LECTURE 3  
SUPPLY AND DEMAND FRAMEWORK  
January 23, 2018

I. INTRODUCTION TO MARKETS  
A. Implications of scarcity and the gains from specialization  
B. What is a market?

II. SUPPLY AND DEMAND  
A. Why demand curves slope down  
B. Why supply curves slope up

III. MARKET EQUILIBRIUM  
A. Role of prices  
B. Equilibrium price and quantity  
C. How the market gets to equilibrium  
D. How do markets deal with scarcity and the gains from specialization?

IV. SHIFTS IN THE CURVES  
A. Ceteris paribus  
B. A shift in the supply curve  
1. A more costly technology  
2. A movement along the curve versus a shift of the curve  
C. A shift in the demand curve  
1. Adverse change in tastes due to bad news about a product  
2. A movement along the curve versus a shift of the curve

V. EFFECTS OF A PRICE CONTROL  
A. Definition of a price control and examples of different types  
B. Modeling a price ceiling on bottled water after a natural disaster  
C. Effects of a price ceiling  
D. Revisiting the example of growing water-intensive crops in California
LECTURE 3
Supply and Demand Framework

January 23, 2018
Announcements

- Problem Set 1 is due at the beginning of lecture next Tuesday (January 30).

- **You may work together on the problems, but:**
  - We strongly recommend working on the problems by yourself first.
  - Your answers must be handwritten and in your own words.
  - You must list other students you worked with at the start of your answers.
Announcements

• **Optional problem set work session**: Thursday, 4-6 p.m. in 648 Evans Hall.
Components of a Good Problem Set Answer

• Neatness is important.

• Graph is usually essential.

• Explain your answer; give the reasoning or intuition for why something happens.
I. INTRODUCTION TO MARKETS
Two Building Blocks

• **Scarcity:** A situation in which a person, firm, or country faces a constraint.

• **Gains from Specialization:** A group of people can produce and consume more if they specialize and trade than if each is self-sufficient.
Market

- An arrangement by which economic exchanges between people take place.
II. Supply and Demand
Demand

• The buying side of the market.

• There is a negative relationship between the quantity demanded of a good and its price.

• The relationship reflects optimizing behavior on the part of households.
Demand Curve for Blueberries

Price (P) vs. Quantity (Q)
Supply

- The selling side of the market.
- There is a positive relationship between the quantity supplied of a good and its price.
- This relationship reflects optimizing behavior on the part of firms.
Supply Curve of Blueberries

\begin{center}
\begin{tikzpicture}
    \draw[->] (0,0) -- (0,6) node[above] {P};
    \draw[->] (0,0) -- (6,0) node[right] {Q};
    \draw[blue, thick] (0,0) -- (6,6);
    \node at (6,3) {S};
\end{tikzpicture}
\end{center}
III. Market Equilibrium
Equilibrium in the Market for Blueberries

Equilibrium

D_1
S_1
P_1
Q_1
What happens if the price is below $P_1$?

Excess Demand (Shortage)
What happens if the price is above $P_1$?

.png
How Do Markets Deal with Scarcity and the Gains from Specialization?

• The existence of markets allows people to specialize along the lines of comparative advantage because they can trade for other goods that they want.

• Markets deal with scarcity by balancing the optimizing behavior of consumers and producers. Prices adjust to equilibrate the two sides of the market.

• The consumers who actually get the good are those who are willing and able to pay the equilibrium price.

• The firms that actually produce the good are those that find it profit-maximizing to produce at the equilibrium price.
IV. Shifts in the Curves
Ceteris Paribus

• “other things being equal”

• All variables other than those being studied are assumed to be constant.
Market for Blueberries
A More Costly Technology

\[ \text{D1} \]

\[ \text{Q} \]

\[ \text{P} \]

\[ \text{S1} \]

\[ \text{S2} \]

\[ \text{P1} \]

\[ \text{P2} \]

\[ \text{Q1} \]

\[ \text{Q2} \]
Movements Along vs. Shifts

• A change in the quantity supplied or quantity demanded because the price changed: Movement along the curve.

• A change in the quantity supplied or quantity demanded at the same price: Shift of the curve.
Market for Blueberries

Adverse Change in Tastes

Diagram of supply and demand for blueberries with a shift in demand from $D_1$ to $D_2$, resulting in a decrease in price from $P_1$ to $P_2$ and a decrease in quantity demanded from $Q_1$ to $Q_2$. The supply curve remains unchanged at $S_1$. This illustrates the impact of adverse change in tastes on the market for blueberries.
V. Effects of a Price Control
Price Control

• Government sets the price of a good; it is not allowed to go to its equilibrium level.

• **Price Ceiling:** Maximum price; price is held below its equilibrium level.

• **Price Floor:** Minimum price; price is held above its equilibrium level.
Bottled Water after a Disaster

The graph illustrates the change in demand for bottled water after a disaster. The initial demand curve (D1) shifts to the right to D2 due to increased demand. The price increases from P1 to P2, and the quantity demanded increases from Q1 to Q2.
Bottled Water after a Disaster with a Price Ceiling

\[ P \]

\[ S_1 \]

\[ D_2 \]

\[ Q \]

\[ \bar{P} (P_1) \]

\[ Q_S \]

\[ Q_D \]

Shortage
Effects of a Price Ceiling

• Will lead to a shortage.

• Good will have to be allocated in some way other than by price.

• Discourages the decrease in quantity demanded and increase in quantity supplied that automatically occur as the price rises.
Why does California produce some water-intensive crops?

- Part of the answer is that much of our irrigation water is provided at a controlled price that is below the equilibrium level.
- As a result, there is a shortage of water.
- Water must be allocated by means other than price, and so some farmers do not feel the full opportunity cost of the water they use.