# Unit 1: Basic Economics Concepts

## Key Terms (Define the following)

1. Scarcity
2. Positive vs. Normative Economics
3. Trade-offs
4. Opportunity Cost

## 3 Economic Systems

1. Centrally Planned Economies (Communism)
2. Free-Market Economies (Capitalism)
3. Mixed Economies

## Production Possibilities Curve (Frontier)*

Use the chart to create a PPC to the right.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hats</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Shoes</td>
<td>30</td>
<td>29</td>
<td>25</td>
<td>15</td>
</tr>
</tbody>
</table>

Label the following three points on the graph:
- X = Unemployment/Inefficiency
- Y = Efficient
- Z = Impossible given current resource

Calculate the Opportunity Cost:
- A → B: __________
- B → C: __________
- E → D: __________
- C → A: __________

## Constant Opportunity Cost*

Why does this occur?

Draw the graph below

## Increasing Opportunity Cost*

Why does this occur?

Draw the graph below

Bicycles  | Bikes  
---|---
Tricycles | iPhones
<table>
<thead>
<tr>
<th>Efficiency</th>
<th>Shifting the PPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difference between allocative and productive</td>
<td>Identify the three shifters of the PPC</td>
</tr>
<tr>
<td>efficiency:</td>
<td>1.</td>
</tr>
<tr>
<td></td>
<td>2.</td>
</tr>
<tr>
<td></td>
<td>3.</td>
</tr>
</tbody>
</table>

**Shifting and Changes Practice** (draw 3 PPCs with pizza and cars)

| Scenario: Better resources for both products | Scenario: Increase in consumer demand for pizza       | Scenario: Improvements in technology for only cars |

**Trade: Absolute and Comparative Advantage**

<table>
<thead>
<tr>
<th></th>
<th>Sugar (tons)</th>
<th>Cars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cuba</td>
<td>40</td>
<td>10</td>
</tr>
<tr>
<td>Mexico</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

1. Which country has an absolute advantage in sugar?
2. Which country has an absolute advantage in cars?
3. What is Cuba’s opportunity cost for producing one car?
4. Which country has a comparative advantage in cars?
5. Which country has a comparative advantage in sugar?
6. For both countries to benefit from trade, how much sugar can be traded for each car? 1 Car for _____ Sugar

**Circular Flow Model**

| Resource Market |
|-----------------|----------------|
| Businesses      | Government     |
|                 | Individuals    |

**Product Market**

*See videos on YouTube channel ACDCLeadership*
# Unit 2: Demand, Supply, and Consumer Choice

## Demand*  
The Law of Demand:  
\[
\begin{align*}
P & \quad Q_d \\
P & \quad Q_d 
\end{align*}
\]

Why is demand downward sloping?  
1. 
2. 
3.

## Supply*  
The Law of Supply:  
\[
\begin{align*}
P & \quad Q_s \\
P & \quad Q_s 
\end{align*}
\]

Why is supply upward sloping?

### Changes in Quantity (Moving Along the Curve)
What changes quantity demanded?  
What changes quantity supplied?

### Changes in Demand and Supply (Shifting the Curve)
What changes demand? (5 Shifters of Demand)  
What changes supply? (6 Shifters of Supply)

<table>
<thead>
<tr>
<th>Substitutes</th>
<th>Normal Goods</th>
<th>Inferior Goods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price of A↑ Demand for B</td>
<td>Price of A↓ Demand for B</td>
<td>Income ↑ Demand</td>
</tr>
<tr>
<td>Price of A↓ Demand for B</td>
<td>Income ↓ Demand</td>
<td></td>
</tr>
<tr>
<td>Complements: Price of A↑ Demand for B</td>
<td>Complements: Price of A↓ Demand for B</td>
<td>Income ↑ Demand</td>
</tr>
<tr>
<td>Complements: Price of A↓ Demand for B</td>
<td>Income ↓ Demand</td>
<td></td>
</tr>
</tbody>
</table>

## Equilibrium and Disequilibrium*

<table>
<thead>
<tr>
<th>Shortage</th>
<th>Surplus</th>
<th>Equilibrium</th>
</tr>
</thead>
<tbody>
<tr>
<td>[\text{PRICE}]</td>
<td>[\text{PRICE}]</td>
<td>Qd__Qs</td>
</tr>
<tr>
<td>[\text{QUANTITY}]</td>
<td>[\text{QUANTITY}]</td>
<td></td>
</tr>
</tbody>
</table>

