Economics Principles
Goods, Bads and Public Goods

January 27, 2011
Economics is the study of *choice* under conditions of *scarcity* or the study of *choice* with *constraints*.
Economics is the study of *choice* under conditions of *scarcity* or the study of *choice* with *constraints*.

How does *scarcity* relate to resources?
Economics is the study of *choice* under conditions of *scarcity* or the study of *choice* with *constraints*.

How does *scarcity* relate to resources?

How does *scarcity* relate to the environment?
The Science of Economics

Economics is the study of choice under conditions of scarcity or the study of choice with constraints.

How does scarcity relate to resources?

How does scarcity relate to the environment?

How does scarcity relate to sustainability?
Economics is the study of *choice* under conditions of *scarcity* or the study of *choice* with *constraints*.

How does *scarcity* relate to resources?

How does *scarcity* relate to the environment?

How does *scarcity* relate to sustainability?

Specifically we say that economics is the study of how individuals and societies choose to employ *scarce* resources that could have alternative uses to produce *goods and services*, and distribute them, now or in the future, among various individuals and groups in society.
A good is an object whose consumption increases the well-being or utility of an individual.
A good is an object whose consumption increases the well-being or utility of an individual.

Actually the consumption of some goods may decrease the well-being or utility of an individual.
A *good* is an object whose consumption increases the well-being or utility of an individual.

Actually the consumption of some *goods* may decrease the well-being or utility of an individual.

Maybe we should call those *goods*. 
Goods and Services

A good is an object whose consumption increases the well-being or utility of an individual.

Actually the consumption of some goods may decrease the well-being or utility of an individual.

Maybe we should call those goods BADS.
Goods and Services

A *good* is an object whose consumption increases the well-being or utility of an individual.

We usually think of goods as being physical objects.
Goods and Services

A good is an object whose consumption increases the well-being or utility of an individual.

We usually think of goods as being physical objects.

A service is the non-material equivalent of a good.
A **good** is an object whose consumption increases the well-being or utility of an individual.

We usually think of goods as being physical objects.

A **service** is the non-material equivalent of a good.

We usually think services as intangible entities.
Goods and Services

A *good* is an object whose consumption increases the well-being or utility of an individual.

We usually think of goods as being physical objects.

A *service* is the non-material equivalent of a good.

We usually think services as intangible entities.

A service is a set of benefits delivered from a service provider, which are generated by

1) the functions of technical systems,
**Goods and Services**

A *good* is an object whose consumption increases the well-being or utility of an individual.

We usually think of goods as being physical objects.

A *service* is the non-material equivalent of a good.

We usually think services as intangible entities.

A service is a set of benefits delivered from a service provider, which are generated by

1) the functions of technical systems,

2) the natural environment,
## Goods and Services

A *good* is an object whose consumption increases the well-being or utility of an individual.

We usually think of goods as being physical objects.

A *service* is the non-material equivalent of a good.

We usually think services as intangible entities.

A service is a set of benefits delivered from a service provider, which are generated by

1) the functions of technical systems,

2) the natural environment,

3) and/or by distinct activities of individuals.
We often called goods and services *products* with the idea that they are available for consumption due to some process, natural or manmade.
Products

We often called goods and services *products* with the idea that they are available for consumption due to some process, natural or manmade.

We say the goods and services are *produced*. 
We often called goods and services *products* with the idea that they are available for consumption due to some process, natural or manmade.

We say the goods and services are *produced*. 
Differentiated Products

Products which are the same in all aspects that affect their ability to influence consumer satisfaction are called *homogeneous*. 
Differentiated Products

Products which are the same in all aspects that affect their ability to influence consumer satisfaction are called *homogeneous*.

Products which differ in any aspect that affects their ability to influence consumer satisfaction are called *differentiated*.
Differentiated Products

Products which are the same in all aspects that affect their ability to influence consumer satisfaction are called *homogeneous*.

Products which differ in any aspect that affects their ability to influence consumer satisfaction are called *differentiated*.

We often call homogeneous products *commodities* to indicate that they have little to differentiate them from other products.
Differentiated products usually differ by form, place, time, or possession.
**Product Utilities**

Differentiated products usually differ by form, place, time, or possession.

- **Form Utility**—Products that differ physically are said to differ in form.
Differentiated products usually differ by form, place, time, or possession.

