The Discipline of Economics
**Economics**: The study of how people allocate **limited resources** to produce goods and services to consume and acquire **Utility 😊**.

### Limited Resources
- **Land**
  - Natural Resources
- **Labor**
  - Physical and Mental (Human Capital)
- **Capital**
  - Tools, Machines, Roads, Buildings, etc.
- **Entrepreneurship**
A Study of Scarcity, Production, & Choices: Human Behavior

Unlimited Want for Utility  Limited Resources

Scarcity

Production

Allocating limited resources to satisfy unlimited wants.

Choices

“The choice to do produce one thing is the choice not to produce a different thing”
A Study of Scarcity, Production, & Choices: Human Behavior

- **Choices**
  - Benefits
  - Costs (Opportunity Costs)

- **Choices are Based on Marginal Analysis.**
  - Marginal Benefits
  - Marginal Costs

- **Choices are Based on Expected, not Actual results**
  - Expected Marginal Benefits (EMB)
  - Expected Marginal Costs (EMC)

Opportunity Cost:
The highest valued alternative that must be sacrificed as a result of choosing an a particular line of production.
Choices involve Net Benefits

- If the EMB > EMC
  - Will choose that line of production
  - Positive Net Benefit 😊

- If the EMB < EMC
  - Will not choose that line of production
  - Negative Net Benefit 😞

Monetary Terms

- $ Revenue
- $ Cost
- $ Profit

Non-Monetary Terms (Utility)

- Psychic Revenue
- Psychic Cost
- Psychic Profit
The Economic Actor (Entrepreneur)
- Chooses a line of production with the expectation that the EMB will exceed the EMC. Risk taker!
  - “Regret”
  - “Sunk Costs”
- Rationally self interested.
- Makes decisions at the margin.
- Incentive driven.

Law of Diminishing Marginal Benefits (Utility)
- EMB decreases with subsequent units of a good produced.

Law of Increasing Marginal Costs
- EMC increase with subsequent units of a good produced.
Graphing Choices

<table>
<thead>
<tr>
<th>Sacks of Corn</th>
<th>Expected Marginal Benefit (Utility Gained)</th>
<th>Expected Marginal Cost (Utility Forgone)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>180</td>
<td>140</td>
</tr>
<tr>
<td>2</td>
<td>160</td>
<td>160</td>
</tr>
<tr>
<td>3</td>
<td>140</td>
<td>180</td>
</tr>
</tbody>
</table>
How many planes should Boeing produce?

<table>
<thead>
<tr>
<th>Number of Planes Produced</th>
<th>Expected Marginal Benefit</th>
<th>Expected Marginal Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$300 million</td>
<td>$125 million</td>
</tr>
<tr>
<td>2</td>
<td>$210 million</td>
<td>$150 million</td>
</tr>
<tr>
<td>3</td>
<td>$135 million</td>
<td>$175 million</td>
</tr>
</tbody>
</table>

Graphing Choices

![Graph showing marginal benefit and marginal cost](image)
Economic Efficiency

- **Two Types**
  - Allocative
    - Producing so long as the EMB $\geq$ EMC
  - Productive
    - Minimizing the costs of production.

- **Versus Equity**
  - Equity is highly subjective
  - Trade-off may exist
Production Possibilities for an Individual (Student Bob)
Producing English and/or Math Grades with 10 hours a week of study time.

**Economic Problem of Scarcity**

- Unlimited Wants
  - 100% in both Classes

- Limited Resources
  - 10 Hours of study time a week

- Choices (EMB & EMC)
  - Grade in English
  - Grade in Math

**PPC Model**

- Attainable & unattainable outcomes

**Slope**

- Efficient & inefficient outcomes
Production Possibilities for a Firm
(Farmer Bill)
Producing Cactus or Corn with 5 acres of land.

