Supply and Demand

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Markets and Competition

- **Market:** A group of buyers and sellers of a particular good or service.
- **Competitive Market:** A market in which there are many buyers and many sellers so that each has negligible impact on the market price.
- For the next few chapters, we will focus on markets that are **perfectly competitive.**
  - Goods are exactly the same
  - Buyers & sellers are price takers
- Other types of markets: monopolies, oligopolies. We will study those later.

Demand

- **Quantity Demanded:** The amount of a good or service that buyers are willing and able to purchase.

Example

Table 1 below shows how many used economics textbooks students in this class are willing to buy at different prices.

Table: David's Class

Price	*Quantity Demanded*
$60	*0*
$50	*3*
$40	*6*
$30	*9*
$20	*12*
$10	*15*
$0	*18*

This kind of table is referred to as a demand schedule.

Demand

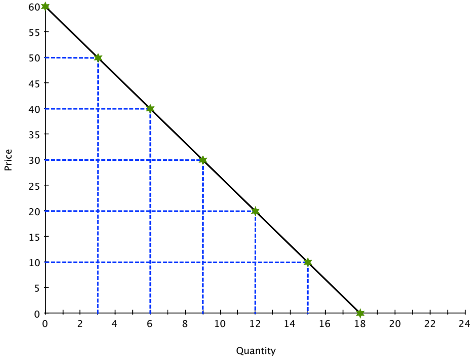

Figure: Demand for Textbooks

Demand

- Notice that by convention, we plot prices on the y-axis and quantity on the x-axis.
- Both the table and the curve demonstrate the **Law of Demand:** All else equal, the quantity demanded of a good increases when the price of the good decreases.

Demand

Example

Suppose student's in Wenting's Econ 101 class are willing to buy used textbooks according to Table 2.

Table: Wenting's Class

Price	*Quantity Demanded*
$60	*2*
$50	*4*
$40	*6*
$30	*8*
$20	*10*
$10	*12*
$0	*14*

1. *If these two classes make up the market for used economics textbooks at UNC, what is the market quantity demanded at each price? Draw the market demand curve.*
2. *If the price of used economics textbooks is $40, how many books will be demanded? What if the price increased to $50?*

Demand

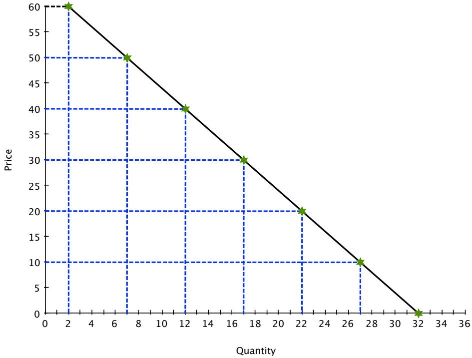

Figure: Demand for Textbooks

Demand

- Notice that a change in price caused a movement along the demand curve.
- This is referred to as a change in quantity demanded.

Demand

- The demand curve holds everything but price and quantity demanded constant.
- But there are other things that affect how much people are willing to purchase at any given price.
- Changes in these factors cause shifts of the demand curve.
- This is referred to as a change in demand.

Demand

- Increase in demand (shift right):
  - Horizontal reading: At any given price, willing and able to purchase more.
  - Vertical: At any given quantity, willing and able to pay more.

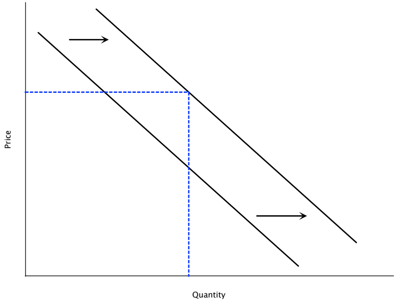

Figure: Increase in Demand

Demand

- Decrease in demand (shift left):
  - Horizontal reading: At any given price, willing and able to purchase less.
  - Vertical: At any given quantity, willing and able to pay less.

