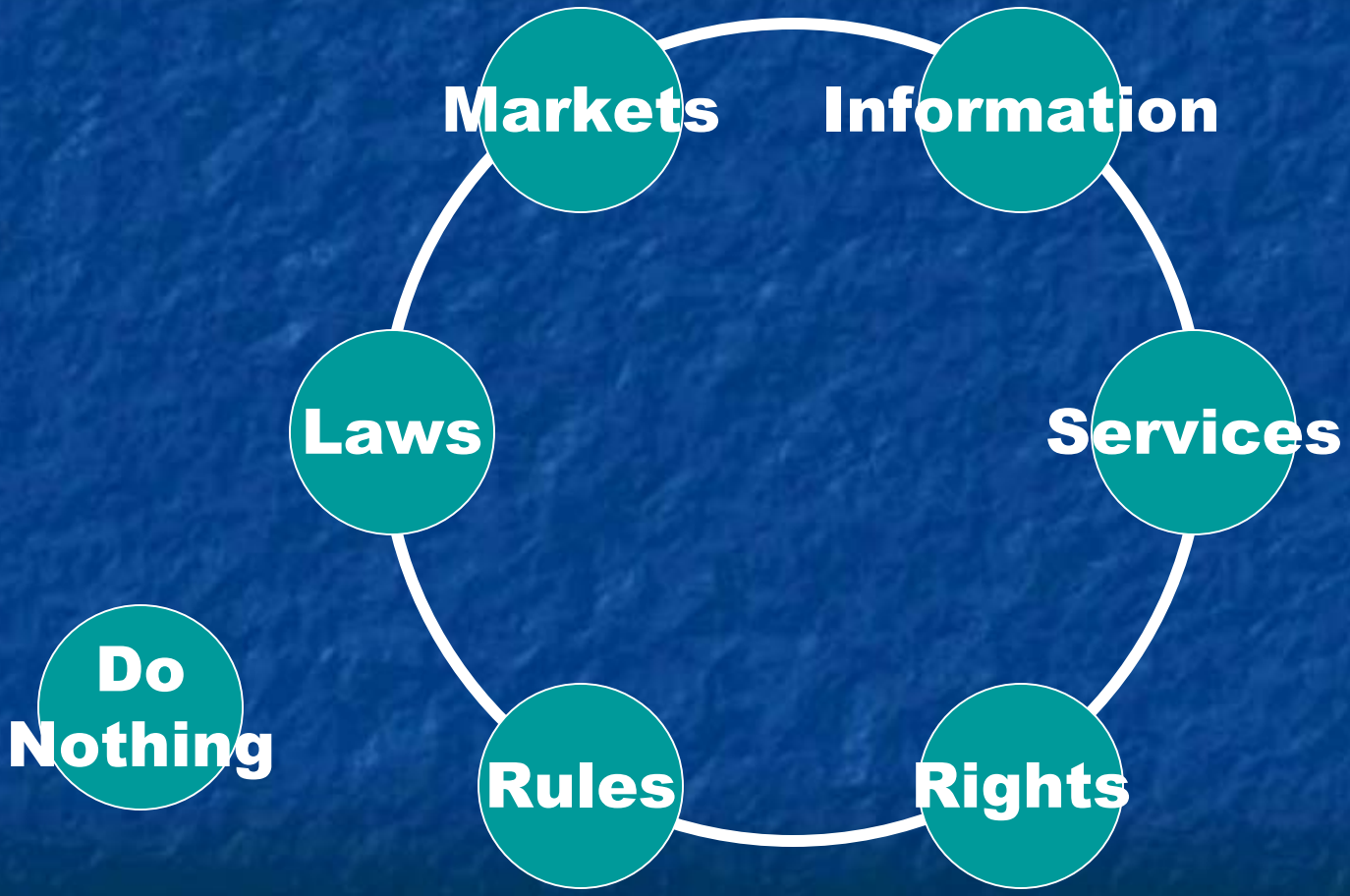
Economic Tools

In Environmental Policy

Forms of Government Action



Regulatory Decision-making

- Decisions by Expert Choice
  - High Knowledge Demands
- High Performance Information Demands
  - monitoring & compliance
- Enforcement
- Bureaucracy Growth

