Ch. 1 Introduction

- **What is Economics?**
- Economics is the study of the allocation of scarce resources.
- trade-off questions: What? How? For whom?
- “Price” determine allocations

- **Positive Vs. Normative?**

  **Positive Statement**
  - a testable hypothesis about cause and effect
  - deals with the question of what is
  - do not involve value judgment or opinions
  - e.g. 1,000 jobs were lost because of free trade.
    - Consumers saved $1,000,000 because of free trade.
    - The result of the government program (can see the result but can’t tell whether it’s good/bad)

  **Normative Statement**
  - a conclusion as to whether something is good or bad
  - deals with the question of what ought to be
  - cannot be tested because a value judgment cannot be refuted by evidence (subjective)
  - e.g. We should protect our industries.
    - We should support free trade.
    - You should go to college.
Ch. 2 Supply and Demand

Topics:
- Demand
- Supply
- Market equilibrium
- Shocks in the market
- Gov’t intervention

1. Demand

- “quantity demanded” - the amt of a good that consumers are willing to buy at a given price, holding constant the other factors that influence purchases

- Effect of prices on the quantity demanded – “Law of Demand”

- Effect of other factors on demand

- Demand Function: \( Q = D(P, P_g, P_t, Y) \)

Example \( Q = 171 - 20P - 20P_g + 3P_t + 2Y \)

Then let \( P_g=4, P_t=1/3, Y=12.5 \), and we can plug all those numbers into the above equation, then we get

\[
Q = 171 - 20P - 20*4 + 3*1/3 + 2*12.5 \\
= 117 - 20P
\]
The above equation is called demand curve. If we put it into a graph, then it looks like

When price goes up, you want to buy less of that good. It is a movement along the demand curve. We call the demand for a given price as **quantity demanded**.

Now, let \( P_g \) increase, \( P_g = 5 \),

\[
Q_d = 171 - 20P - 20*5 + 3*1/3 + 2*12.5 \\
= 97 - 20P
\]

- The demand curve will shift to the left
- Notice that \( P_g \) and \( p \) have the same effects on \( Q \).
- car and gas are complementary goods.
- **Complementary goods** means that when you consume more of one good, you have to consume more of the other one.
- examples of complementary goods. For example, milk and cereal, camera and film.
What if \( P_t \) goes up? \( P_t = 1 \)

\[
Q_d = 171 - 20P - 20 \times 4 + 3 \times 3 + 2 \times 12.5 \\
= 150 - 20P
\]

- the quantity demanded goes up when \( P_t \) goes up
- Demand curve shift to the right.
- bus price has a positive effect on the amount of cars you purchase.
- these two goods are called substitution goods. They mean that when you consume more of this good, you consume less of the other good. They give the same usage.
- Examples?

So, if \( \frac{dQ_d}{d(\text{other price})} > 0 \), \( \Rightarrow \) substitutes
If \( \frac{dQ_d}{d(\text{other price})} < 0 \), \( \Rightarrow \) complements

What happens if income goes up?

If income goes up to 20, then demand curve will shift right. With higher income, for a given price \( p \), people would like to buy more cars.

**Things to notice here:**

1. What factors shift the demand curve?
2. What factors move along the demand curve?
3. How do we interpret intercepts?
4. Slope= \( \frac{\Delta p}{\Delta q} = -1/20 \) (How to get it?)
5. \( \frac{\Delta q}{\Delta p} = -20 \). (interpretation of this number?)
6. \( p = g(p) \) is an inverse demand curve. (useful later)
The market demand

Demand curve gives out how much one person is going to buy for a given price. If we have another demand curve for another person, we can simply add these two quantities for the same price and then we have the market demand if the market is consist of these two people. So the way to derive market demand is simply to find demand curve first, and then add these two equations together.

Note: adding the quantity demanded (horizontally), not the price!!
(example as in Market supply)

2. Supply

- factors that affect producers: Price of goods, cost of labor, cost of machine, etc.
- For the previous example that we use,
  \[ Q_s = g(p, \text{wage, capital cost}) \]

- \( P \) increases (other factors constant) \( \Rightarrow \) firms/producers want to produce (why?)
- Cost increase (other factors constant) \( \Rightarrow \) reduce supply

Example

\[ Q_s = 178 + 40P - 20w - 60r \]

\( w = \) wage of labor
\( r = \) interest rate for producer’s loan

let \( w=5.5, r=1.05 \)

\[ Q_s = 178 + 40P - 2\times5.5 - 60\times1.05 \]
\[ = 104 + 40p \]

Suppose \( w=10, \) then

\[ Q_s = 178 + 40P - 2\times8 - 60\times1.05 \]
\[ = 99 + 40p \]

- wage rises \( \Rightarrow \) supply curve shifts to the left
The market supply

\[ Q_{s1} = 104 + 40P \]
\[ Q_{s2} = 86 + 20P \]

Market supply is \[ Q_{sm} = 190 + 60p \]

Example: How do we find out the market supply when there is import?

Scenario:
(1) Japan imports rice from America, but Japanese put a ban on imports. What is the effect of this policy on market supply?

Solution:
Compare with the market demand when there is no demand. For Japan, there is a domestic supply and also foreign supply, therefore, the market supply for Japan will be the sum of these two supply curve.

Suppose \[ Q_{s^d} = 20 + 4p \] and \[ Q_{s^f} = 10 + 3p \], then Japan’s market supply will be \[ Q = 50 + 7p \].
And this is the case when there is not a ban.

When there is a ban, which says that imports is illegal, then \[ Q_{s^f} = 0 \], and Japan’s new supply curve is \[ Q = 20 + 4p \].
Hence, when there is a ban, Japan has a less supply of rice comparing with when there is no ban.

(2) America imports steel from other countries. But America puts a quota on the imports. Quota means that the imported steel from other countries cannot exceed \( Q \).

Graph:
3. Market Equilibrium

- Equilibrium is a situation in which no participant wants to change its behavior

- Example (Figure 2.6):
  \[ Q_d = 286 - 20p \]
  \[ Q_s = 88 + 40p \]

To solve out an equilibrium, just let \( Q_d = Q_s \), and we can get

\[ P^* = 3.3, \quad Q^* = 220 \]

- What happens if the market is in disequilibrium?
  - Case \( p < 3.3 \)
  - Case \( p > 3.3 \)
  - Now, what happens if market environment changes? How will equilibrium price and equilibrium quantity respond to that?

4. Shocks in the Market

What will happen to the equilibrium prices and quantity when:
- \( D \) shift right
- \( D \) shift left
- \( S \) shift right
- \( S \) shift left

But when there is a combination of shocks on both demand and supply, then the effects on \( P^* \) and \( Q^* \) will be ambiguous.
5. Government intervention:

Trade policies: trade ban and quota. *(Insert graph 2.8 and 2.9 here)*

1. Japanese ban on rice import
   Result: $P^*$ goes up, $Q^*$ goes down
2. American quota on steel
   Result: two cases.
   - If quota is bigger than $Q(P^*)$, then no effect on equilibrium.
   - If quota is less than $Q^*$, then $P^*$ goes up, and $Q^*$ goes down.

Price ceiling and Price floor:

A price floor sets a minimum price and it creates excess supply in the market.
A price floor only works when it is set above equilibrium price.
Example: A minimum wage leads to unemployment.
A price ceiling sets a maximum price in the market. An effective ceiling should be below equilibrium price and it will create excess demand (shortage) in the market. So the result is some people cannot get what they want even they would like to pay higher price to get it. Producer will not produce enough since the price ceiling prevent for an incentive to do so. Then illegal market could emerge.