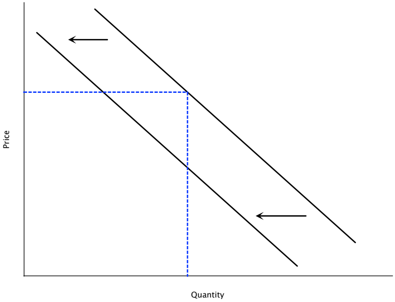

Figure: Decrease in Demand

Demand

Variables that Shift the Demand Curve

1. Income
   - **Normal good:** A good for which an increase in income leads to an increase in demand. This describes most goods.
   - **Inferior good:** A good for which an increase in income leads to a decrease in demand (e.g., ramen soup).
2. Prices of related goods
   - **Substitutes:** Goods for which an increase in the price of one leads to an increase in demand for the other.
   - **Complements:** Goods for which an increase in the price of one leads to a decrease in demand for the other.

Demand

Variables that Shift the Demand Curve

3. Tastes: The perception of products affects how in-demand they are. News, cultural changes, etc. will change preferences.
4. Expectations: Expected future prices affect current demand. If prices are predicted to increase in the future, then demand today will increase. If prices are predicted to decrease, demand today will decrease.
5. Number of buyers: More buyers $\Rightarrow$ greater demand.

Demand

Example

Consider the demand for cigarettes. What happens to demand in each of the following scenarios? Explain why.

1. *The surgeon general declares that cigarettes are even more harmful than previously believed.*
2. *Individuals start believing a rumor that the government is going to raise the cigarette tax by $1.00.*
3. *The price of beer increases (assume cigarettes and beer are complements.).*
4. *The price of cigarettes decreases.*

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(1) Demand decreases due to a change in tastes
(2) Demand today will increase because the EFP increased

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(1) Demand decreases due to a change in tastes
(2) Demand today will increase because the EFP increased
(3) Demand decreases due to increase in price of complement
(4) Demand doesn't shift. Quantity demanded will increase

Demand

- To reiterate:
  - Changes in the price of a good will affect the quantity demanded and cause a movement along a given demand curve
  - Changes in the variables discussed above affect each individual's willingness to pay and cause a shift of the entire demand curve

Supply

- **Quantity Supplied:** The amount of a good that sellers are able and willing to sell.
- **Law of Supply:** All else equal, the quantity supplied of a good rises when the price of the good rises.
- **Supply Schedule:** A table that shows the relationship between the price of a good and the quantity supplied.
- **Supply Curve:** A graph that shows the relationship between the price of a good and the quantity supplied, holding constant everything else that influences how much sellers of the good want to sell.
- **Market Supply:** The sum of all the individual supplies for a particular good or service.

Supply

- Just like the demand curve, the supply curve holds everything but price and quantity constant.
- If the price of a good changes, that will lead to a movement along the supply curve.
- But there are other things that affect how much sellers are willing to sell at any given price.
- Changes in these factors cause shifts of the supply curve. Similar to demand, this is referred to as a change in supply.

Supply

- Increase in supply (shift right):
  - Horizontal: At any given price, willing and able to sell more of a good.
  - Vertical: At any given quantity, willing to sell good for a lower price.

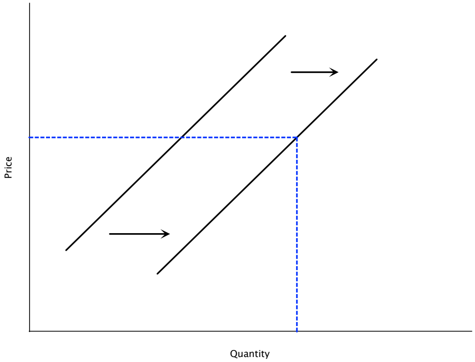

Figure: Increase in Supply

Supply

- Decrease in supply (shift left):
  - Horizontal: At any given price, willing and able to sell less of a good.
  - Vertical: At any given quantity, willing to sell good for a higher price.

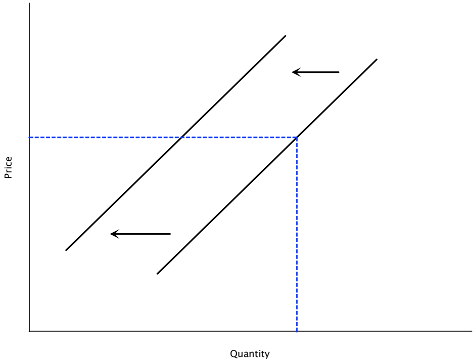

Figure: Decrease in Supply

Supply

Variables that Shift the Supply Curve

1. Input prices
   - Higher input prices mean that suppliers must receive a higher price to sell any given quantity. Supply will decrease.
   - Lower input prices imply sellers are willing to accept less to supply a given quantity. Supply will increase.
2. Technology
   - Advances in technology lower costs of production and thus allow firms to sell more for any given price. Supply will increase.