Economists' Critique – Pollution Regulation

- C & C Regulation is Inefficient
  - "One size fits all" rules
    - Does not recognize that it is easier and cheaper for some polluters to reduce pollution than others
  - Few incentives for innovation
  - Few incentives for voluntary compliance
  - High *transaction costs*

Economists' Critique – Government Ownership of Public Lands & Resources

- System is rife with abuse
  - Government is strongly influenced by special interests
  - Incompatible multiple-use policies
- Salience of environmental issues is too low
- Voters are "rationally ignorant"
  - "Costs" of getting necessary information are too high
  - Do not follow policy details
    - Voting is uninformed
    - Fails to send right signals to politicians or bureaucracy

Environmental Degradation from the Economic Perspective

- Primary Cause: Human Economic Activity
- Optimal vs. Excessive Levels of Environmental Degradation
  - Optimal degradation = most efficient use of resources
    - some pollution & resource consumption is necessary & desirable
  - Excessive degradation = "Externalities"
    - costs and negative consequences of an economic activity not included in the price of goods (Environmental subsidy)

Environmental Degradation from the Economic Perspective

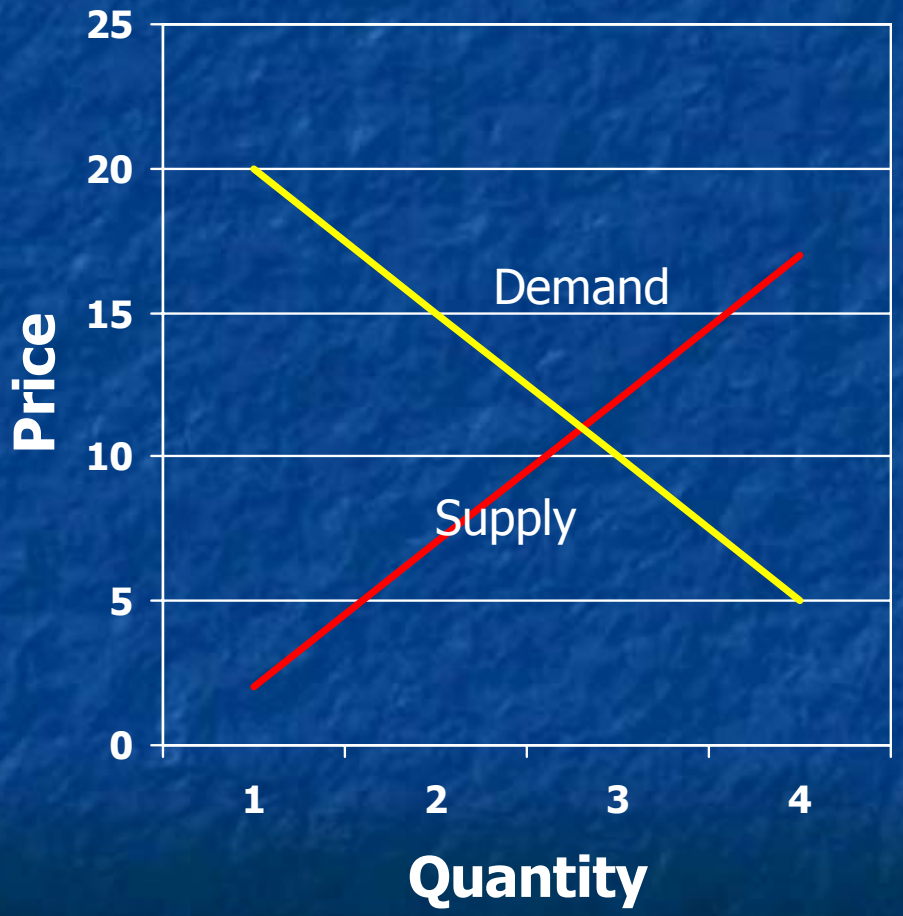
- "Setting pollution levels should be informed by science, but not dominated by it." – Mitchell & Simons (in Dryzek et al.)
  - consumers = ultimate polluters
    - due to products they demand
    - should pay full price of social costs of goods they consume
  - Industry is merely the middleman
  - citizen politics (preferences) must decide the balance between economic costs and environmental benefits

