Chapter 2:

Scarcity, Choice and Economic Systems
Opportunity Cost

• How do we decide about the cost of a good/service?
  – Money?
  – Economist: Money is a *part* of its cost
  – Opportunity Cost: most accurate and complete concept of cost

• The opportunity cost of any choice is what we must forgo when we make that choice – that is: the money (or time) could have been used for other things that we value.
  - In a different way, true cost of any choice we make
  - Everything we actually sacrifice in making the choice.
Opportunity Cost and Individuals

• The opportunity cost of a choice is the best among the available alternatives to that choice (ex: Reading two chapters from textbook)

• Many choices: Large part of the money paid is opportunity cost

• Direct money cost of a choice may only be a part of opportunity cost of that particular choice
• Opportunity cost of a choice includes both explicit costs and implicit costs
  – Explicit cost—dollars actually paid out for a choice
  – Implicit cost—value of something sacrificed when no direct payment is made (what is the biggest sacrifice in this category?)

• Let us calculate the opportunity cost – we will discuss different problems -
  a) Opportunity cost of attending first year of college
  b) Opportunity cost of playing computer games whole weekend
  c) Opportunity cost of seeing Mission Impossible III for a paid worker
Opportunity Cost and Society

• All production carries an opportunity cost
  – To produce more of one thing
    • Must shift resources away from producing something else
    • Society has limited resources
Production Possibilities Frontiers (PPF)

• Curve showing all combinations of two goods that can be produced with resources and technology available

• Society’s choices are limited to points on or inside the PPF
  – Points inside: Inefficient production, recession
  – Points outside: Not attainable (might become attainable through economic growth)
  – Optimum way: Being on the PPF

• Consider two goods: wheat and tanks
• **Figure 1** The Production Possibilities Frontier

- **Bushels of Wheat per Year**
  - 1,000,000
  - 950,000
  - 900,000
  - 700,000
  - 400,000

- **Number of Tanks per Year**
  - 1000
  - 2000
  - 3000
  - 4000
  - 5000

- **Points on the Curve**
  - **A**: All resources are used for wheat.
  - **B**: Moving from point A to point B requires shifting resources out of wheat and into tanks.
  - **C**: All resources are used for wheat.
  - **D**: All resources are used for tanks.
  - **E**: Moving from point D to point E requires shifting resources out of tanks and into wheat.
  - **F**: All resources are used for tanks.

- **Explanation**: The graph illustrates the trade-offs in production between wheat and tanks. The curve represents the maximum possible output combinations given the available resources. Moving from one point to another involves reallocating resources between the two goods.
Production Possibilities Frontiers

- Suppose we are at point A: What is the opportunity cost of producing 1,000 more tanks?
- Suppose we are at point B: What is the opportunity cost of producing another 1,000 tanks?...etc.
- Look at the vertical distance, the opportunity cost is .....?
- What’s the opportunity cost of the last 1,000 tanks?
Increasing Opportunity Cost

• According to law of increasing opportunity cost
  – The more of something we produce, the greater the opportunity cost of producing even more of it
  (remember moves from A to B, B to C..)
• It has a mathematical implication too…(about slopes, we will come to that)
• This principle applies to all of society’s production choices
The Search for a Free Lunch

- No free lunch; more of something requires us to pay an opportunity cost by producing less of something else…always the case?

1) Productive Inefficiency of a firm or an industry or an entire economy:
   - more of at least one good can be produced without pulling resources from the production of any other good (ex: point W)
   - use all resources but not in the most productive way (ex: mismatch of skills)
The Search for a Free Lunch

• No industry, firm or economy is ever 100% productively efficient
  – any waste of resources increases the cost of a firm and therefore decrease their profit.

2) In recessions: A slowdown in overall economic activity when resources are idle
  – widespread unemployment
  – factories shut down
    • Natural resources and capital are not being used fully
In recessions

- An end to the recession would move the economy from a point *inside* its PPF to a point *on* its PPF
  - Using idle resources to produce more goods and services without sacrificing anything
    - Can help us understand an otherwise confusing episode in U.S. economic history
- During early 1940s, standard of living in U.S. **did not** decline as we might have expected but actually improved slightly. Why?
  - Think in terms of PPF, instead of pitting “wheat” against “tanks”, look at society’s choice between “military goods” and “civilian goods”
1. Before WWII the United States operated inside its PPF . . .

2. then moved to the PPF during the war. Both military and civilian production increased.
Economic Growth

- Economy is already operating on its PPF
  - Cannot have more of everything
- What if the PPF itself were to change? Couldn’t we then produce more of everything?
  - Happens when an economy’s productive capacity grows
- Many factors contribute to economic growth, but they can be divided into two categories
  - Quantities of available resources—especially capital—can increase (greater capital is one of the major sources of economic growth)
  - Technological change: enables us to produce more from a given quantity of resources
Economic Growth

• Increases in capital and technological change have the same effect to the PPF
• For instance, a new type of seed yields more wheat for any given amount of land, labor, capital
  – Direct effect on wheat production
  – Moving vertical intercept of PPF upward, from A to A′
Additional resources or technological advance affect only the wheat production.
Economic Growth and PPF

• How can a technological change in wheat farming enable us to produce more tanks?
  – Society can choose to use some of increased wheat farming potential to shift resources out of wheat production into production of tanks
    • Because of technological advance, we can shift resources without sacrificing wheat

• Technological change can occur for both wheat and tank industries
Additional resources or technological advance affect the production of both goods.
Specialization and Exchange

- **Specialization**
  - A method of production in which each person concentrates on a limited number of productive activities

