

Ch. 27 - Economics and Environment

Economic Goods, Resources, and Systems

What supports and drives economies?

Economy- a system of production, distribution, and consumption of economic goods: any material items or services that satisfy people's wants or needs. Economic decisions- are made in an economy about goods and services to produce, how to produce them, how much to produce, how to distribute them, and what to buy and sell.

Three Economic Resources:

Earth capital or natural resources

Manufactured Capital

Human capital

What are the Major Types of Economic Systems?

Two types:

Centrally planned - all economic decisions are made by the government. This command-and-control system assumes that government control and ownership of the means of production are the most efficient and equitable way to produce, use, and distribute goods and services.

Market Based (Pure Capitalism) - all economic decisions are made in markets, in which buyers (demanders) and sellers (suppliers) of economic goods freely interact without government or other interference.

Economists often depict pure capitalism as a circular flow of economic goods and money between households and businesses operating essentially independently of the ecosphere.

Economic decisions in a pure market system are governed by interactions of DEMAND, SUPPLY, and PRICE.

Market equilibrium occurs when the quantity supplied equals the quantity demanded, and the price is no higher than buyers are willing to pay and no lower than sellers are willing to accept.

*If price, supply, and demand are the only factors involved, the demand and supply curves for an economic good intersect at the market equilibrium point.

Why do we find mixed economic systems in the real world?

ALL countries have mixed economic systems that fall somewhere between the pure market and pure command systems.

China and North Korea- their economic systems fall toward the command-and-control end of the economic spectrum.

U.S. and Canada- fall toward the market-based end of the spectrum.

MOST other countries fall somewhere in between.

Pure free-market economies don't exist because they have flaws that require government intervention in the marketplace. This can prevent a single seller or buyer (monopoly) or a single group of sellers or buyers (oligopoly or cartel) from dominating the market and thus controlling supply or demand and price. **Governments intervene** in economies to....

- provide national security, education, and public goods

- help redistribute some income and wealth

- protect people from fraud, trespass, theft, and bodily harm

- protect the health and safety of workers and consumers

- help ensure economic stability

Pure command economies don't exist either. Countries in Eastern Europe, the former Soviet Union, and China have moved away from command economic systems and toward market-based approaches.

Economic Growth and External Costs

How is economic growth measured?

Economic growth is the increase in the capacity of the economy to provide goods and services for people's final use. Such growth is usually accomplished by maximizing the flow of matter and energy resources (throughout) by means of population growth (more consumers), more consumption per person, or both. Economic growth is usually measured by the increase in a country's gross domestic product (GDP), the market value of all goods and services produced by an economy within its borders for final use during a year, and by its gross national product (GNP). The GDP plus the net income from abroad. To get the real GNP or GDP: the GNP or GDP adjusted for inflation (any increase in the average price level of final goods and services).

The real per capita GNP or GDP: the real GNP or GDP divided by the total population.

*If the population expands faster than economic growth, then real per capita GNP or GDP falls.

Is economic growth sustainable?

To environmentalists and a small but growing number of economists and business leaders, the notion of sustainable growth is nonsense because nothing that is based on the consumption of the earth capital that sustains all economies can grow indefinitely.

Instead of unlimited economic growth, such critics call for economically sustainable development. This occurs when the total human population size and resource use in the world are limited to a level that does not exceed the carrying capacity of the existing natural capital, and are therefore sustainable.

Are GNP and GDP useful measures of quality of life and environmental degradation?

GNP and GDP indicators are poor measures of human welfare, environmental health, or even economic health, for the following reasons:

They hide the negative effects of producing many goods and services. Pollution, crime, sickness, death, and depletion of natural resources are all counted as positive gains in the GDP or GNP.

Pollution is counted as a triple positive gain even though it decreases the quality of life for hundreds of millions of people and should be subtracted from the GNP.

GNP and GDP don't include the depletion and degradation of natural resources or earth capital on which all economies depend. GNP and GDP hide or underestimate some of the positive effects of responsible behavior on society.

Solutions: How can environmental accounting help?

Environmentalists and a growing number of economists believe that GNP and GDP indicators should be replaced or supplemented with widely publicized environmental and social indicators that give a more realistic picture by subtracting from the GDP and GNP things that lead to a lower quality of life and depletion of Earth capital.

The net national product (NNP) includes the depletion and destruction of natural resources as a factor in GNP.