Economic Tools

- Tools
  - Pollution taxes & fees
  - Subsides (tax credits & payments)
  - Market system of tradable rights
- Economic incentive replaces bureaucratic enforcement
- "Price" replaces scientific information in making choices
- Reduces inefficiencies

Market Economy

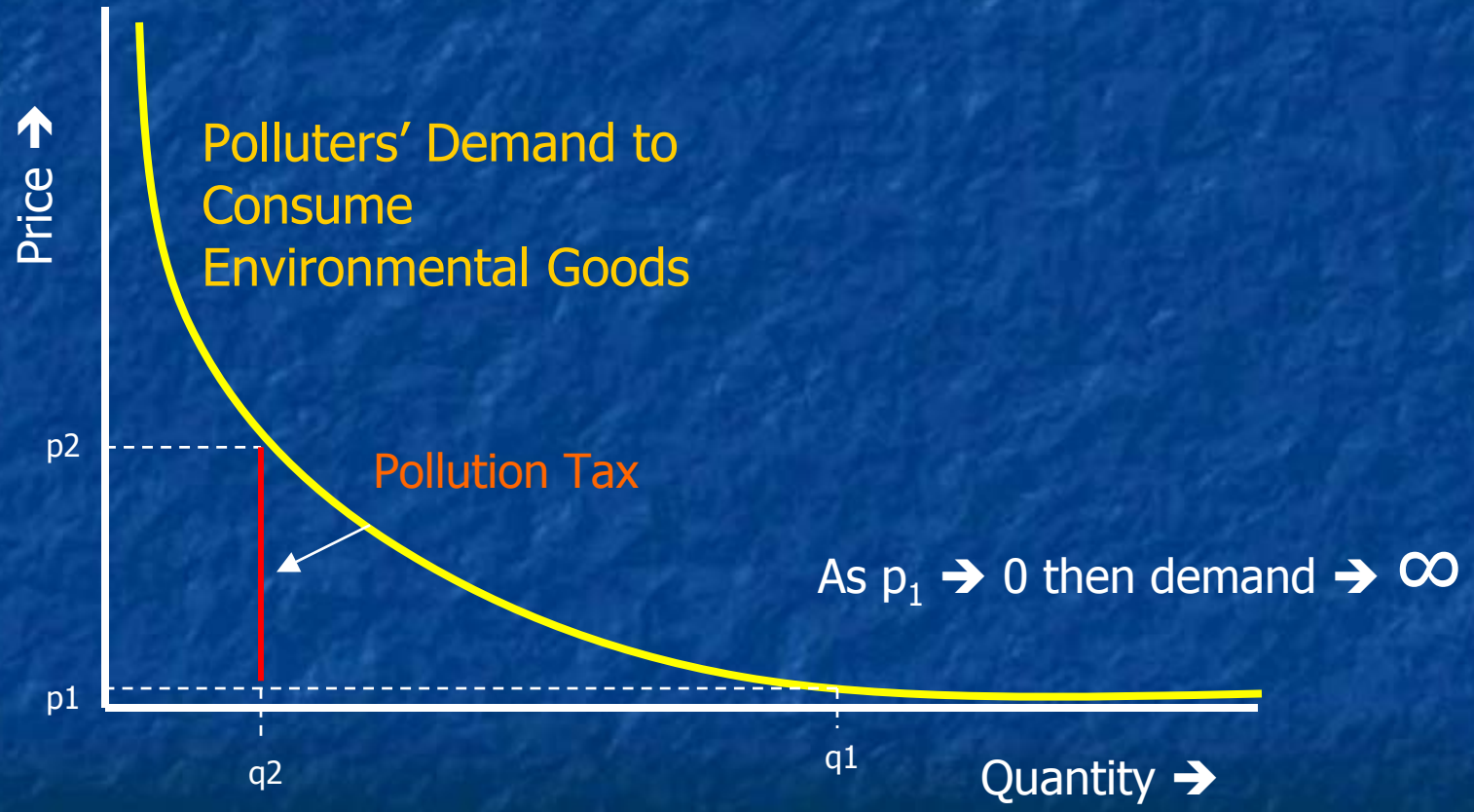
- Supply of a good & demand for it are determined by price
- Requirements
  - Enforceable property rights
  - Low cost of exclusion
  - Sufficient information



