Micro Handout 15: Efficiency and Pareto

Review: Perfect Competition, Monopoly, and Profit Maximization

Perfect Competition, Monopoly, and Profit Maximization

Perfect Competition

- Large number of small independent firms.
- A single firm’s production decisions cannot significantly affect the price.
- MR curve is horizontal: \( MR = Price \)
  - or \( Price = MR \)
  - Price = MR = MC
  - Price = MC

Monopoly

- One large firm.
- A monopoly produces a quantity and charges a price that lies on the market demand curve.
- MR curve lies beneath demand curve: \( MR < Price \)
  - or \( Price > MR \)
  - Price > MR = MC
  - Price > MC

Aside: Why have I drawn your attention to the relationship between price and marginal cost?

Monopoly’s Profit Maximizing Quantity

To maximize profits,
\[ MR = MC \]
The profit maximizing quantity of output is the quantity of output at which marginal revenue equals marginal cost as shown to the right.

What price will the monopoly charge? Remember that the monopoly will always operate at a point on the market demand curve. So, once we determine the profit maximizing quantity of output, we look to the market demand curve to determine the price as shown above.
Question: Why is monopoly “bad?”

It is commonly believed that a monopoly is bad; a monopoly is typically view as a big firm that bullies others. On the other hand, convention wisdom suggests that an industry composed of a large number of small independent firms is good perhaps even virtuous. Is this view justified on economic grounds? We shall consider two economic arguments that are frequently cited about evil of monopolies:

- monopolies earn obscenely high profits;
- monopolies create inefficiency.

Excess Profits - The Popular Notion

Popular View: “Monopolies exploit the public by making obscenely high profits.”

Based on the information we have, can we determine the firm’s profits? _____

If not, what additional information do we need?

Could a monopoly be earning positive profits? _____ Explain.

Could a monopoly be earning negative profits? _____ Explain.

Could a monopoly be earning zero profits? _____ Explain.

Pareto’s Efficiency Question: Are we getting the most from our economy’s finite resources?

Pareto’s Query: Given the state of affairs in question, is it possible to make at least one individual better off without hurting anyone else?

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Demand Curve for Personal Computers in 1980

![Demand Curve for Personal Computers in 1980](image_url)
Monopoly and Efficiency

Mary owns a McDonald's franchise that is the only fast food restaurant in her rural community; that is, in her community, Mary enjoys a monopoly in the fast food industry. The following diagram depicts the market demand curve for hamburgers, Mary’s marginal revenue curve, and Mary’s marginal cost curve:

1. Mary seeks to maximize profits.
   a. How many hamburgers will she produce? ______.
   b. What price will she charge? $______.
   c. What does her marginal cost equal? $_____.

   **State of Affairs:** Quantity = ______  Price = $_______  Marginal Cost = $_______

**Critical Question:** Is this state of affairs efficient; that is, does efficiency result when the monopolist Mary maximizes her profit?

To address this question consider a consumer, Joe, who does not choose to buy a hamburger at the profit maximizing price, but who would buy a hamburger if the price were $1.40.

2. How do we know that a person like Joe actually exists?

Consider the following special secret deal in which Mary produces another hamburger and sells it to Joe for $______.

3. Would the special secret deal make Joe better off? ______ Why?

4. Would the special secret deal make Mary better off? ______ Why?

5. Would the special secret deal affect anyone else? ______

**Revisit the Critical Question:** Is the state of affairs in which the monopolist Mary maximizes her profits efficient? ______
Summary: Perfect Competition, Monopoly, and Profit Maximization

Perfect Competition
- Large number of small independent firms.
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- Price = MC

Monopoly
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Intuition: Accurate Information, Misleading Information, and Efficiency

Price
- Consumers base their decisions on the price
  - When the price equals marginal cost: \( Price = MC \)
    - Consumers base their decisions on _______ information, on _______ values of the resources accurate needed to produce the good
      - _______ results

Marginal Cost
- Reflects the value of the resources needed to produce the good
  - When the price does not equal marginal cost: \( Price \neq MC \)
    - Consumers base their decisions on _______ information, on _______ values of the resources needed to produce
      - _______ results
**Regulating Mary's Firm:** To justify our preview consider the following scenario in which the local government regulates Mary's business.

Suppose that the local government regulates the price charged by Mary, the owner of the only fast food restaurant in the area. Furthermore, the government insists that Mary produce and sell hamburgers to all those consumers who wish to purchase them at the regulated price:

- The government regulates the price of hamburgers (the government sets the price of hamburgers).
- Mary is required to produce a hamburger for all consumers that wish to purchase one at the regulated price.