### Government Controls*
Price FLOORS go ______equilibrium and result in a ______.

Price CEILINGS go ______equilibrium and result in a ______.
**Consumer Surplus (CS), Producer Surplus (PS), and Efficiency**

**Before tax**
1. CS before tax: 
2. PS before tax: 

**After Tax**
3. Tax per unit: 
4. CS after tax: 
5. PS after tax: 
6. Dead weight loss: 
7. Total tax revenue to govt: 
8. Total spending by buyers: 
9. Total revenue to sellers: 
10. Amount of tax buyer pay: 
11. Amount of tax sellers pay: 

**Double Shifts in Demand and Supply**
If demand increase AND supply increases, what happens to P __ Q ____?

**Elasticity of Demand**

<table>
<thead>
<tr>
<th>Inelastic Demand (ex: gas)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics:</td>
</tr>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Elastic Demand (ex: soda)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics:</td>
</tr>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
</tbody>
</table>

**Rule:**

**Elasticity of Demand Coefficients**
- Perfectly Inelastic = 
- Relatively Inelastic = 
- Unit Elastic = 
- Relatively Elastic = 
- Perfectly Elastic = 

**Total Revenue Test**

<table>
<thead>
<tr>
<th>Inelastic Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>When price ↑, TR ___</td>
</tr>
<tr>
<td>When price ↓, TR ___</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Elastic Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>When price ↑, TR ___</td>
</tr>
<tr>
<td>When price ↓, TR ___</td>
</tr>
</tbody>
</table>

**Consumer Choice and Maximizing Utility**
You can choose any combination of two different activities, the movies ($10) or riding go carts ($5).

If you only have $25, what combination maximizes your utility?

What combo is best if you have $40?

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*See videos on YouTube channel ACDCLeadership*
Unit 3: Costs of Production and Perfect Competition

Production and the Law of Diminishing Marginal Returns*

Calculate MP. Plot TP and MP on Graph

<table>
<thead>
<tr>
<th>Number of Workers</th>
<th>Total Product</th>
<th>Marginal Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>

Define the Law of Diminishing Marginal Returns

After which worker does diminishing marginal returns set in?

Identify the three stages of returns: increasing, decreasing, and negative marginal returns

Revenue and Costs* (Define the following)

Total Revenue-
Accounting Profit-
Economic Profit-
Normal Profit-

Fixed Cost (FC)-
Variable Cost (VC)-
Total Cost (TC)-
Marginal Cost (MC)-

Short Run Cost Curves* (at least one fixed resource)  Long-Run Cost Curves (all resources are variable)

Draw and Label ATC, AVC, and MC

Costs

Economies of Scale-

Diseconomies of Scale-

Output
Calculating ATC, AVC, AFC, and MC

Fill in the blanks for a firm producing boxes of oranges:

<table>
<thead>
<tr>
<th>Output (box)</th>
<th>Variable Cost</th>
<th>Total Cost</th>
<th>AVC</th>
<th>AFC</th>
<th>ATC</th>
<th>MC</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>$0</td>
<td>$10</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>60</td>
<td>3.33</td>
<td>23.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>100</td>
<td>2.5</td>
<td>27.5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Assume this firm is in a perfectly competitive market and the price is $35 for each box.

1. How many boxes should they produce? Why?

2. Calculate the profit at that quantity

Shut Down Point*

Shut Down Rule:

1. A per unit tax shifts ____________ so quantity will ____________.

Short-Run Supply Curve:

2. A lump sum tax shifts ____________ so quantity will ____________.

Per-Unit vs. Lump-Sum*

Graphing Perfect Competition*

Draw side-by-side graphs showing a perfectly competitive market and firm. Draw the firm making short-run profit

List (in order) what will happen in the long-run

Perfectly Competitive Firm Making a Loss

Perfectly Competitive Firm in Long-Run*

This firm has both type of efficiency:

1. 

2. 

*See videos on YouTube channel ACDCLeadership
# Unit 4: Imperfect Competition

## Characteristics of the Four Market Structures

<table>
<thead>
<tr>
<th>Perfect Competition</th>
<th>Monopolistic Competition</th>
<th>Oligopoly</th>
<th>Monopoly</th>
</tr>
</thead>
</table>

## Demand and Marginal Revenue*

Why is demand greater than marginal revenue for all imperfectly competitive firms?

## Elastic and Inelastic Range*

Why are monopolies inefficient?

1. 
2. 
3. 