Environmental Taxes

Paying for the Right to Do Environmental Harm

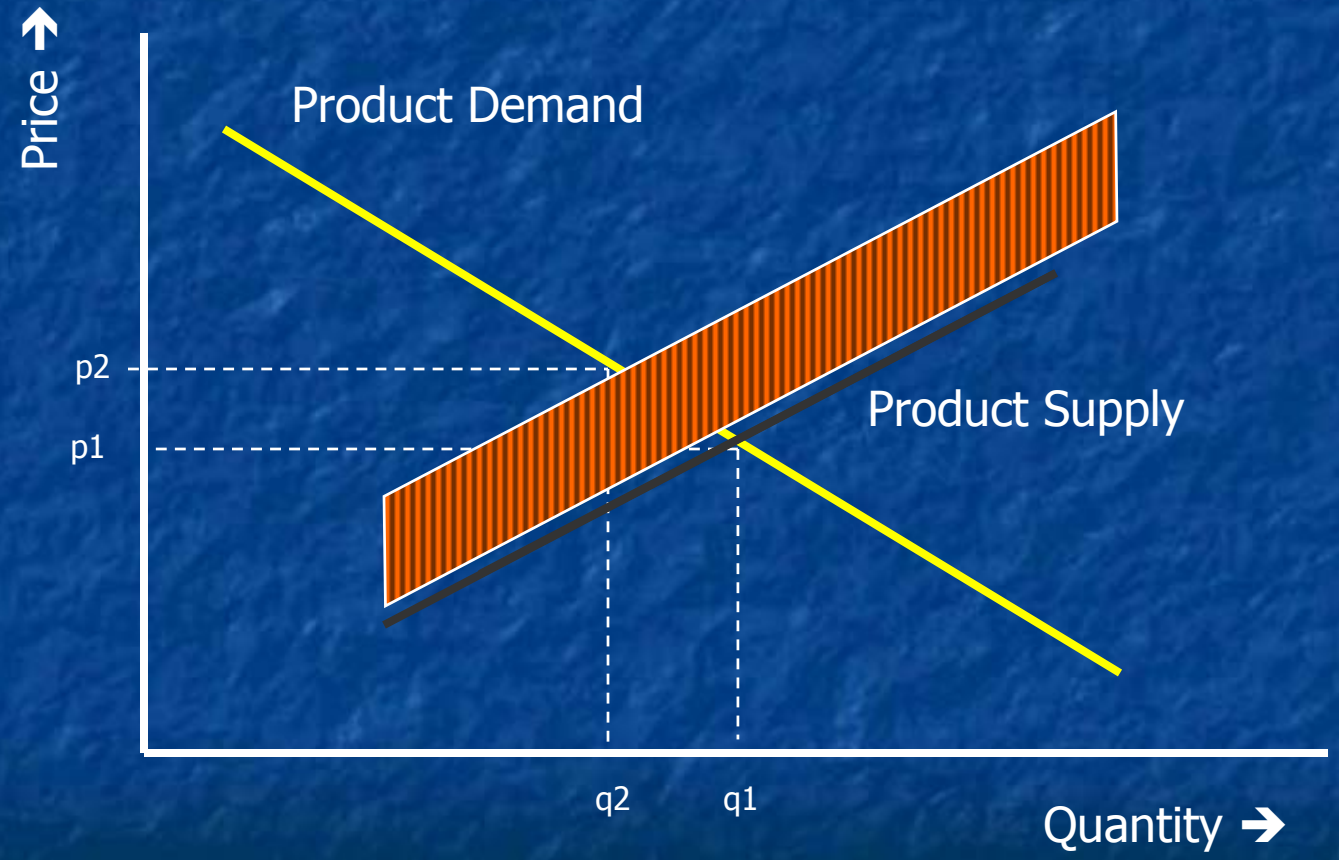
Polluter's Demand for Environmental Resource



