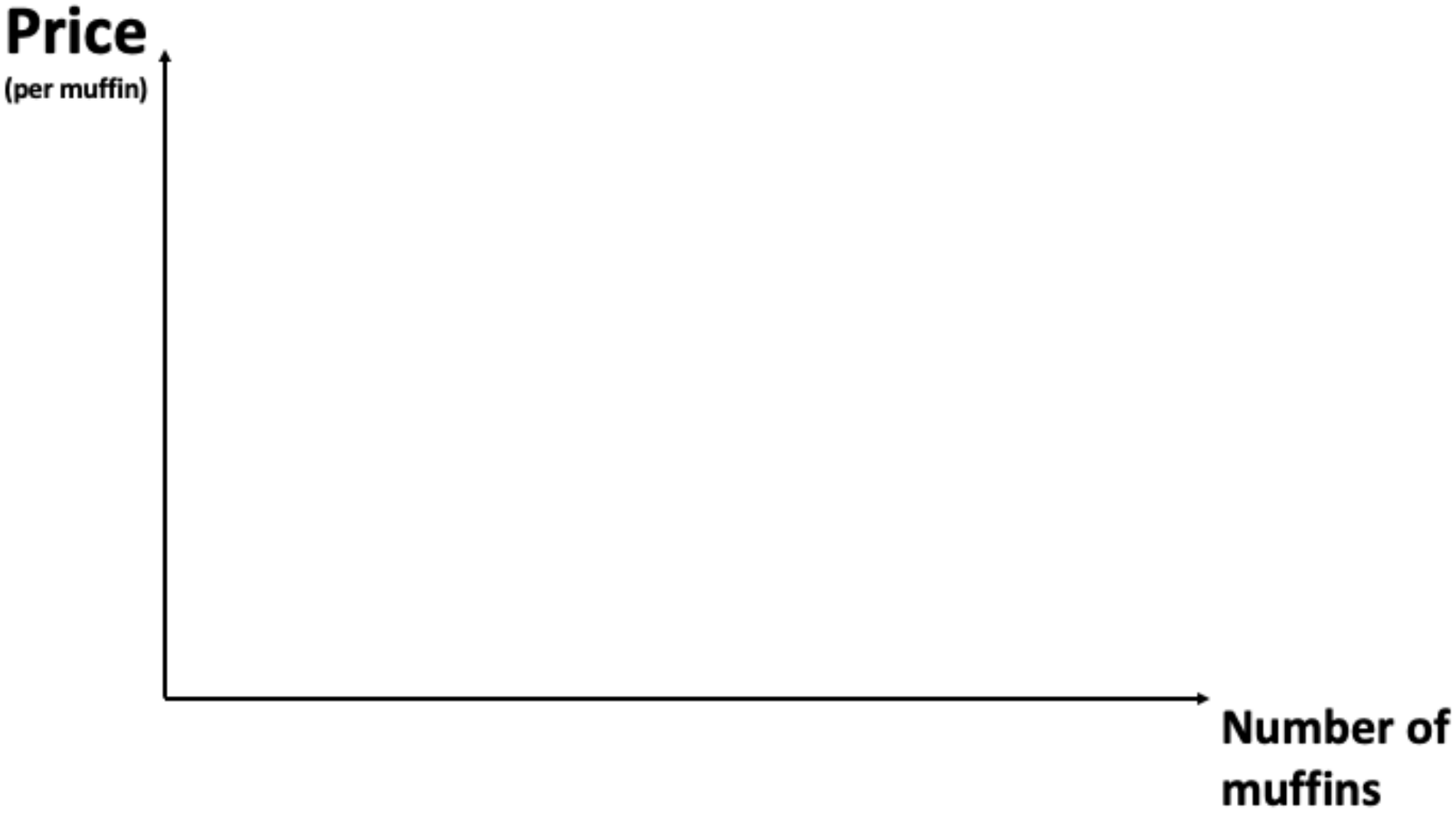
▸ Diminishing returns

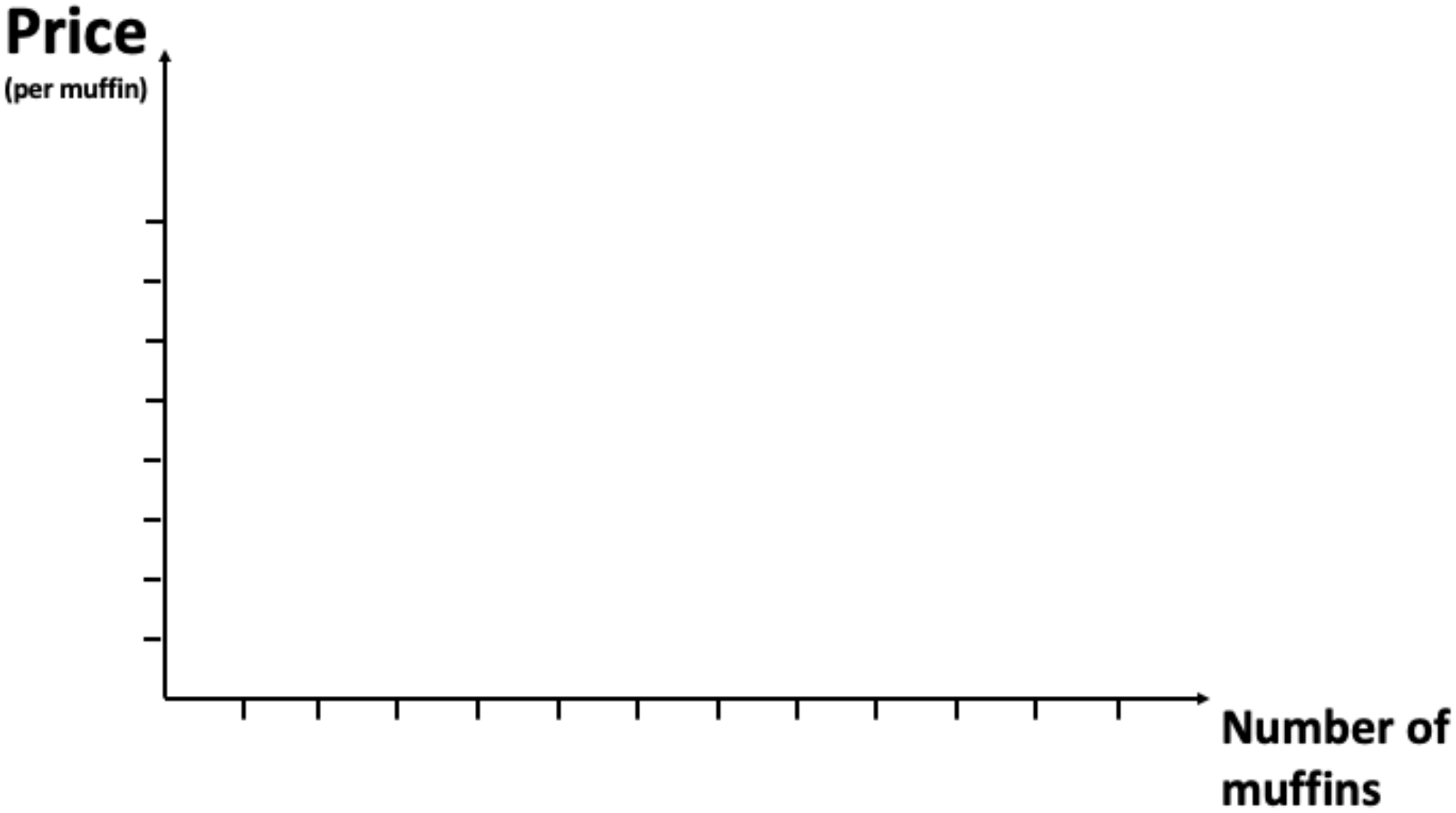
Price	Quantity demanded

Price (in $)	Quantity demanded
8	1
7	1
6	3
5	5
4	8
3	9
2	11
1	12



	$6	$5	$8
	$5	$4	$6
	$4	$3	$4
	$1	$2	$2


Price
(per muffin)
Number of muffins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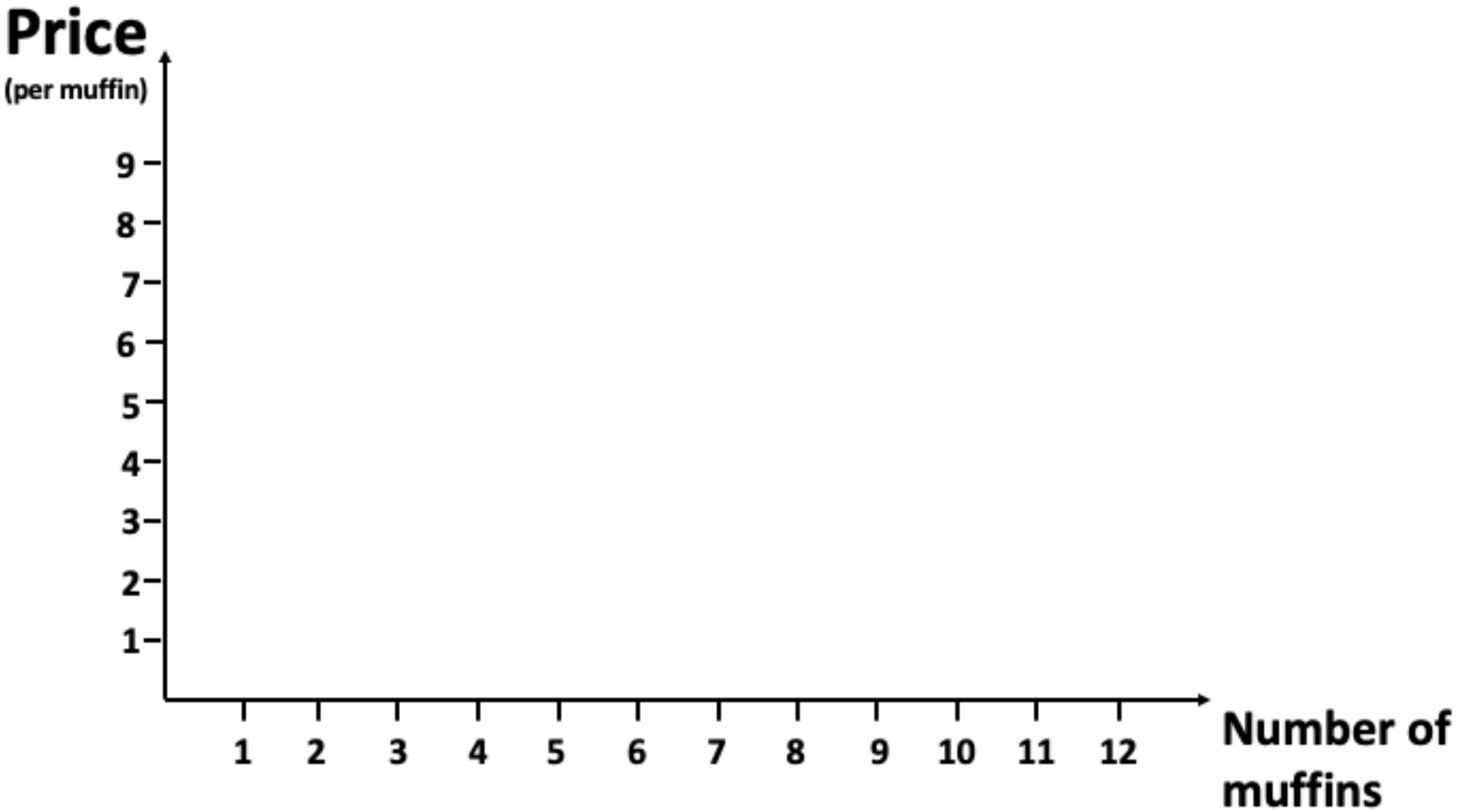
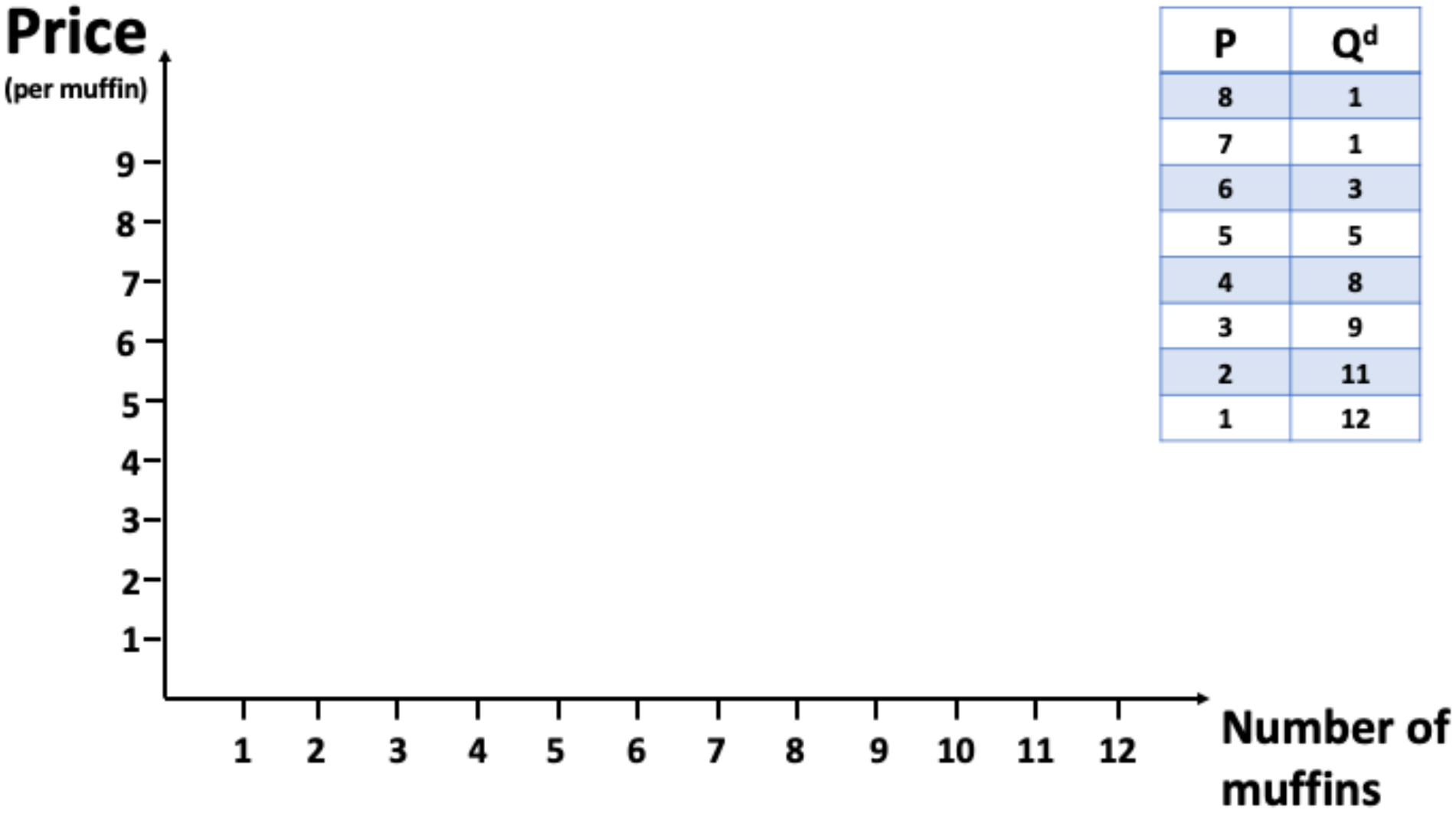
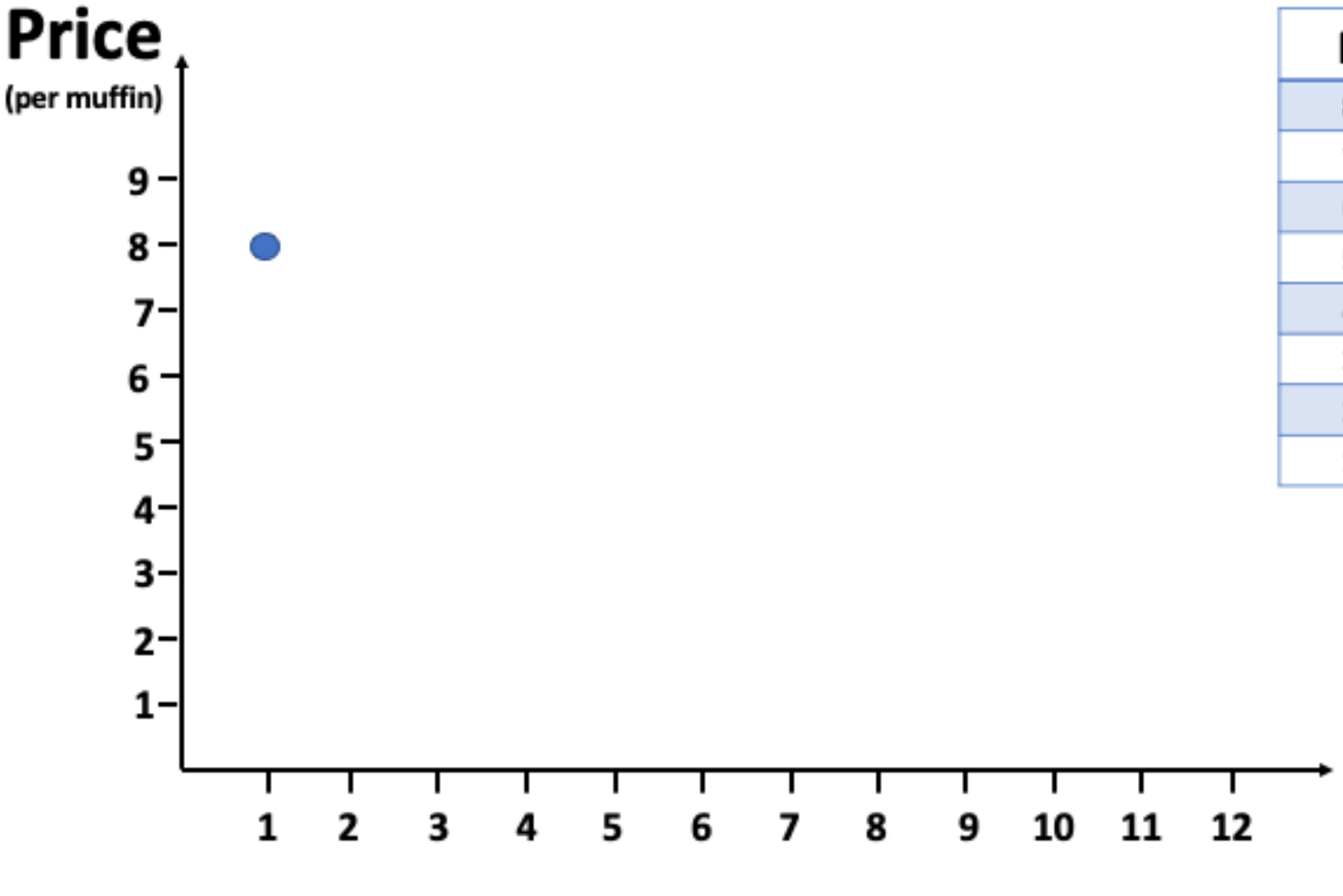

Price
(per muffin)
9
8
7
6
5
4
3
2
1
1 2 3 4 5 6 7 8 9 10 11 12
Number of muffins



P	Q^d
8	1
7	1
6	3
5	5
4	8
3	9
2	11
1	12



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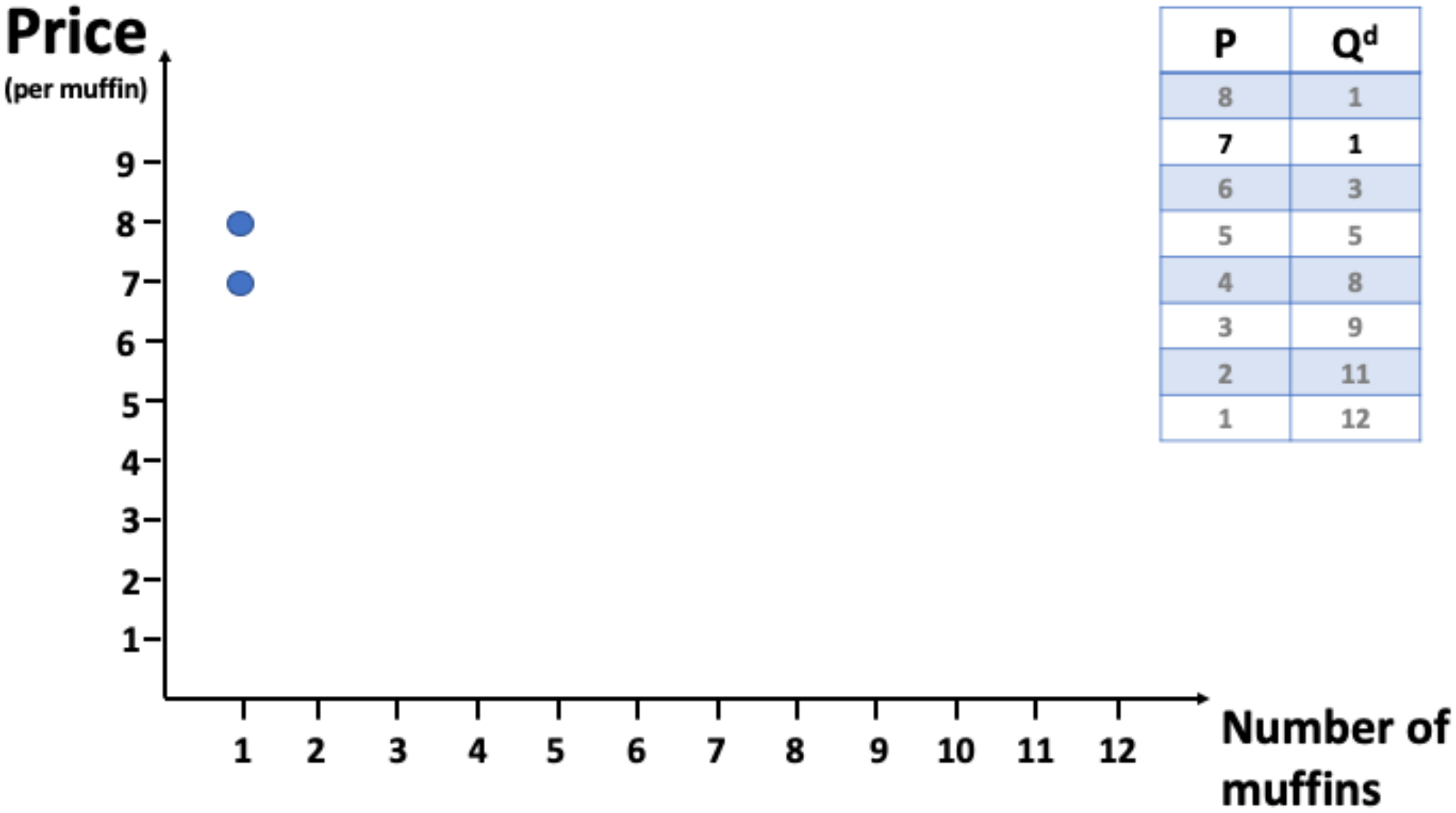

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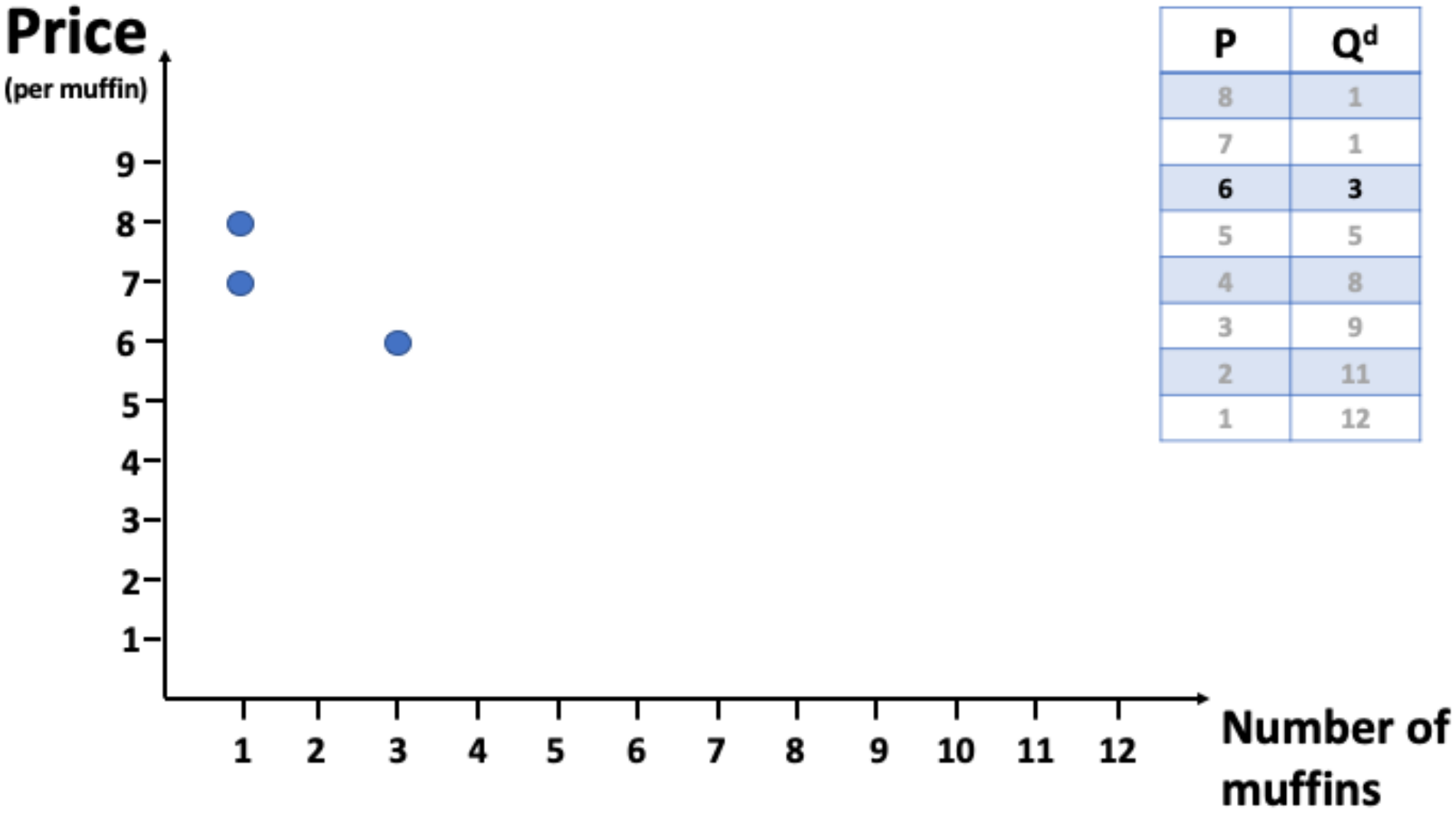

