

Environmental & Natural Resource Economics

Chapter 2

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Outline for this Chapter

- ▶ Refresher on Economic Concepts
 - ▶ Environment as Asset
 - ▶ Normative vs. Positive Economics
 - ▶ Static Efficiency
 - ▶ Consumer and Producer Surplus
 - ▶ Importance of Property Rights
 - ▶ Externalities
 - ▶ Common Property Resources
 - ▶ Public Goods
 - ▶ Market Failures and Solutions



The charming landscape which I saw this morning, is indubitably made up of some twenty or thirty farms. Miller owns this field, Locke that, and Manning the woodland beyond. But none of them owns the landscape. There is a property in the horizon which no man has but he whose eye can integrate all the parts, that is, the poet. This is the best part of these men's farms, yet to this their land deeds give them no title.

—Ralph Waldo Emerson, *Nature* (1836)





Looking west from Shenandoah National Park's Shaver Hollow on clear (left) and hazy (right) days. NPS



Environment as an Asset

- ▶ Something owned or controlled that produces value
- ▶ Types of Common Financial Assets
 - ▶ Stocks, bonds, precious metals, real estate, commodities
- ▶ Environment as Special Asset
 - ▶ Provides inputs into economy
 - ▶ Provides life-sustaining flow of services
 - ▶ Can also depreciate (pollution)



[Sustenance] springs from nature.

At The Natural Capital Project we're developing practical tools and approaches to account for nature's contributions to society, so that leaders of countries, companies, communities, and organizations worldwide can make smarter decisions for a more sustainable future.

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The Economist as Policy Adviser

▶ **Positive Statements**

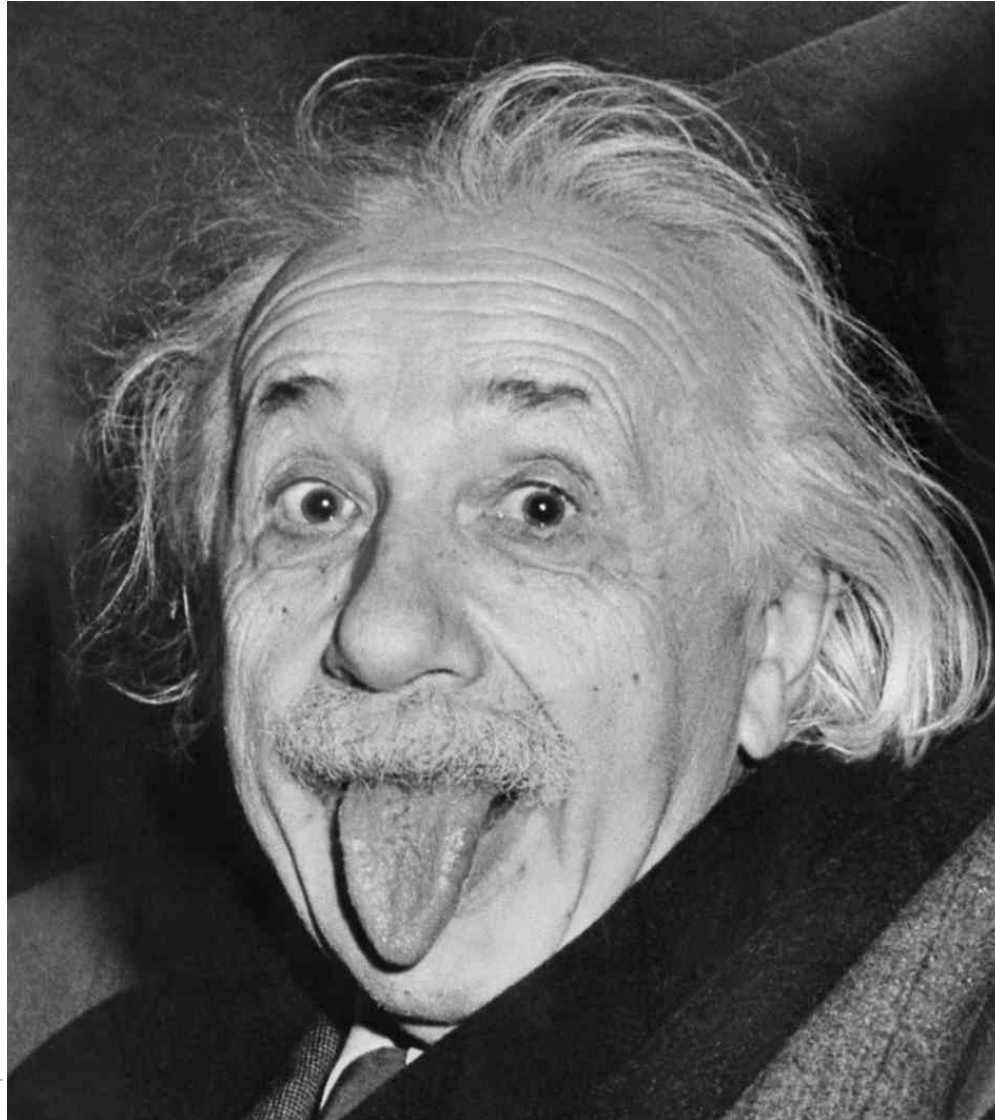
- ▶ Claims that attempt to describe the world as it is
 - ▶ “If I study ten hours per week, I will get an A in this class.”