## Monopoly Graph (profit)*

Draw and label a Monopoly making profit

## Monopoly Graph (loss)

Draw and label a Monopoly making profit

## Price Discriminating Monopoly*

Draw and label a price discriminating monopoly
**Monopoly Practice**

**For a Competitive Market**
1. P and Q
2. Consumer Surplus

**For a Monopoly**
3. P and Q Unregulated
4. P and Q Socially Optimal
5. P and Q Fair Return
6. Consumer Surplus
7. Dead Weight Loss
8. Q where TR is Maximized
9. Q if it price discriminates
10. Elastic Range of the Demand Curve
11. Per unit tax causes P ____ and Q ____
12. Lump sum subsidy causes P ____ and Q ____

**Monopolistic Competition**

- Draw a Mono. Comp. firm in long-run equilibrium
- Excess Capacity (define below and label on graph)

If a monopolistically competitive firm is making a profit in the short-run, what will happen to the demand and number of firms in the long run?

**Oligopoly**

1. If David decides to advertise now and Lindsey decides to do it later, what is David’s expected profit?
2. What is Lindsey’s dominant strategy?
3. What is David’s dominant strategy?
4. If both owners have the information but do not actively collude, what will be the outcome?

Assume the advertising company offers a deal that increases the profit for both owners by $2,000 but only if they advertise later. Based on these changes:
5. What is Lindsey’s dominant strategy?
6. What is David’s dominant strategy?

<table>
<thead>
<tr>
<th></th>
<th>David</th>
<th>Later</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Now</strong></td>
<td>$5,000</td>
<td>$3,000</td>
</tr>
<tr>
<td><strong>Lindsey</strong></td>
<td>$4,000</td>
<td>$3,500</td>
</tr>
<tr>
<td><strong>Later</strong></td>
<td>$900</td>
<td>$1,500</td>
</tr>
<tr>
<td><strong>Lindsey</strong></td>
<td>$1,000</td>
<td>$1,800</td>
</tr>
</tbody>
</table>

*See videos on YouTube channel ACDCLeadership*
### Unit 5: The Resource Market

<table>
<thead>
<tr>
<th>Key Terms</th>
<th>Resource Shifters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Derived Demand</td>
<td>Shifters of Labor Demand</td>
</tr>
<tr>
<td>3. Marginal Resource Cost (MRC)</td>
<td></td>
</tr>
</tbody>
</table>

#### Calculating MRP and MRC and Hiring Workers*

<table>
<thead>
<tr>
<th>Number of Workers</th>
<th>Total Product</th>
<th>Marginal Product</th>
<th>Marginal Revenue Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>13</td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td>18</td>
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<td></td>
</tr>
<tr>
<td>4</td>
<td>21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Assume perfectly competitive product and labor markets. If the price of the product is $5 and the wage is $20, how many workers should be hired?
2. How much is the profit or loss?
3. Assume that this firm develops a process that makes only their workers more productive. The wage will _______ and the quantity will _______.

#### Minimum Wage*

- Draw the results of a minimum wage. Label Qs & Qd Wage

#### Labor Market Practice

1. If the demand for houses increases, the wage of carpenters will _____ and the quantity will _____.
2. Assume bricks and wood are substitute resources. If the price of bricks increases, the price of wood _____ and the quantity _____.
3. If the government removes all regulations for becoming a dentist. The wages for dentists will _____ and the quantity will _____.
4. Assume a company uses two resources, workers and robots, and the MRC for each is $20. Currently the MRP of the last worker hired is $30 and the MRP of the last robot is $10. The company should _____ the number of workers and _____ the number of robots.

*See videos on YouTube channel ACDCLeadership
# Unit 6: Four Market Failures

<table>
<thead>
<tr>
<th>Public Goods</th>
<th>Monopolies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why are public goods a market failure?</td>
<td>Label monopoly unregulated, socially optimal, and fair return</td>
</tr>
<tr>
<td>Two Characteristic of Public Goods:</td>
<td></td>
</tr>
<tr>
<td>1. Nonexclusion-</td>
<td></td>
</tr>
<tr>
<td>2. Shared consumption-</td>
<td></td>
</tr>
<tr>
<td>Maximizing Rule for Public Goods:</td>
<td></td>
</tr>
</tbody>
</table>

## Negative Externalities
- Draw a negative externality

## Positive Externalities
- Draw a positive externality

## Distribution of Income and Taxes
1. Progressive Tax-
2. Proportional Tax-
3. Regressive Tax-

Who pays more of the tax:
4. If demand is elastic and supply is inelastic?
5. If demand is inelastic and supply is elastic?
6. If demand is perfectly inelastic?