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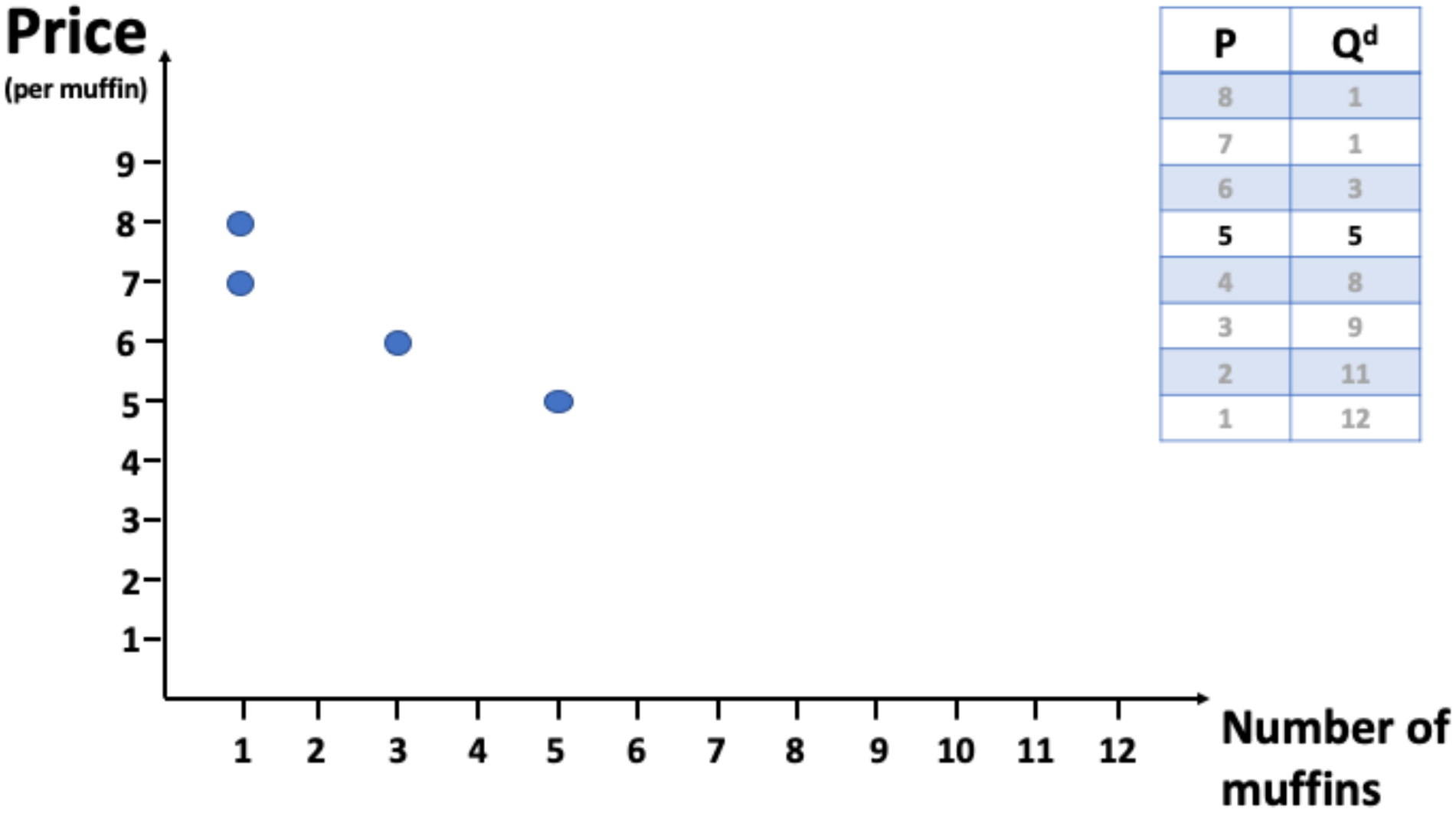

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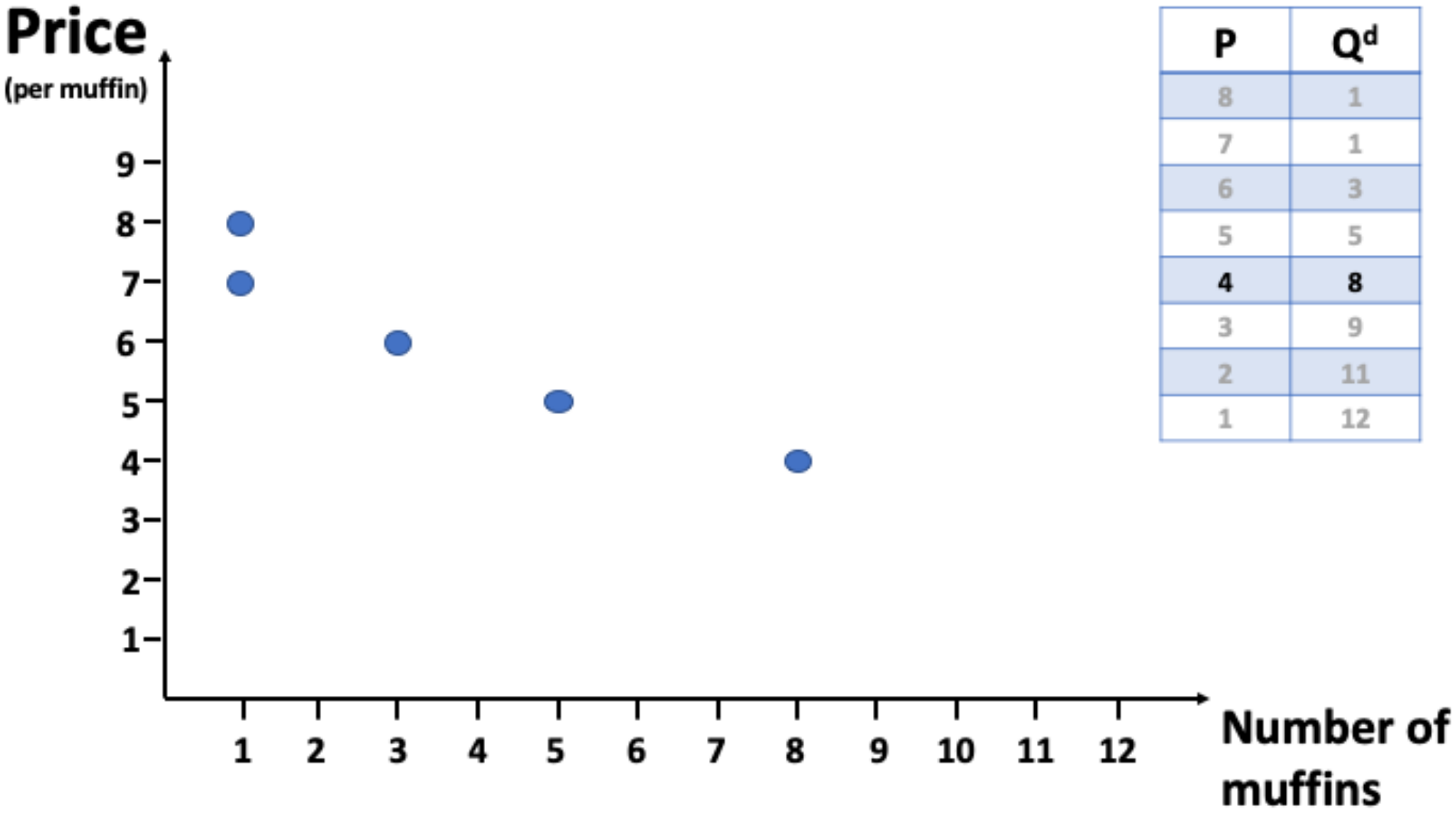

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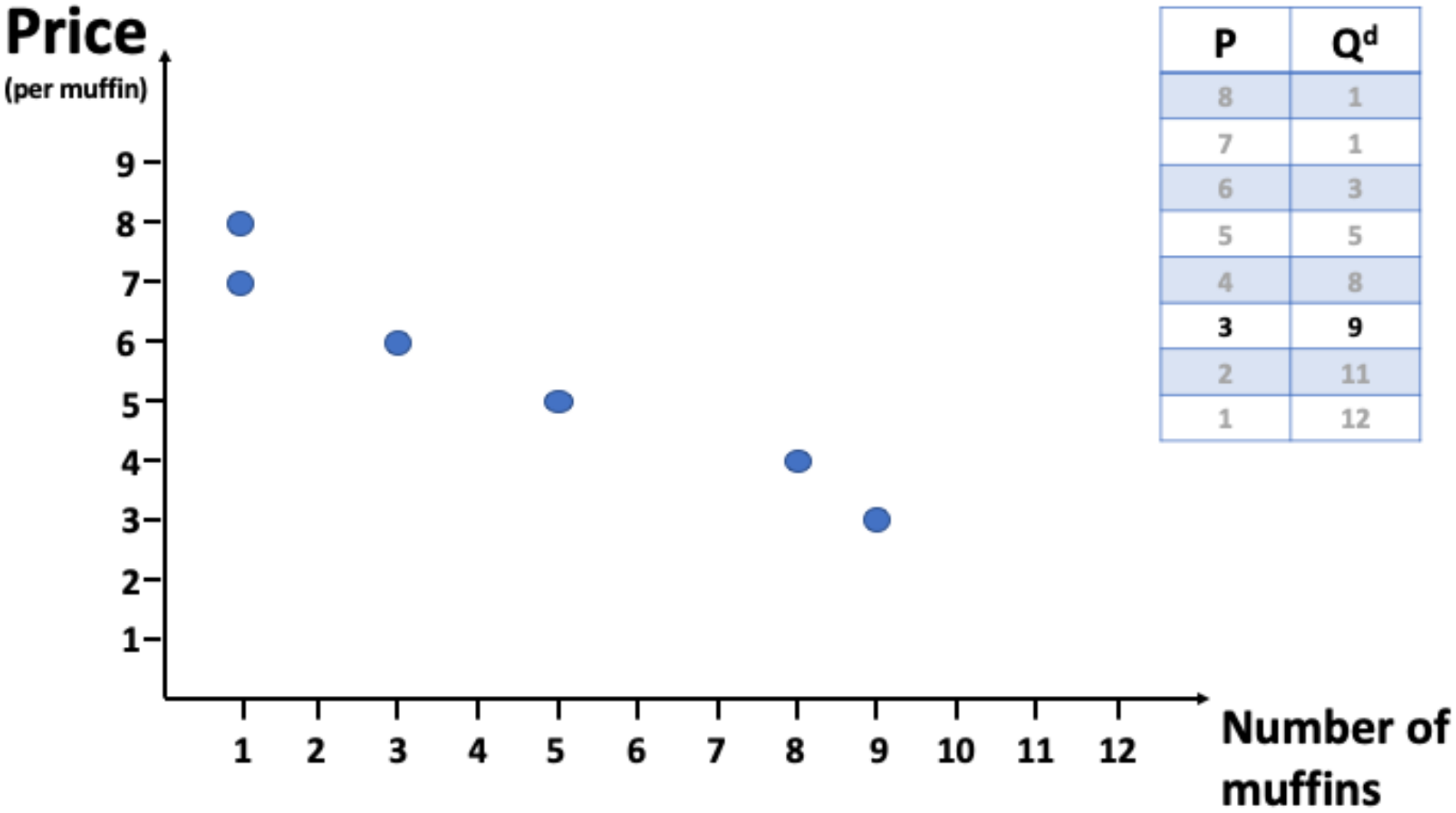

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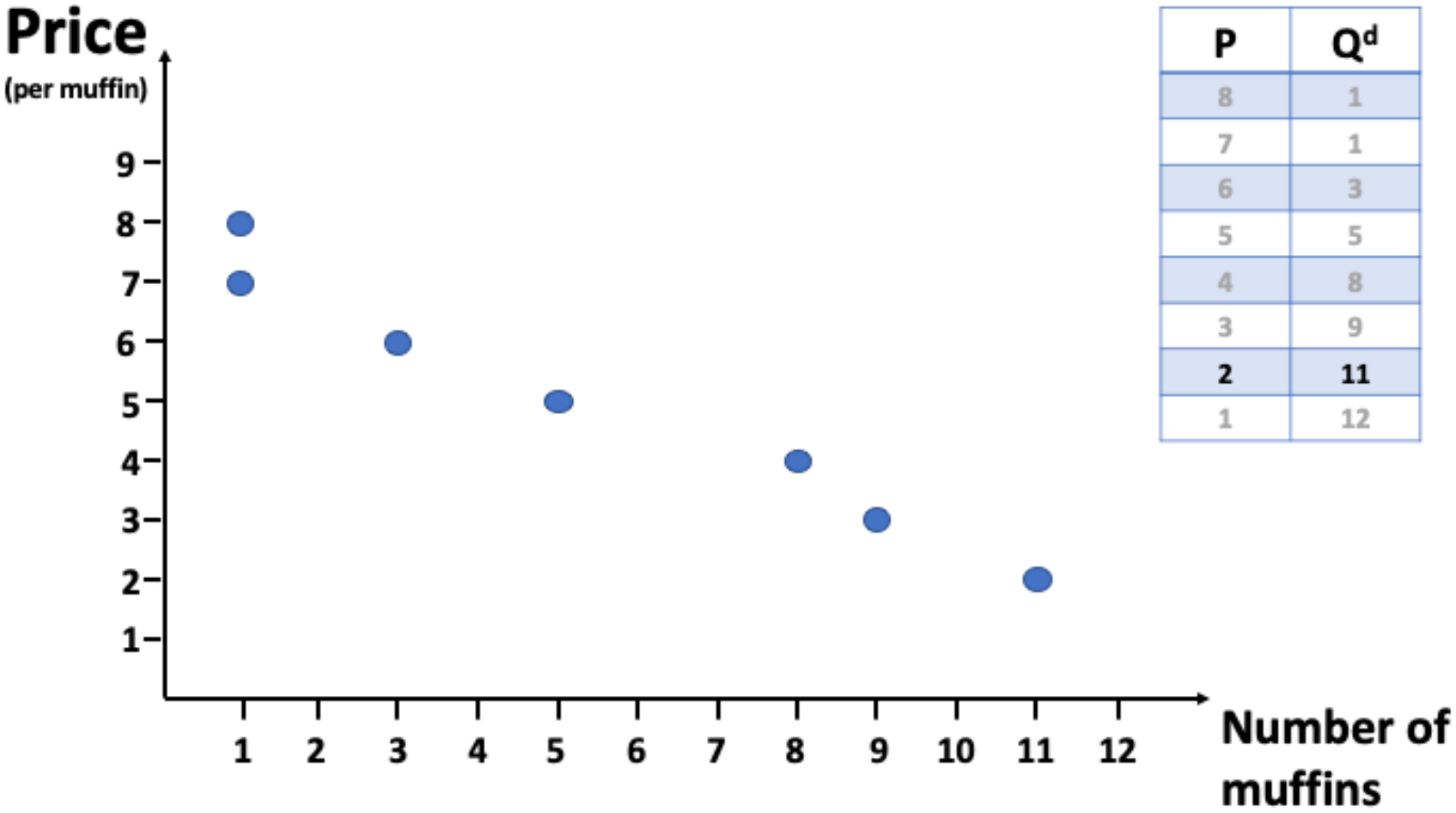

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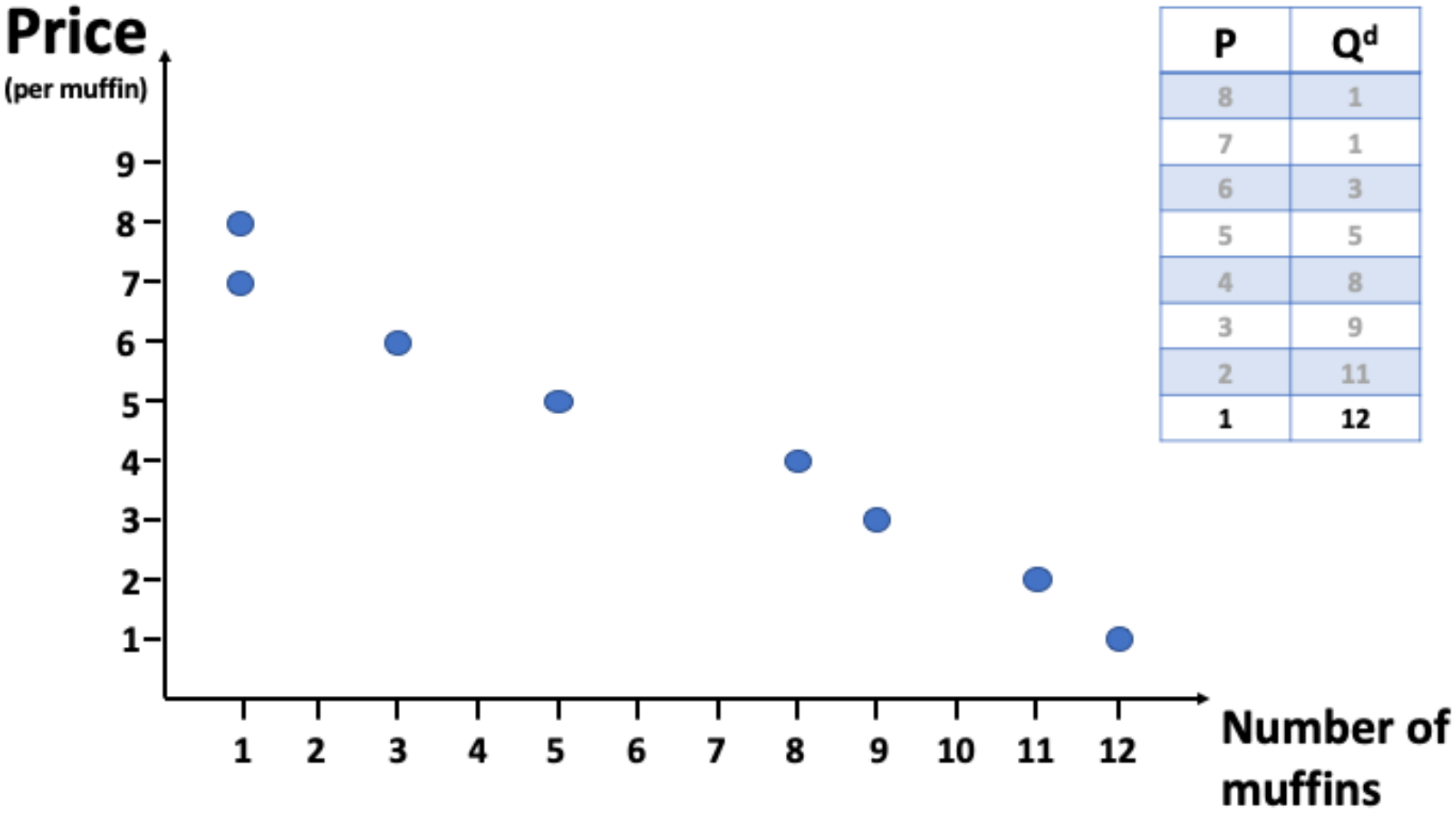

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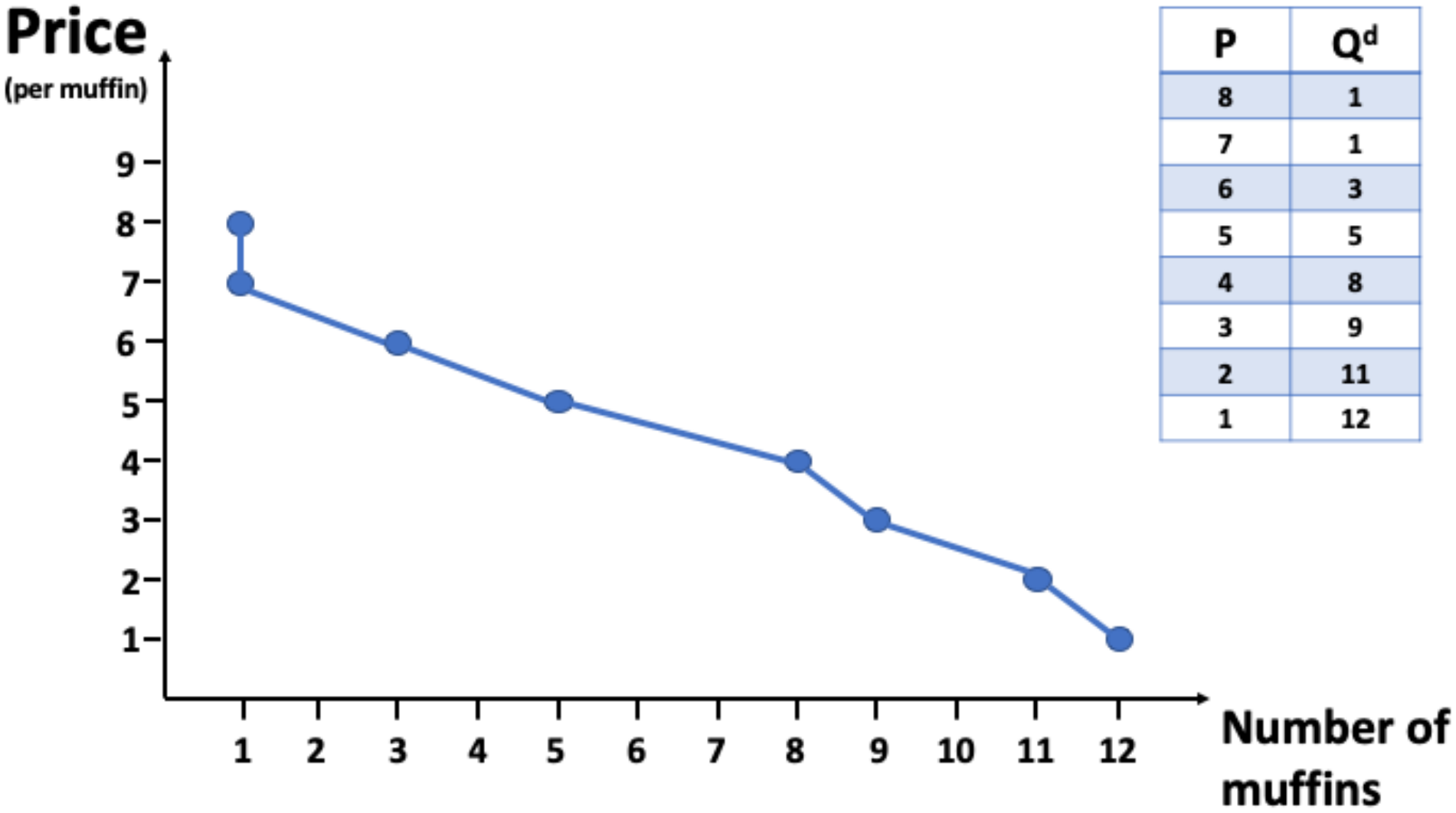
1	12



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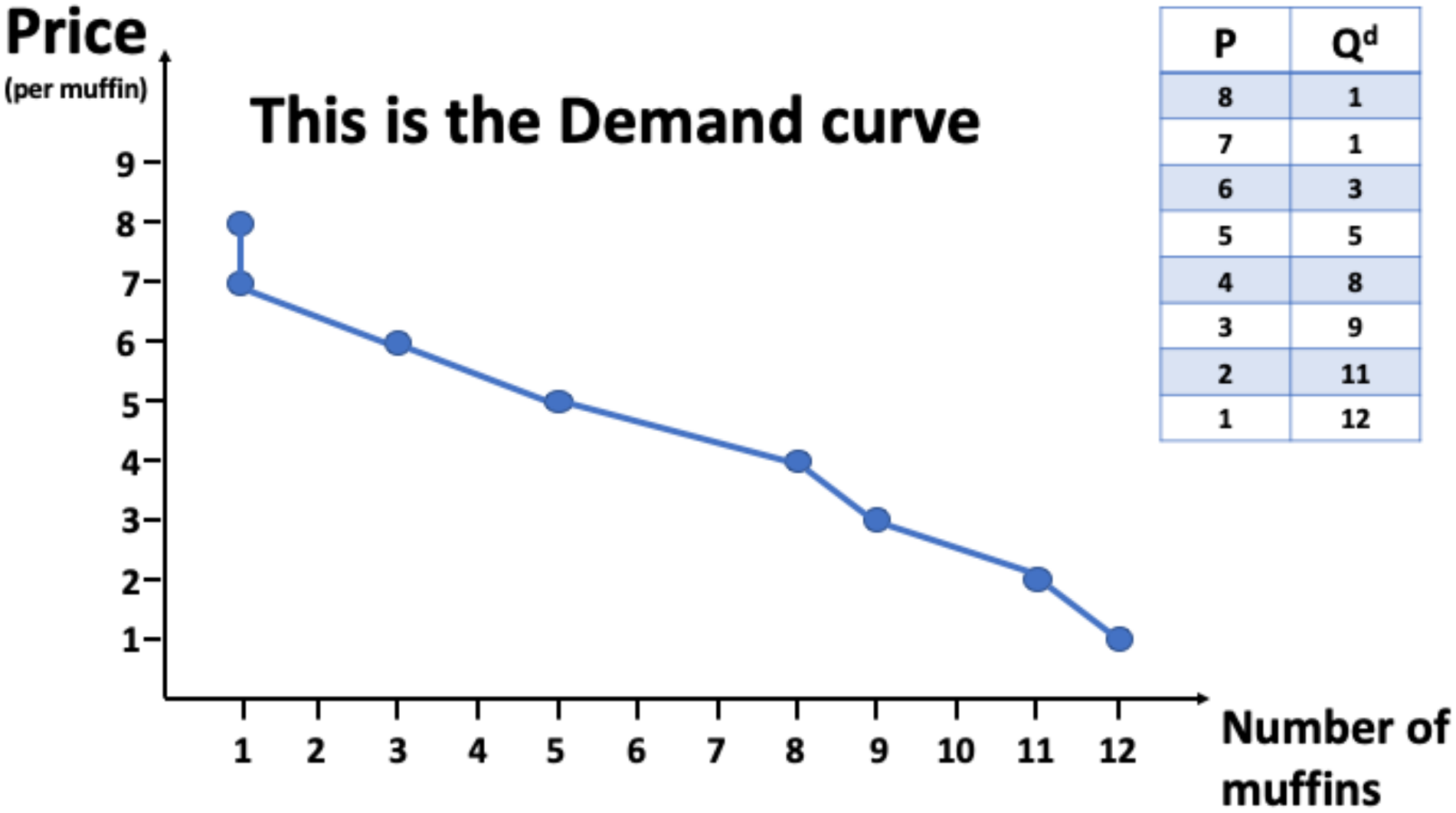

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5	5
4	8
3	9
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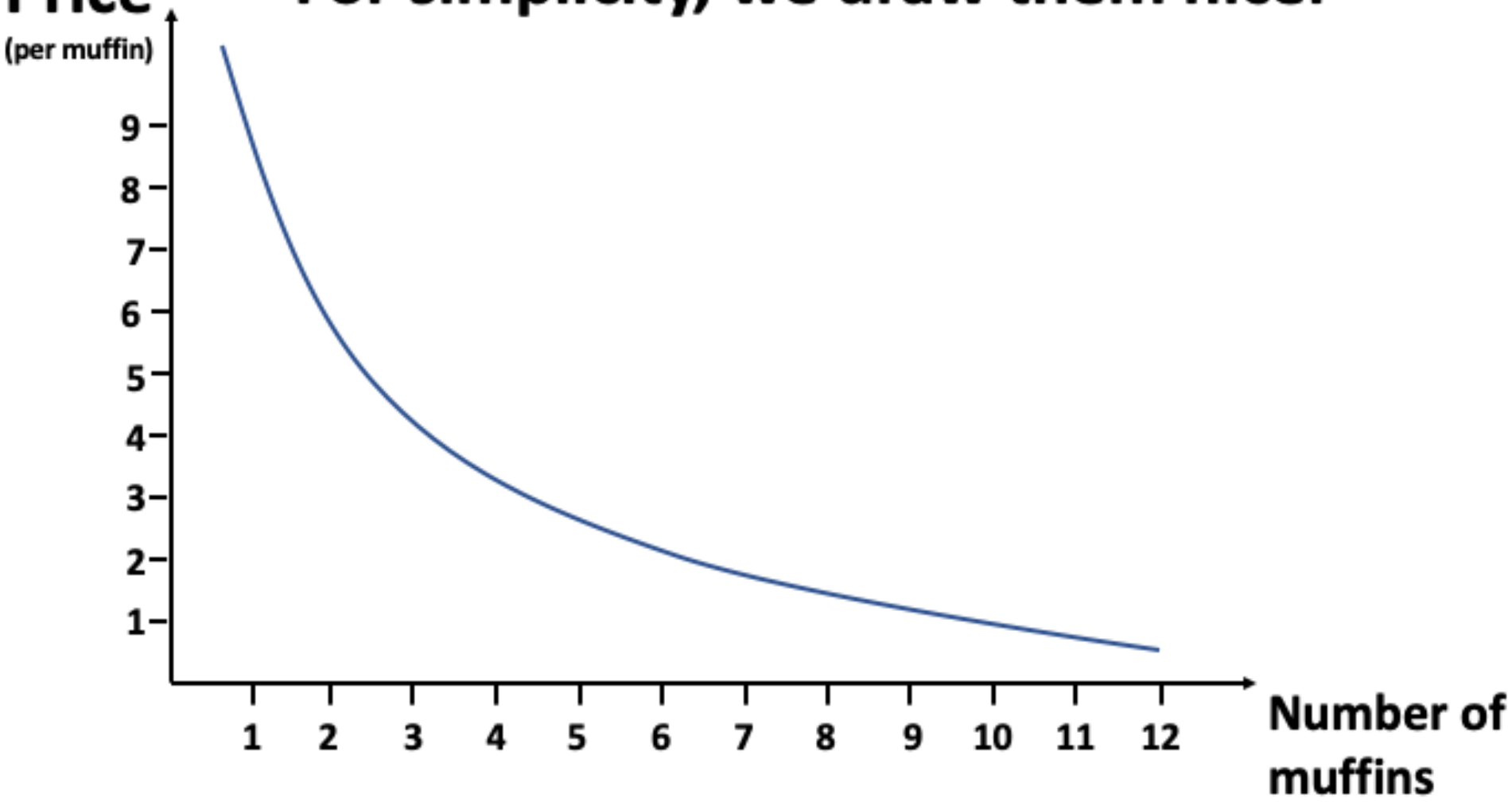
1	12