▶ **Normative Statements**

- ▶ Claims that attempt to prescribe how the world should be
 - ▶ “I should get an A in this class.”
- ▶ Economists can use evidence (data) to judge the validity of positive statements.
- ▶ Positive views of how the world works affect normative views of about what policies are desirable.



THINK POSITIVE!



Economic Efficiency

- ▶ Allocation of resources that maximizes economic welfare (consumer + producer surplus)
- ▶ Normative criterion for decision making
- ▶ **Consumer Surplus**
 - ▶ The amount a buyer is willing to pay for a good minus the amount the buyer actually pays for it
- ▶ **Producer Surplus**
 - ▶ The amount a seller is paid for a good/service minus the seller's cost of providing it



Efficient Property Rights Structure

- ▶ **Exclusivity**

- ▶ All benefits and costs accrue to the owner and only to the owner

- ▶ **Transferability**

- ▶ Property rights are transferable from one owner to another in voluntary exchange

- ▶ **Enforceability**

- ▶ Secure from involuntary seizure or encroachment



Externality

- ▶ **Externality**

- ▶ The uncompensated impact of one person's actions on the well-being of a bystander (can be positive or negative)
- ▶ Violates Exclusivity requirement

- ▶ **Examples**

- ▶ **Negative**

- ▶ Exhaust from automobiles
- ▶ Fertilizer runoff
- ▶ Loud neighbors

- ▶ **Positive**

- ▶ Research into new technologies
 - ▶ Education
 - ▶ Planting a tree in your yard
-





Property Rights Structures

- ▶ Private (individual)
- ▶ State-Property Regimes
 - ▶ Owned by government (communist countries, but also capitalist countries)
 - ▶ Parks and forests
- ▶ Common Property
 - ▶ Jointly owned and managed
- ▶ Open Access
 - ▶ No one owns or controls (non-excludable)



Some Important Properties of Goods

▶ Excludability

- ▶ The property of a good whereby a person can be prevented from using it
 - ▶ Can you be prevented from eating a snickers bar for free?
 - ▶ If a tornado siren goes off right now, can I exclude you from hearing it?