## Tax Incidence
- Label the amount consumers and producers pay of tax

[Diagram of Price vs. Quantity with S and D curves, S_{Tax} and P]
Unit 1: Basic Economics Concepts

**Key Terms (Define the following)**

1. **Scarcity**
   Individuals, businesses, and Governments have unlimited wants but limited resources.

2. **Positive vs. Normative Economics**
   Positive refers to facts. No opinions
   Normative includes opinion. “What out to be done”.

3. **Trade-offs**
   ALL the possible options given up when you make a choice

4. **Opportunity Cost**
   The ONE best option given up when you make a choice including the money, time, and forgone opportunities.

**3 Economic Systems**

1. **Centrally Planned Economies (Communism)**
   Economic system where the government owns the resources and decides what to make, how to make it, and who gets it. Total government control of the economy

2. **Free-Market Economies (Capitalism)**
   Economic system where individual citizens own the resources and decides what to make, how to make it, and who gets it. Little or no government involvement in the economy

3. **Mixed Economies**
   Almost all economies are a mixture of the above systems.

---

**Production Possibilities Curve (Frontier)**

Use the chart to create a PPC to the right.

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
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<tbody>
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<td>4</td>
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<td>30</td>
<td>29</td>
<td>25</td>
<td>15</td>
<td>0</td>
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</tbody>
</table>

Label the following three points on the graph:
- X = Unemployment/Inefficiency
- Y = Efficient
- Z = Impossible given current resource

**Calculate the Opportunity Cost:**
- A→B: 1 Shoe
- B→C: 4 Shoes
- E→D: 1 Hat
- C→A: 2 Hats

---

**Constant Opportunity Cost**

Why does this occur? Resources are easily adaptable between both products.

Draw the graph below

As more tricycles are made, resources that are easily adaptable to producing either good are moved away from bicycles and towards tricycles. Opportunity cost for each tricycle is constant at 2 bicycles.

**Increasing Opportunity Cost**

Why does this occur? Resources are not easily adaptable between both products

Draw the graph below

At combination A, all resources are put towards making bikes, including resources that are better for making iPhones. The opportunity cost of the first iPhone is small (3 bikes) as resources, like electrical engineers, are moved away from making bikes. As more iPhones are produced, the opportunity cost gets larger.

*See videos on YouTube channel ACDCLeadership*
### Efficiency

Difference between allocative and productive efficiency:
- **Productive Efficiency**: Products are being produced in the least costly way (any point on the curve).
- **Allocative Efficiency**: The products being produced are the ones most desired by society. (optimal point depends on the desires of society.)

### Shifting the PPC

Identify the three shifters of the PPC:
1. Change in resource quantity or quality
2. Change in Technology
3. Change in Trade

### Shifting and Changes Practice (draw 3 PPCs with pizza and cars)

**Scenario: Better resources for both products**

```
<table>
<thead>
<tr>
<th>Pizza</th>
<th>Cars</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

**Scenario: Increase in consumer demand for pizza**

```
<table>
<thead>
<tr>
<th>Pizza</th>
<th>Cars</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