- **Exchange**
  - Practice of trading with others to obtain what we want

- **Specialization and Exchange enables us to enjoy**
  - Greater production
  - Higher living standards than would otherwise possible

- All economies exhibit high degrees of specialization and exchange
Specialization and Exchange

- Three sources of gains from specialization
  - Human capability
  - Time spent switching b/w activities
  - Comparative advantage (?)
Further Gains to Specialization

• Absolute Advantage:
  – Ability to produce a good or service using fewer resources than other producers use

• Comparative Advantage
  – If one can produce some good with a smaller opportunity cost than others can
  – Total production of every good or service will be greatest when individuals specialize according to their comparative advantage (we will show it)
Specialization in Perspective

• While specialization gives us material gains
  – There may be opportunity costs to be paid in the loss of other things we care about
• The right amount of specialization can be found by balancing gains against costs
• Let us work with data!
Example:

- Two individuals – Mary & Ann – undertake two activities – fishing and picking berries.

<table>
<thead>
<tr>
<th></th>
<th>Labor required for</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 cup berries</td>
</tr>
<tr>
<td>Mary</td>
<td>½ hour</td>
</tr>
<tr>
<td>Ann</td>
<td>2 hours</td>
</tr>
</tbody>
</table>
Comparative Advantage

• Absolute Advantage:
  – Mary has AA in …..

• Mary & Ann decide to develop a production system that will work to their mutual benefit

• Does it mean that Mary should do both tasks while Ann does nothing?

• Look at Comparative Advantages
CA in fishing

Mary: Opportunity cost of 1 fish = 2 cups of berries
Ann: Opportunity cost of 1 fish = 3 cups of berries

What is the conclusion?
Who has a CA in fishing?
CA in picking berries

Mary: Opportunity cost of 1 cup of berries = ½ a fish

Ann: Opportunity cost of 1 cup of berries = 1/3 a fish

• What is the conclusion?

---- Ann has a CA in picking berries – has an absolute advantage in nothing.
# Opportunity Costs

- **Opportunity Costs:**

<table>
<thead>
<tr>
<th></th>
<th>Opportunity Cost of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mary</td>
<td>1 more fish</td>
</tr>
<tr>
<td></td>
<td>1 more cup berries</td>
</tr>
<tr>
<td>Ann</td>
<td>2 cups berries</td>
</tr>
<tr>
<td></td>
<td>½ a fish</td>
</tr>
<tr>
<td></td>
<td>3 cups berries</td>
</tr>
<tr>
<td></td>
<td>1/3 a fish</td>
</tr>
</tbody>
</table>
They decide to move towards specializing according to their CA.

Mary should catch fish and Ann should pick the berries

Mary catches 1 more fish and gives up picking 2 cups berries

Ann picks 1 more cup of berries, gives up catching 1/3 a fish, let us make it..

Ann picks 3 more cups of berries and gives up 1 fish
• Balance sheet for Mary:
  – 1 fish more and 2 cups less berries
• Balance sheet for Ann:
  – 1 fish less and 3 cups more berries
• So fish production unchanged, berry production increased by one cup!
Neither has worked any more than she was working before …

… wow! magic of specialization!
CA and Resource allocation

- Therefore, total production of every good or services will be greatest when individual specialize according to their comparative advantage
- This is one of the reasons why specialization and exchange lead to higher living standards than does self-sufficiency
Look at it in the Broader Context of Countries

- **Absolute Advantage** – A country has an AA in a good when she can produce the good using fewer resources than another country.

- **Comparative Advantage** – A country has CA in producing a good if she can produce the good at a lower opportunity cost than another country.

- -- So the concept of resource allocation is coming..
Resource Allocation

- Problem of resource allocation
  - Which goods and services should be produced with society’s resources?
    - Where on the PPF should economy operate?
  - How should they be produced?
    - No capital at all
    - Small amount of capital
    - More capital
  - Who should get them?
    - How do we distribute these products among the different groups and individuals in our society?
The Three Methods of Resources Allocation

• Traditional Economy
  – Resources are allocated according to long-lived practices from the past

• Command Economy (Centrally-Planned)
  – Resources are allocated according to explicit instructions from a central authority,

• Market Economy
  – Resources are allocated through individual decision making, people are largely free to do what they want with the resources at their disposal.
The Nature of Markets

• A ‘market’ is a group of buyers and sellers with the potential to trade with each other
  – Global markets
    • Buyers and sellers spread across the globe
  – Local markets
    • Buyers and sellers within a narrowly defined area
The Importance of Prices

• A price is the amount of money that must be paid to a seller to obtain a good or service
• When people pay for resources allocated by the market
  – They must consider opportunity cost to society of their individual actions
• Markets can create a sensible allocation of resources
Resource Allocation in the United States

• Numerous cases of resource allocation outside the market
  – Such as families

• Various levels of government collect about one-third of our incomes as taxes
  – Enables government to allocate resources by command

• Government uses regulations of various types to impose constraints on our individual choice

• The market is the dominant method of resource allocation in United States
  – However, it is not a pure market
Resource Ownership

- **Communism**
  - Most resources are owned in common

- **Socialism**
  - Most resources are owned by state

- **Capitalism**
  - Most resources are owned privately
Types of Economic Systems

- An economic system is composed of two features
  - Mechanism for allocating resources
    - Market
    - Command
  - Mode of resource ownership
    - Private
    - State
Types of Economic Systems

Resource Allocation
- Market
- Command

Resource Ownership
- Private
- State

Private
- Market Capitalism
  - Market
- Centrally Planned Capitalism
  - Command

State
- Market Socialism
  - Market
- Centrally Planned Socialism
  - Command