For simplicity, we draw them nicer



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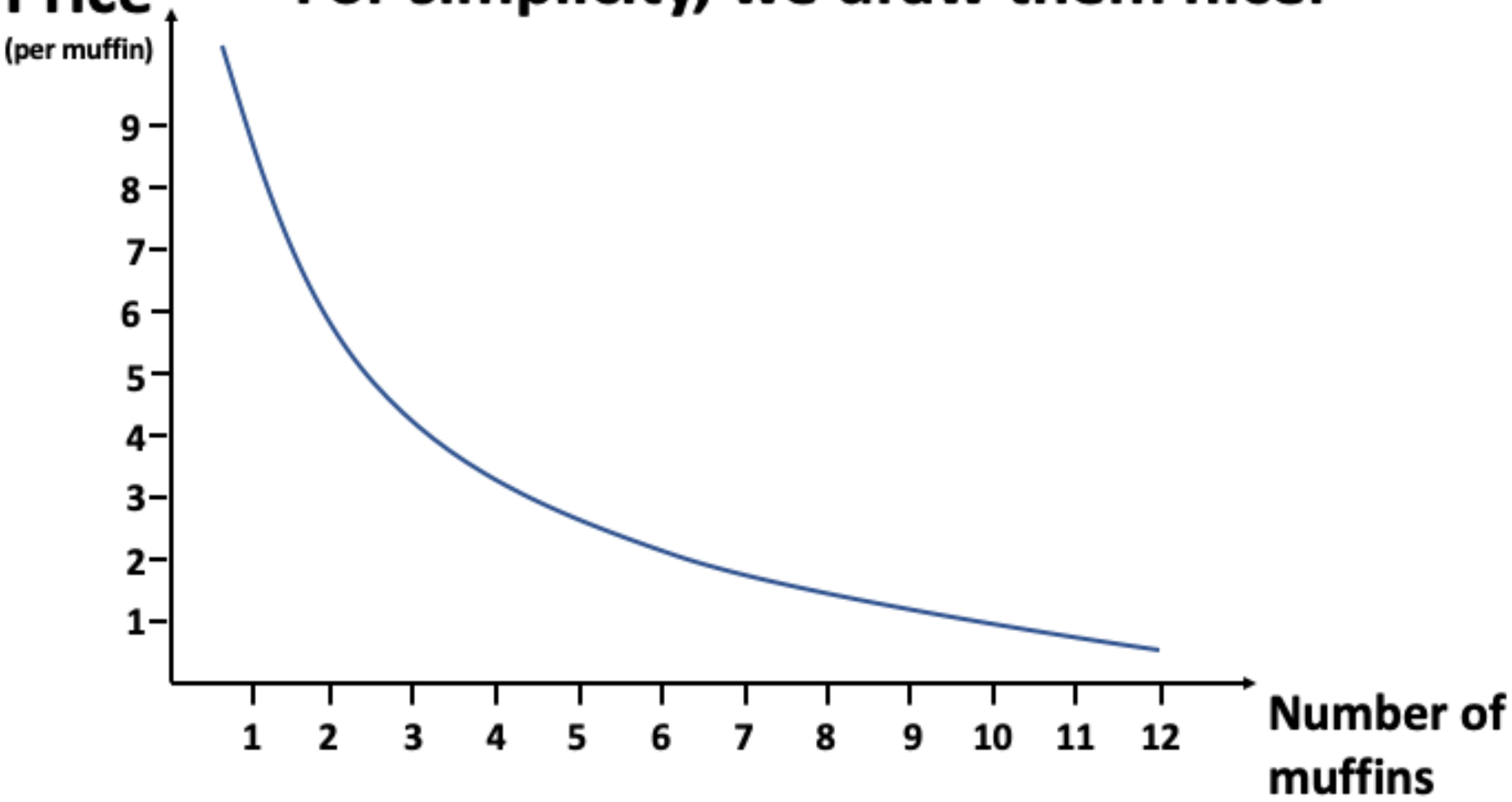

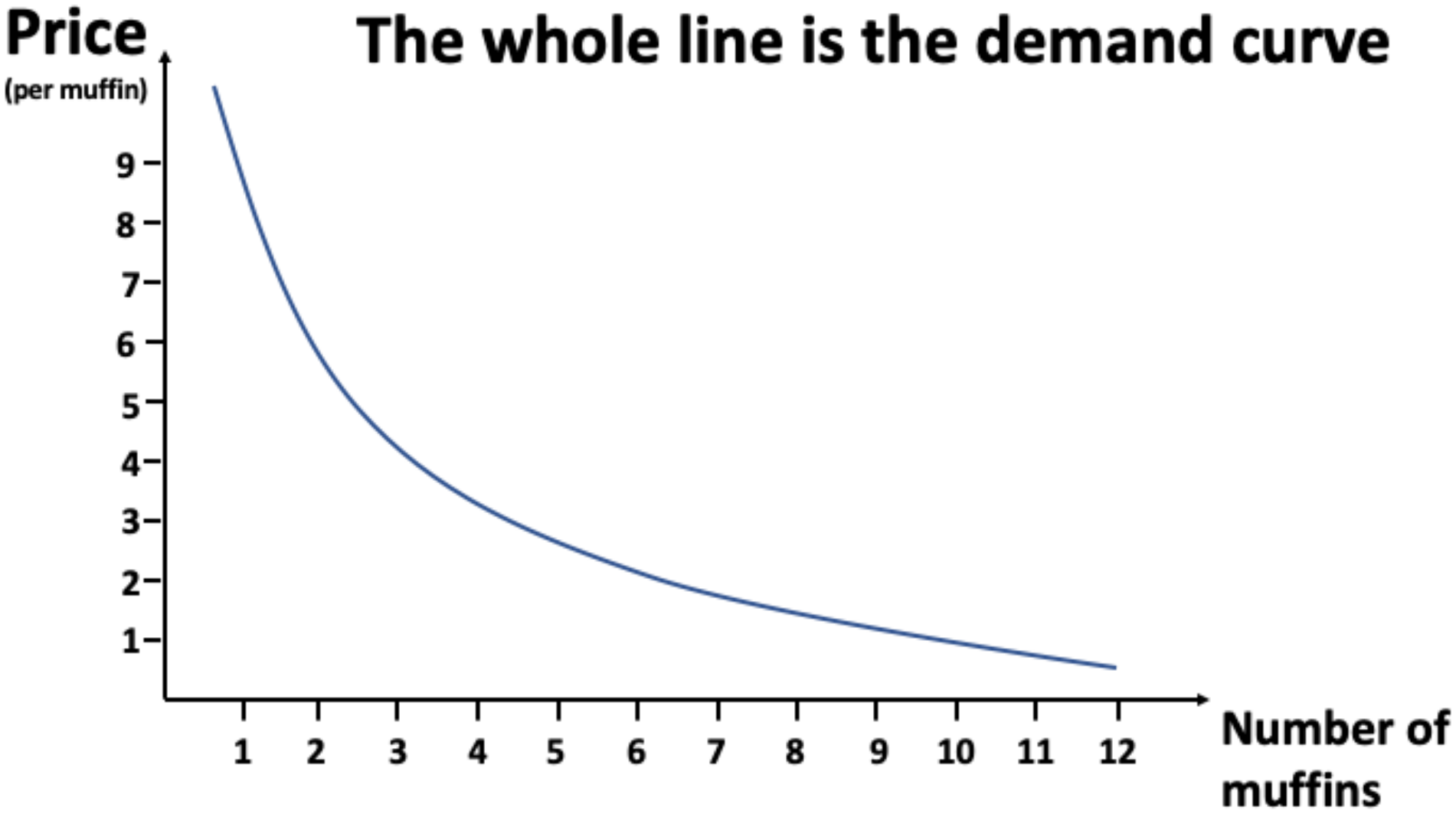
Price
(per muffin)
The whole line is the demand curve
9
8
7
6
5
4
3
2
1
1 2 3 4 5 6 7 8 9 10 11 12
Number of muffins

Law of Demand

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The law of demand states that when the price of a good rises and everything else remains the same, the quantity of the good demanded will fall.

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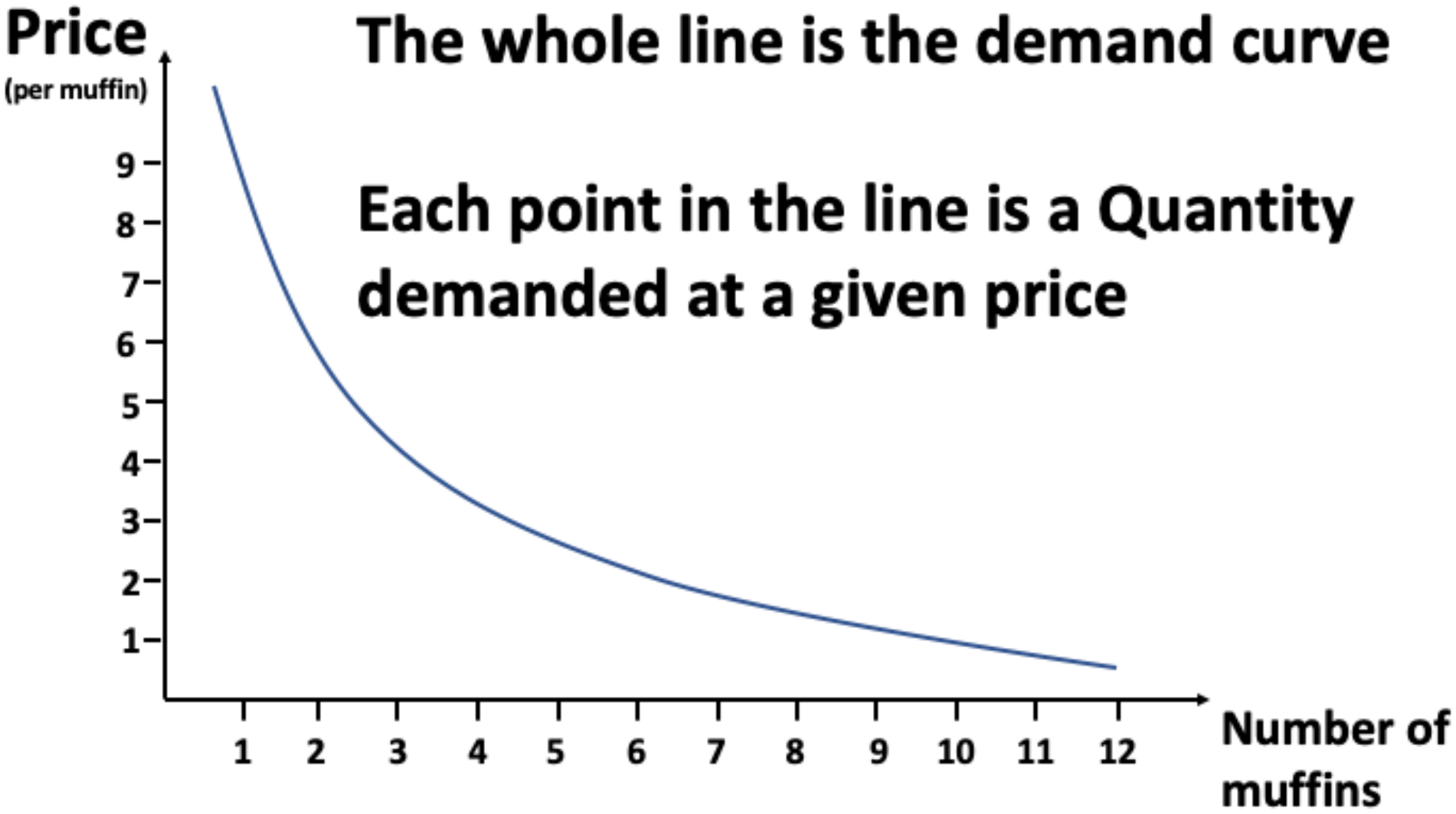
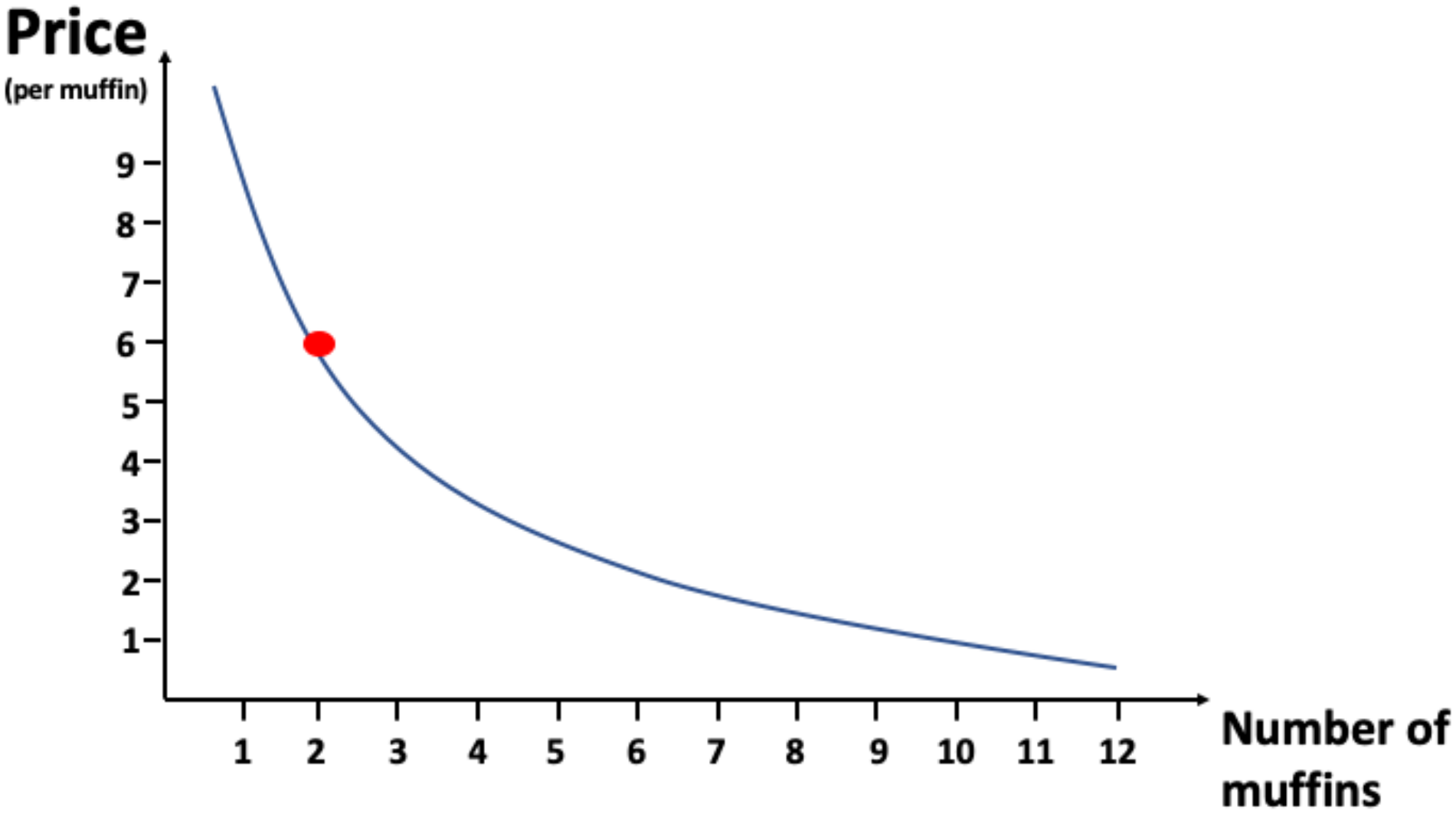
$\Rightarrow$ Demand curves are downward sloping


Price
(per muffin)
9
8
7
6
5
4
3
2
1
1 2 3 4 5 6 7 8 9 10 11 12
Number of muffins
The whole line is the demand curve
Each point in the line is a Quantity demanded at a given price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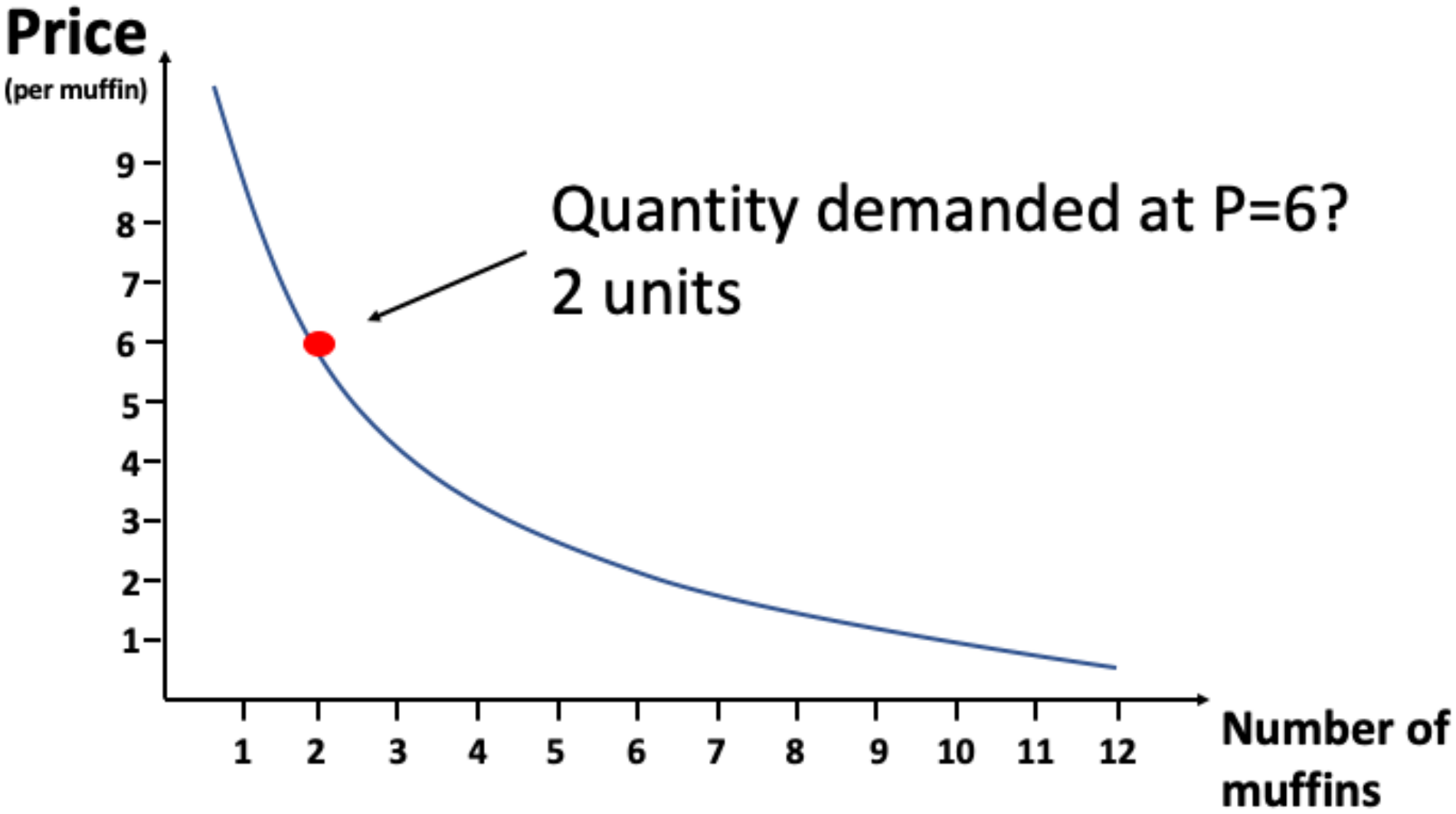
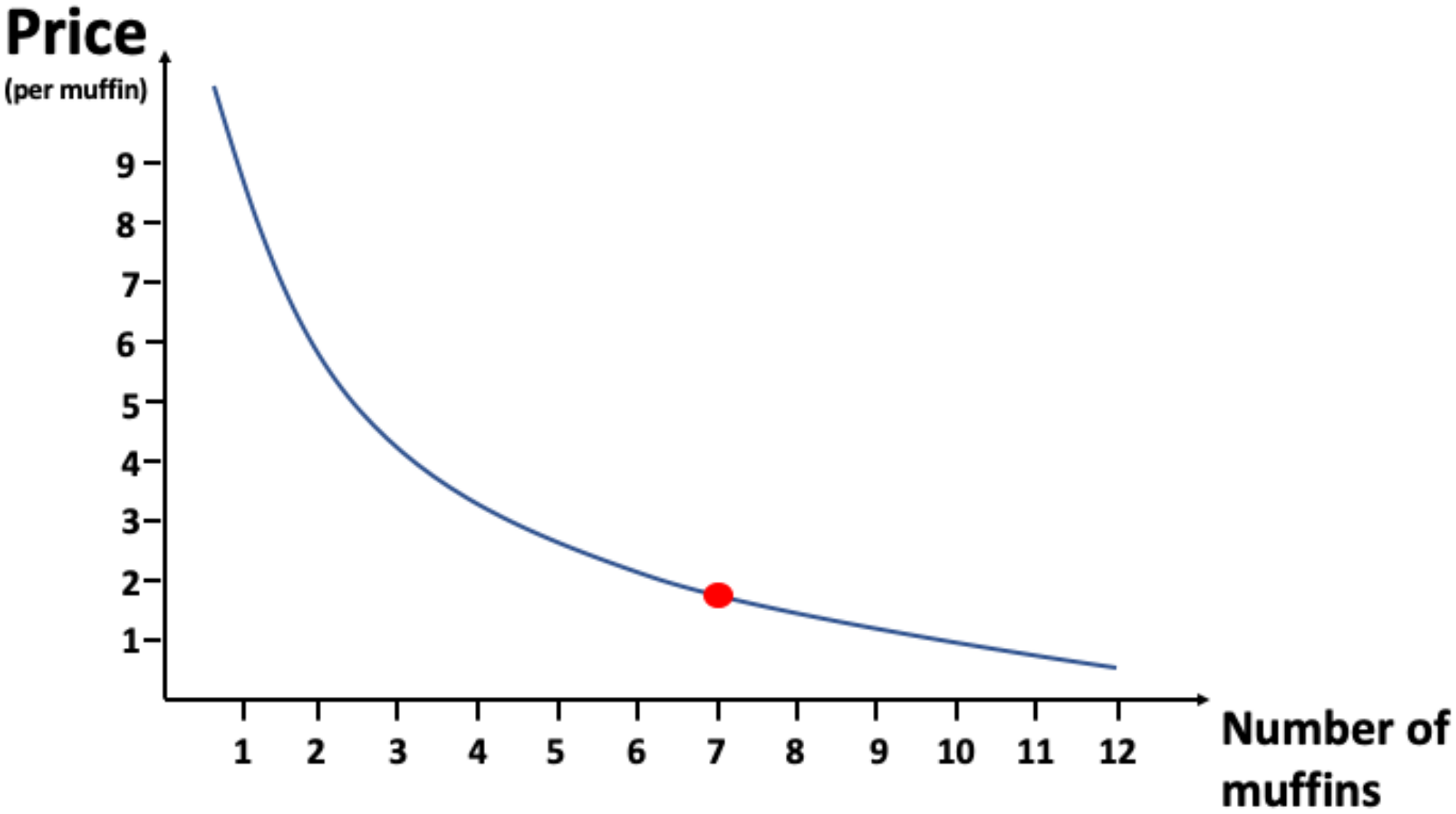
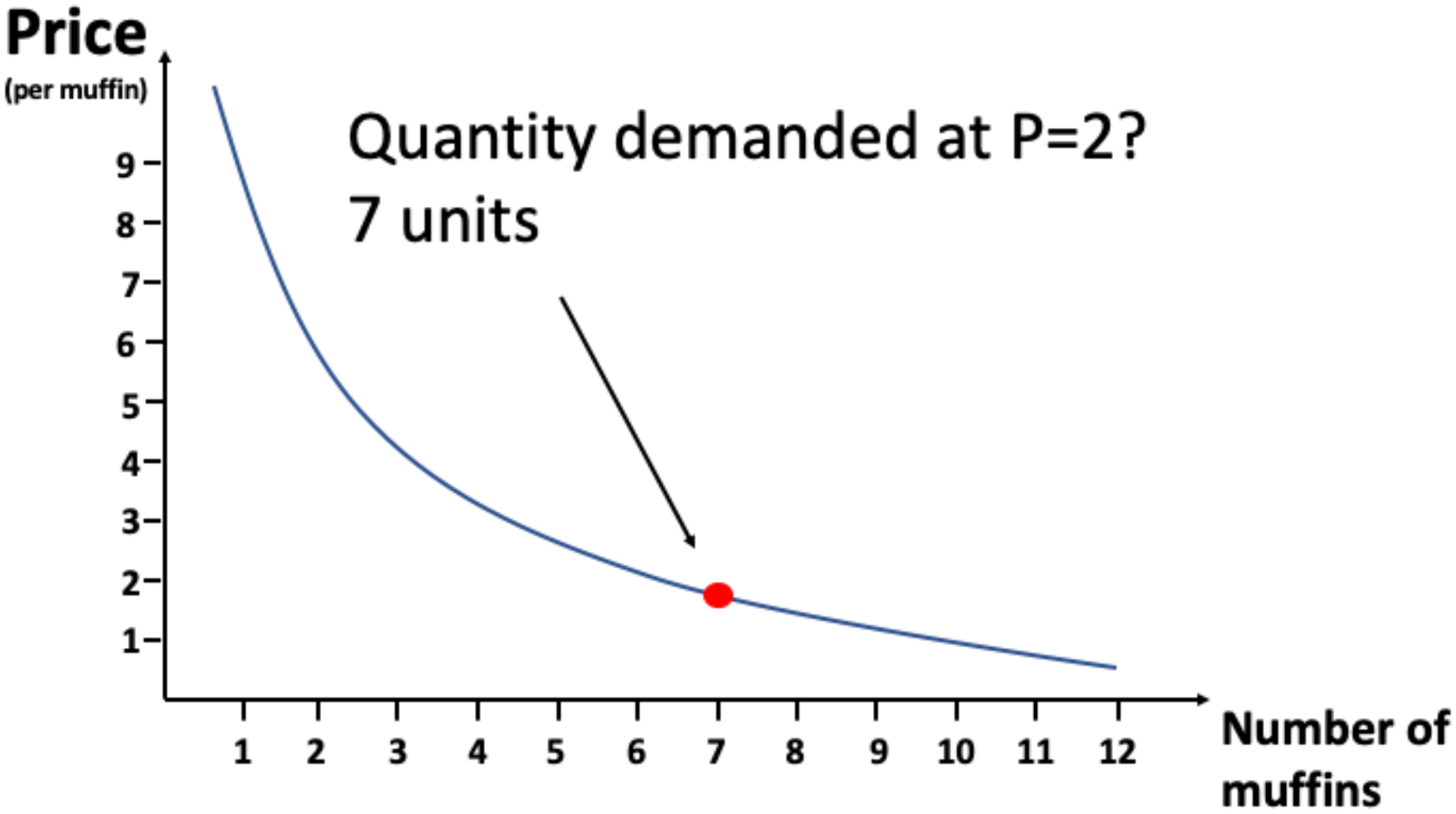
(per muffin)
9
8
7
6
5
4
3
2
1
1 2 3 4 5 6 7 8 9 10 11 12
Number of muffins


Price
(per muffin)
9
8
7
6
5
4
3
2
1
Quantity demanded at P=6?
2 units
1 2 3 4 5 6 7 8 9 10 11 12
Number of muffins


Price
(per muffin)
9
8
7
6
5
4
3
2
1
1
2
3
4
5
6
7
8
9
10
11
12
Number of muffins


Price
(per muffin)
Quantity demanded at P=2?
7 units
9
8
7
6
5
4
3
2
1
1 2 3 4 5 6 7 8 9 10 11 12
Number of muffins

Demand $\neq$ Quantity demanded

Quantity Demanded

The quantity demanded of a good or service is the number of units that all buyers in a market would choose to buy over a given time period, given the constraints that they face.

- Demand refers to the list of different quantities demanded at different prices, with all other variables that affect the demand decision assumed constant
- Demand refers to the entire relationship between price and quantity demanded, represented by the entire demand curve

What affects demand?