Supply

Variables that Shift the Supply Curve

3. Expectations
   - If prices are expected to increase in the future, supply today will decrease.
   - If prices are expected to decrease in the future, supply today will increase.
4. Number of sellers
   - More sellers $\Rightarrow$ increase in supply.

Supply

Example

Consider the supply for cigarettes. What happens in each of the following scenarios? Explain why.

1. *The minimum wage is increased.*
2. *A new device is invented that harvests tobacco at* $1/2$ *the previous cost.*
3. *The price of cigarettes increases.*
4. *An overseas cigarette manufacturer starts producing in America.*

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(2) Supply increases due to better technology
(3) Movement along the curve. Quantity supplied increases

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(1) Supply decreases due to an increase in an input price
(2) Supply increases due to better technology
(3) Movement along the curve. Quantity supplied increases
(4) Supply increases because there are more sellers in the market

Market Equilibrium

- **Principle 6: Markets are Usually a Good Way to Organize Economic Activity**
- **Equilibrium:** The point at which the market price is such that $Q_D = Q_S$.
- **Equilibrium price:** The price that balances Q_D and Q_S. Denoted P^*.
- **Equilibrium quantity:** Q_D and Q_S at the equilibrium price. Denoted Q^*.

Market Equilibrium

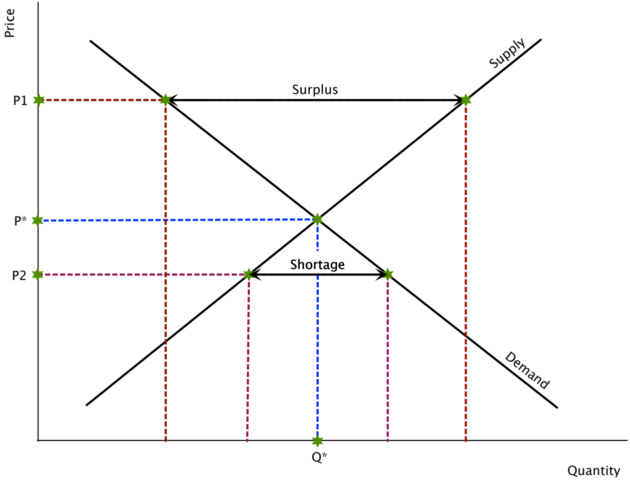

Figure: Market Equilibrium

Market Equilibrium

- Graphically, the equilibrium is given by the point where the two curves intersect. P^* and Q^* denote the equilibrium price and quantity, respectively.
- What if the market price was $P_1 > P^*$?
    - At this price, we have that quantity supplied is greater than quantity demanded.
    - This is referred to as a surplus.
    - There will be downward pressure on prices.
    - These changes in prices represent movements *along* the supply and demand curves.

Market Equilibrium

- What if the market price was $P_2 < P^*$?
  - At this price, we would have that quantity demanded is greater than quantity supplied.
  - This is referred to as a shortage.
  - In this scenario, there is upward pressure on prices.

Market Equilibrium

- Importantly, no matter what the price is originally, the activities of the buyers and sellers automatically push the market price toward the equilibrium price.
- **The Law of Supply and Demand:** The price of a good adjusts to bring the quantity demanded and quantity supplied for that good into balance.

Market Equilibrium

Example

A survey indicated that chocolate is Americans' favorite ice cream flavor. For each of the following, indicate the possible effects on demand, supply, or both as well as the effect on the equilibrium price and quantity of chocolate ice cream.

1. *A severe drought in the Midwest causes dairy farmers to reduce the number of milk-producing cattle in their herds by a third. These farmers supply cream that is used to manufacture chocolate ice cream.*
2. *A new report by the American Medical Association reveals that chocolate does, in fact, have significant health benefits.*
3. *The discovery of cheaper synthetic vanilla flavoring lowers the price of vanilla ice cream.*
4. *New technology for mixing and freezing ice cream lowers manufacturers' costs of producing chocolate ice cream.*
5. *The price of ice cream is expected to increase.*

Readings and Assignments

- Today: Mankiw Ch. 4
- Next time: Mankiw Ch. 7
- Problem Set 1, section 3