- Form Utility—Products that differ physically are said to differ in form. **Processing** is a common way to change the form utility of a good.
Differentiated products usually differ by form, place, time, or possession.

- Form Utility—Products that differ physically are said to differ in form. Processing is a common way to change the form utility of a good.

- Place Utility—Place utility occurs because of the goods physical location or circumstance.
Product Utilities

Differentiated products usually differ by form, place, time, or possession.

- **Form Utility**—Products that differ physically are said to differ in form. *Processing* is a common way to change the form utility of a good.

- **Place Utility**—Place utility occurs because of the goods physical location or circumstance. *Transportation* is the most common way to change the place utility of a good.
Product Utilities

Differentiated products usually differ by form, place, time, or possession.

- Time Utility—Time occurs because of the time at which the good will be available for delivery.
Differentiated products usually differ by form, place, time, or possession.

- **Time Utility**—Time occurs because of the time at which the good will be available for delivery. Storage and forward or futures contracts are the most common way to change the time utility of a good.
Differentiated products usually differ by form, place, time, or possession.

- **Time Utility**—Time occurs because of the time at which the good will be available for delivery. Storage and forward or futures contracts are the most common way to change the time utility of a good.

- **Possession Utility**—Possession utility is defined as the difference in an otherwise homogenous product that occurs because of the terms and conditions of sale and transfer of title.
Resources are anything that can be used directly or \textit{indirectly} to satisfy human wants.
**Resources**

*Resources* are anything that can be used directly or indirectly to satisfy human wants.

We sometimes call resources *factors of production* because they are the things we use to produce products and services for consumption.
Three Types of Resources or Factors of Production

Basic Economic Problem

Goods and Services
- Goods
- Products
- Differentiation
- Utilities1
- Utilities2
- Resources
- Three Types
- Capital
- OC
- ExampleOC
- ResourceCost
- Rival
- NonRival
- Excludable
- Nonexcludable
- Public
- Categories
- Categories I
- Common
Three Types of Resources or Factors of Production

- *Expendable* factors of production are raw materials, or produced factors that are completely used up or consumed during a single production period.
Three Types of Resources or Factors of Production

- Expendable factors of production are raw materials, or produced factors that are completely used up or consumed during a single production period.

- Capital is a stock that is not used up during a single production period, provides services over time, and retains a unique identity.
Three Types of Resources or Factors of Production

- *Expendable* factors of production are raw materials, or produced factors that are completely used up or consumed during a single production period.

- *Capital* is a stock that is not used up during a single production period, provides services over time, and retains a unique identity.

- *Capital services* are the flow of productive services that can be obtained from a given capital stock during a production period.
Three Types of Capital Resources

Basic Economic Problem

Goods and Services
- Goods
- Products
- Differentiation
- Utilities1
- Utilities2
- Resources
- Three Types
- Capital
- OC
- ExampleOC
- ResourceCost
- Rival
- NonRival
- Excludable
- Nonexcludable
- Public
- Categories
- Categories I
- Common
Three Types of Capital Resources

- *Land*—physical space together with the *natural resources* found above, beneath, or on it.
Three Types of Capital Resources

- **Land**—physical space together with the *natural resources* found above, beneath, or on it.

  Water, air, minerals, petroleum, coal, flora, fauna, …
Three Types of Capital Resources

- **Land**—physical space together with the *natural resources* found above, beneath, or on it.

- **Human Capital**—muscle-power, dexterity, abilities, skills and education embodied in a human being.
Three Types of Capital Resources

- **Land**—physical space together with the *natural resources* found above, beneath, or on it.

- **Human Capital**—muscle-power, dexterity, abilities, skills and education embodied in a human being.

- **Other Capital**—other long-lasting resources used to produce products and services.
Three Types of Capital Resources

- **Land**—physical space together with the natural resources found above, beneath, or on it.

- **Human Capital**—muscle-power, dexterity, abilities, skills and education embodied in a human being.

- **Other Capital**—other long-lasting resources used to produce products and services.
  1. Machinery
Three Types of Capital Resources

- **Land**—physical space together with the *natural resources* found above, beneath, or on it.

- **Human Capital**—muscle-power, dexterity, abilities, skills and education embodied in a human being.

- **Other Capital**—other long-lasting resources used to produce products and services.
  1. Machinery
  2. Irrigation pipe
Three Types of Capital Resources

- **Land**—physical space together with the *natural resources* found above, beneath, or on it.