- Tastes and preferences ▸ details
- Consumers' wealth and income ▸ details
  - Normal goods
  - Inferior goods
- Price of related goods ▸ details
  - Complements
  - Substitutes
- Population ▸ details
- Expected (future) prices ▸ details

Demand $\neq$ Quantity demanded

- Change in demand $\Rightarrow$ Curve shifts
  - Related to all changes expect for changes in the price of the good
- Change in Quantity demanded $\Rightarrow$ Movement along the curve
  - Related only to changes in the price of the good

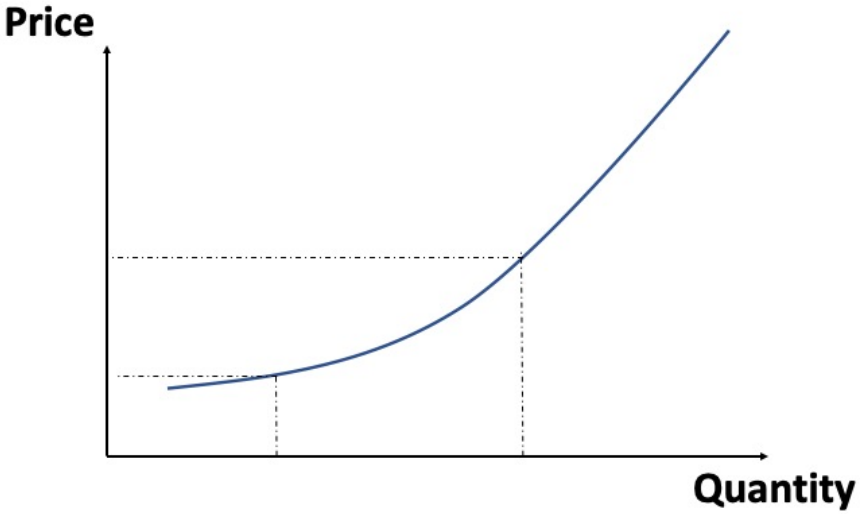
Goal: understand prices and quantities sold/bought

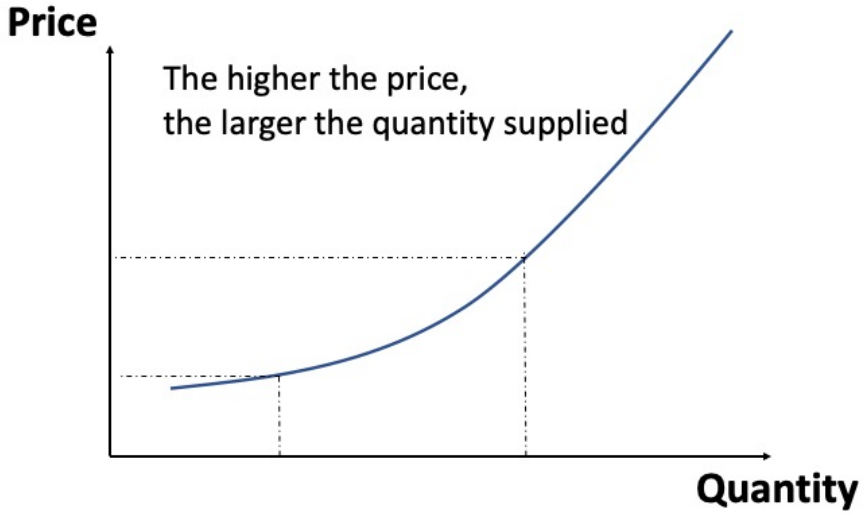
- Step 1. How much are consumers *willing to pay?*
- Step 2. How much are producers *willing to sell?*
- Step 3. What happens when they meet.

Law of Supply

Law of Supply

The law of supply states that when the price of a good rises, and everything else remains the same, the quantity of the good supplied will rise.





Law of Supply. One example: durian plantation

Price of durian in Singapore ↑. What are you –as a plantation owner in Malaysia– going to do?

- Shift all your stocks towards Singapore
- Hire more people to collect durians more intensively
- If needed, hire cars and trucks to transport them
- etc.

If a good becomes very profitable, producers will want to divert resources to it

Supply ≠ Quantity Supplied

Quantity Supplied

The market quantity supplied is the amount of a good or service that all producers together would offer for sale at each price, given the constraints they face.

Supply Curve

The supply curve shows the relationship between the price of a good and the quantity supplied in the market, holding constant the values of all other variables that affect supply. Each point on the curve shows the quantity that sellers would choose to sell at a specific price.

What affects supply?

- Input prices
- Prices of alternative goods produced by the company
- Technology
- Number of firms
- Expected (future) price
- Weather and other natural events

What affects supply?

- Input prices
  - If price of flour $\downarrow$,

What affects supply?

- Input prices
  - If price of flour $\downarrow$, $\Rightarrow$ Supply of muffins $\uparrow$

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What affects supply?

- Input prices
  - If price of flour $\downarrow$, $\Rightarrow$ Supply of muffins $\uparrow$
- Prices of alternative goods produced by the company
  - If price of running shoes $\uparrow$,

What affects supply?

- Input prices
  - If price of flour $\downarrow$, $\Rightarrow$ Supply of muffins $\uparrow$
- Prices of alternative goods produced by the company
  - If price of running shoes $\uparrow$, $\Rightarrow$ Supply of running shorts $\downarrow$

What affects supply?

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What affects supply?

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  - If I can separate rotten tomatoes from good ones faster,

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- Number of firms $\Rightarrow$ Supply shifts right
- Expected (future) price

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  - If I can separate rotten tomatoes from good ones faster, $\Rightarrow$ Supply shifts right
- Number of firms $\Rightarrow$ Supply shifts right
- Expected (future) price
  - If p^e umbrellas $\uparrow$,

What affects supply?

- Input prices
  - If price of flour $\downarrow$, $\Rightarrow$ Supply of muffins $\uparrow$
- Prices of alternative goods produced by the company
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- Weather and other natural events
  - Drought $\Rightarrow$ crop yields $\downarrow$ $\Rightarrow$ Supply of rice shifts left

Supply $\neq$ Quantity Supplied

- When prices change $\longrightarrow$ We move along the curve
- When *anything but prices* changes $\longrightarrow$ The curve shifts

Goal: understand prices and quantities sold/bought

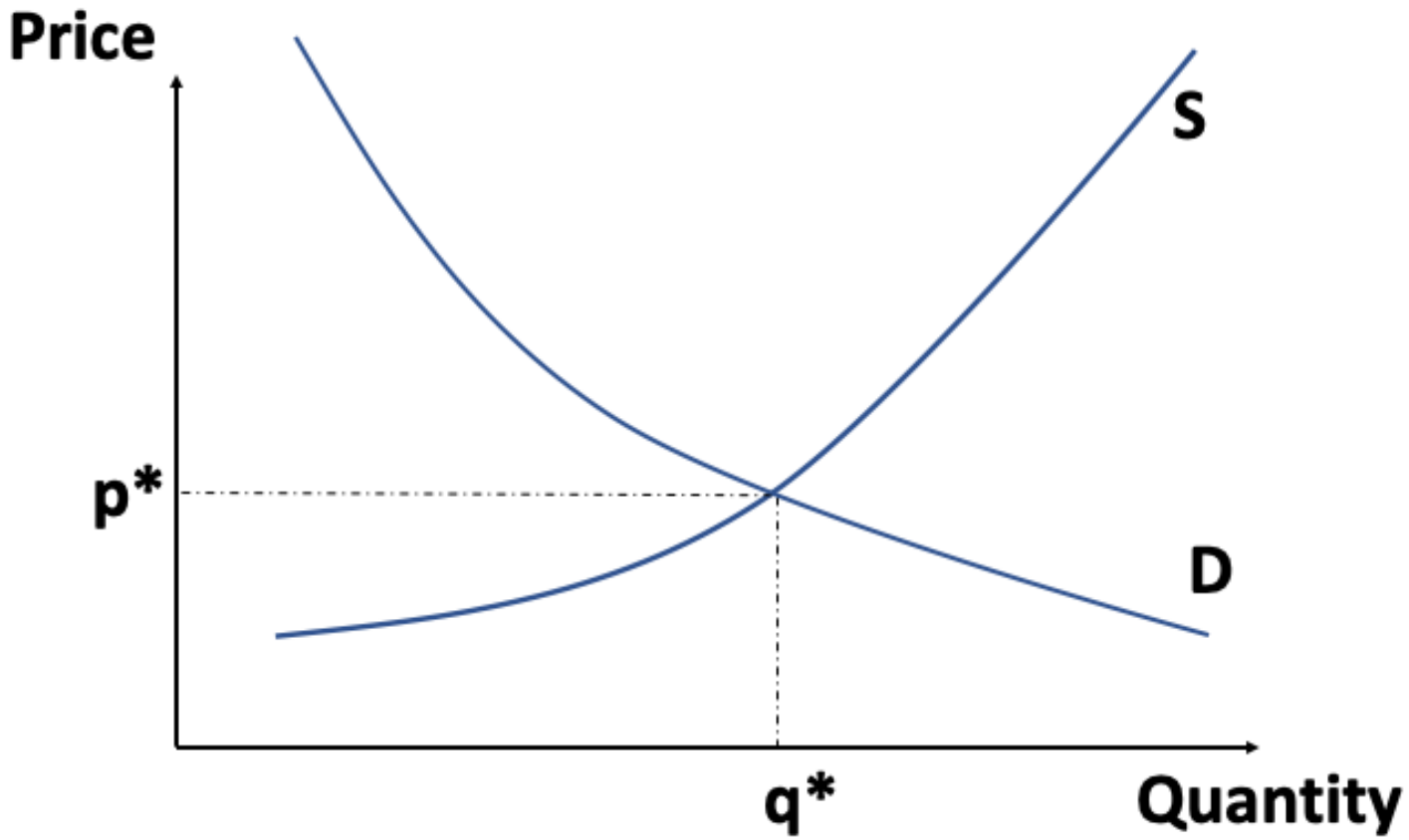
- Step 1. How much are consumers *willing to pay?*
- Step 2. How much are producers *willing to sell?*
- Step 3. What happens when they meet: market equilibrium

What are the final price and quantity for a given good?

Equilibrium price and equilibrium quantity

The equilibrium price and equilibrium quantity are values for price and quantity in the market that, once achieved, will remain constant–unless and until the supply curve or the demand curve shifts.

Market equilibrium



Equilibrium

- What is the equilibrium price?
- What if the price is below equilibrium?
- What if the price is above equilibrium?

Equilibrium

- What is the equilibrium price?
  - Price such that supply meets demand
  - ▸ There is no excess supply
  - ▸ There is no excess demand
- What if the price is below equilibrium? ▸ Excess Demand
- What if the price is above equilibrium? ▸ Excess Supply


Why does an iPhone 11 cost $1,889.00?
Why does a blueberry muffin cost $4 at NUS and $5 at the CBD?
Why is grab more expensive on Friday evenings (especially when it rains)?

Some questions

- Flights to Wuhan

- COE in SGP

- Grab on Rainy Friday

- Conference in cold places

- Want prices to increase?

- Muffin

- iPhone

What is the effect of limited supply on the price of goods?

On positional goods

- Positional good: valued because is not possessed by others
- Scarcity makes them pricey $\Rightarrow$ many consumers "fighting" for it
- More examples?

What can affect the price of a muffin?

▸ Option 1

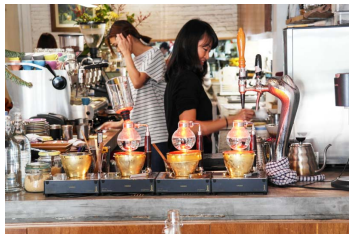
▸ Option 2 (harder)

▸ Option 3

▸ Option 4

▸ Option 5

▸ Option 6



▸ Option 7

▸ Option 8

▸ Option 9

Remarks

- Demand $\neq$ Quantity demanded
- Shifting the curve $\neq$ moving along the curve
- When "something changes", how does that affect equilibrium price and quantities?
  1. Which curve is affected?
  2. How does it shift? (in what direction?)
  3. What is the overall effecte?

Next week

- Tutorial Tuesday 28 & Thursday/Friday
- Welfare Economics: Consumer and producer surplus
- Elasticity
- All readings posted

Kahoot: 3 questions

- Question 1
- Question 2
- Question 3

Kahoot: Question 1

What happens to the market for kankong when a new MOH study reveals it has immense unknown antidetox properties?

1. $p^* \uparrow$, $q^* \uparrow$
2. p^* (?), $q^* \uparrow$
3. p^* (?), q^* (?)
4. $p^* \uparrow$, q^* (?)

Kahoot: Question 1

What happens to the market for kankong when a new MOH study reveals it has immense unknown antidetox properties?

1. $p^* \uparrow$, $q^* \uparrow$ ✓(Why? Demand shifts right)
2. p^* (?), $q^* \uparrow$
3. p^* (?), q^* (?)
4. $p^* \uparrow$, q^* (?)

▸ back to slides

Kahoot: Question 2

What happens to the market of muffins if (a) flour price increases (b) students' income increases?

1. $p^* \uparrow$, $q^* \uparrow$
2. p^* (?), $q^* \uparrow$
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Kahoot: Question 2

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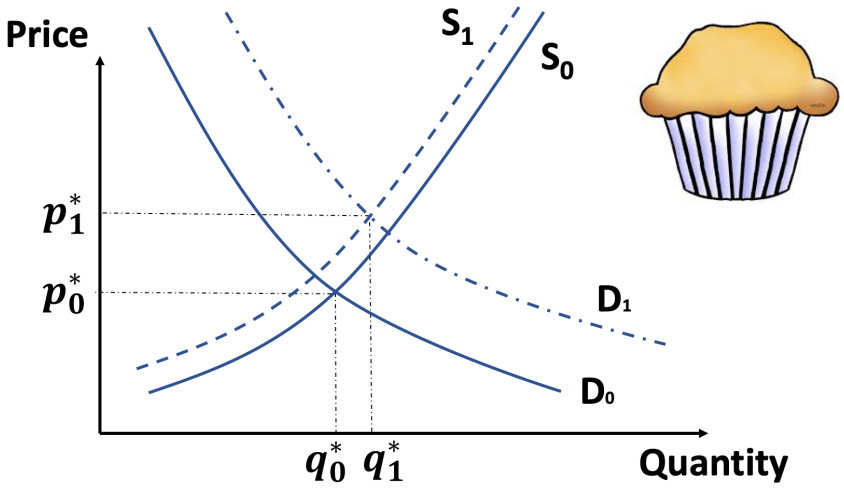
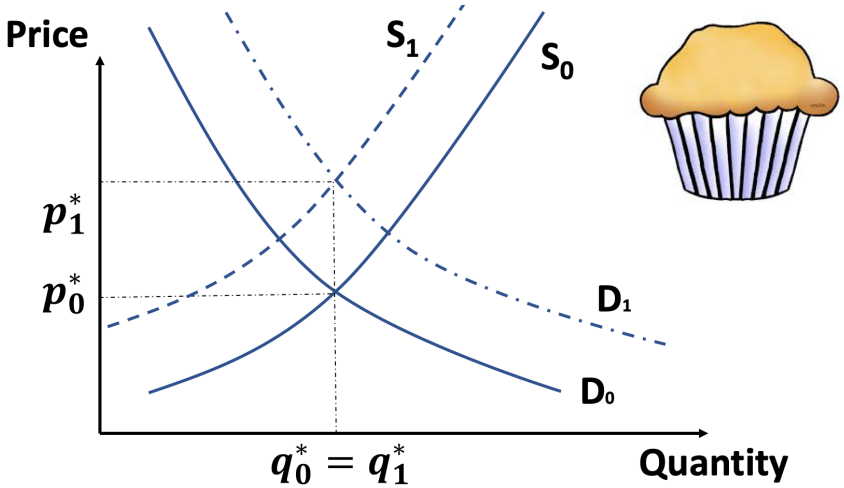
1. $p^* \uparrow$, $q^* \uparrow$
2. p^* (?), $q^* \uparrow$
3. p^* (?), q^* (?)
4. $p^* \uparrow$, q^* (?) ✓ (Why? See next slide)

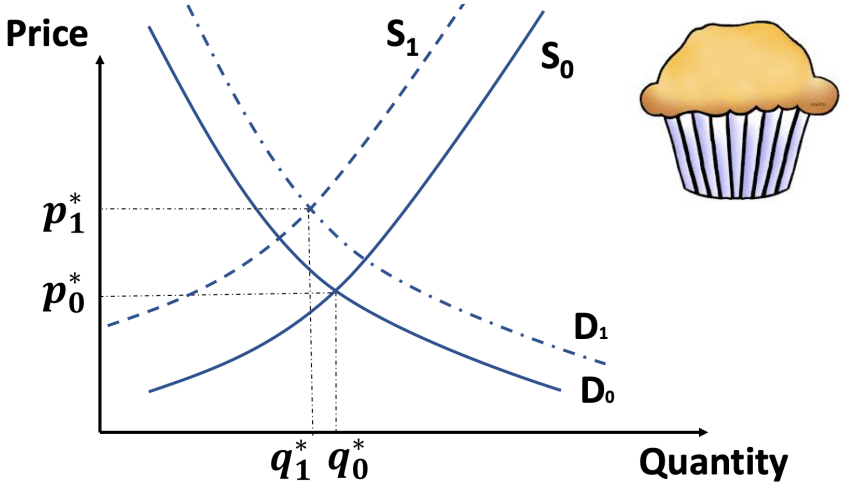
Kahoot: Question 2

- What happens to the market of muffins if (a) flour price increases?
  - This affects supply. Supply shifts left.
- What happens to the market of muffins if (b) students' income increases?
  - This affects demand. Demand shifts right.
- What's the overall effect?

Kahoot: Question 2







Note that depending on the size of each effect we may have that quantity in equilibrium increases, decreases, or stays the same. Without further information on the size of each effect, we cannot tell. Note, however, that we know *for sure* that price will increase, regardless of the sizes.

back to slides

Kahoot: Question 3

What happens in the market for winter jackets if (a) Siberian cold wave expected (b) price of jumpers decreases?

1. $p^* \uparrow$, $q^* \uparrow$
2. p^* (?), $q^* \uparrow$
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Kahoot: Question 3

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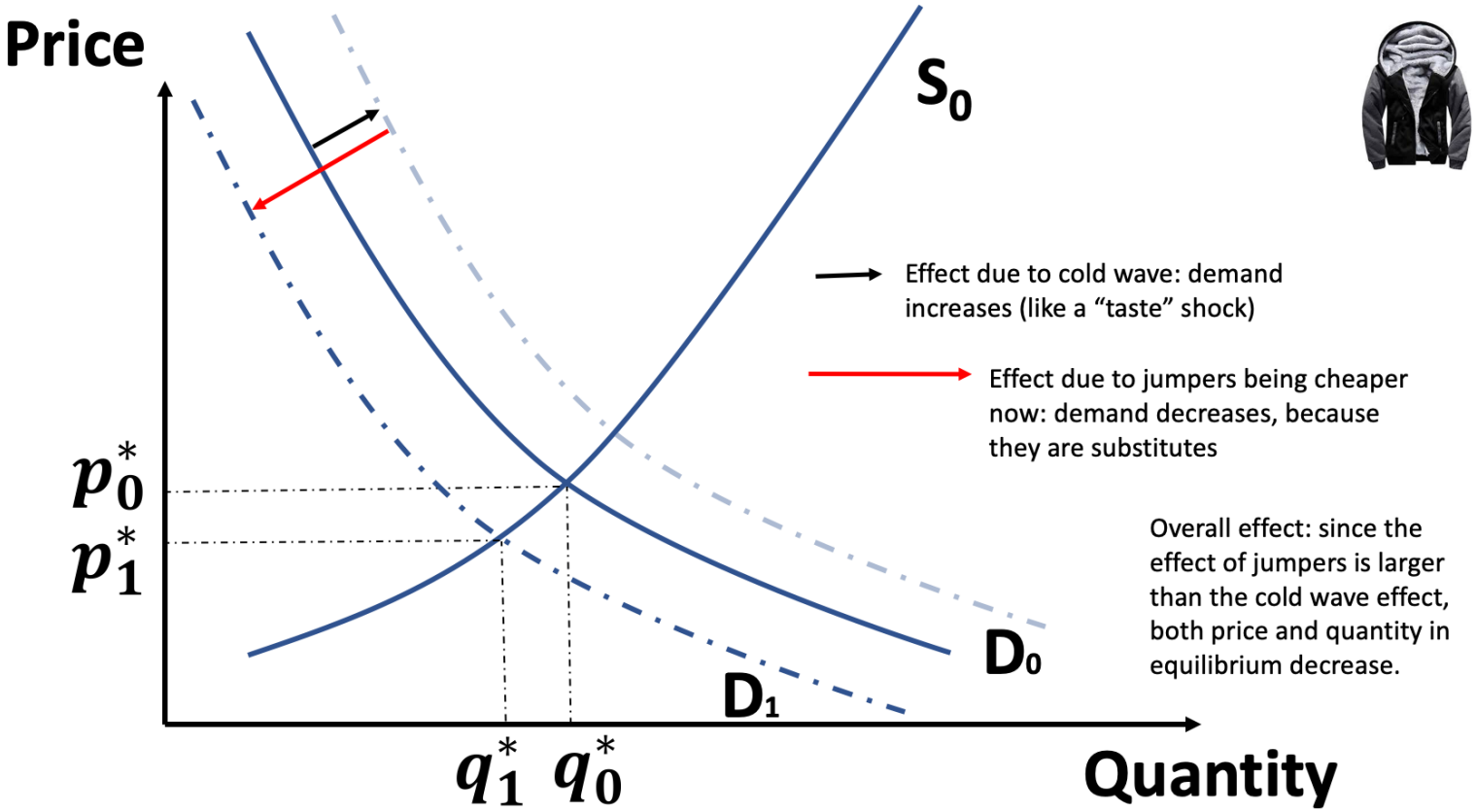
3. p^* (?), q^* (?) ✓ (Why? See next slide)
4. $p^* \uparrow$, q^* (?)

Kahoot: Question 3

- What happens to the market of jackets if (a) Siberian cold wave expected?
  - This affects demand. Demand shifts right, as people will want to pay more for jackets now.
- What happens to the market of jackets if (b) price of jumpers decreases?
  - This affects demand. Demand shifts left, as people will want to pay less for jackets now, since a close substitute like jumpers has become cheaper.
- Which effect will dominate? Without further information, we do not know. So we cannot be precise about the overall effect. Next three slides illustrate this.

Kahoot: Question 3



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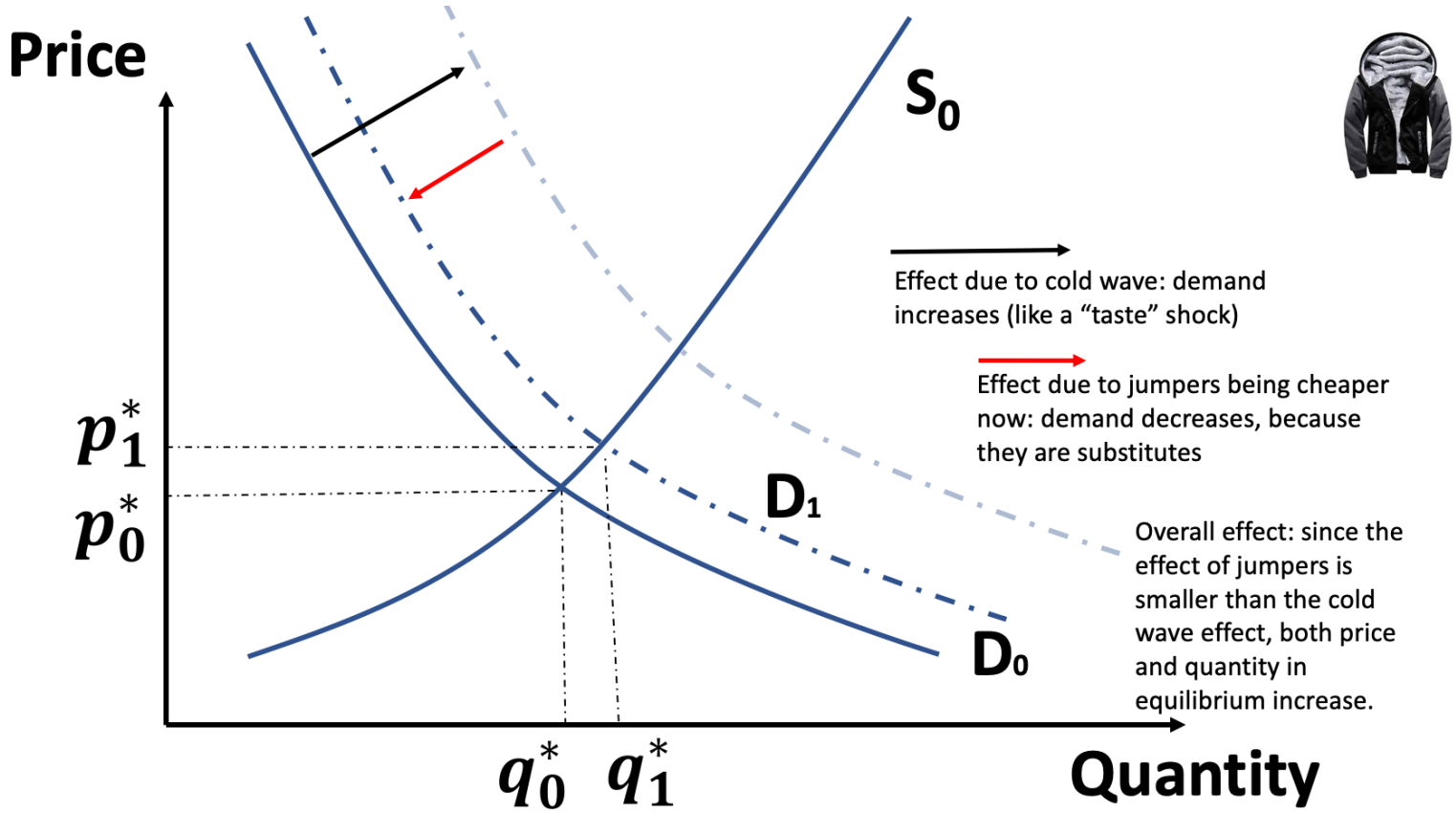
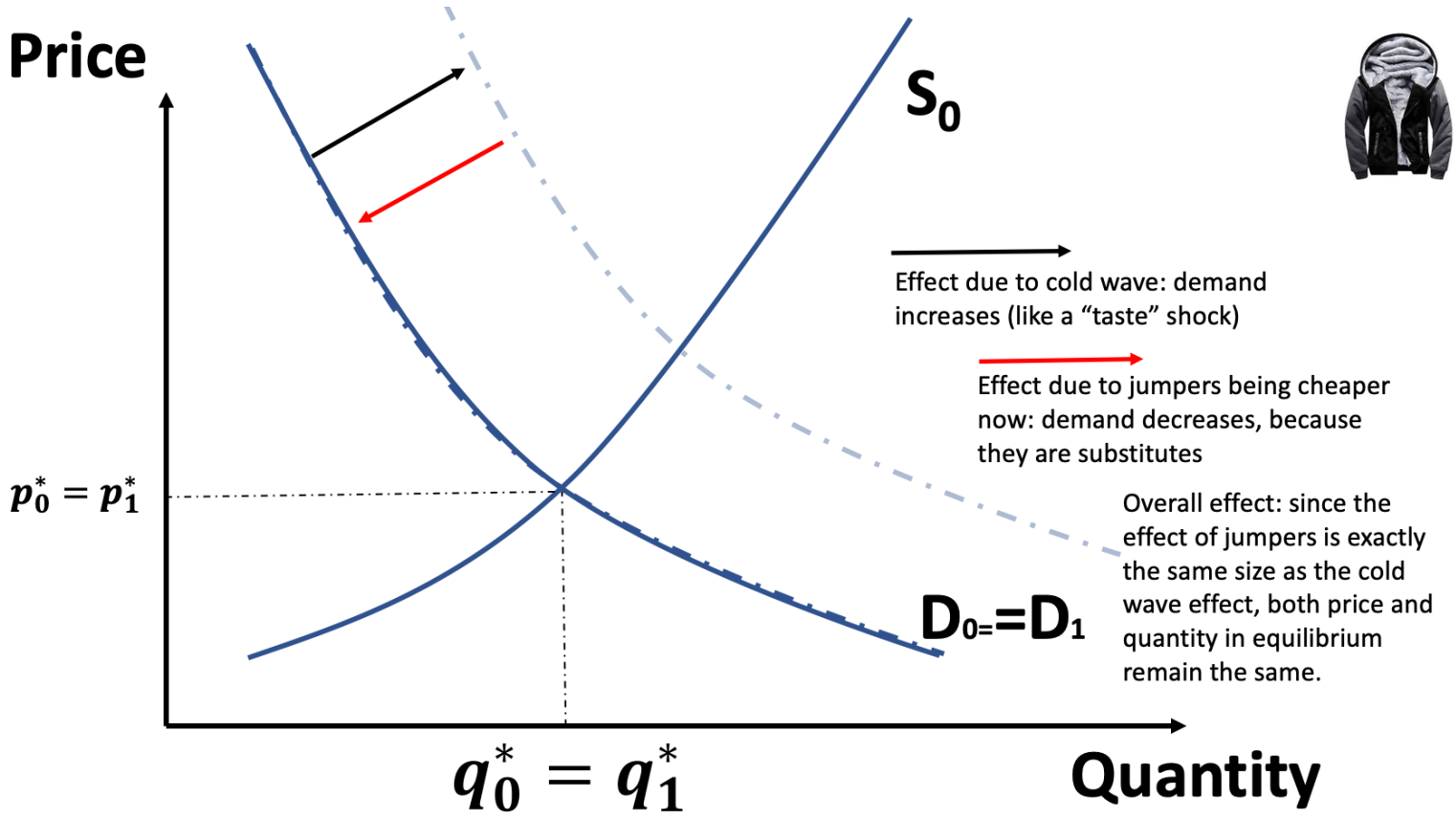


Kahoot: Question 3



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Option 1: Cereals

Suppose price of flour from Australia rises. What happens to the market of muffins in Singapore?