The index of sustainable economic welfare (ISEW) measures per capita GNP adjusted for inequalities in income distribution, depletion of nonrenewable resources, loss of wetlands, loss of farmland from soil erosion and urbanization, the cost of air and water pollution, and estimates of long-term environmental damage from ozone depletion and possible global warming.

A more recent similar indicator is called the genius progress indicator (GPI). When this indicator is applied to the United States, the GPI per person has steadily declined since 1973.

Case Study: Kerala: Improving life quality without conventional economic growth

Kerala has sought to better the lot of its people by economic redistribution.

Life expectancy in Kerala is 70 years, compared with 64 years in developing countries and 59 years in India.

Kerala demonstrates that a very low-level economy can provide its citizens with education, health services, and a sense of community and hope.

What are internal and external costs?

Internal costs - all direct costs, that are paid for by the seller and the buyer of an economic good.

Making, distributing, and using any economic good or service also involve externalities: social costs or benefits not included in the market price.

Harmful effects are external costs passed on to workers, the public, and in some cases future generations.

To conventional economists, external costs are minor defects in the flow of production and consumption in a self-contained economy not significantly dependent on earth capital.

To environmentalists and an increasing number of economists and business leaders, harmful externalities are a warning sign that our economic systems are stressing the ecosphere and depleting earth capital.

Solutions: Using economics to improve environmental quality

Should we shift to full-cost pricing?

One way of dealing with the problem of harmful external costs is for the government to levy taxes, pass laws, provide subsidies, or use other strategies that encourage or force producers to include all or most of these costs in the market prices of economic goods and services.

Then that price would be the full cost of these goods and services: internal costs plus short- and long-term external costs.

The two main goals are to:

1. Close the gap between real and false prices by having prices that tell the environmental truth
2. Have people and businesses pay the full costs of the harm they do to others and the environment.

Full-cost pricing involves internalizing the external costs, which requires government action because few companies will intentionally increase their cost of doing business unless their competitors must do so as well.

How useful is cost-benefit analysis?

Cost-benefit analysis- comparing the estimated short-term and long-term costs (losses) with the estimated benefits (gains) for various courses of action.

Environmental problems, like most important policy issues, involve more than costs and benefits; they also involve rights and wrongs, values and visions.

To minimize possible abuses, the following guideline should be done for all cost-benefit analyses:

- Use uniform standards

- Clearly state all assumptions

- Evaluate the reliability of all data inputs as high, medium, and high discount rates

- Make projections using low, medium, and high discount rates

- Show the estimated range of costs and benefits based on various sets of assumptions

- Estimate the short- and long-term benefits and costs to all affected population groups

- Estimate the effectiveness of the project or form of regulation instead of assuming that all projects and regulations will be executed with 100% efficiency and effectiveness

- Open the evaluations to public review and discussion

Should we rely mostly on regulations or market forces?

Regulation is a **command-and-control approach**. It involves **enacting and enforcing laws**.

Market forces can help improve environmental quality and reduce resource waste, mostly by encouraging the internalization of external costs.

One way to put the principle of the marketplace into practice would be to phase in government subsidies that encourage earth-sustaining behavior and phase out current perverse subsidies that encourage earth-degrading behavior.

Another market approach is for the government to grant tradable pollution and resource-use rights.

Another market-based method is to enact green taxes or effluent fees that would help internalize many of the harmful external costs of production and consumption.

Charging user fees is another market-based method. Users would pay fees to cover all or most costs for grazing livestock, extracting lumber and minerals from public lands, etc.

Another market approach would require businesses to post a pollution prevention or assurance bond when they plan to develop a new mine, plant, incinerator, landfill, or development and before they introduce a new chemical or new technology.

Should we emphasize pollution control or pollution prevention?

Our goal should be zero pollution, but not necessarily because...

First, natural processes can handle some of our wastes, as long as we don't destroy, degrade, or overload these processes.

Second, as long as we continue to rely on pollution control, we can't afford zero pollution. Is encouraging global free trade environmentally helpful or harmful?

Uruguay Round of the General Agreement on Tariffs and Trade (GATT)-

establishes a World Trade Organization (WTO), giving it the status of a major international organization and the power to oversee and enforce the agreement.

Agreements to reduce global trade barriers have a number of important benefits:

Will benefit developing countries, whose products are often at a competitive disadvantage in the global market place because of trade barriers erected by developed countries.