▶ Rival in Consumption

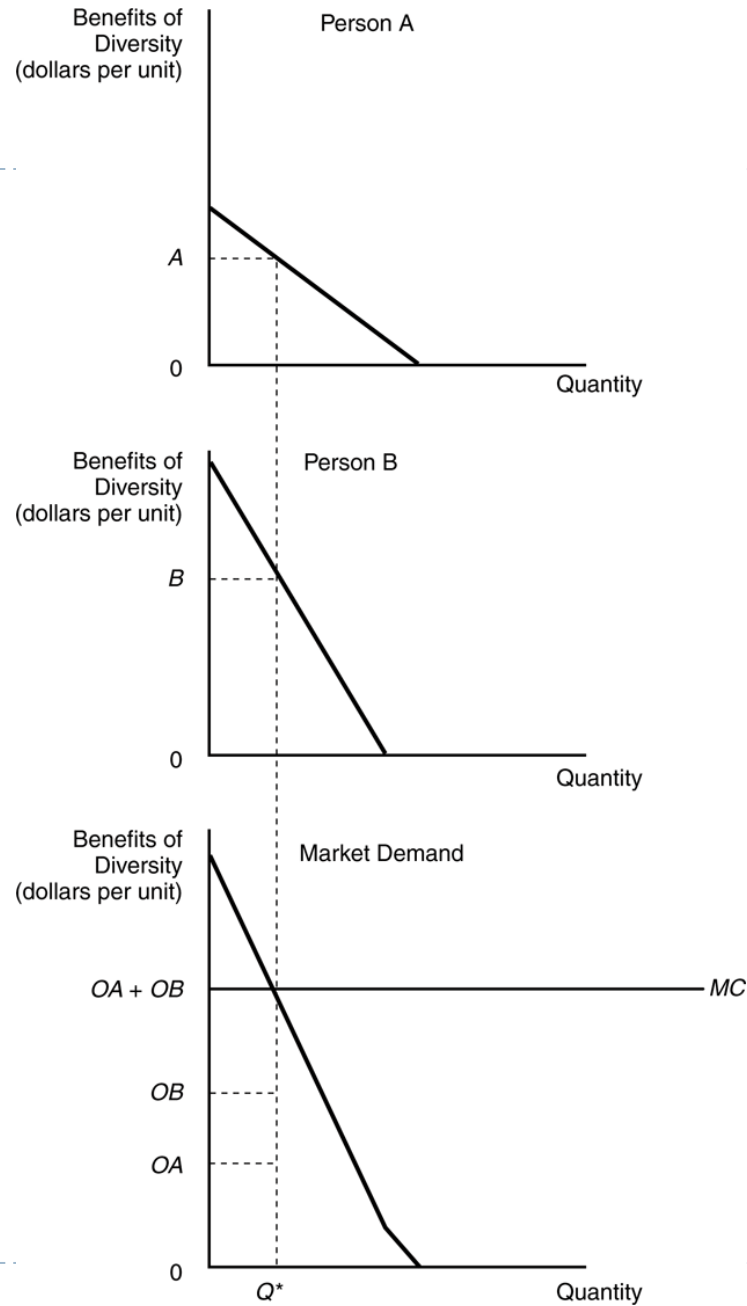
- ▶ The property of a good whereby one person's use diminishes other people's use of the good
 - ▶ If I eat a snickers bar, can you still eat it? (Probably not!)
 - ▶ If I take a deep breath right now, can you still breathe?