**Scenario: Improvements in technology for only cars**

```
<table>
<thead>
<tr>
<th>Pizza</th>
<th>Cars</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

### Trade: Absolute and Comparative Advantage*

<table>
<thead>
<tr>
<th>Sugar (tons)</th>
<th>Cars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cuba 40 (1S costs $\frac{1}{4}$ Car)</td>
<td>10 (1C costs 4 Sugar)</td>
</tr>
<tr>
<td>Mexico 50 (1S costs 2 Cars)</td>
<td>100 (1C costs $\frac{1}{2}$ Sugar)</td>
</tr>
</tbody>
</table>

1. Which country has an absolute advantage in sugar? **Mexico**
2. Which country has an absolute advantage in cars? **Mexico**
3. What is Cuba’s opportunity cost for producing one car? **4 Sugar**
4. Which country has a comparative advantage in cars? **Mexico**
5. Which country has a comparative advantage in sugar? **Cuba**
6. For both countries to benefit from trade, how much sugar can be traded for each car? **1 Car for ____ Sugar** (any number between 4 and $\frac{1}{2}$)

### Circular Flow Model*

*See videos on YouTube channel ACDCLeadership*
# Unit 2: Demand, Supply, and Consumer Choice

## Demand

<table>
<thead>
<tr>
<th>The Law of Demand:</th>
</tr>
</thead>
<tbody>
<tr>
<td>( P \uparrow )</td>
</tr>
<tr>
<td>( P \downarrow )</td>
</tr>
</tbody>
</table>

**Why is demand downward sloping?**
1. Substitution Effect: When price goes up, consumers buy more of a substitute product.
2. Income Effect: If the price goes down for a product, the purchasing power increases for consumers - allowing them to purchase more.
3. Law of Diminishing Marginal Utility: Since you eventually get less satisfaction from each new unit, the price must fall to increase quantity demanded.

## Supply

<table>
<thead>
<tr>
<th>The Law of Supply:</th>
</tr>
</thead>
<tbody>
<tr>
<td>( P \uparrow )</td>
</tr>
<tr>
<td>( P \downarrow )</td>
</tr>
</tbody>
</table>

**Why is supply upward sloping?**
1. Opportunity Cost: At higher prices, profit-seeking firms have an incentive to produce more.
2. Law of Diminishing Marginal Returns: Since the additional cost of each new unit will eventually increase, the firm must increase the price to increase quantity supplied.

## Changes in Quantity (Moving Along the Curve)

**What changes quantity demanded?**
- Change in Price

**What changes quantity supplied?**
- Change in Price

## Changes in Demand and Supply (Shifting the Curve)

**What changes demand? (5 Shifters of Demand)**
1. Tastes and Preferences
2. Number of Consumers
3. Price of Related Goods
   - Substitutes and Complements
4. Income
   - Normal and Inferior Goods
5. Future Expectations

**What changes supply? (6 Shifters of Supply)**
1. Prices/Availability of inputs (resources)
2. Number of Sellers
3. Technology
4. Government Action: Taxes & Subsidies
5. Opportunity Cost of Alternative Production
6. Expectations of Future Profit

**Substitutes:**
- Price of A\( \uparrow \) Demand for B\( \uparrow \)
- Price of A\( \downarrow \) Demand for B\( \downarrow \)

**Complements:**
- Price of A\( \uparrow \) Demand for B\( \downarrow \)
- Price of A\( \downarrow \) Demand for B\( \uparrow \)

**Normal Goods:**
- Income\( \uparrow \) Demand\( \uparrow \)
- Income\( \downarrow \) Demand\( \downarrow \)

**Inferior Goods:**
- Income\( \uparrow \) Demand\( \downarrow \)
- Income\( \downarrow \) Demand\( \uparrow \)

## Equilibrium and Disequilibrium

**Shortage**
- \( Qd \)\( > \)\( Qs \)

**Surplus**
- \( Qd \)\( < \)\( Qs \)

**Equilibrium**
- \( Qd \)\( = \)\( Qs \)

**Government Controls**
- Price FLOORS go \( \_ \) ABOVE equilibrium and result in a \( \_ \) SURPLUS.
- Price CEILINGS go \( \_ \) BELOW equilibrium and result in a \( \_ \) SHORTG.
Consumer Surplus (CS), Producer Surplus (PS), and Efficiency*

Before tax
1. CS before tax: BACD
2. PS before tax: GHFE

After Tax
3. Tax per unit: $4 Per Unit
4. CS after tax: B
5. PS after tax: G
6. Dead weight loss: DE
7. Total tax revenue to gov: ACHF
8. Total spending by buyers: ACHFGI
9. Total revenue to sellers: GI
10. Amount of tax buyer pay: AC
11. Amount of tax sellers pay: HF

Double Shifts in Demand and Supply*

If demand increase AND supply increases, what happens to P _Indeterminate_ Q _Increase_?

Elasticity of Demand*

Inelastic Demand (ex: gas)
Characteristics:
1. Few Substitutes
2. Necessities
3. Elasticity coefficient less than 1

Elastic Demand (ex: soda)
Characteristics:
1. Many Substitutes
2. Luxury
3. Elasticity coefficient greater than 1