Positive Implications of Pollution Taxes

- Efficiency Increased
  - Some will find it cheaper to reduce pollution, rather than pay taxes
  - Some will find it cheaper to pay taxes, rather than reduce pollution
  - Tax revenue can go to further pollution reduction
- Pollution Reduced or Compensated
- Polluter Pays

Taxing Environmental Externalities of Consumer Products



Impact of Taxes on Consumer Behavior

- Some consumers will choose to pay the tax
- Others will switch to lower polluting options
  - Lower cost, or
  - Equal cost but greater "value"
- Reduction in polluting product supply

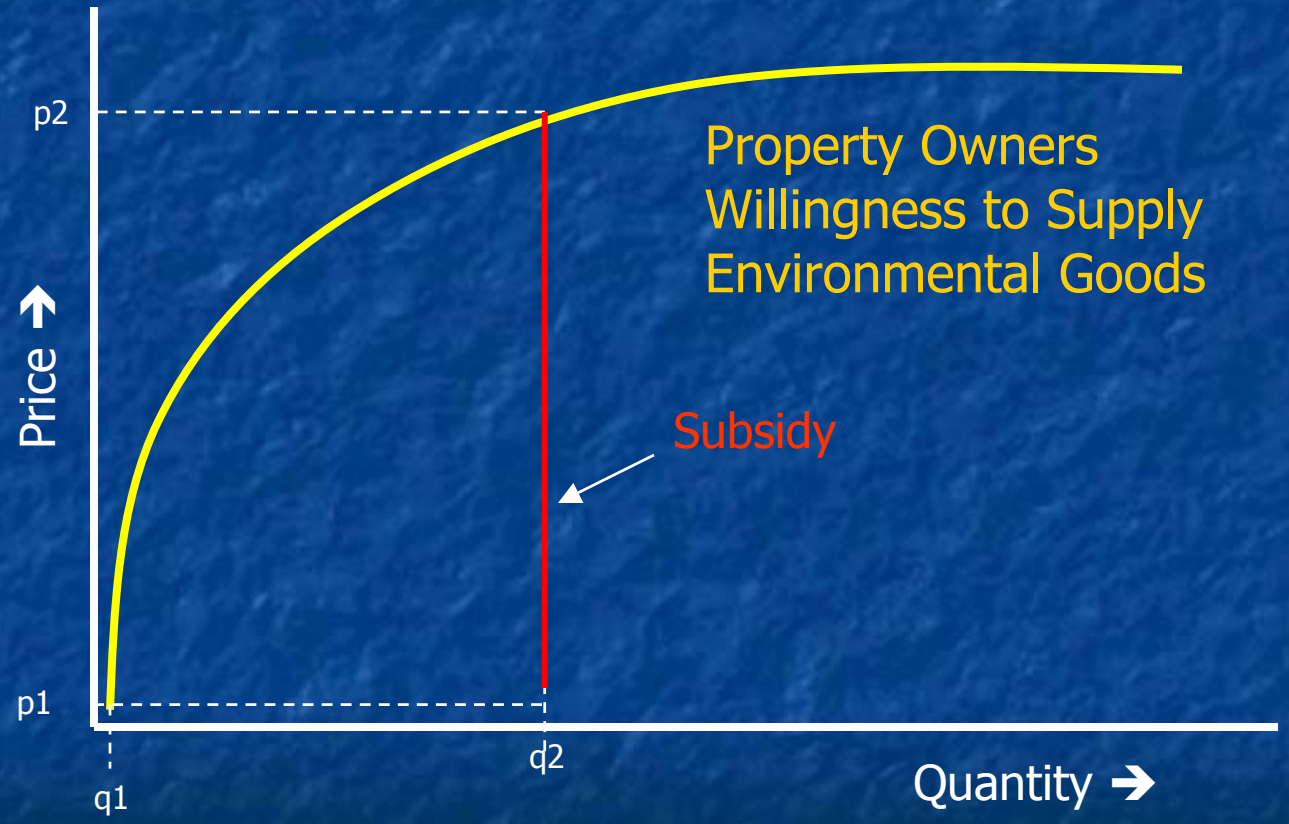
Questionable Implications of Pollution Taxes