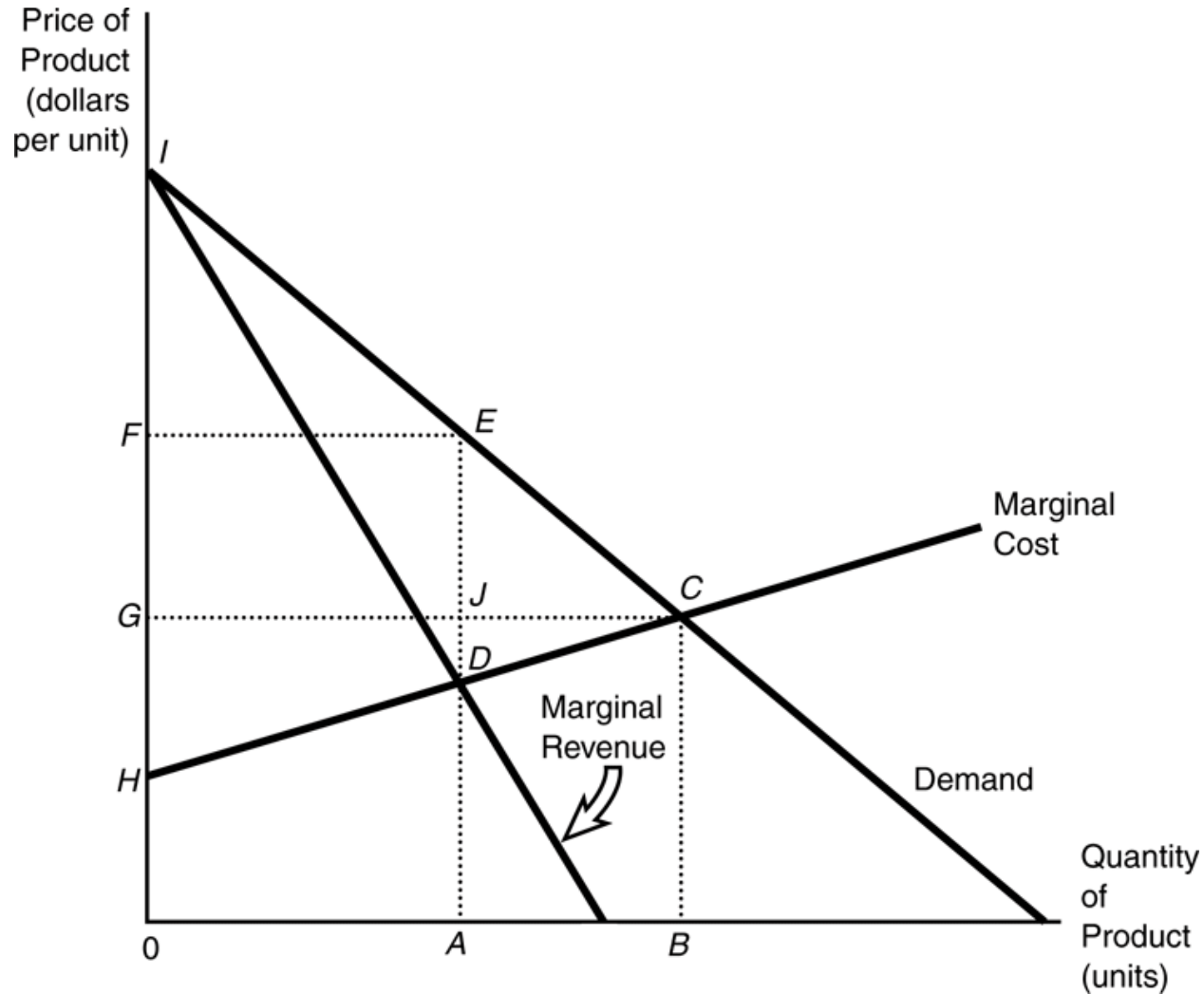
Private Goods, Club Goods, Common Resources, Public Goods



Public Goods vs. Private Goods



Imperfect Market Structures - Monopoly



Government Intervention - Subsidies

Coal production - Subsidy plan will help W.Va.

Bluefield Daily Telegraph Jul 30, 2018



Bluefield Daily Telegraph

West Virginia Gov. Jim Justice apparently has the ear of President Donald Trump when it comes to coal production in the Mountain State.

Justice is urging Trump to follow up on his plan for the federal government to provide subsidies to the coal industry on the East Coast, a plan that Justice says would ensure a reliable supply to the power grid if, for some reason like a terrorist attack, coal from the western states was unavailable for an extended period of time.

Justice discussed his plan last week during a stop in Bluefield, when he participated in the state's Business & Industry Council Policy & Progress forum at the Bluefield Arts Center.



How can we achieve efficiency?

- ▶ If we establish property rights, can we achieve efficiency?
- ▶ If we do, who has the property right? Does it matter?
- ▶ The Coase Theorem
 - ▶ When negotiation costs are negligible and affected parties can freely negotiate, giving the rights to either party will lead to an efficient allocation.
 - ▶ Only the distribution of costs and benefits among the effective parties is changed.



Why is this difficult in practice?

- ▶ Non-rivalness, non-excludability of public goods
- ▶ Non-excludability, rivalness of common property resources
- ▶ Suggests a role for government
 - ▶ Establish property rights (exclusivity, transferability, enforceability)
 - ▶ Regulations where maximize net benefits of policy