- **Human Capital**—muscle-power, dexterity, abilities, skills and education embodied in a human being.

- **Other Capital**—other long-lasting resources used to produce products and services.
  1. Machinery
  2. Irrigation pipe
  3. Stocks of knowledge and information
Three Types of Capital Resources

- **Land**—physical space together with the *natural resources* found above, beneath, or on it.

- **Human Capital**—muscle-power, dexterity, abilities, skills and education embodied in a human being.

- **Other Capital**—other long-lasting resources used to produce products and services.
  1. Machinery
  2. Irrigation pipe
  3. Stocks of knowledge and information
  4. Legal rights

- **Goods and Services**
  - Goods
  - Products
  - Differentiation
  - Utilities
  - Utilities2
  - Resources
  - Three Types
  - Capital
  - OC
  - ExampleOC
  - ResourceCost
  - Rival
  - NonRival
  - Excludable
  - Nonexcludable
  - Public
  - Categories
  - Categories I
  - Common
Opportunity Cost

The **opportunity cost** of any good or service is its value in its next best alternative use.
Opportunity Cost

The opportunity cost of any good or service is its value in its next best alternative use.

For example, the opportunity cost of the service of an input used in the production of any particular commodity is the maximum amount that the input would produce of any other commodity.
Opportunity Cost

The **opportunity cost** of any good or service is its value in its next best alternative use.

For example, the opportunity cost of the service of an input used in the production of any particular commodity is the maximum amount that the input would produce of any other commodity.

Opportunity costs are usually measured in monetary terms so that the opportunity cost of any good or service is the maximum amount the good or service could receive elsewhere for use as a production input or for final consumption.
Examples of Opportunity Cost

- Use of land owned by the farmer to grow wheat
Examples of Opportunity Cost

- Use of land owned by the farmer to grow wheat
- Use of wife’s labor to gather firewood
Examples of Opportunity Cost

- Use of land owned by the farmer to grow wheat
- Use of wife’s labor to gather firewood
- Use of water for growing padi
Examples of Opportunity Cost

- Use of land owned by the farmer to grow wheat
- Use of wife’s labor to gather firewood
- Use of water for growing padi
- Use of cattle dung to produce biogas
Examples of Opportunity Cost

- Use of land owned by the farmer to grow wheat
- Use of wife’s labor to gather firewood
- Use of water for growing padi
- Use of cattle dung to produce biogas
- Time spend playing cards
Cost of Resources

We frequently measure the value of a particular resource by its opportunity cost.
Cost of Resources

We frequently measure of the value a particular resource by its **opportunity cost**

Consider how we might measure the value or cost of the following items.
Cost of Resources

We frequently measure the value of a particular resource by its **opportunity cost**.

Consider how we might measure the value or cost of the following items.

- Diesel used to transport gravel to a construction site
We frequently measure of the value a particular resource by its **opportunity cost**

Consider how we might measure the value or cost of the following items.

- Diesel used to transport gravel to a construction site
- Labor hired to clean up a landfill
Cost of Resources

We frequently measure the value of a particular resource by its **opportunity cost**

Consider how we might measure the value or cost of the following items.

- Diesel used to transport gravel to a construction site
- Labor hired to clean up a landfill
- Use of water for growing padi
Cost of Resources

We frequently measure of the value a particular resource by its **opportunity cost**

Consider how we might measure the value or cost of the following items.

- Diesel used to transport gravel to a construction site
- Labor hired to clean up a landfill
- Use of water for growing padi
- Corn grown and then fed to cattle on the same farm
Cost of Resources

We frequently measure of the value a particular resource by its opportunity cost

Consider how we might measure the value or cost of the following items.

- Diesel used to transport gravel to a construction site
- Labor hired to clean up a landfill
- Use of water for growing padi
- Corn grown and then fed to cattle on the same farm
- Land used for a public park
Cost of Resources

We frequently measure of the value a particular resource by its **opportunity cost**

Consider how we might measure the value or cost of the following items.

- Diesel used to transport gravel to a construction site
- Labor hired to clean up a landfill
- Use of water for growing padi
- Corn grown and then fed to cattle on the same farm
- Land used for a public park
- Goodwill generated by a particular brand
Rival goods are goods whose consumption by one consumer prevents simultaneous consumption by other consumers.
Rival Goods

*Rival* goods are goods whose consumption by one consumer prevents simultaneous consumption by other consumers.
Rival Goods

*Rival* goods are goods whose consumption by one consumer prevents simultaneous consumption by other consumers.
Rival Goods

*Rival* goods are goods whose consumption by one consumer prevents simultaneous consumption by other consumers.