Elasticity of Demand Coefficients*

- Perfectly Inelastic = 0
- Relatively Inelastic = Less than 1
- Unit Elastic = 1
- Relatively Elastic = Greater than 1
- Perfectly Elastic = Undefined

Total Revenue Test*

Inelastic Demand
When price ↑, TR __↑__
When price ↓, TR __↓__

Elastic Demand
When price ↑, TR __↓__
When price ↓, TR __↑__

Consumer Choice and Maximizing Utility*

You can choose any combination of two different activities, the movies ($10) or riding go carts ($5).
If you only have $25, what combination maximizes your utility? 2 movies and 1 go cart because you pick the one that gives you the most additional utility per dollar until all the money is spent.
What combo is best if you have $40?
3 Movies and 2 Go Cart

<table>
<thead>
<tr>
<th># Times Going</th>
<th>Marginal Utility (Movies)</th>
<th>MUP</th>
<th>Marginal Utility (Go Carts)</th>
<th>MUP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>30</td>
<td>3</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>2nd</td>
<td>20</td>
<td>2</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>3rd</td>
<td>10</td>
<td>1</td>
<td>2</td>
<td>.4</td>
</tr>
<tr>
<td>4th</td>
<td>5</td>
<td>.5</td>
<td>1</td>
<td>.2</td>
</tr>
</tbody>
</table>

*See videos on YouTube channel ACDCLeadership
Unit 3: Costs of Production and Perfect Competition

Production and the Law of Diminishing Marginal Returns*

<table>
<thead>
<tr>
<th>Number of Workers</th>
<th>Total Product</th>
<th>Marginal Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>19</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>18</td>
<td>-2</td>
</tr>
</tbody>
</table>

Define the Law of Diminishing Marginal Returns
As variable resources are added to fixed resources, the additional output from each new worker will eventually fall.

After which worker does diminishing marginal returns set in? After the 2nd Worker

Identify the three stages of returns: increasing, decreasing, and negative marginal returns

Revenue and Costs* (Define the following)

Total Revenue-
Price x Quantity

Accounting Profit-
Total Revenue – Explicit Costs

Economic Profit-
Total Revenue – Explicit and Implicit Costs

Normal Profit-
Zero Economic Profit (breaking even)

Fixed Cost (FC)- Costs that DON’T change as you produce more (ex: rent, insurance, etc.)

Variable Cost (VC)- Costs that DO change as you produce more (wages to workers, raw materials, etc.)

Total Cost (TC)- Fixed Costs + Variable Costs

Marginal Cost (MC)- Additional cost to produce one additional output.

Short Run Cost Curves* (at least one fixed resource)

Long-Run Cost Curves (all resources are variable)

Vertical distance between ATC and AVC is AFC

Costs

Economies of Scale- Long run average total cost (LRATC) falls because mass production techniques are used.

Diseconomies of Scale- Long run average total cost (LRATC) increase as the firm gets too big and difficult to manage.
Calculating ATC, AVC, AFC, and MC

Fill in the blanks for a firm producing boxes of oranges:

<table>
<thead>
<tr>
<th>Output (box)</th>
<th>Variable Cost</th>
<th>Total Cost</th>
<th>AVC</th>
<th>AFC</th>
<th>ATC</th>
<th>MC</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>$0</td>
<td>$10</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1</td>
<td>20</td>
<td>$30</td>
<td>$20</td>
<td>$10</td>
<td>$30</td>
<td>$20</td>
</tr>
<tr>
<td>2</td>
<td>30</td>
<td>$40</td>
<td>$15</td>
<td>$5</td>
<td>$20</td>
<td>$10</td>
</tr>
<tr>
<td>3</td>
<td>60</td>
<td>$70</td>
<td>$20</td>
<td>$3.3</td>
<td>$23</td>
<td>$30</td>
</tr>
<tr>
<td>4</td>
<td>100</td>
<td>$110</td>
<td>$25</td>
<td>$2.5</td>
<td>$27</td>
<td>$40</td>
</tr>
</tbody>
</table>

Assume this firm is in a perfectly competitive market and the price is $35 for each box.

1. How many boxes should they produce? Why? 3 Boxes of Oranges, Firms should produce as long as the additional revenue of a unit is greater than the additional cost. To maximize profit, produce where MR = MC

2. Calculate the profit at that quantity
   TR = $105 and TC = $70, Profit = $35

Shut Down Point*

Shut Down Rule: A firm should shut down if the price fall below the minimum AVC

Short-Run Supply Curve: The MC curve above minimum AVC

Per-Unit vs. Lump-Sum*

1. A per unit tax shifts MC, AVC, and ATC so quantity will _____Change (decrease)_____.

2. A lump sum tax shifts AFC and ATC so quantity will _____NOT change_____.

Graphing Perfect Competition*

Draw side-by-side graphs showing a perfectly competitive market and firm. Draw the firm making short-run profit

