Value of Standard Economic Policies

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Goal: Develop a systematic technique to evaluate the value of economic projects.

Systematic technique: COST-BENEFIT ANALYSIS

• Implementing a project (policy) implies gains (benefits) and losses (costs).

• The value of a project is given in current dollars.
  ➢ All the gains and all the losses are measured in current dollars.

• The project that is chosen is the one that generates social wealth.
  ➢ At most, there can only be one single project that generates social wealth.
Every project affects three types of agents (either directly or indirectly):

- Consumers
- Producers
- Government

Direct Impact

- Change in wealth induced by trading in the market.

Indirect Impact

- Change in wealth induced by third parties trading in the market.
Example of Cost-Benefit Analysis

<table>
<thead>
<tr>
<th></th>
<th>PROJECT A</th>
<th>PROJECT B</th>
<th>PROJECT C</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONSUMERS</td>
<td>+ 14</td>
<td>+ 00</td>
<td>- 05</td>
</tr>
<tr>
<td>PRODUCERS</td>
<td>- 02</td>
<td>+ 03</td>
<td>- 08</td>
</tr>
<tr>
<td>GOVERNMENT</td>
<td>- 05</td>
<td>+ 03</td>
<td>+ 04</td>
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</tbody>
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Identify:
1. Gross Benefit, Gross Cost, and Net Benefit from each project.
2. The wealth generated by each project.

Should Project B be implemented?
Three ways that a project impacts a consumer:

1. Change in price

2. Change in income

3. Change in quantity consumed:
   
   ➢ A change in quantity consumed is equivalent to a change in income due to fungibility.
(Marshall’s) Law of Demand:

There is a negative relation between price and quantity demanded \((ceteris paribus)\).

\[
\text{WTP} = \text{CS} + \text{MP}
\]
**IMPACT ON CONSUMER OF A LOWER PRICE**

What is the consumer’s WTP for the project?

VALUE OF PROJECT

![Graph showing the impact of a lower price on consumer demand.](image)
**CLASS EXERCISE**

Use the following demand to answer the three questions underneath.

Demand for tomatoes:

\[ p = A^D - B^D q \]

1. Compute CS, MP, and WTP when the price is \( p_0 \).
2. Repeat question (1) when the price is \( p_1 \).
3. Let \( p_0 \) be a higher price than \( p_1 \). What is the impact on a consumer of lower the price from \( p_0 \) to \( p_1 \)?
Two ways that a project impacts a producer (supplier):

1. Change in price

2. Change in technology
Law of Decreasing Returns:
Marginal cost of production is increasing.

Marginal Cost = MARGINAL WILLINGNESS TO ACCEPT

Variable Cost of producing $q_0 = WTA$
**PRODUCER SURPLUS**

- Total Revenue = PS + WTA
- Marginal Cost = MARGINAL WILLINGNESS TO Accept
- Variable Cost of producing $q_0 = WTA$
- Producer Surplus
- $p_0$
- $q_0$

Price vs. Quantity graph with relevant labels and relationships.
COMPETITIVE EQUILIBRIUM AND THE VALUE OF TRADE

Equilibrium point: \((\hat{p}, \hat{q})\)

Variable Cost of producing \(q_0 = WTA\)
A Competitive Equilibrium is a point \((\hat{p}, \hat{q})\) such that at \(\hat{p}\) the quantity demanded and quantity supplied are equal to \(\hat{q}\).

For example: Find the Competitive Equilibrium when the market is characterized by the following equations:

Supply: \(Q^S = 2p - 2\)
Demand: \(Q^D = 20 - p\)

Find the wealth generated by trade in this example.

Find the cost of production.
POLICIES

1) Subsidies and taxes

2) Price floors and price ceiling

3) Stabilization policies

4) Quotas
A Competitive Equilibrium with a subsidy of $S$ is a point $(\hat{p}^S, \hat{p}^D, \hat{q})$ such that at $\hat{p}^D$ the quantity demanded is $\hat{q}$, at $\hat{p}^S$ the quantity supplied is $\hat{q}$, and $\hat{p}^S = \hat{p}^D + S$.

For example: Find the Competitive Equilibrium with a subsidy of 1 when the market is characterized by the following equations:

Supply: $Q^S = 2p - 2$
Demand: $Q^D = 20 - p$

Find the wealth generated by trade in this example.

Find the cost of production.
IMPACT OF A SUBSIDY ON THE VALUE OF TRADE
IMPACT OF A TAX ON THE VALUE OF TRADE
IMPACT OF A PRICE FLOOR (CEILING) ON THE VALUE OF TRADE

\[ p_i \leq \hat{p} \]

\[ \hat{p} \leq p \]

\[ \hat{p}_j \geq \hat{p} \]

\( \hat{q}_1, \hat{q}_2, \hat{q}_3 \)