Option 1: Cereals

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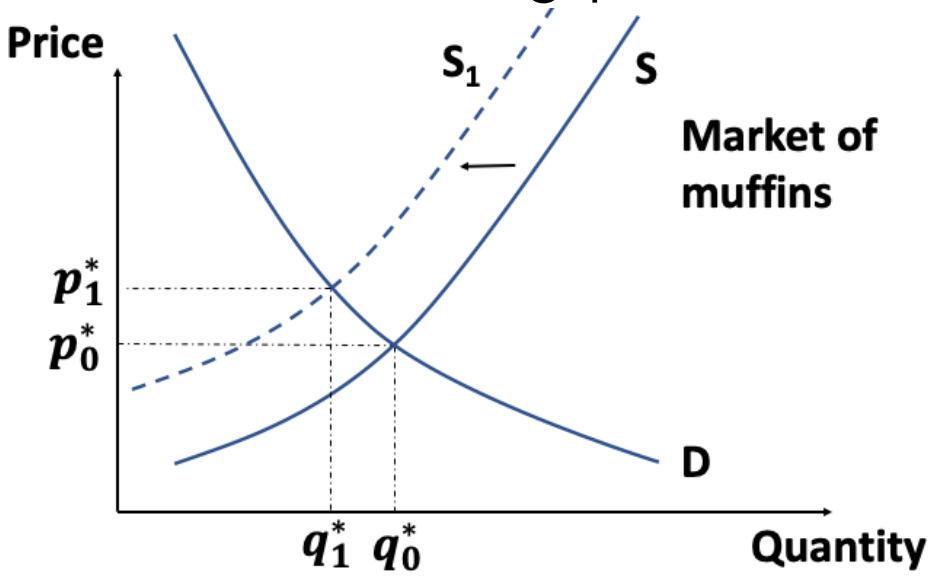


Flour is input for muffins.
Price of flour ↑ ⇒ Supply of muffins shifts left ⇒ Price of muffins ↑

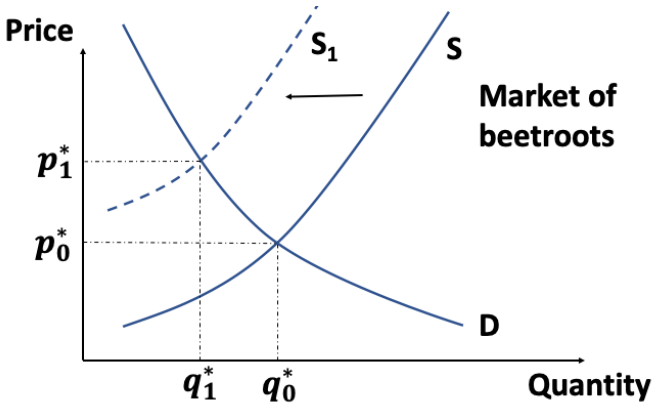
▸ back to slides

Option 2: Sugar beets

- Suppose there are massive floods in Turkey

Option 2: Sugar beets

- Suppose there are massive floods in Turkey



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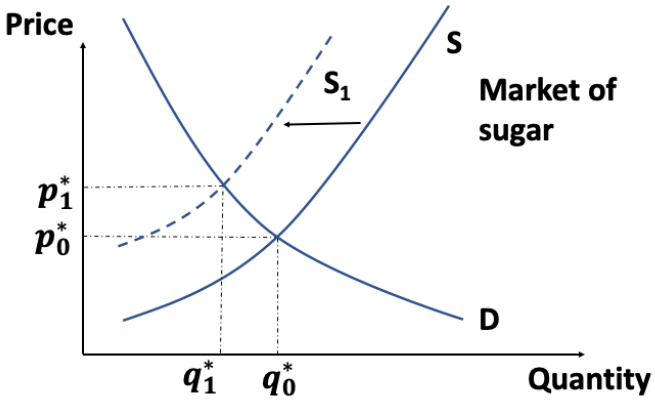

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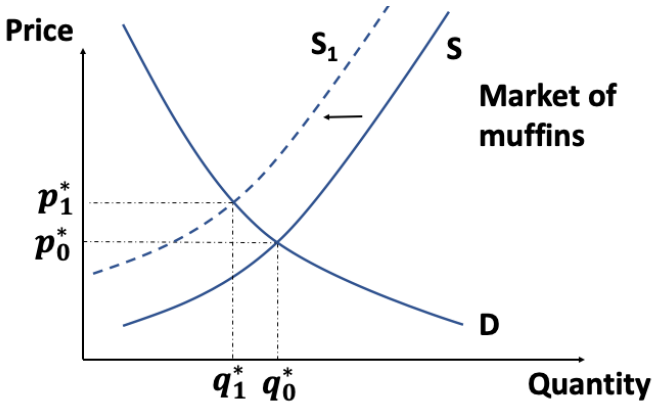

▸ back to slides

Option 3:

- Suppose price of oil for naval engines decreases
  - What happens to the market of sugar in Singapore?
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  - $\Rightarrow$ Price of sugar decreases (ton convince yourselves, draw a graph)

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  - Supply of sugar increases (easier to transport sugar) $\Rightarrow$ Supply of sugar shifts right
  - What happens, as a result, to the market of muffins in Singapore?
  - $\Rightarrow$ Price of sugar decreases (ton convince yourselves, draw a graph)
  - $\Rightarrow$ Sugar is an input for muffins. Hence, supply of muffins shifts right

Option 3:

- Suppose price of oil for naval engines decreases
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  - Supply of sugar increases (easier to transport sugar) $\Rightarrow$ Supply of sugar shifts right
  - What happens, as a result, to the market of muffins in Singapore?
  - $\Rightarrow$ Price of sugar decreases (ton convince yourselves, draw a graph)
  - $\Rightarrow$ Sugar is an input for muffins. Hence, supply of muffins shifts right
  - $\Rightarrow$ Price $\downarrow$ and quantity $\uparrow$
  - (graphs next slide)

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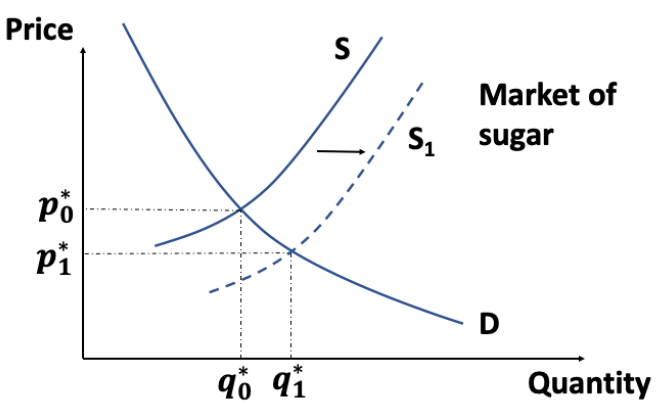
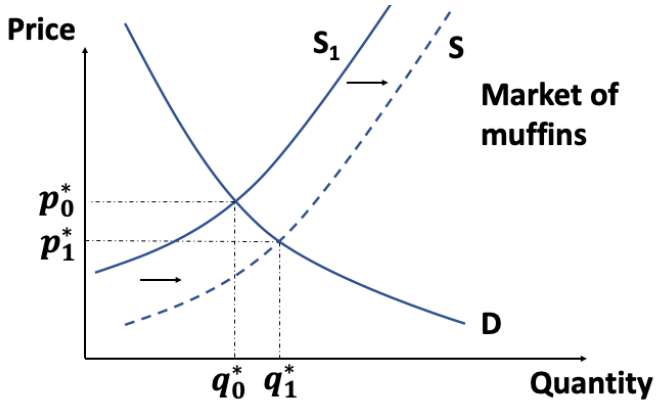


$\Rightarrow$



Sugar is input for muffins.

Price of sugar $\downarrow \Rightarrow$ Supply of muffins shifts right

back to slides

Option 4:

- Suppose new technology allows for muffins to be produced more efficiently. What will the effect be?

Option 4:

- Suppose new technology allows for muffins to be produced more efficiently. What will the effect be?
- If effects the Supply curve
- The supply curve shifts right: more muffins can be produced at the same cost
- Equilibrium price decreases
- Quantity increases

back to slides

Option 5:

- Trump's politics result in a slowdown of international trade. What would happen?
- Since sugar and other inputs are imported, less of those products will be available.
- The situation would be very similar to the one with ▸ sugarbeets

▸ back to slides

Option 6:

- Suppose workers' wages increase. What will the effect be?

Option 6:

- Suppose workers' wages increase. What will the effect be?
- If effects the Supply curve
- The supply curve shifts left: fewer muffins can be produced at the same cost
- Equilibrium price increases
- Quantity decreases

back to slides

Option 7:

- Suppose the price of milk increases and milk & muffins are complements. What will the effect be?

Option 7:

- Suppose the price of milk increases and milk & muffins are complements. What will the effect be?
- If effects the Demand curve
- The demand curve shifts right: people will be willing to pay more for muffins now
- Equilibrium price increases
- Quantity increases

back to slides

Option 8:

- Note: previous research has shown that people tend to reward themselves with "unhealthy"/caloric food after carrying out demanding tasks
- Suppose profs in FASS increase the in-class and homework load. What will the effect be?

Option 8:

- Note: previous research has shown that people tend to reward themselves with "unhealthy"/caloric food after carrying out demanding tasks
- Suppose profs in FASS increase the in-class and homework load. What will the effect be?
- If effects the Demand curve
- The demand curve shifts right: students will be willing to pay more for muffins now
- Equilibrium price increases
- Quantity increases

back to slides

Option 9:

- Suppose the price of Oreos increases and milk & muffins are substitutes. What will the effect be?

Option 9:

- Suppose the price of Oreos increases and milk & muffins are substitutes. What will the effect be?
- If effects the Demand curve
- The demand curve shifts left: people will be willing to pay less for muffins now
- Equilibrium price decreases
- Quantity decreases

back to slides

Diminishing returns

- Note: the more muffins the better...
- ... but the more they have, the less they are willing to pay for them
- This is what we call *diminishing returns:* since each additional muffin provides them with a smaller sense of utility, they want to pay less for this
- In economics we typically assume diminishing returns for all goods and services.

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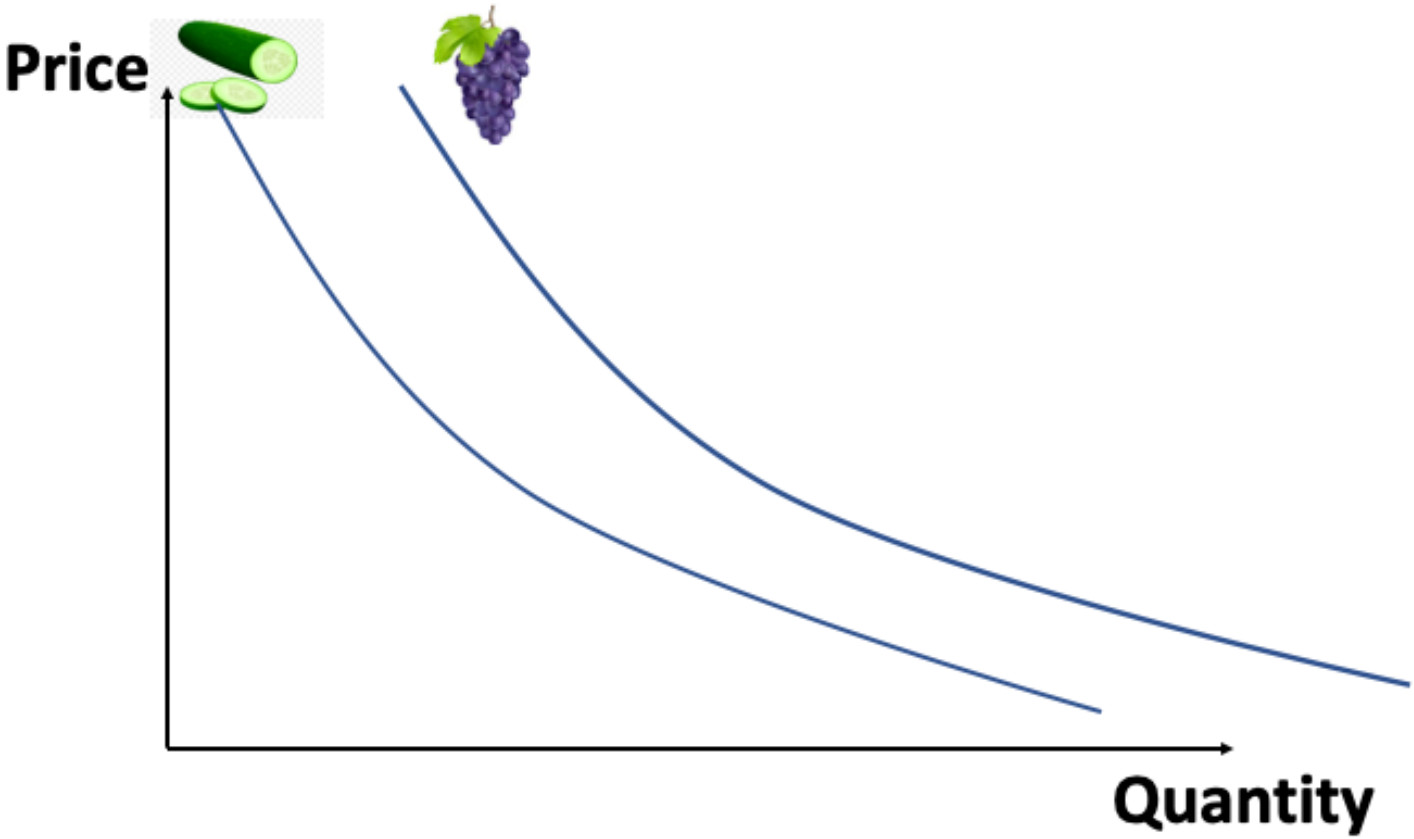
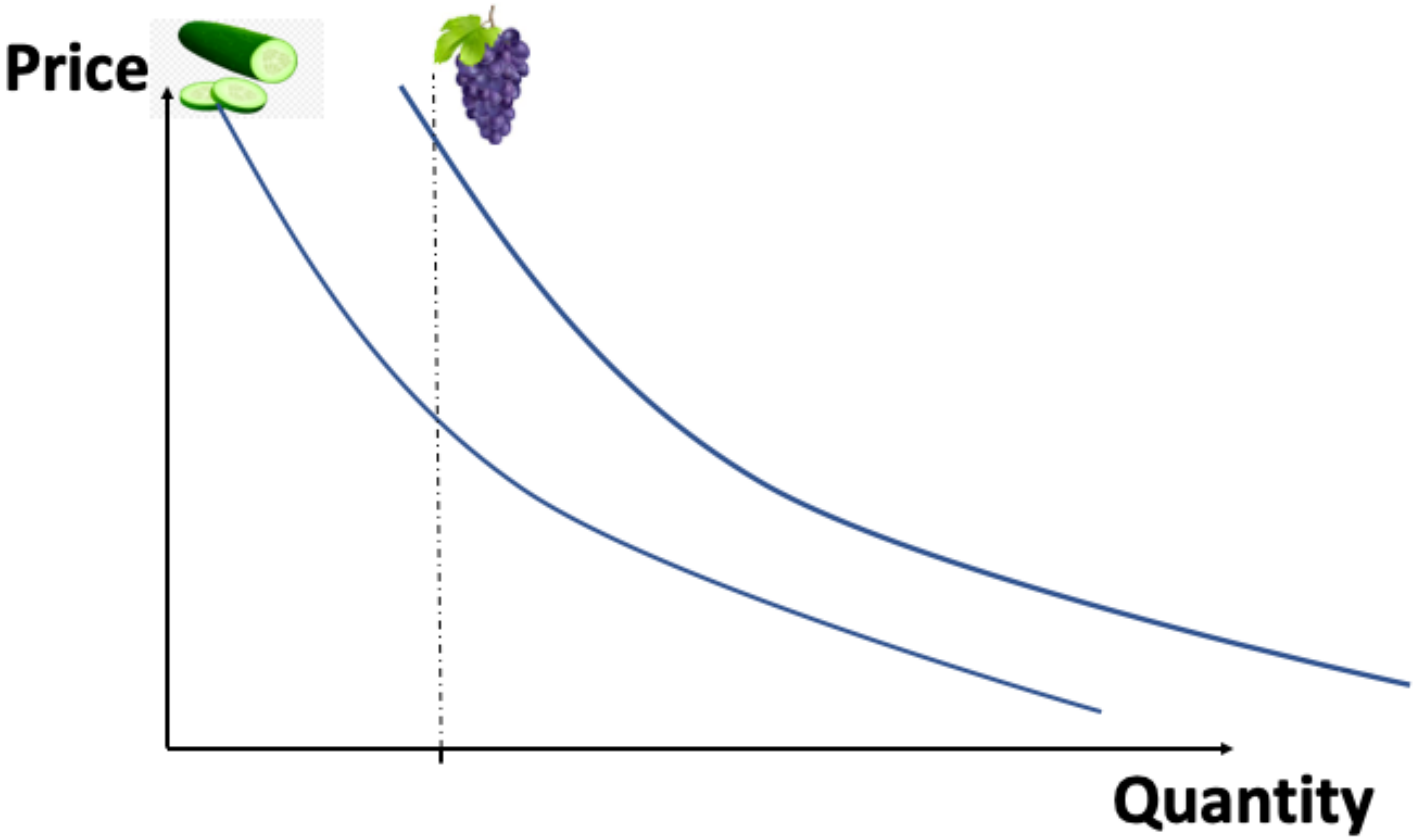
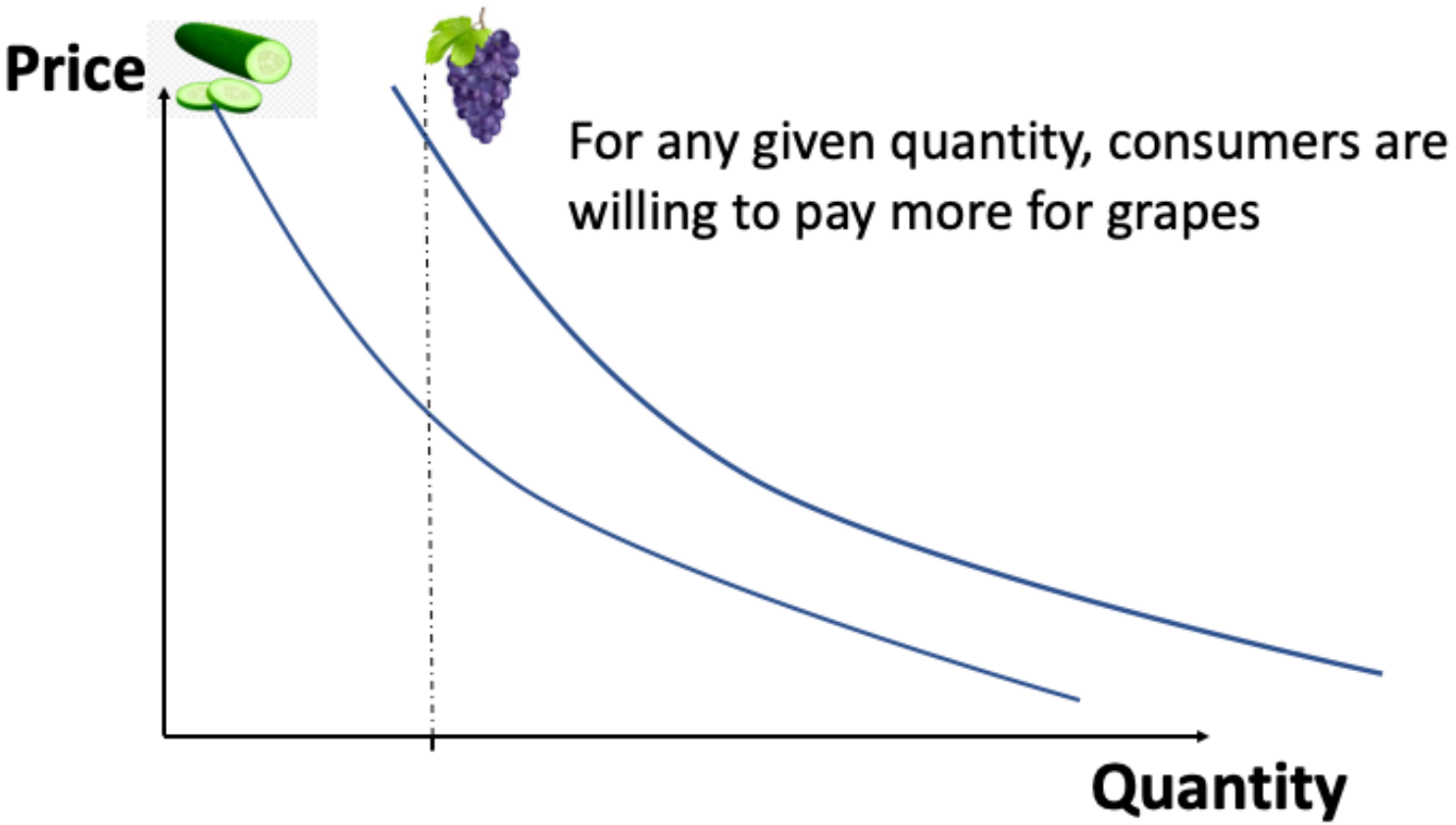
Tastes and preferences



Tastes and preferences



Tastes and preferences



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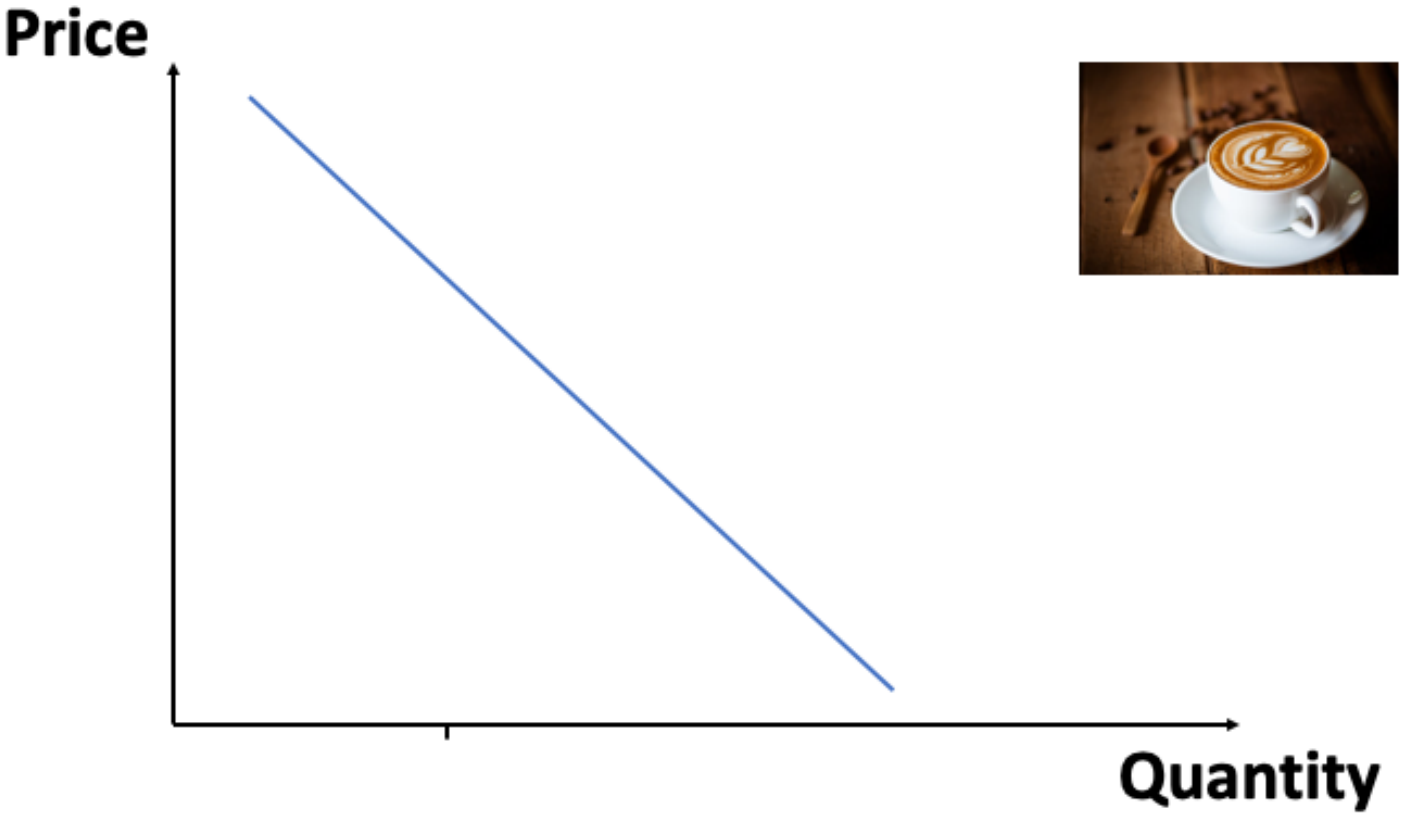
Consumers' wealth and income



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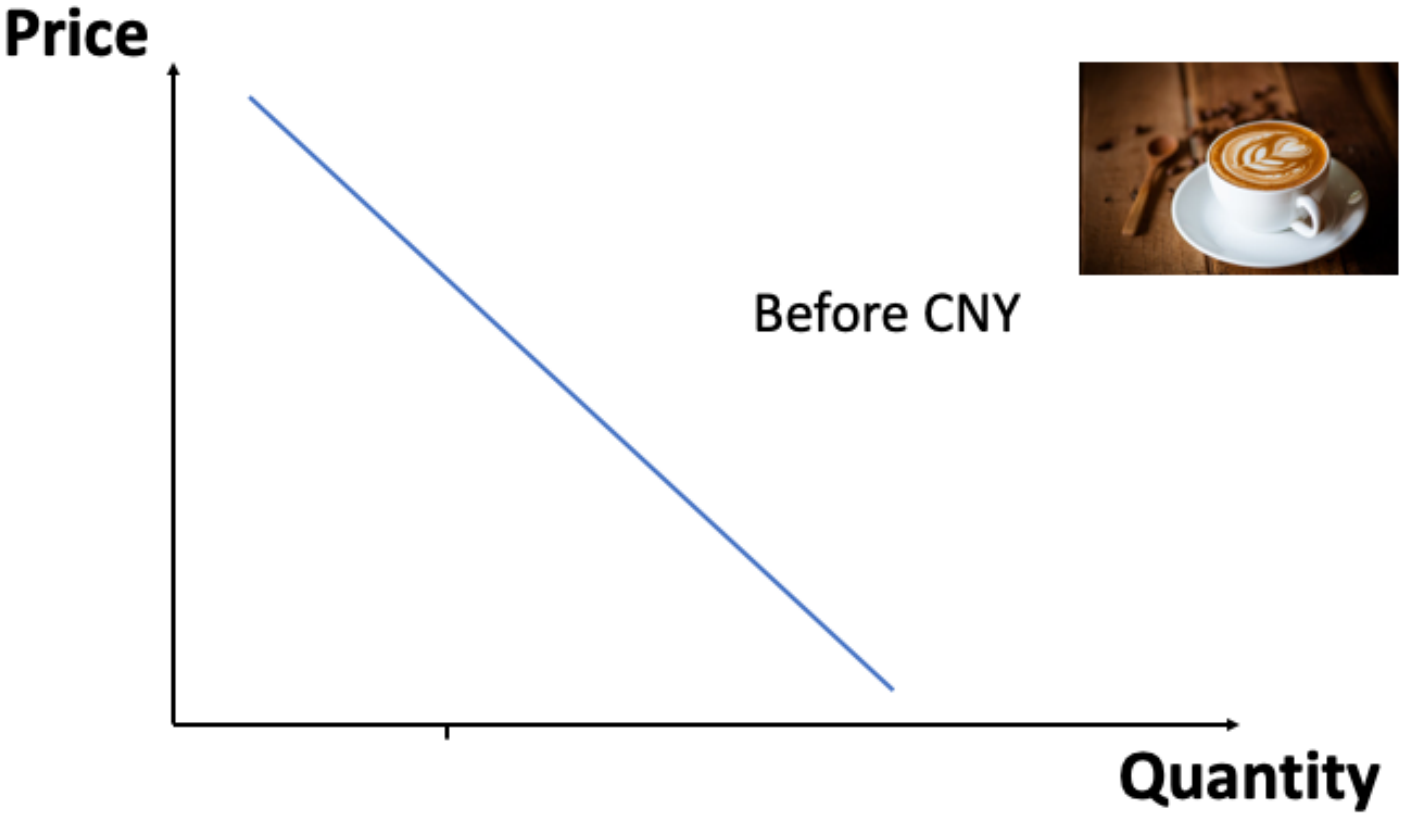