List (in order) what will happen in the long-run

1. More firms will enter to get profit
2. The market supply will increase (shift right)

Market
P ↓ Q ↑
Firm
P ↓ Q ↓

Perfectly Competitive Firm Making a Loss

Perfectly Competitive Firm in Long-Run*

This firm has both types of efficiency:
1. Productive Efficiency: Minimum ATC
2. Allocative Efficiency: Price = MC

*See videos on YouTube channel ACDCLeadership
Unit 4: Imperfect Competition
Characteristics of the Four Market Structures

<table>
<thead>
<tr>
<th>Perfect Competition</th>
<th>Monopolistic Competition</th>
<th>Oligopoly</th>
<th>Monopoly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Many small firms</td>
<td>Large number of sellers</td>
<td>A Few Large Firms (Less than 10)</td>
<td>One firm</td>
</tr>
<tr>
<td>Identical products</td>
<td>Differentiated products</td>
<td>High Barriers</td>
<td>Unique product</td>
</tr>
<tr>
<td>Easy to enter and exit</td>
<td>Easy to enter and exit</td>
<td>Control Over Price</td>
<td>High barriers to enter and exit</td>
</tr>
<tr>
<td>No need to advertise</td>
<td>A lot of non-price competition</td>
<td>Mutual Interdependence</td>
<td></td>
</tr>
<tr>
<td>Firms are “Price Takers”</td>
<td>Some control over price</td>
<td></td>
<td>Price Maker</td>
</tr>
</tbody>
</table>

Demand and Marginal Revenue*

Why is demand greater than marginal revenue for all imperfectly competitive firms?
To sell another unit, the firm must lower the price of the next unit and the units it could have sold at a higher price. (It cannot price discriminate)

Why are monopolies inefficient?
1. Price is too high
2. Quantity is too low
3. Inefficient (Dead Weight Loss)

Elastic and Inelastic Range*

Monopoly Graph (profit)*

Monopoly Graph (loss)*

Price Discriminating Monopoly*
**Monopoly Practice***

**For a Competitive Market**
1. P and Q: P₂, Q₂
2. Consumer Surplus: ACP₂

**For a Monopoly**
3. P and Q Unregulated: P₅, Q₁
4. P and Q Socially Optimal: P₄, Q₂
5. P and Q Fair Return: P₂, Q₄ (No profit)
6. Consumer Surplus: ABP₅
7. Dead Weight Loss: BCG
8. Q where TR is Maximized: Q₃
9. Q if it price discriminates: Q₂
10. Elastic Range of the Demand Curve AD
11. Per unit tax causes P ↑↑ and Q ↓↓
12. Lump sum subsidy causes P same and Q same

---

**Monopolistic Competition***

Draw a Mono. Comp. firm in long-run equilibrium

Excess Capacity (define below and label on graph)
The gap between the minimum ATC output and the profit maximizing output.
Given current resources, the firm can produce at the lowest costs (minimum ATC) but they decide not to.
If a monopolistically competitive firm is making a profit in the short-run, what will happen to the demand and number of firms in the long run?
- New firms enter to make profit
- Firms must share same amount of consumers
- Demand for each firm falls until each firm makes no economic profit

---

**Oligopoly**

1. If David decides to advertise now and Lindsey decides to do it later, what is David's expected profit? $1000
2. What is Lindsey's dominant strategy? **Now**
3. What is David's dominant strategy? **None**
4. If both owners have the information but do not actively collude, what will be the outcome?
   Both will choose **Now**

Assume the advertising company offers a deal that increases the profit for both owners by $2,000 but only if they advertise later. Based on these changes:
5. What is Lindsey's dominant strategy? **None**
6. What is David's dominant strategy? **Later**

Assume that two business owners are deciding between advertising now and advertising later. The chart shows expected profit with Lindsey's on the left.

<table>
<thead>
<tr>
<th></th>
<th>David</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Now</strong></td>
<td><strong>Now</strong></td>
<td><strong>Later</strong></td>
</tr>
<tr>
<td></td>
<td>$5,000, $4,000</td>
<td>$3,000, $3,500</td>
</tr>
<tr>
<td><strong>Lindsey</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Now</strong></td>
<td></td>
<td><strong>Later</strong></td>
</tr>
<tr>
<td></td>
<td>$900, $1,000</td>
<td>$1,500, $1,800</td>
</tr>
</tbody>
</table>

*See videos on YouTube channel ACDCLeadership
Unit 5: The Resource Market

Key Terms
1. Derived Demand-
The demand for resources is determined (derived) by the products they help produce. (ex: the demand for carpenters is derived by the demand of homes)
2. Marginal Revenue Product (MRP)-