Can allow consumers to buy more things at cheaper prices, this stimulating economic growth in all countries.

Can raise the overall global levels of environmental protection and worker health and safety.

Most environmental groups, and those concerned with consumer protection and worker safety and health, oppose the new GATT for several reasons:

They believe that the GATT will not provide ample economic benefits for everyone.

They think the GATT will increase the economic and political power of multinational corporations and decrease the power of small businesses, citizens, and democratically elected governments.

GATT will probably weaken environmental and health and safety standards in developed countries.

Faced with cheaper foreign products, domestic businesses operating in the international marketplace will have three choices:

Go out of business

Move some or all of their operations abroad to take advantage of cheaper labor and less restrictive environmental and worker safety regulations

Lobby to weaken domestic environmental, health, and worker and consumer safety laws.

Solutions: Reducing Poverty

Does the trickle-down approach to reducing poverty work?

Poverty - the inability to meet one's basic economic needs

Causes premature deaths

Causes preventable health problems

Increases birth rates

Pushes people to use potentially renewable resources unsustainably in order to survive.

Instead of trickling down, most of the benefits of economic growth as measured by income have flowed up since 1960, making the top one-fifth of the world's people much richer and the bottom one-fifth poorer. A major component of the flow-up system is government subsidies that encourage resource depletion, pollution, and environmental degradation-

this is called **perverse subsidies**.

How can poverty be reduced?

Several controversial ways to reduce poverty are:

Forgiving at least 60% of the almost \$2 trillion that developing countries owe to developed countries and international lending agencies

increasing the nonmilitary aid to developing countries from developed countries

shifting most international aid from large-scale to small-scale projects intended to benefit local communities of the poor

encouraging banks and other organizations to make small loans to poor people wanting to increase their income

Solutions: Converting to Earth-Sustaining Economies

How can we make working with the earth profitable?

Principles for transforming the planet's current earth-degrading economic systems into earth-sustaining, or restorative, economies over the next several decades:

Reward earth-sustaining behavior

Discourage earth-degrading behavior

Use full-cost accounting to include the ecological value of natural resources in their market prices

Use environmental and social indicators to measure progress toward environmental and economic sustainability and human well being

Use full-cost pricing to include the external costs of goods and services in their market prices

Replace taxes on income and profits with taxes on throughput of matter and energy

Use low discount rates for evaluating future worth of irreplaceable or vulnerable resources

Establish public utilities to manage and protect public lands and fisheries

Revoke the government-granted charters of environmentally and socially irresponsible businesses

Make environmental concerns a key part of all trade agreements and of all loans made by international lending agencies

Reduce waste of energy, water, and mineral resources

Preserve biodiversity

Reduce future ecological damage and repair past ecological damage

Reduce poverty

Slow population growth

How can we make the transition to an earth-sustaining economy?

The environmental revolution is also an economic revolution that uses a mix of regulations and market-based approaches to reward earth-sustaining behavior by businesses and consumers and discourage earth-degrading behavior.

This system for change represents a shift in determining which economic actions are rewarded (profitable) and which ones are discouraged.

The problem in making this shift is not economics, but politics.

Case Studies: Ecological and Economic policies in Germany and the Netherlands

How is Germany investing in the future and the earth?

Stricter environmental standards and regulations in Germany have paid off in a cleaner environment and the development of innovative green technologies that can be sold at home and abroad in a rapidly growing market.

Germany continues to heavily subsidize its coal-mining industry, which increases environmental degradation and pollution and adds large amounts of carbon dioxide to the atmosphere.

What is the Netherlands' Green Plan to achieve an ecologically sustainable economy? 1989- the Netherlands began implementing their National Environmental Policy Plan (or Green Plan) for creating an economy that doesn't destroy the environment. The government identified 4 general themes for each target group to focus on:

I. Integrated life cycle management, which makes producers after users are through with them

II. Improving energy efficiency with the government committing \$385 million per year to energy conservation programs

III. Invention of new or improved more sustainable technologies, supported by a government program to help develop such technologies

IV. Improving public awareness through a massive government-sponsored public education program.

Can we change economic gears in the next few decades?

Critics claim that a shift toward an earth-sustaining economy won't happen because it would be opposed by people whose subsidies were being eliminated and whose activities were being taxed. Companies and countries fail to invest in a green future may find that they do not have a future.

The environmental revolution is also an economic revolution.