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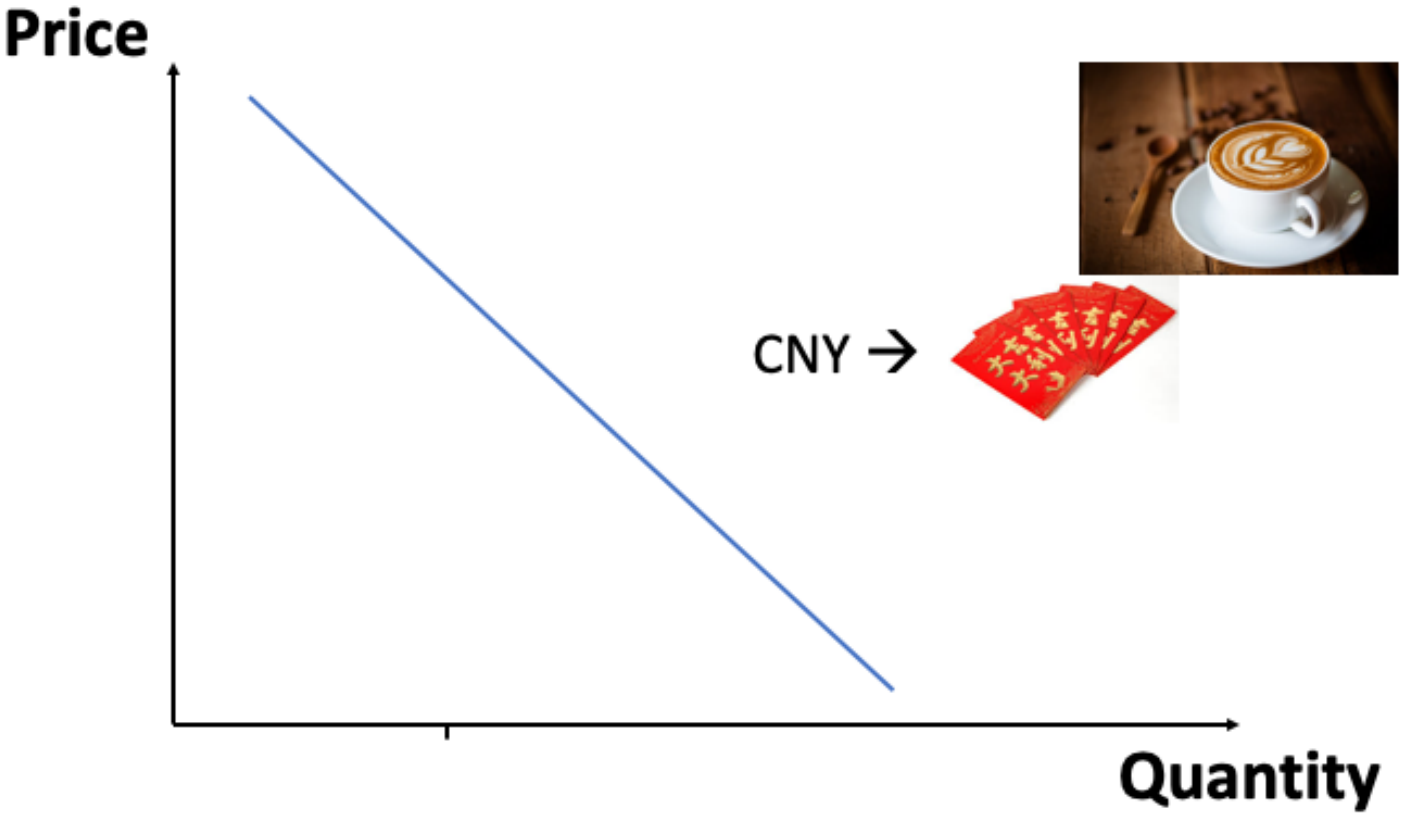

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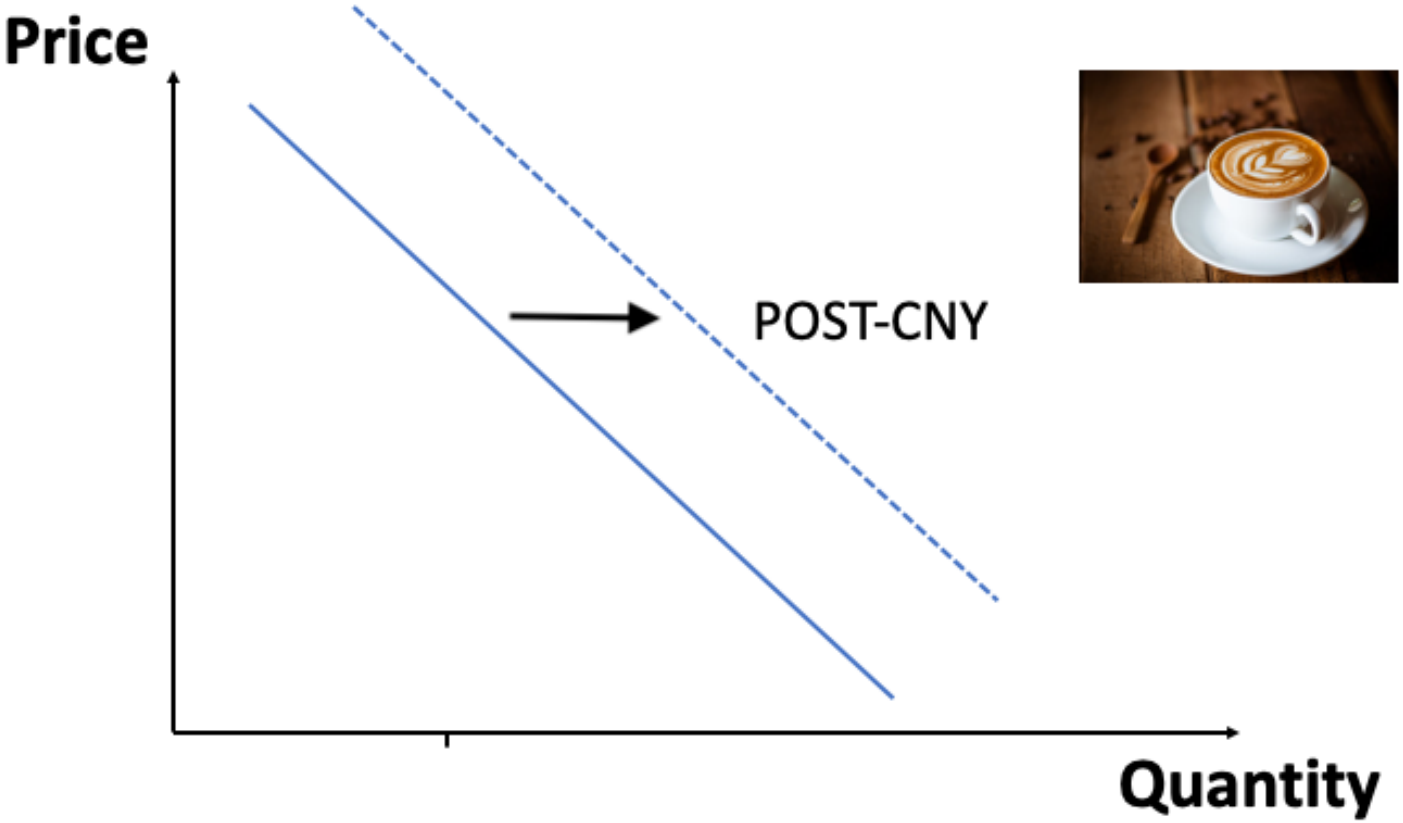

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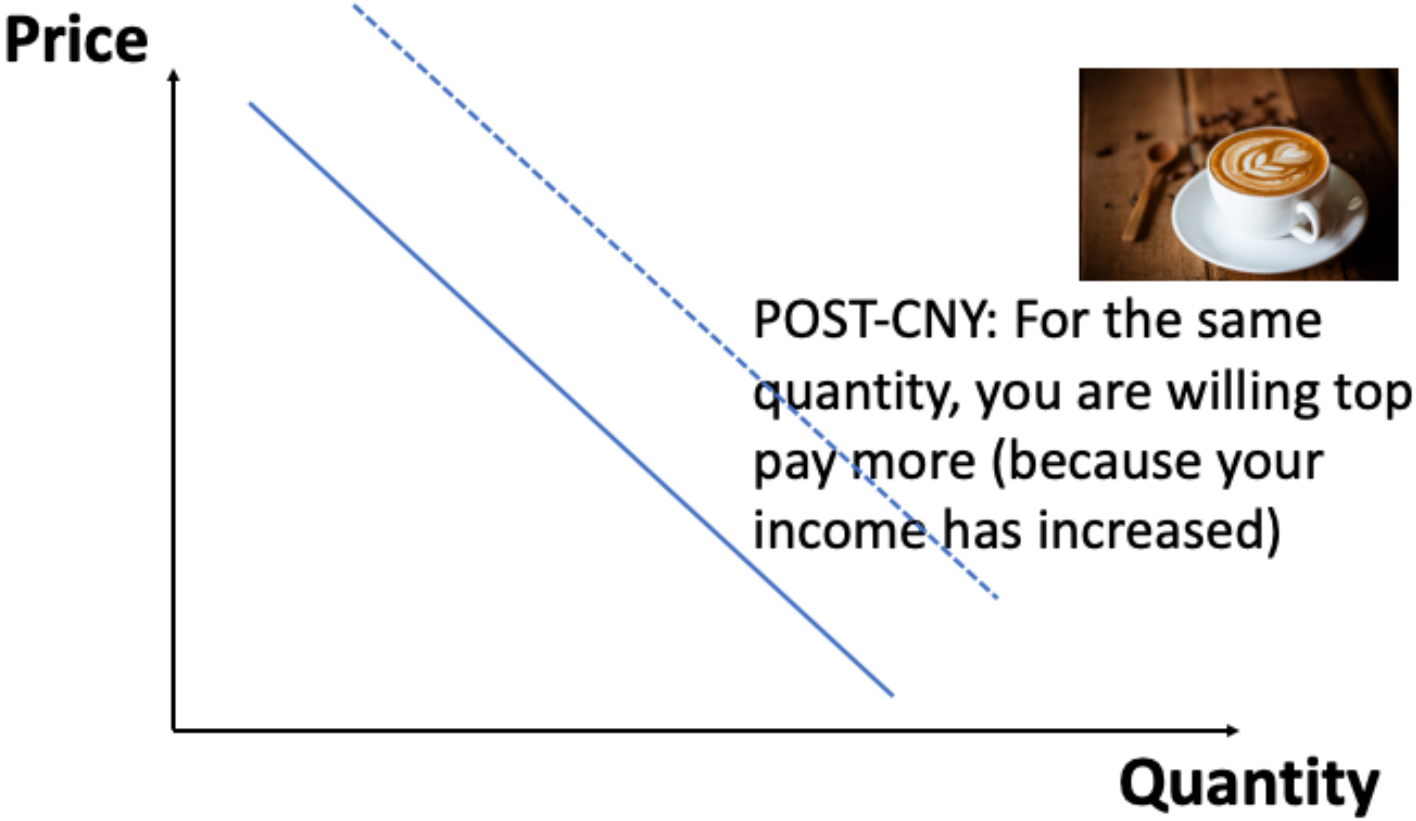

Consumers' wealth and income

- Sometimes when income $\uparrow$, demand for a given good $\downarrow$
- Can you think of an example?
- Why is that the case?

Consumers' wealth and income

- Sometimes when income $\uparrow$, demand for a given good $\downarrow$
- Can you think of an example?
- Why is that the case?
- Rice, bread, noodles
- People switch away to buy other foods

Consumers' wealth and income

- Normal goods: income $\uparrow$, demand $\uparrow$
- Inferior goods: income $\uparrow$, demand $\downarrow$

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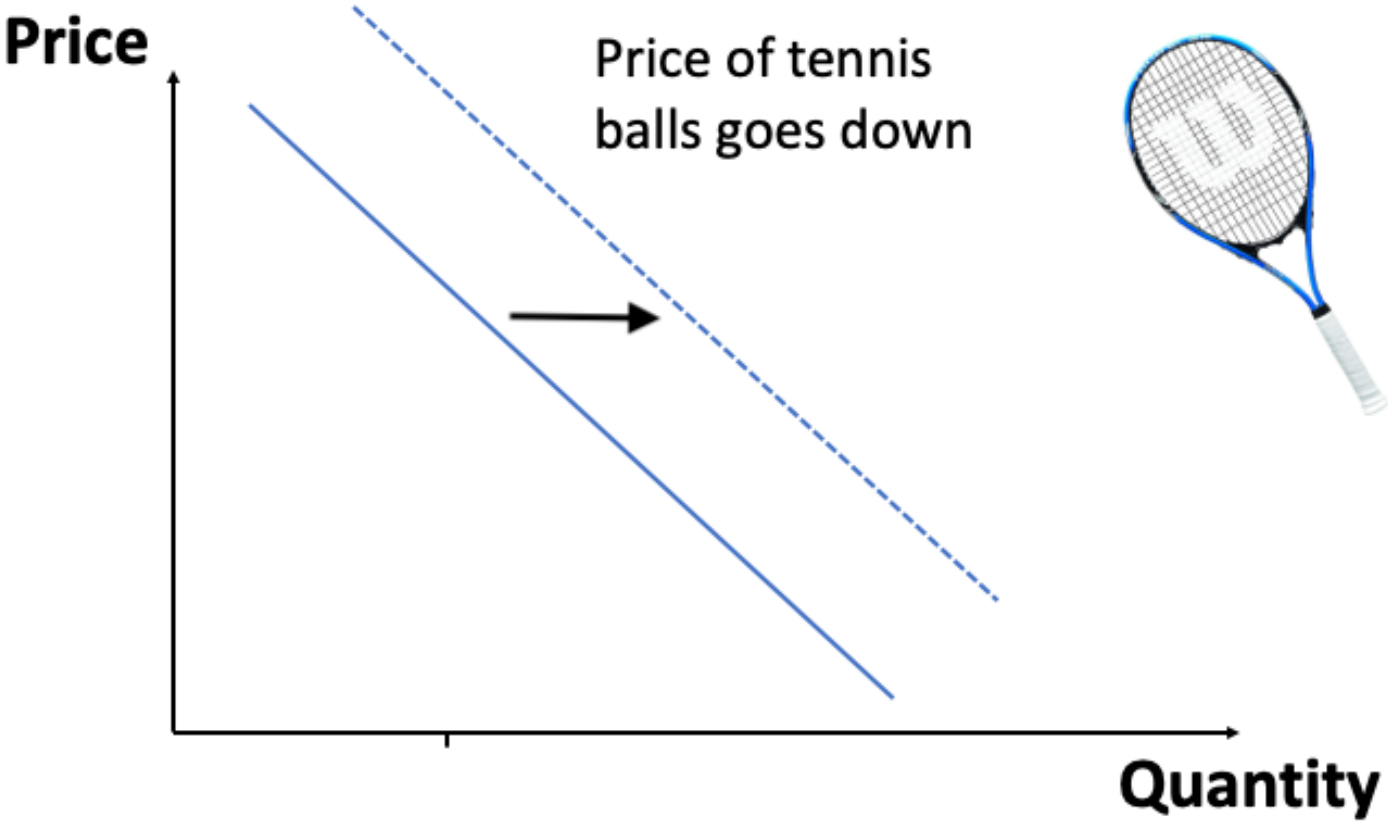
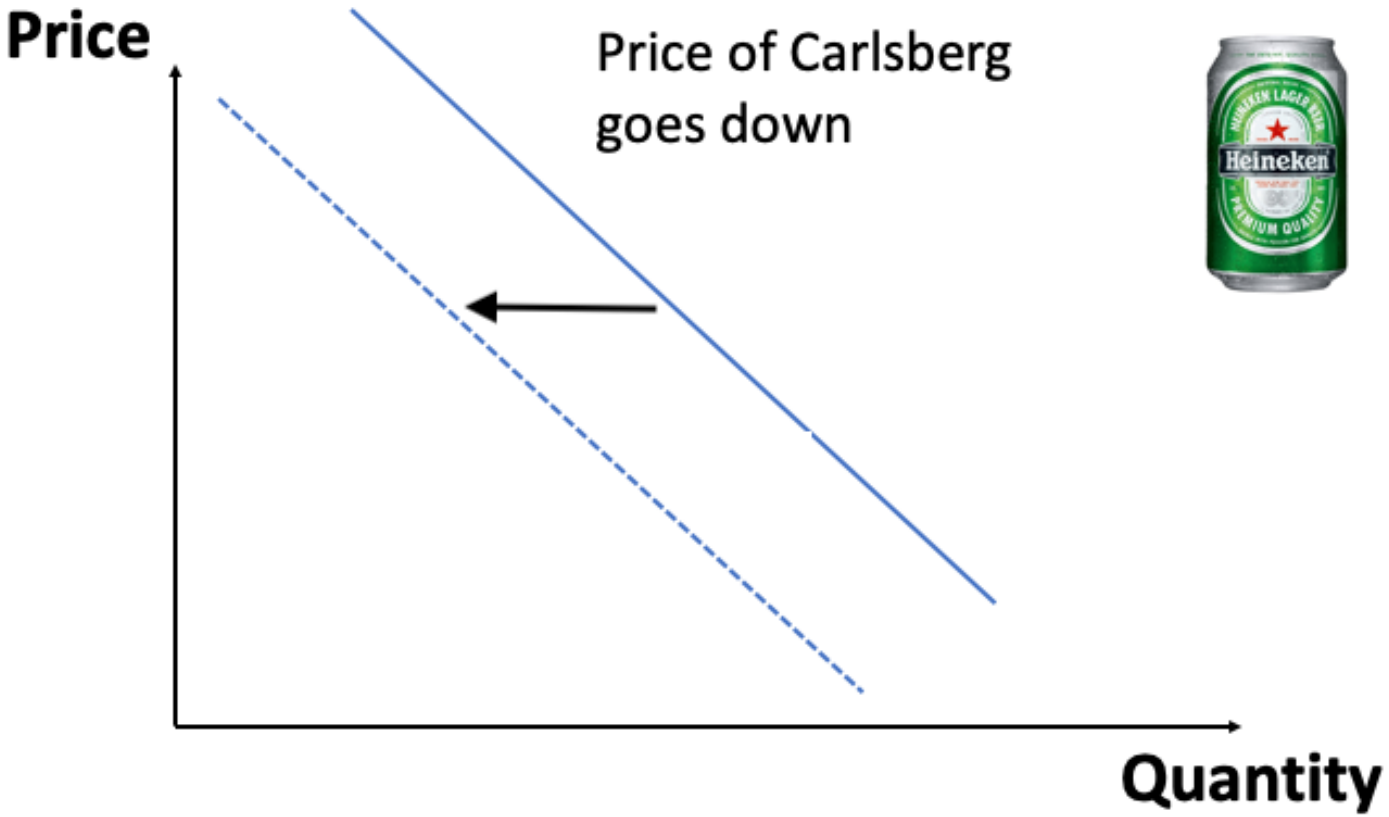
Price of related goods

Price of related goods



Price of related goods



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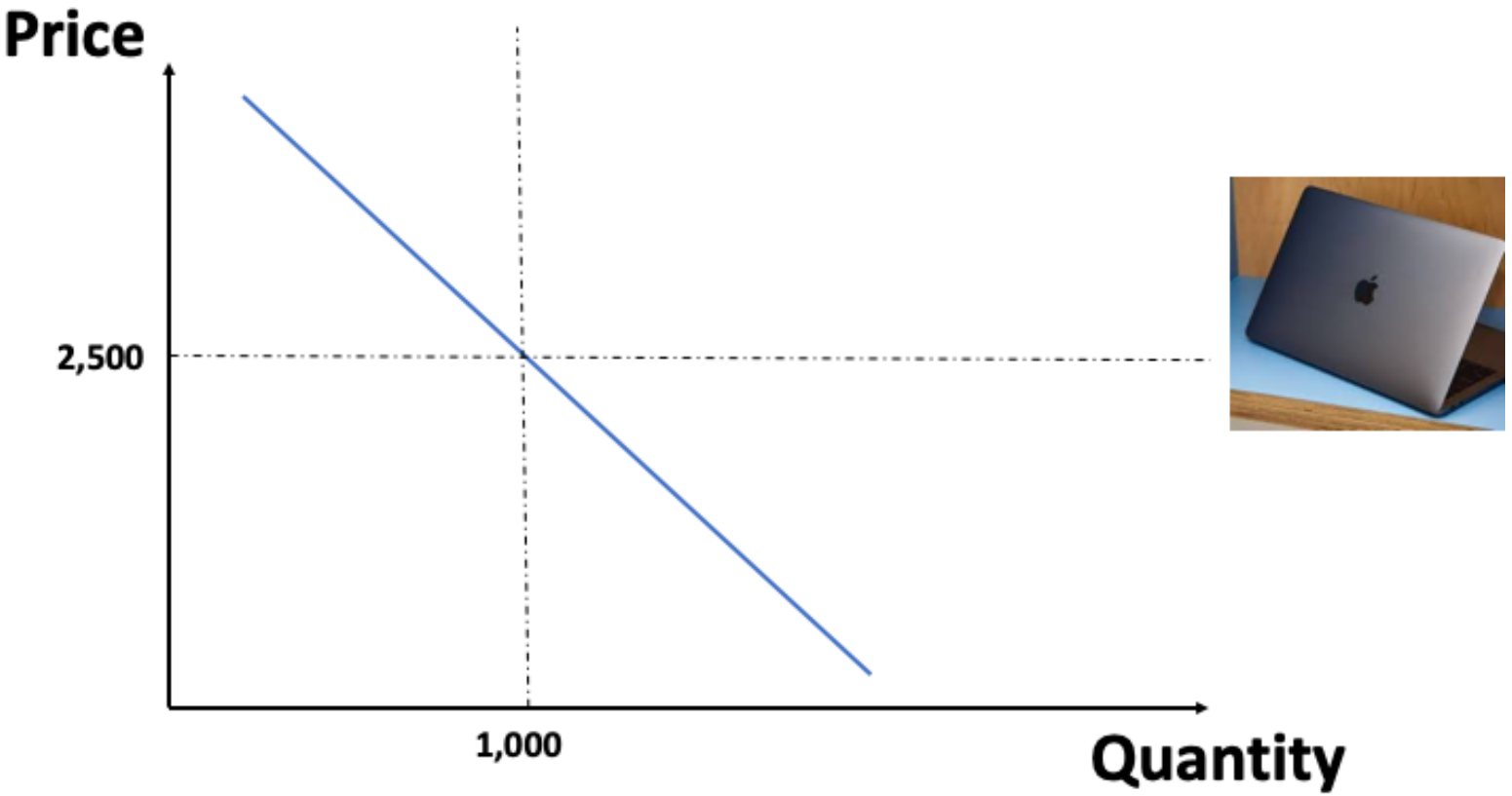
Population

back to slides

Expected (future) prices



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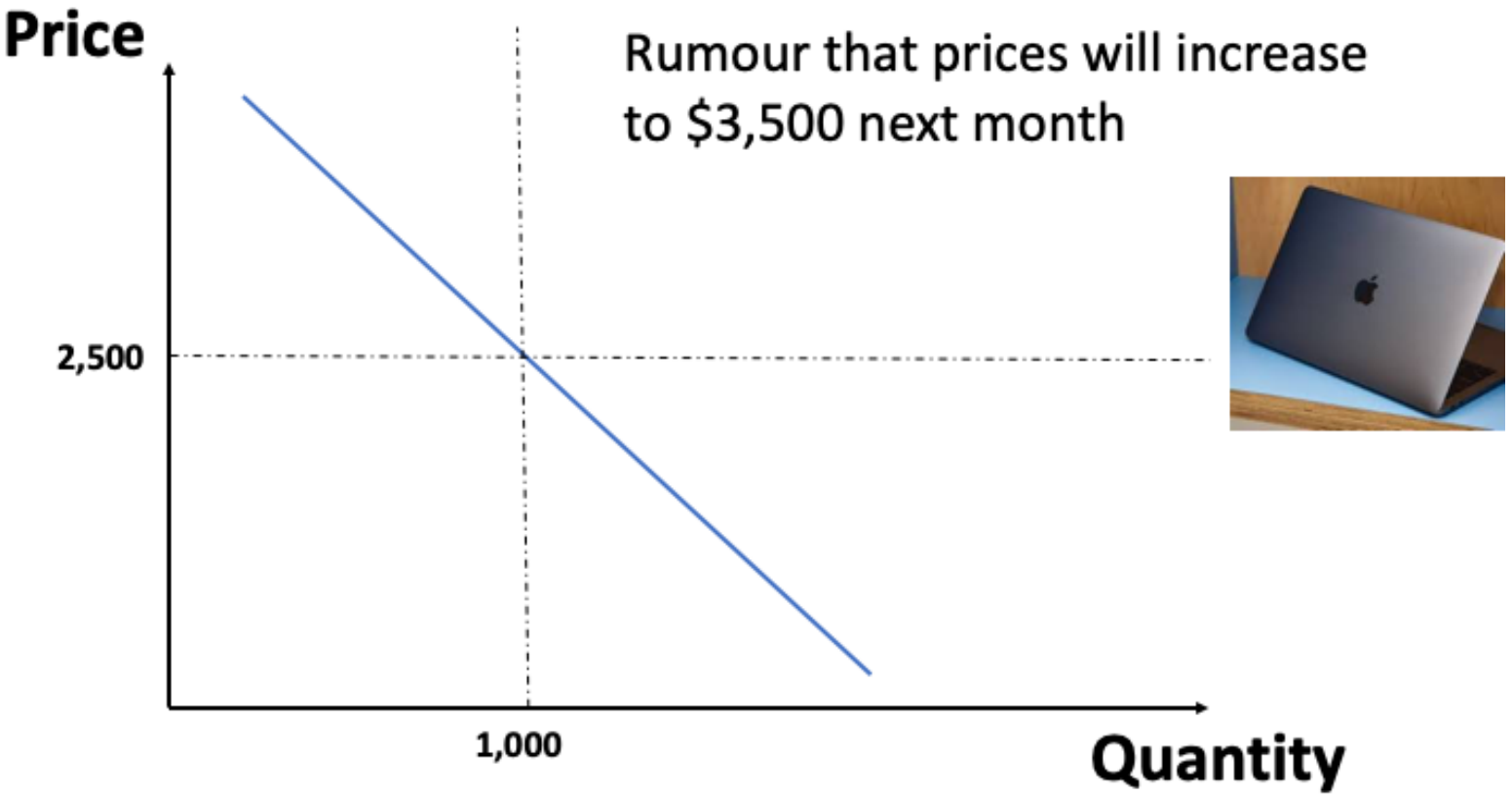
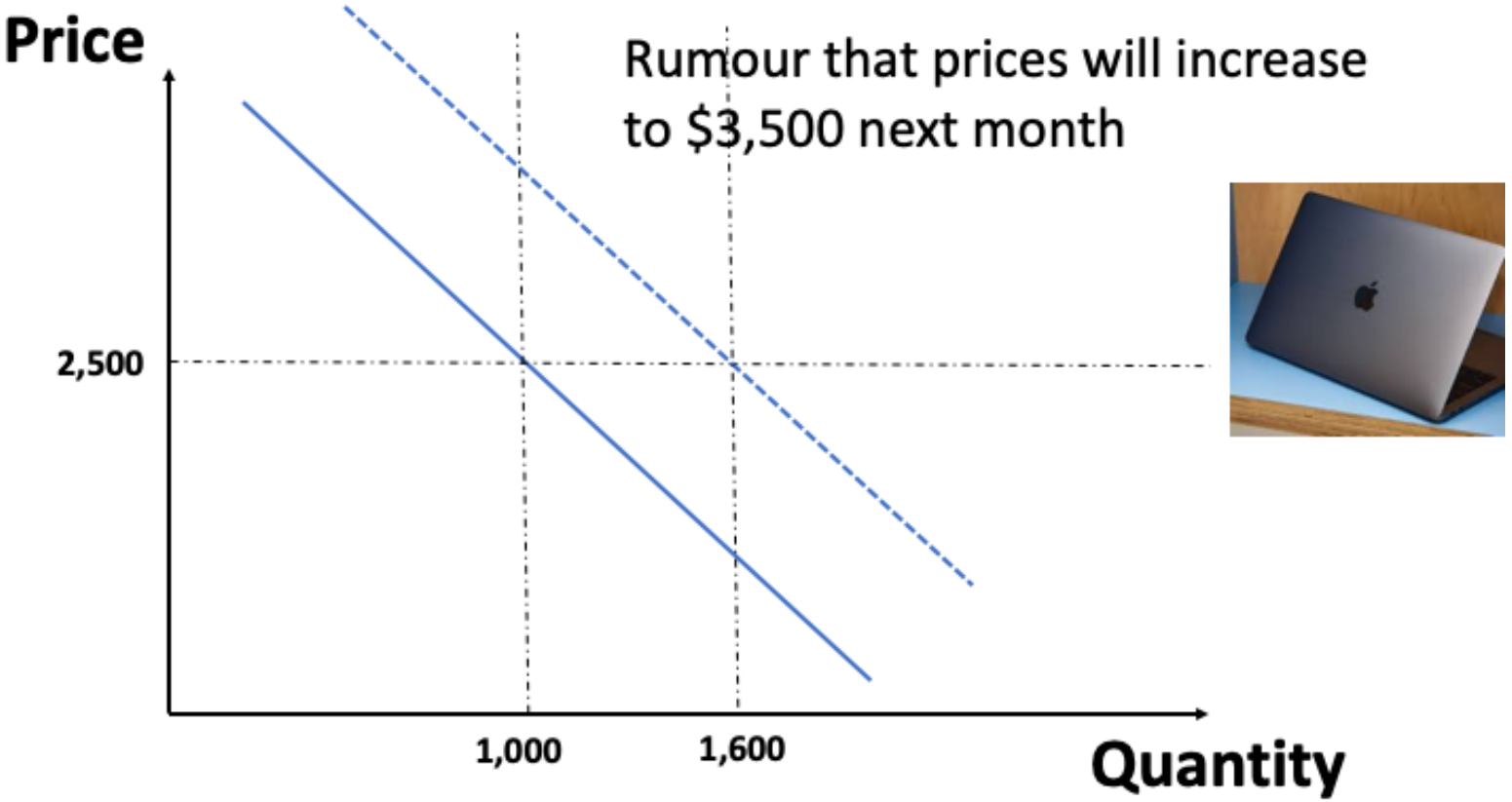