The additional revenue generated by an additional resource (worker).
3. Marginal Resource Cost (MRC)-
The additional cost of an additional resource (worker)

Resource Shifters
Shifters of Labor Demand-
1. Change in the demand for the product
2. Change in the productivity of the resource
3. Change in the price of related resources (substitute and complementary resources)

Shifters of Labor Supply-
1. Number of qualified workers
2. Government regulation/licensing
3. Personal values regarding leisure and societal roles

Calculating MRP and MRC and Hiring Workers*

<table>
<thead>
<tr>
<th>Number of Workers</th>
<th>Total Product</th>
<th>Marginal Product</th>
<th>Marginal Revenue Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>5</td>
<td>$25</td>
</tr>
<tr>
<td>2</td>
<td>13</td>
<td>8</td>
<td>$40</td>
</tr>
<tr>
<td>3</td>
<td>18</td>
<td>5</td>
<td>$25</td>
</tr>
<tr>
<td>4</td>
<td>21</td>
<td>3</td>
<td>$15</td>
</tr>
<tr>
<td>5</td>
<td>20</td>
<td>-1</td>
<td>$5</td>
</tr>
</tbody>
</table>

1. Assume perfectly competitive product and labor markets. If the price of the product is $5 and the wage is $20, how many workers should be hired? 3
2. How much is the profit or loss? $90 - $60 = $30
3. Assume that this firm develops a process that makes only their workers more productive. The wage will stay the same and the quantity will up.

Minimum Wage*

Draw the results of a minimum wage. Label Qs & Qd Wage

Unemployment

$20

We...

A $20 minimum wage would increase Qs and decrease Qd resulting in a surplus of labor (unemployment)

The firm should hire a worker as long as the revenue the worker generates is greater than the cost to hire them. Firms hire where MRP = MRC.

D_L = MRP

Wage

Plot the MRP and MRC for the firm

Labor Market Practice

1. If the demand for houses increases, the wage of carpenters will up and the quantity will up.
2. Assume bricks and wood are substitute resources. If the price of bricks increases, the price of wood up and the quantity up.
3. If the government removes all regulations for becoming a dentist. The wages for dentists will down and the quantity will up.
4. Assume a company uses two resources, workers and robots, and the MRC for each is $20. Currently the MRP of the last worker hired is $30 and the MRP of the last robot is $10. The company should up the number of workers and down the number of robots.

*See videos on YouTube channel ACDCLeadership
## Unit 6: Four Market Failures

### Public Goods

- **Why are public goods a market failure?**
  
  It is impractical for the free-market to provide these goods because there is little opportunity to earn profit.

- **Two Characteristics of Public Goods:**
  
  1. **Nonexclusion**—Cannot exclude benefits of the good. Everyone can use the good, even those that don’t pay.
  
  2. **Shared consumption**—One person’s consumption of a good does not reduce the usefulness to others.

- **Maximizing Rule for Public Goods:**
  
  Public goods should be produced as long as the additional benefit to society is greater than the additional cost. Produce where \( MSB = MSC \)

### Monopolies*

- **Label monopoly unregulated, socially optimal, and fair return**

  - \( A = \) Unregulated
  - \( B = \) Soc. Optimal
  - \( C = \) Fair Return

### Negative Externalities*

- **Draw a negative externality**

  - **Firms ignore the social cost and produce at their marginal private cost (MPC)**

  - **\( -D = MSB \)**

- **Solution:** Per unit tax so \( MPC = MSC \)

### Positive Externalities*

- **Draw a positive externality**

  - **Consumers ignore the social benefits and demand only their marginal private benefit (MPB)**

  - **\( D = MSB \)**

- **Solution:** Per unit subsidy so \( MPB = MSB \)

### Distribution of Income and Taxes

1. **Progressive Tax**—takes a larger percent of income from high income groups (takes more from rich people).

2. **Proportional Tax**—takes the same percent of income from all income groups.

3. **Regressive Tax**—takes a larger percentage from low income groups (takes more from poor people).

- **Who pays more of the tax:**

  - **4. If demand is elastic and supply is inelastic?**
    
    - **Producers**
  
  - **5. If demand is inelastic and supply is elastic?**
    
    - **Consumers**
  
  - **6. If demand is perfectly inelastic?**
    
    - **Consumers pay all of the tax**

### Tax Incidence*

- **Label the amount consumers and producers pay of tax**

- **See videos on YouTube channel ACDCLeadership**