- Government signal: it is ok to pollute as long as you can pay
  - Creating a *right* to pollute linked to wealth
    - Fewer choices for non-wealthy
  - Is getting the "job" done whatever the means the right message for government to send?
- How do we set the tax rate?
  - Monitoring, Enforcement, Compliance Demand (IRS)
  - Information demand may be same as regulation
- Discourages innovation

Environmental Subsides

Being Paid Not to Do Environmental Harm

Supply & Demand for Environmental Goods



Implications of Environmental Subsides

- Voluntary compliance
- Public burden sharing for public goods
- Perverse Incentives
  - Don't do the "right thing" without compensation – undermines public spirit
  - Search for environmental harms "not to do" in exchange for compensation
- Paying the "polluter"

Free Market Environmentalism & Public Lands and Resources

- System of enforceable property rights to natural resources
  - Everything is owned by someone
  - Wetlands, Rivers, Wildlife, Endangered Species, national forests, etc.
- Realization of self-interest is basic motivation
  - *invisible hand* guides action: wealth of property owner at stake → decisions to maximize gain
- Environmental "harms" handled by property damage claims via civil litigation
- Government role: guarantor of property rights

Free Market Environmentalism: Assumptions

- Basic Human Motivation = Realization of self-interest
- Property owners know better than experts the values of their property
  - information that property owners use to set prices is as good, or better than information that experts use to regulate
  - property owners are better suited to make decisions about value tradeoffs
- Markets are the most efficient means for making environmental decisions because they have lowest transaction costs
  - voluntary exchange of property rights among consenting owners minimizes litigation
  - no need for rules, monitoring, ubiquitous enforcement, bureaucracy, compliance paperwork, etc.

Free Market in Action

- Individual preferences will form a market if environmental goods can be bought
  - If people want wildlife and undisturbed land, then they will pay for it.
  - Hikers, bird watchers, etc. will pay fees that allow land to be left unexploited
  - "Green" buyers will buy ecologically valuable land to preserve (TNC)
- Aggregate preferences (supply & demand) → environmental policy

Free Market Questions

- Are public goods really the same as private goods when property rights are established?
  - Are dogs and cats property?
  - Can you do anything you want with them?
- How do we incorporate non-use values into prices?
- How do we compensate for time discounting?
  - Many conservation values are diffuse, long-term, and low-return
  - Consumption/investment values are concentrated, immediate, and high-return
  - Why have old growth forests disappeared from private lands? Why are they only still on federal lands?