**Economic Problem of Scarcity**

Unlimited Wants
50 of each

Limited Resources
5 acres of land

Choices (EMB & EMC)
Bushels of corn
Number of cacti

**PPC Model**

Attainable & unattainable outcomes

Slope

Efficient & inefficient outcomes
Law of Increasing Marginal Costs

Resources are not equally suitable toward different types of production

PPC for "Producing Agriculture"
Production Possibilities for a Nation
Produce Military or Consumer goods Using all national resources.

Limited resources necessitate choices about WHAT to produce.
Production Possibilities for a Nation

[Graph showing military expenditures over time with labeled events such as World War II, Korean War, Vietnam War, Reagan buildup, End of Cold War, and 9/11.]

[Bar chart comparing the percent of output allocated to military for various countries.]
Growing Production Possibilities

Production Possibilities Increase When:

- More Resources
- Technology Advances
Comparative Advantage, Specialization, and Trade

**Absolute advantage**
The ability to produce a good at a lower resource cost than others.

**Comparative advantage (the basis for trade)**
The ability to produce a good at a lower opportunity cost than others.

**Specialization & Trade**
The dedication of resources toward the production of a good or service in which there exists a comparative advantage.
Comparative Advantage, Specialization, and Trade

Production Possibilities for You and Your Neighbor, without Trade

<table>
<thead>
<tr>
<th></th>
<th>You</th>
<th>Your Neighbor</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Apples</td>
<td>Cherries</td>
<td>Apples</td>
</tr>
<tr>
<td>Devote all time</td>
<td>20 pounds</td>
<td>0 pounds</td>
<td>30 pounds</td>
</tr>
<tr>
<td>to picking apples</td>
<td></td>
<td></td>
<td>0 pounds</td>
</tr>
<tr>
<td>Devote all time</td>
<td>0 pounds</td>
<td>20 pounds</td>
<td>0 pounds</td>
</tr>
<tr>
<td>to picking cherries</td>
<td></td>
<td></td>
<td>60 pounds</td>
</tr>
</tbody>
</table>

OPPORTUNITY COST OF APPLES

<table>
<thead>
<tr>
<th>YOU</th>
<th>1 pound of cherries</th>
<th>1 pound of apples</th>
</tr>
</thead>
<tbody>
<tr>
<td>YOUR NEIGHBOR</td>
<td>2 pounds of cherries</td>
<td>0.5 pound of apples</td>
</tr>
</tbody>
</table>
### Production & Consumption Possibilities

<table>
<thead>
<tr>
<th></th>
<th>YOU</th>
<th>YOUR NEIGHBOR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Production &amp; consumption possibilities without trade</strong></td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td><strong>Production possibilities with trade</strong></td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td><strong>Consumption possibilities with trade</strong></td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td><strong>Gains from trade</strong> (Increased consumption possibilities)</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

**Terms of Trade:** 1.5 lbs of cherries for 1 lb of apples
The Science of Economics

- Science
- The application of the **Scientific Method** to learning and understanding the world
  - Biological Sciences
  - Physical Sciences
  - Social Sciences
    - Psychology
    - Sociology
    - Anthropology
    - Political Science
  - Economics
    - Applies the scientific method to the study of human behavior in the context of scarcity.

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The Scientific Method

- **Step 1: Observe**
  - In Economics we observe the choices people make when faced with scarcity.
- **Step 2: Hypothesize**
  - Educated guess relating cause and effect.
- **Test 3: Test**
  - Empirical or Laboratory.
- **Step 4: Accept, Reject, or Modify**
  - Based on test results.
The Science of Economics

- **Evolution of Knowledge**
  - Hypothesis, Theory, Law (principle)

- **Models**
  - Constructed to simplify and comprehend the real world.

- **Pitfalls to avoid.**
  1. Failing to hold other variables constant: *Ceteris Paribus*.
  2. Correlation is not Causation.
  3. Fallacy of Composition.
    * What is true for the individual may not be true for the group.

- **Positive vs. Normative Analysis**
  - Objective vs. Subjective
  - Testable or Untestable
  - “What is” vs. “What should be”