Environmental Economics
No.5

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Resource Scarcity, Economic Efficiency, and Markets

Two objectives of this part are considered:

2. to show how prices are formed in the market
and
the extent to which prices can be used as a measure of resource scarcity.

2. to provide a clear understanding of the welfare implications of the allocative efficiency of perfectly competitive markets, the so-called invisible hand theorem.

General Rule

If a resource, whether it be a barrel of oil, or old-growth forest, is priced to reflect its **true and complete cost to society**, market will ensure that those resources are used in an optimally efficient way.

Consumers and producers in a market-oriented economy.

viewed as being single-minded ➡ **self-interest**

For consumers

maximizing the level of satisfaction

Goods and Services

For producers

maximizing profits ⬅ the degree of competition

❖**maximize utility**

❖ First working principle of the **market-oriented economy**

The effectiveness of an economy

→ how well it satisfies the material **needs** of its **consumers**

producing the **maximum output** from a given set of basic resources
(labor, capital and natural resources).

This is possible if, and only if, resources are….

- fully employed
- no misallocation of resources

→ Production Possibility Frontier

❖ **Efficiency**

❖ Second working principle of the market-oriented economy

institutional performance

Q) what conditions must a market system satisfy in order to be considered as **an efficient institution** for allocating resources?

Perfectly Competitive Markets

- Freedom of choice based on self-interest and rational behavior
- Perfect information
- Competition
- Mobility of resources
- Ownership rights

market prices will measure the true scarcity value of resources

Q) Roles (Functions) of price

Price as information signal

willing to enter into a specific market transaction

Price as market clearing signal

market equilibrium

Price as a measure of resource scarcity

For consumers, price measures *marginal private benefit* (MPB)

For producers, prices measure marginal private cost (MPC)

$$P_e = MPB = MPC$$

the higher the price is, the more scarcity of a good is.

Price as a signal of the trend of a good or service cost over time

Changes in aggregate costs over time

Thus, the possibility exists for the price of natural resources to be increasing while the price of a good or service is declining.

Note that this observation does not take account of technological factors.

Case Study: Rising food prices in 2008: energy security, food security, and environmental concerns.

FAO, OECD, and USDA

- The observed increase in food prices is **not a temporary** phenomenon, but likely to **persist in the medium term**.
- The impact of policies aimed at achieving **energy security** and **reduced carbon dioxide emissions**
- These objectives trade-off with **food security objectives**

The rising trend in international food prices continued accelerated in 2008

wheat export prices (181% of wheat prices 83 % food prices, 36 M) and rice export prices rose

Increased bio-fuel production **U.S**

- Oil prices
- Energy security
- Energy security
- Climate change

increased demand for bio-fuel raw materials, such as wheat, soy, maize and palm oil

Thank you