Expected (future) prices



Expected (future) prices

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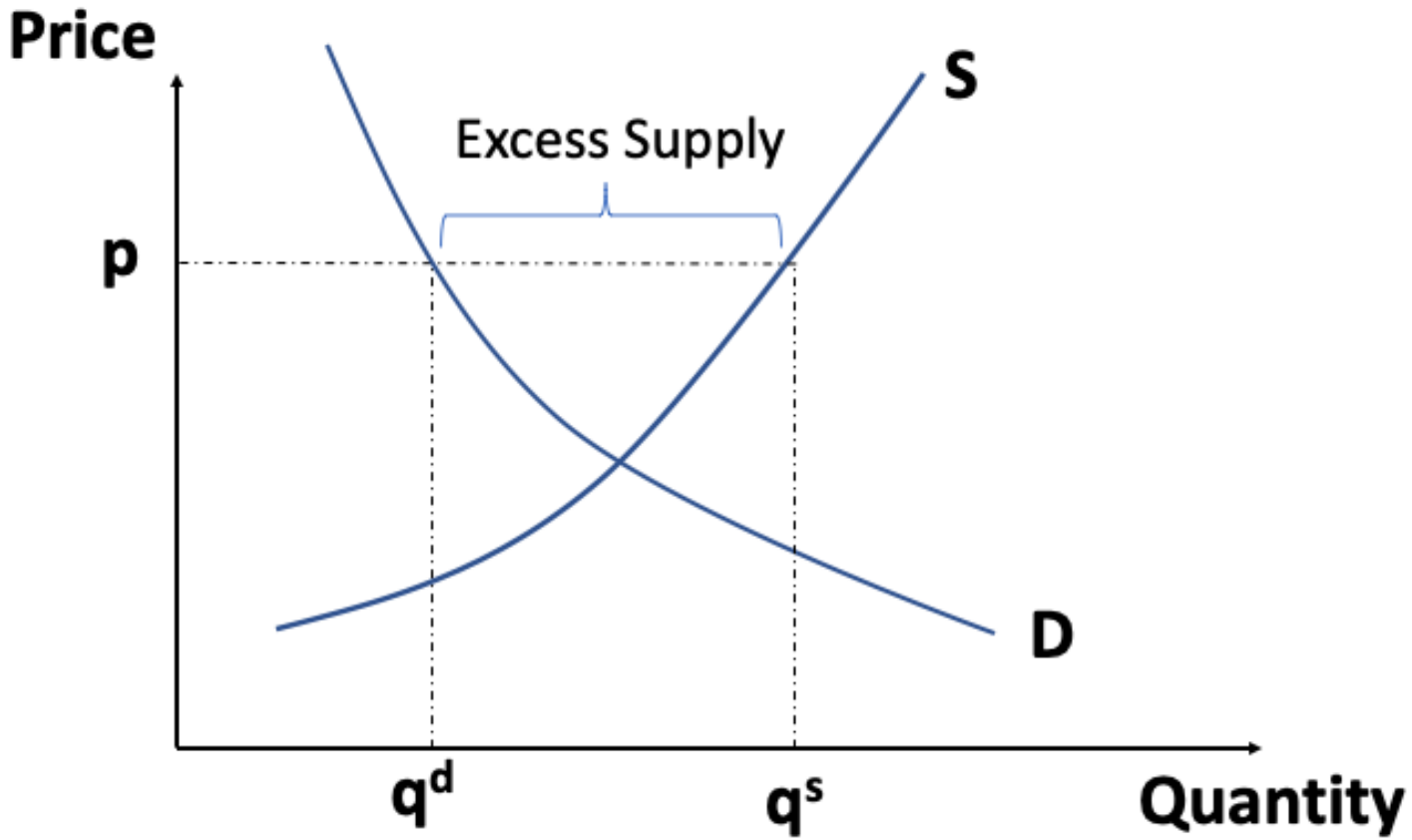
Excess Supply



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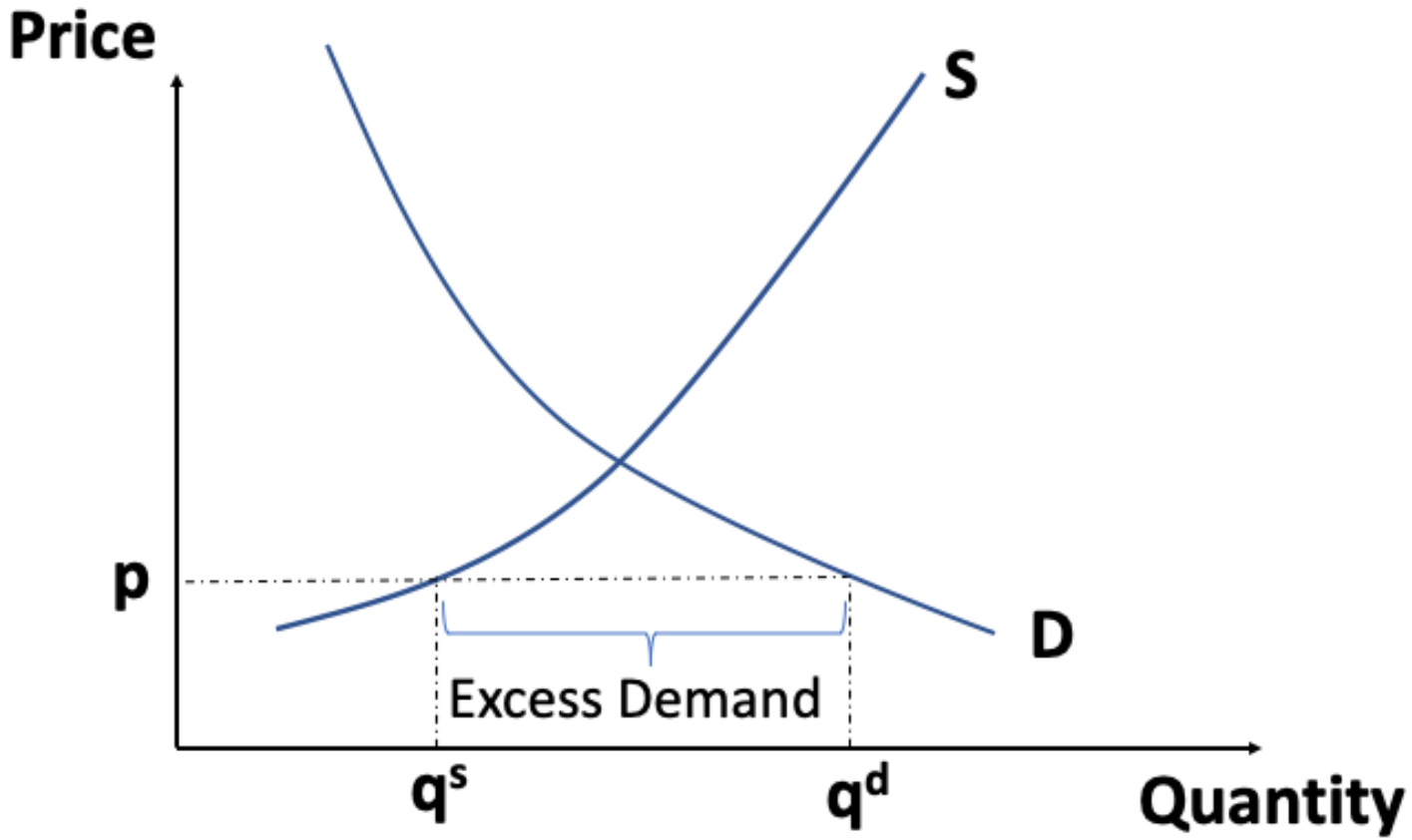
Excess Demand



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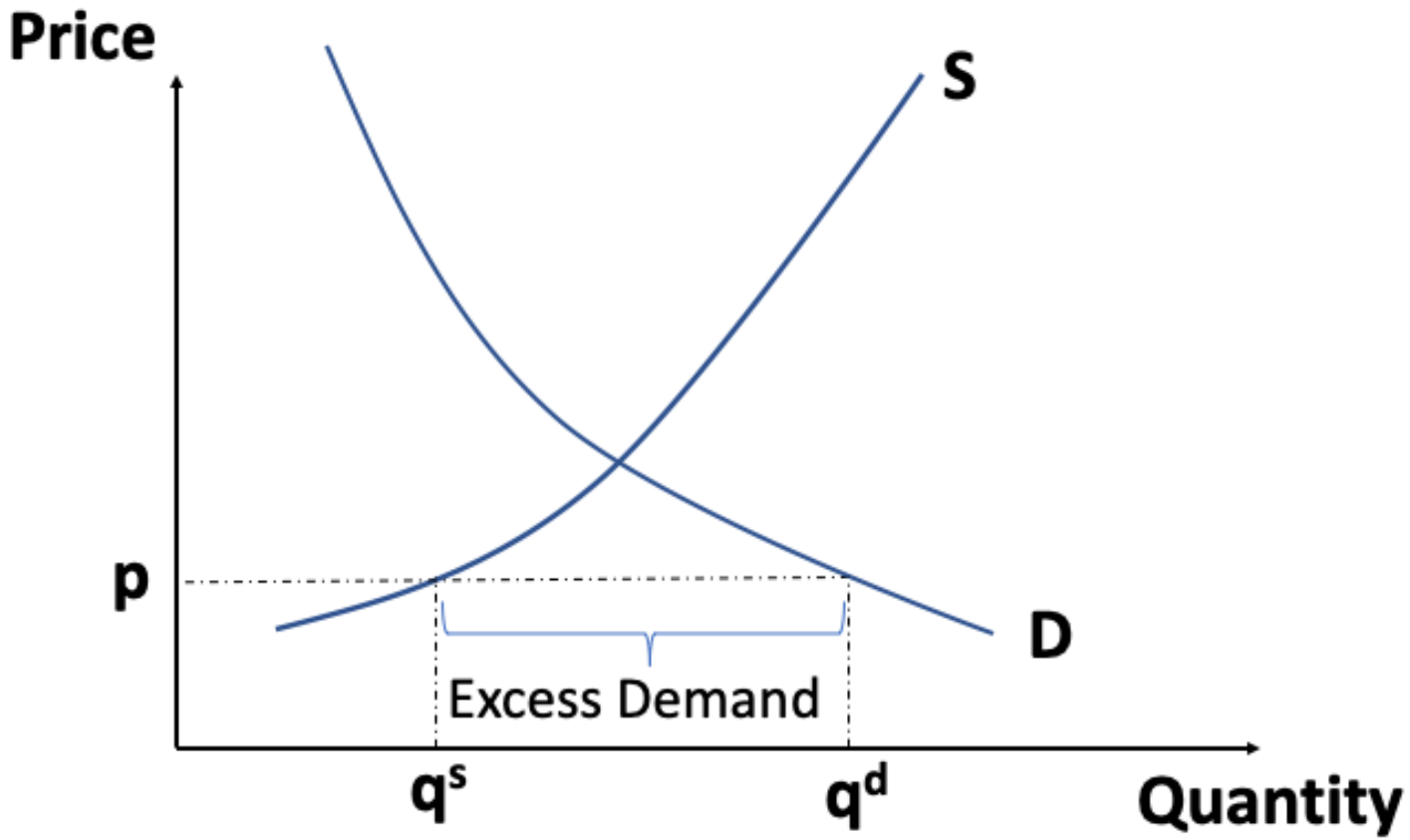
Excess Demand



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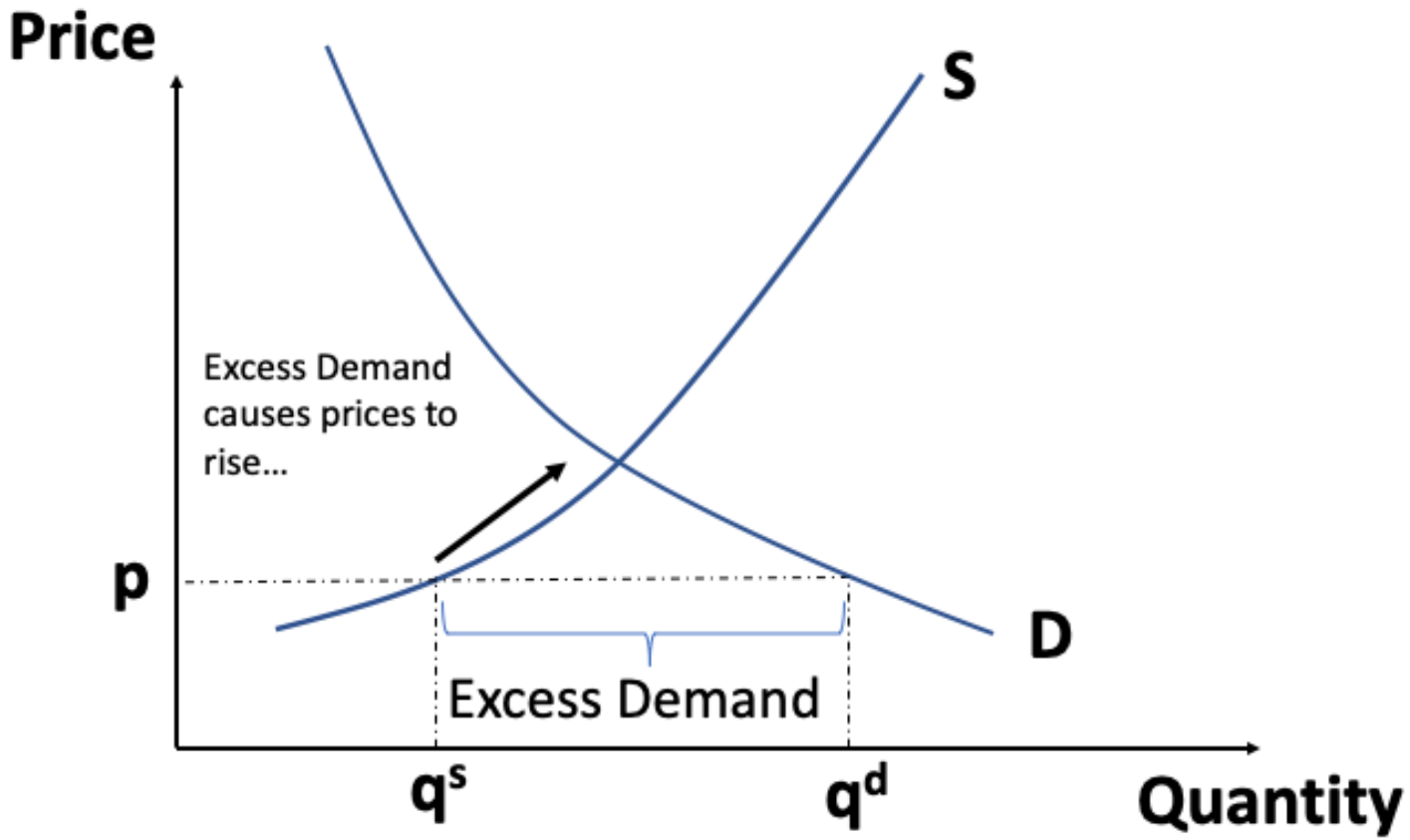
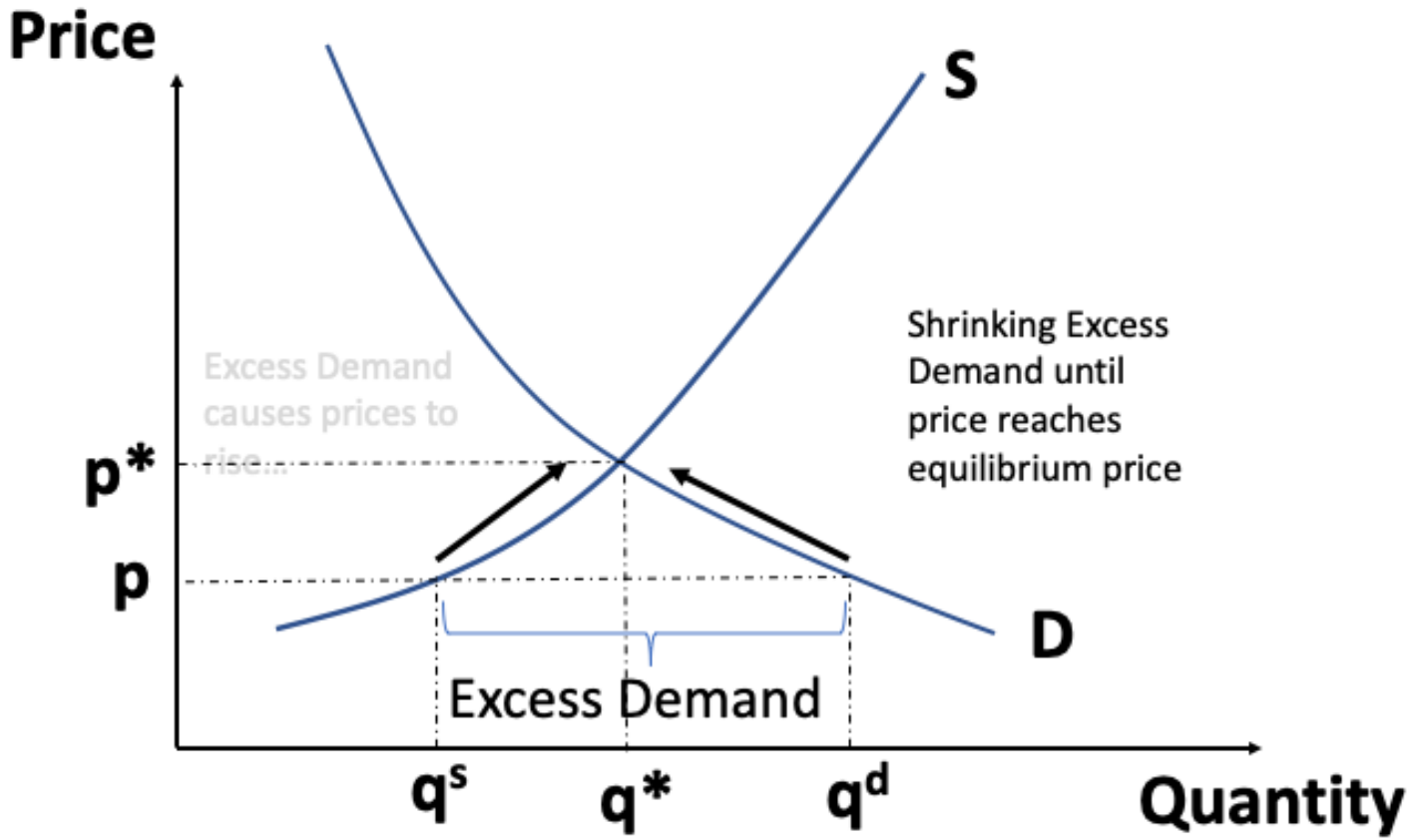


Excess Demand



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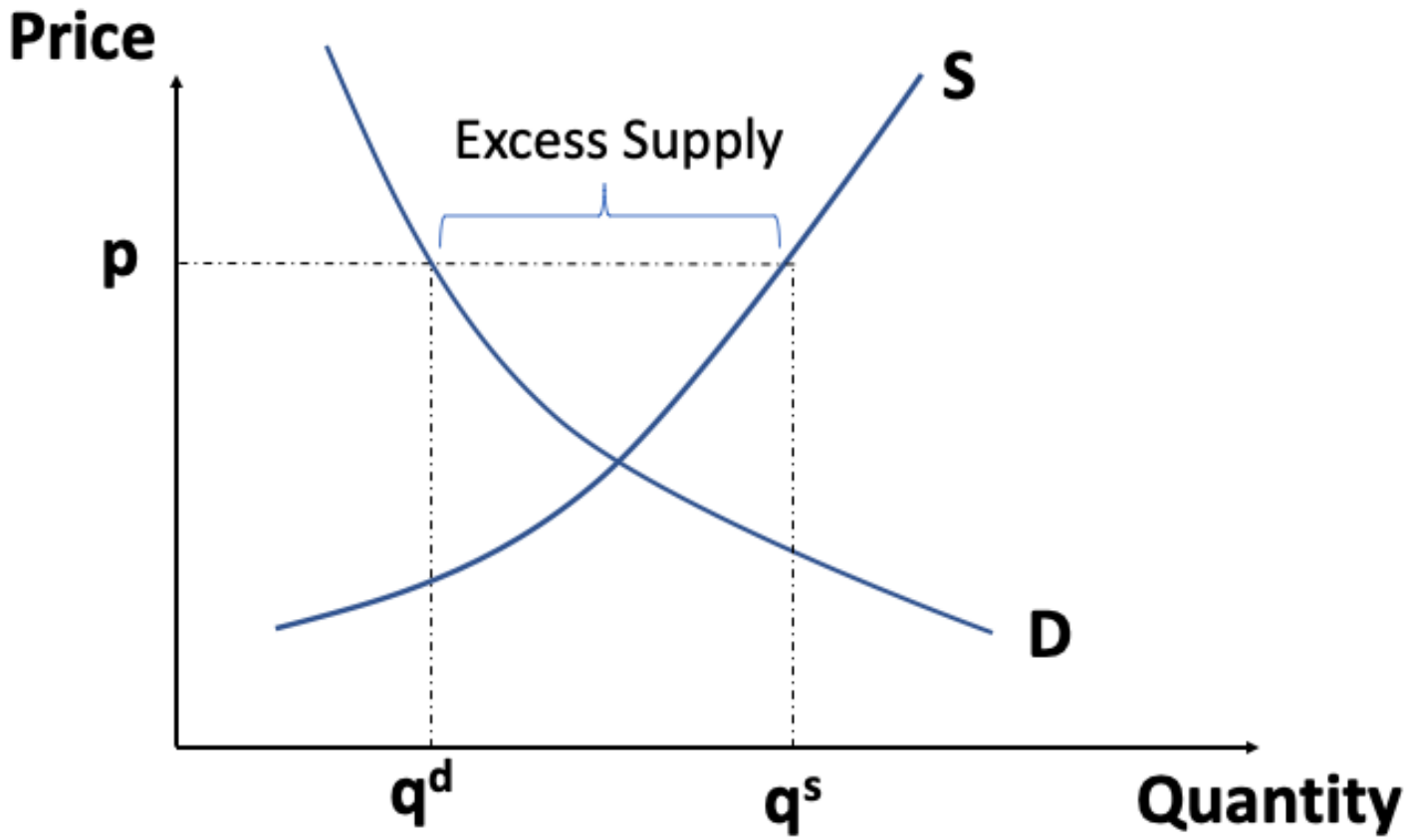
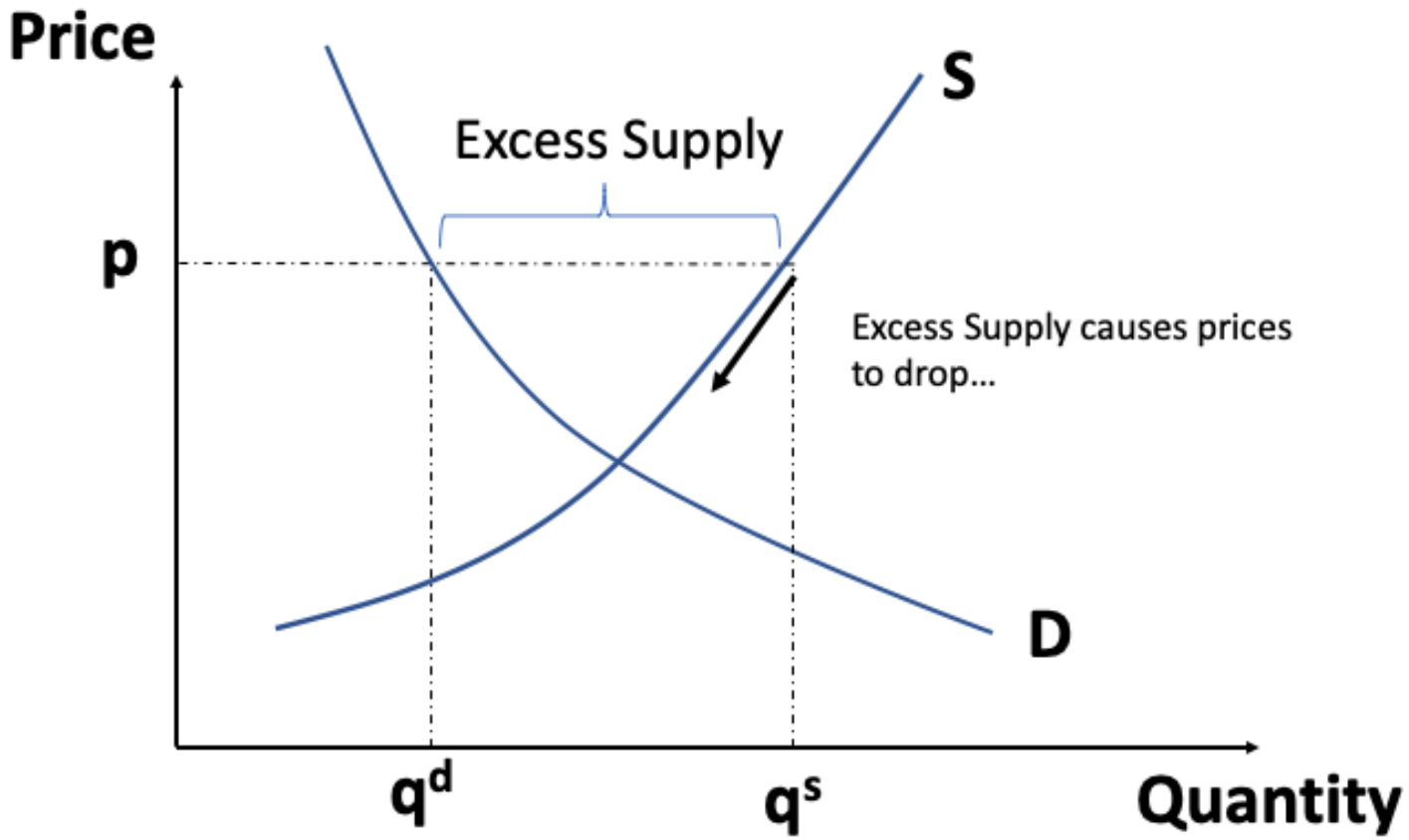
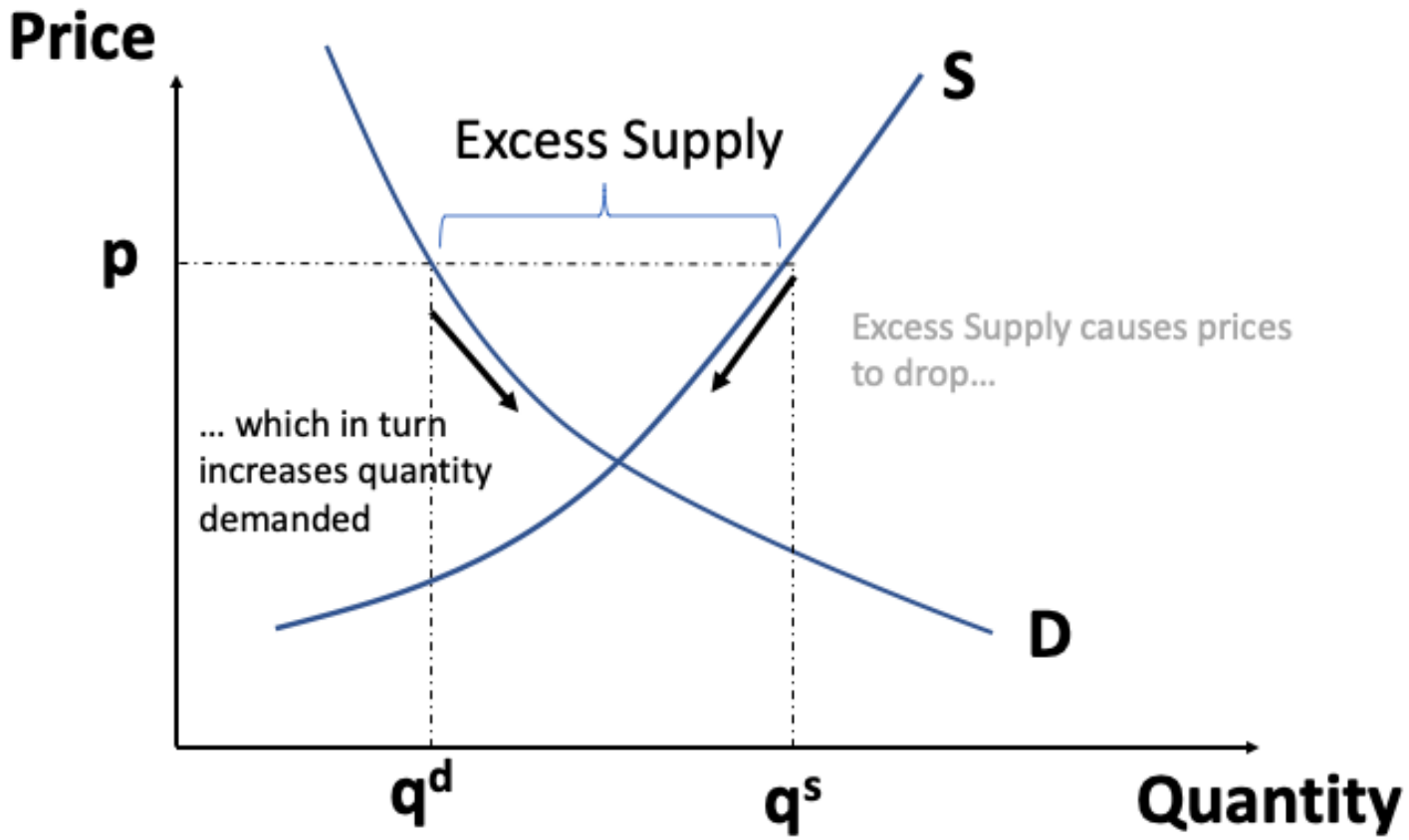
Excess Supply