Both expendable and capital goods can be rival goods.
Nonrival Goods

*Nonrival* goods may be consumed by one consumer without preventing simultaneous consumption by others.
Nonrival Goods

*Nonrival* goods may be consumed by one consumer without preventing simultaneous consumption by others.
Nonrival Goods

*Nonrival* goods may be consumed by one consumer without preventing simultaneous consumption by others.
Nonrival Goods

Nonrival goods may be consumed by one consumer without preventing simultaneous consumption by others.

Most nonrival goods are intangible.
With *excludable* goods or services, it is possible to prevent people who have not paid for them from enjoying the benefits.
Excludable Goods

With *excludable* goods or services, it is possible to prevent people who have not paid for them from enjoying the benefits.
Excludable Goods

With *excludable* goods or services, it is possible to prevent people who have not paid for them from enjoying the benefits.

Other examples of excludable goods include movie theatres, bridges (with gates), large parks with fences, and private lakes.
Nonexcludable Goods

With *nonexcludable* goods or services, it is impossible or extremely costly to exclude nonpayers from consumption.
Nonexcludable Goods

With *nonexcludable* goods or services, it is impossible or extremely costly to exclude nonpayers from consumption.
Nonexcludable Goods

With *nonexcludable* goods or services, it is impossible or extremely costly to exclude nonpayers from consumption.

Other examples of nonexcludable goods include the ocean, air, an underground aquifer, large parks without fences, and mosquito spraying operations.
Public goods are goods that all individuals want, but for whose production it is often not individually rational for people voluntarily to do their part to secure a collectively rational outcome.
Public Goods

*Public* or collective goods are goods that all individuals want, but for whose production it is often not individually rational for people voluntarily to do their part to secure a collectively rational outcome.

An example might be a neighborhood park that is open to all.
Public Goods

*Public* or collective goods are goods that all individuals want, but for whose production it is often not individually rational for people voluntarily to do their part to secure a collectively rational outcome.

An example might be a neighborhood park that is open to all.

If there is no way to charge admission for use of the park, many people may want to “free-ride”.
## Categories of Goods

<table>
<thead>
<tr>
<th></th>
<th>Excludable</th>
<th>Non-excludable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rivalrous</strong></td>
<td>Private goods</td>
<td>Common-pool resources</td>
</tr>
<tr>
<td></td>
<td>Food, clothing, trucks, tools,</td>
<td>Water, fish, game (hunting), petroleum</td>
</tr>
<tr>
<td><strong>Non-rivalrous</strong></td>
<td>Club goods</td>
<td>Pure public goods</td>
</tr>
<tr>
<td></td>
<td>Satellite television, homeowners’ association</td>
<td>National defense, air, free-to-air television</td>
</tr>
</tbody>
</table>
## Categories of Goods (Test)

<table>
<thead>
<tr>
<th></th>
<th>Excludable</th>
<th>Non-excludable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rivalrous</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Non-rivalrous</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Common-Pool Resources

Basic Economic Problem

Goods and Services
- Goods
- Products
- Differentiation
- Utilities1
- Utilities2
- Resources
- Three Types
- Capital
- OC
- ExampleOC
- ResourceCost
- Rival
- NonRival
- Excludable
- Nonexcludable
- Public
- Categories
- Categories I
- Common
Common-Pool Resources

- Characteristics of common pool resources
Common-Pool Resources

- Characteristics of common pool resources
  - Rival
Common-Pool Resources

- Characteristics of common pool resources
  - Rival
  - Non-excludable
Common-Pool Resources

- Characteristics of common pool resources
  - Rival
  - Non-excludable

Or exclusion costs are very high
Common-Pool Resources

- Characteristics of common pool resources
  - Rival
  - Non-excludable

- When no one owns a resource, users have no incentive to conserve for the future, or to consider the foregone benefits to others
Common-Pool Resources

- Characteristics of common pool resources
  - Rival
  - Non-excludable

- When no one owns a resource, users have no incentive to conserve for the future, or to consider the foregone benefits to others

- Examples