Valuing Nature: Environmental Economics & Ecosystem Services

CSS 235

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With special thanks to Sara Meloy

Economics

- The study of how society allocates and values scarce resources

- The social science concerned with production, consumption, and transfer of wealth

- Environmental Economics – A subset of economics concerned with the efficient allocation of environmental resources

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Environmental Economics

- A complicated and challenging task

- Inefficient allocation of goods and services within a free market system has frequently led to market failure

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Market Failures are common

- Market failure is often used to justify government policy intervention
  - Subsidies
  - Price Controls
  - Taxes
  - Bailouts
  - Regulation

- Three categories of market failure
  1. Negative externalities
  2. Public goods
  3. Tragedy of the commons

Policy Failure

- Subsidy: A government-directed, market-distorting intervention which decreases the cost of producing a specific good or service
  (e.g., farm subsidies, bio-fuel subsidies)

- Perverse Subsidies: Subsidies that can induce production & consumption behavior that exacerbate environmental degradation and discourage conservation practices
  -- Often well-intended but in practice they have unintended consequences:
  -- Policies that support intensive farming, bio-fuel production, wind farms, & low-head hydro have led to unsustainable use of resources & biodiversity loss.

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1. Negative Externalities

- Occur when prices of goods or services fail to reflect the true environmental costs of production

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2. Problems with Public Goods

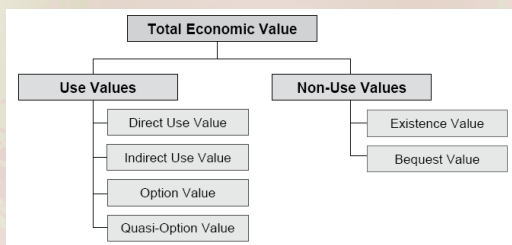○ "Free riders" or individuals that use public goods without helping to provide or improve them

3. Tragedy of the Commons

○ People tend to exploit resources for personal benefit but to the detriment of the overall capacity or productivity of the resource base.

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How do we calculate economic value?

Total Economic Value			
Use Values		**Non-Use Values**	
	Direct Use Value		Existence Value
	Indirect Use Value		Bequest Value
	Option Value		
	Quasi-Option Value		

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Methods & Tools Used in Economics

○ Cost-Benefit Analysis (CBA)

○ Requires enumerating all of the $ costs of a project

○ Requires enumerating all of the benefits measured in dollars

○ The B/C Ratio must be greater than 1

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Methods & Tools Used in Economics—Non-Market Valuation

○ Non-Market Valuation – techniques to estimate the economic value of items that do not have a known, tangible "market" value

○ Sometimes called "amenity" values

Three non-market valuation methods are commonly used:

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1. Hedonic Pricing Method

○ Used to estimate economic values for environmental attributes or services that directly affect market prices

○ Commonly used in real estate market
-- Noise
-- Proximity to schools & recreation
-- Attractive views
-- Clean air
-- Public transportation & safety

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2. Contingent Valuation

○ Asks people through surveys to state how much they would be willing to pay for specific environmental services

○ "Existance" value?

○ "Option" value?

○ "Bequest" value?

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3. Travel-Cost Method

- Used for estimating the economic values of sites used for outdoor recreation

- Measures the actual expenses people accumulate to visit sites
(food, gas, lodging, fees, etc.)

- Assumes that since people currently spend these amounts, the resource must be worth at least that much

- Enables comparing $ values for different sites

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Challenges of Environmental Economics

- Traditional economic valuations are based on utilitarian paradigm

- Assume everything can be assigned a $$ value

- Often fails to recognize there are values for NON-USE as well as for USE of natural resources

- Often overlooks the value of Ecosystem Services

- Overlooks that people are willing to vote to forego $$ value for other personal/cultural values

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