**Claim:** Efficiency requires Mary to charge a price of $1.25 and produce 75 hamburgers:

**Efficient State of Affairs:**

\[
Q = 75 \quad P = $1.25 \\
MC = $1.25
\]

**Strategy:** To justify this claim we shall consider two cases:

- **Case 1:** When the regulated price is greater than $1.25, the price exceeds marginal cost; consequently, the production of more hamburgers would allow us to make at least one individual better off without hurting anyone else.
- **Case 2:** When the regulated price is less than $1.25, the price is less than marginal cost; consequently, the production of fewer hamburgers would allow us to make at least one individual better off without hurting anyone else.

Therefore, to be efficient the price must equal $1.25 and the price will equal marginal cost.
**Case 1:** Price is greater than $1.25; that is, the price is greater than marginal cost. For example, suppose that the regulated price is $1.50:

How many hamburgers would consumers demand? __________

How many hamburgers would Mary produce? __________

What would Mary’s marginal cost equal? $__________

**State of Affairs:**

\[ Q = \_\_\_ \quad P = $1.50 \quad MC = $\_\_\_ \]

Now, recall our friend Joe. Joe does not purchase a hamburger at the $1.50 price, but would purchase a hamburger if the price were $1.40.

**Question:** How do we know that a consumer like Joe exists?

Next consider the following special deal:

**Special Deal:** Mary produces one more hamburger and sells it to Joe for $1.30.

How would this special deal affect Joe?

How much is Joe willing to pay for a hamburger? $______

How much would Joe actually pay for the hamburger? $______

Would the special deal make Joe better off? ______

How would this special deal affect Mary? Mary’s Profit = TR – TC

______  _____  _____

Would the special deal make Mary better off? ______

Does the special deal affect anyone other than Joe and Mary? _____

**Pareto’s Query:** Given the state of affairs in question, is it possible to make at least one individual better off without hurting anyone else?

_____  

Is the state of affairs getting the most from the economy’s resources? _____  

State of affairs is ____________________

**Generalization:** When the price is greater than marginal cost (Price > Marginal Cost):

Are consumers basing their decisions on a price that overstates or understates production costs? __________

Is the state of affairs inefficient? _____

Should more or less output be produced? __________

Quantity is inefficiently _______.
Case 2: Price is less than $1.25; that is, the price is less than marginal cost. For example, suppose that the regulated price is $.75.

How many hamburgers would consumers demand? $

How many hamburgers would Mary produce? $

What would Mary’s marginal cost equal? $

State of Affairs

\[ Q = \quad P = \$0.75 \quad MC = \$\quad \]

Consider a consumer, call her Joan, who does purchase a hamburger at the $0.75 price, but would not purchase a hamburger if the price were $1.00. Question: How do we know that a consumer like Joan exists?

Next, consider the following special deal:

**Special deal:** Mary produces one less hamburger and gives Joan $.50 on the condition that she will not purchase a hamburger.

How would this special deal affect Joan?

Does Joan prefer $1.00 worth of other goods to a hamburger? $

How much would Joan have to spend on other goods? $\quad + \$\quad = \$\quad$

Would the special deal make Joan better off? $

How would this special deal affect Mary? Mary’s Profit = TR – TC

(Don’t forget the $.50 that Mary is giving Joan not to purchase a hamburger.)

Would the special deal make Mary better off? $

Does the special deal affect anyone other than Joan and Mary? $

**Pareto’s Query:** Given the state of affairs in question, is it possible to make at least one individual better off without hurting anyone else?

\[ \quad \Downarrow \quad \text{Is the state of affairs getting the most} \quad \Downarrow \quad \text{from the economy’s resources?} \quad \]

\text{State of affairs is} \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad 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Summary: Decisions, Information, and Efficiency

Role of the Price and Marginal Cost

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<thead>
<tr>
<th>Price Marginal Cost</th>
<th>Price &gt; Marginal Cost</th>
<th>Price = Marginal Cost</th>
<th>Price &lt; Marginal Cost</th>
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<tbody>
<tr>
<td>Decisions consumers make are based on the price</td>
<td>Consumption decisions based on information</td>
<td>Consumption decisions based on information</td>
<td>Consumption decisions based on information</td>
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<td>Change in firm’s total cost resulting from a one unit change in production</td>
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<td>that __________________ real production costs</td>
<td>that __________________ real production costs</td>
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<td>Consumers demand too ______</td>
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<td>Firm produces too ______</td>
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<td>Inefficiently ______ quantity</td>
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<td>Inefficiently ______ quantity</td>
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Efficiency Intuition: Are decisions based on accurate or misleading information?

- Accurate Information
  - Good Results: Efficiency
- Misleading Information
  - Bad Results: Inefficiency

Price, Marginal Cost, and Efficiency

Efficient State of Affairs: Q = _____  P = $______  MC = $______

Market Failure: A market failure exits whenever markets fail to operate efficiently.