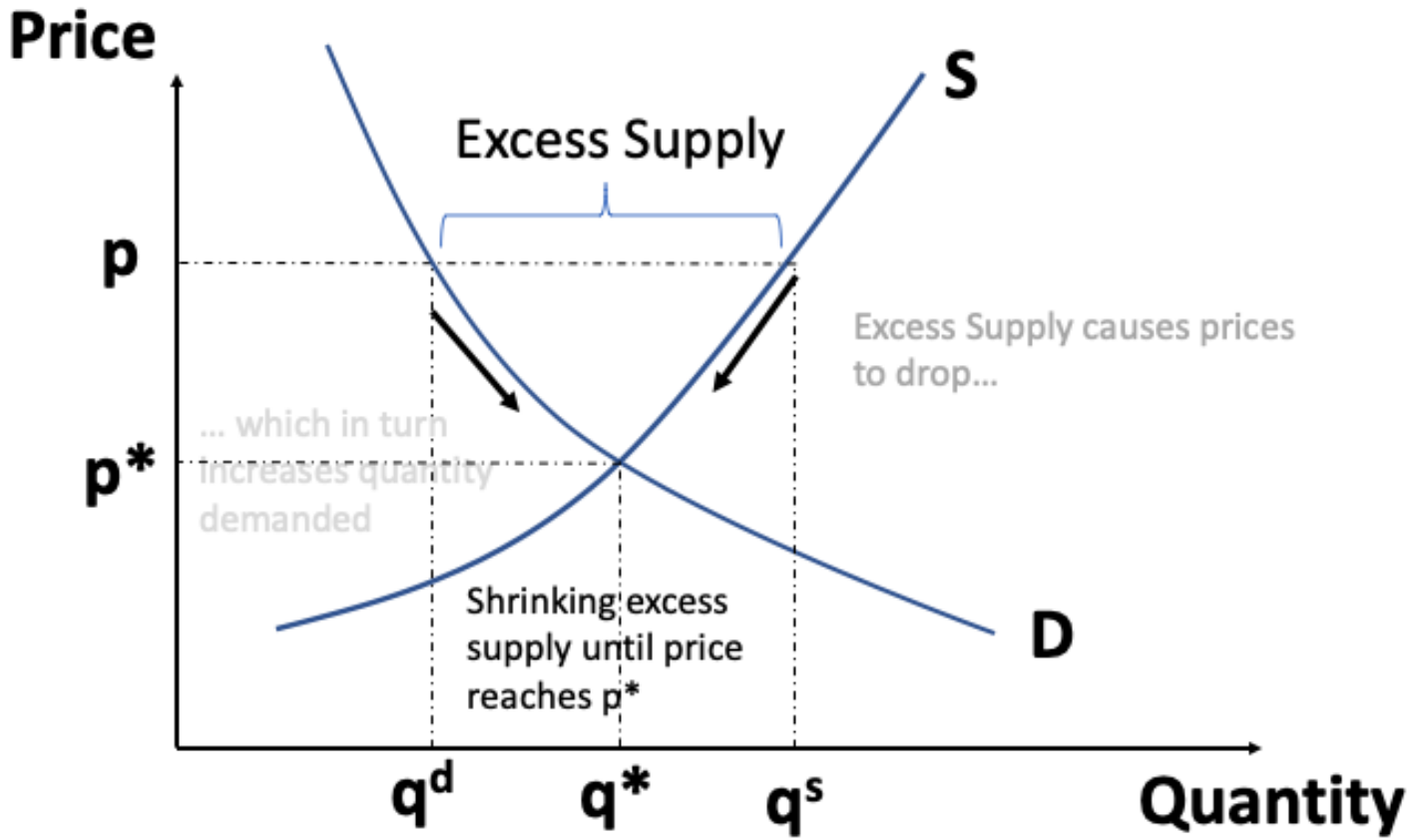
Excess Supply



Excess Supply



Excess Supply



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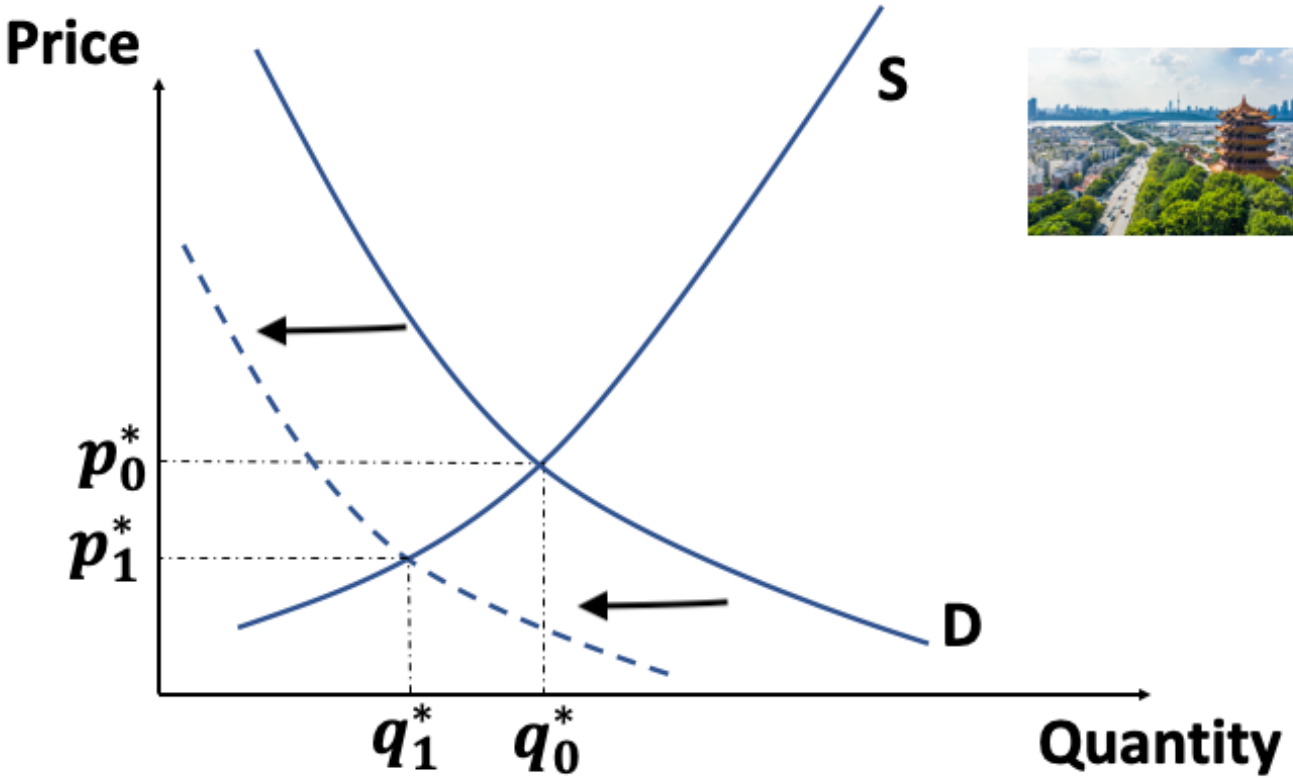
Wuhan flights



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COE in Singapore

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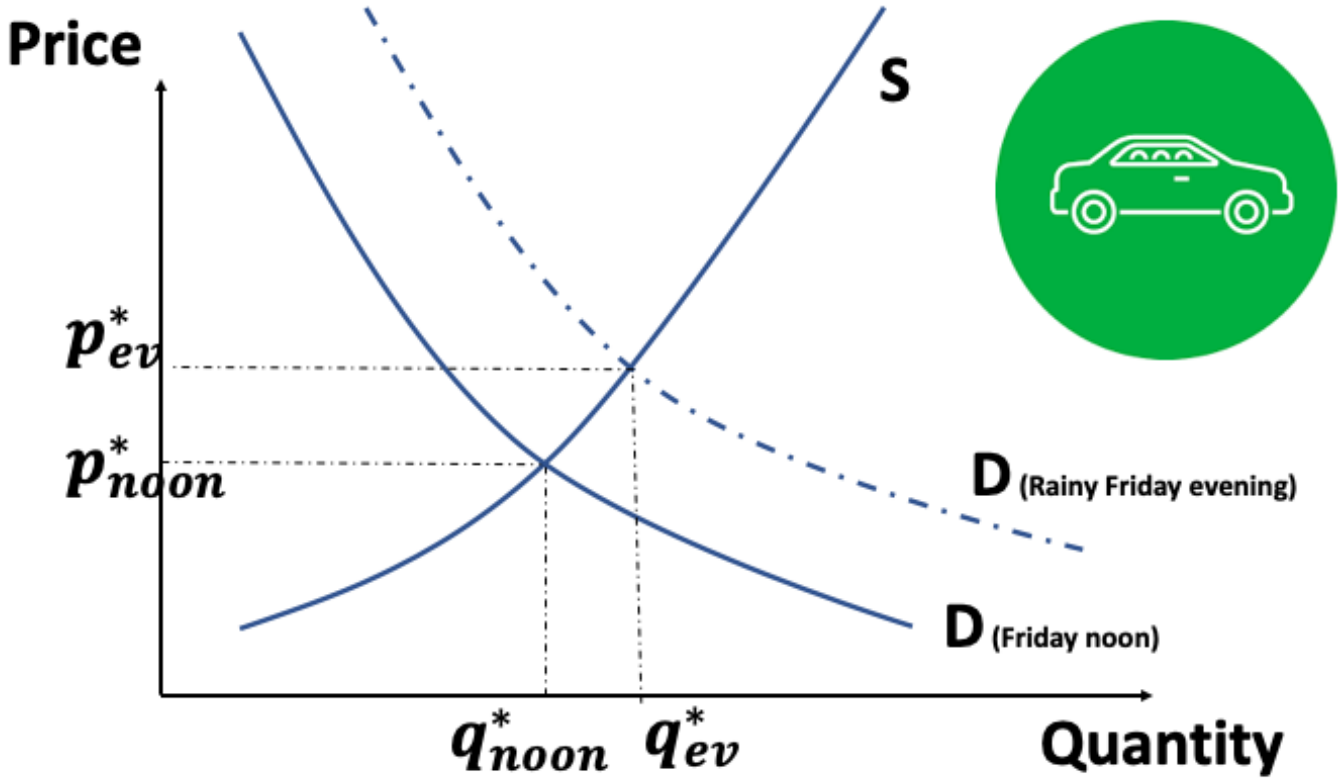
Gran on rainy Friday evenings



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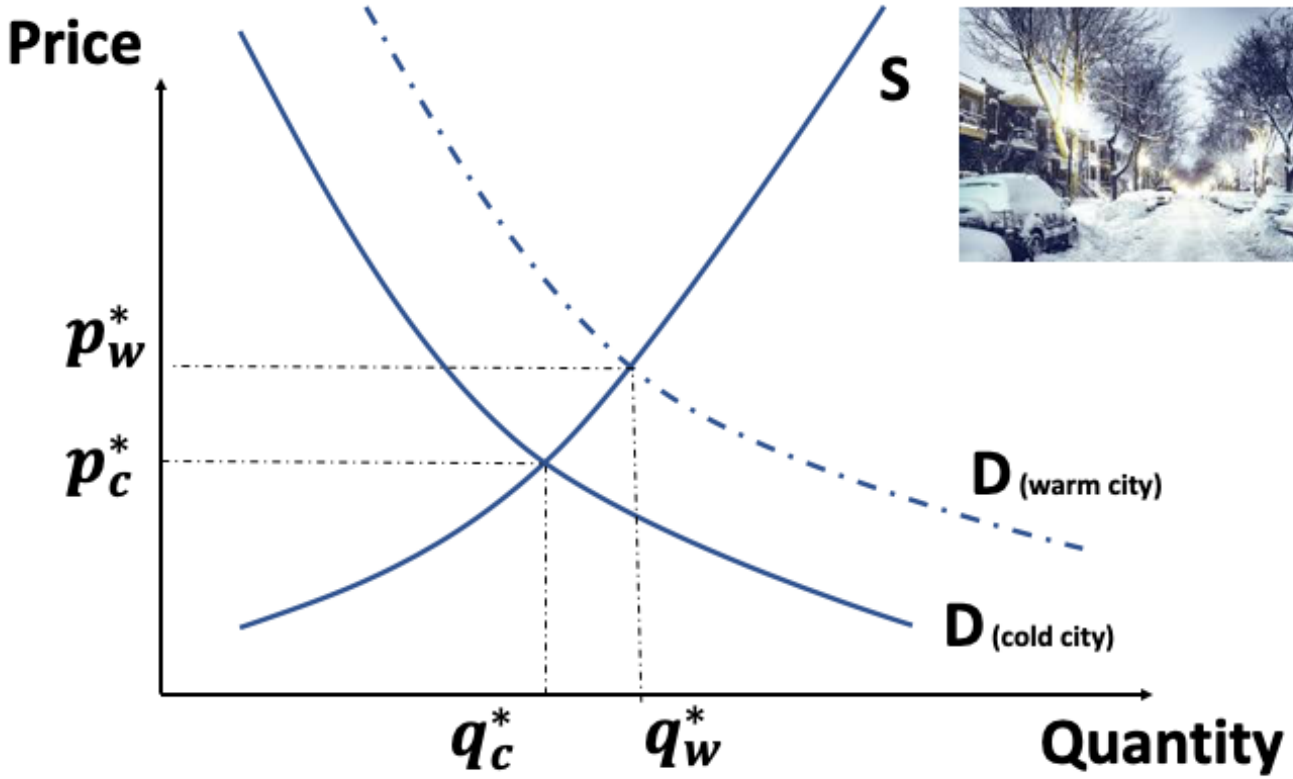
Why to hold events in cold cities



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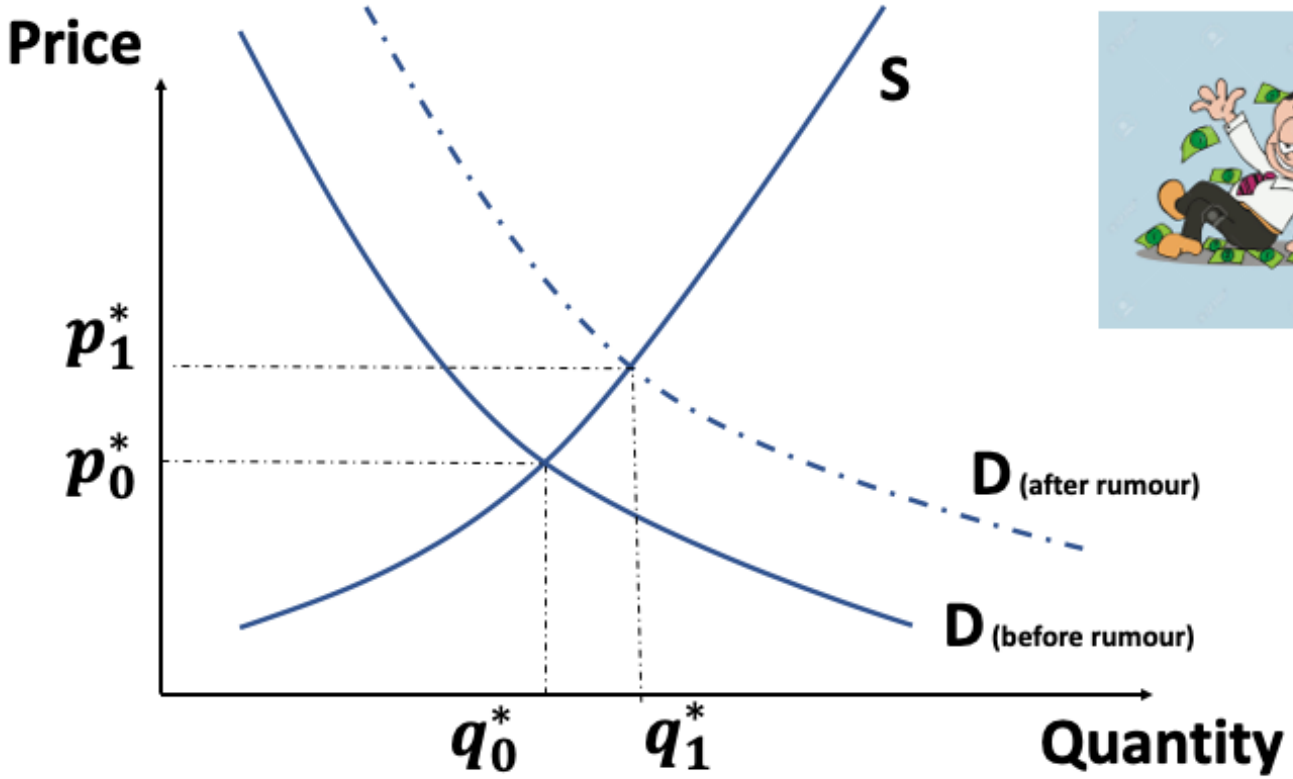
Want prices to increase?

- Suppose you sell jeans
- Convince everyone that the price of jeans will dramatically increase next month

Want prices to increase?

- Suppose you sell jeans
- Convince everyone that the price of jeans will dramatically increase next month
- What will happen?
- Everyone will rush to buy jeans now. Effect?

frametitle



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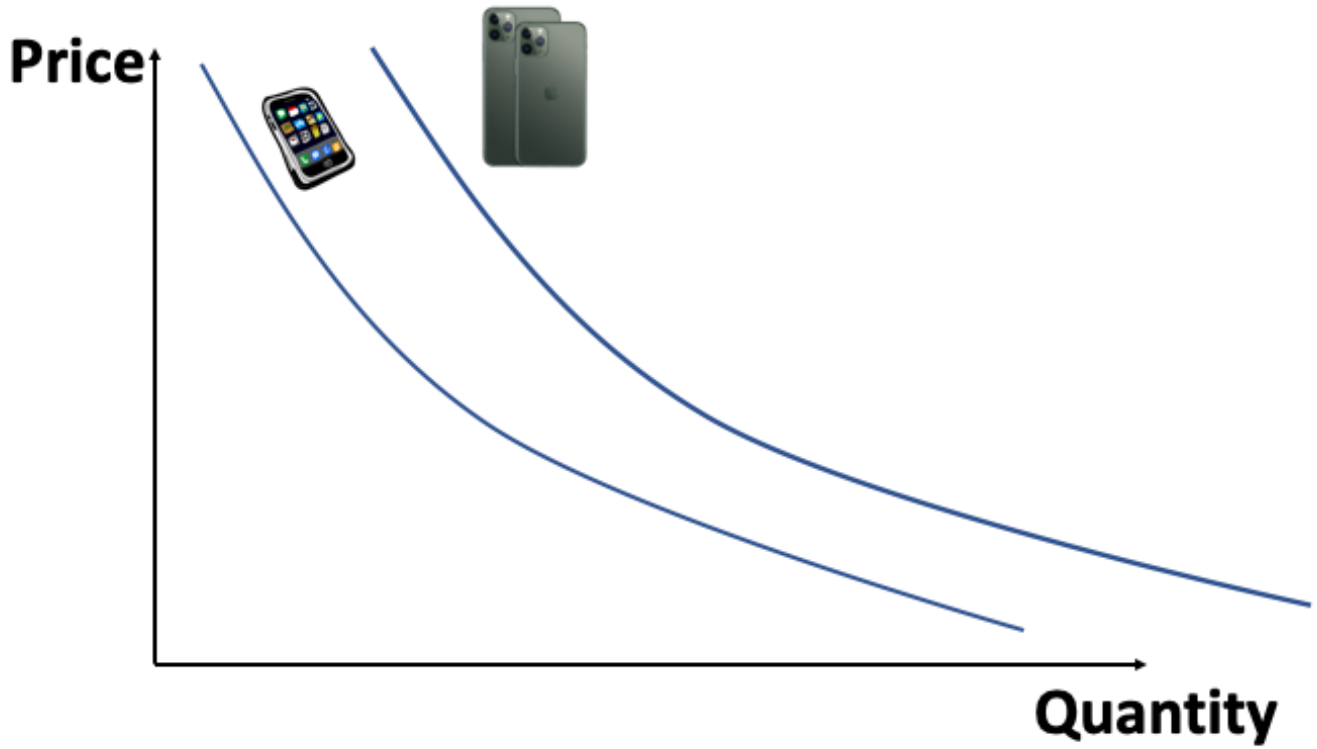
iPhones



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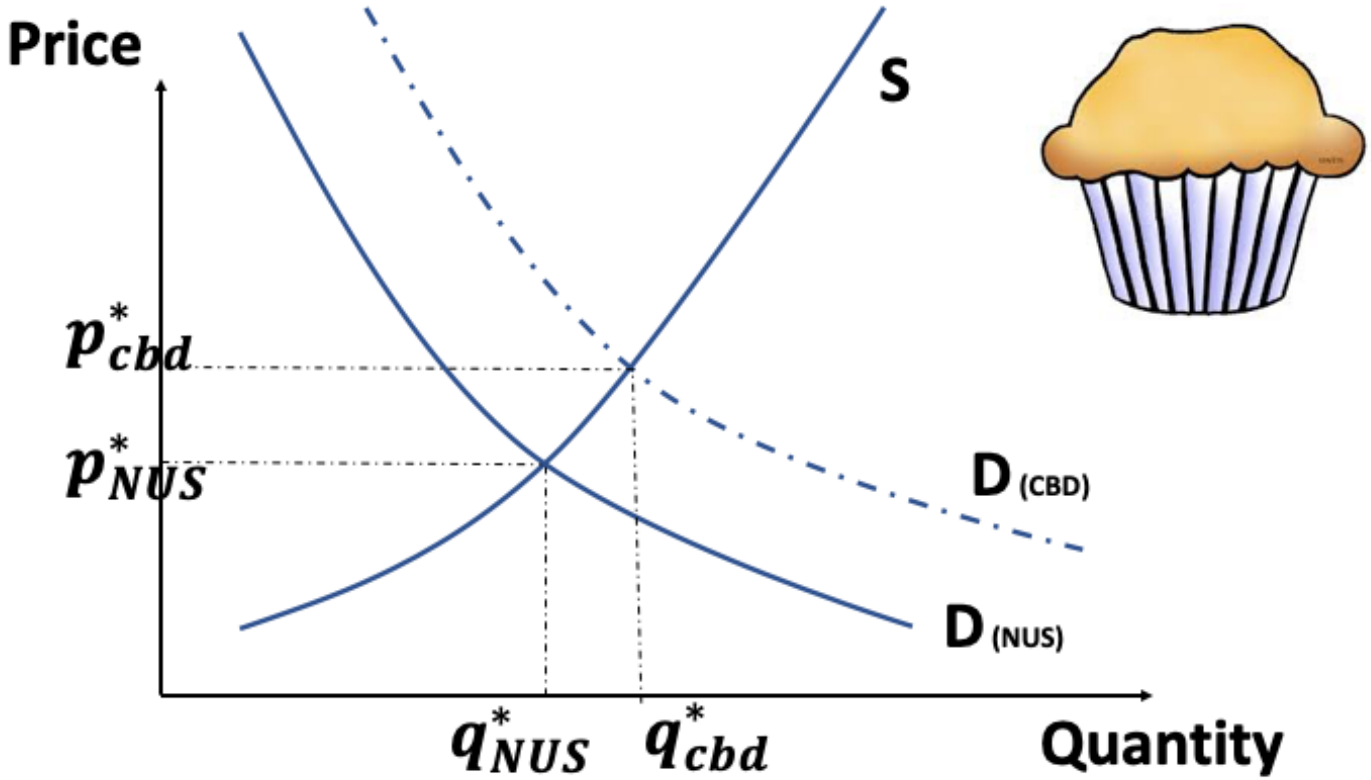
Why are muffins more expensive in the CBD than at NUS?



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