Government Imposed Markets

Pollution Trading

Government Imposed Markets

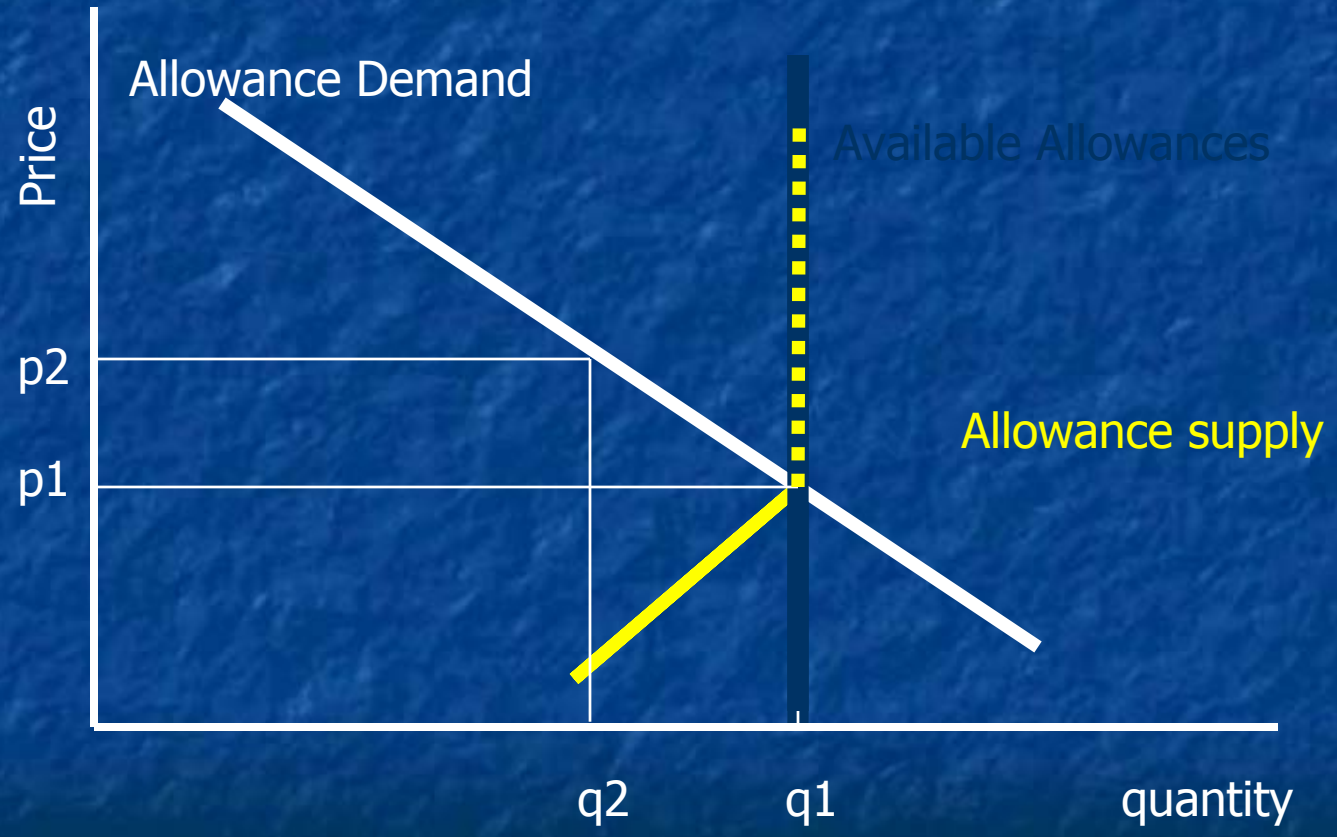
- Government Sets Limits on Cummulative Pollution Allowance
  - $\sum$Allowances < $\sum$ Existing Pollution Emissions
- Government Distributes Pollution Allowances to Polluters
  - Prior Pollution Levels?
  - Age of Facilities?
- Government Establishes Open Trading Market
  - Non-polluters can buy-in & "retire" allowances

How is a GIM different from Regulation?

- Net pollution reduction is the same
- Distribution of pollution reduction across polluters is not uniform, as in C & C regulation
- Decision on who bears the burden of pollution reduction/control left to participants in market
  - Price of pollution reduction/control competes with price of allowances (permits)
    - Allowance Supply & Demand
    - Government limits supply of allowances and thereby manipulates aggregate permitted pollution levels
      - affecting demand for allowances

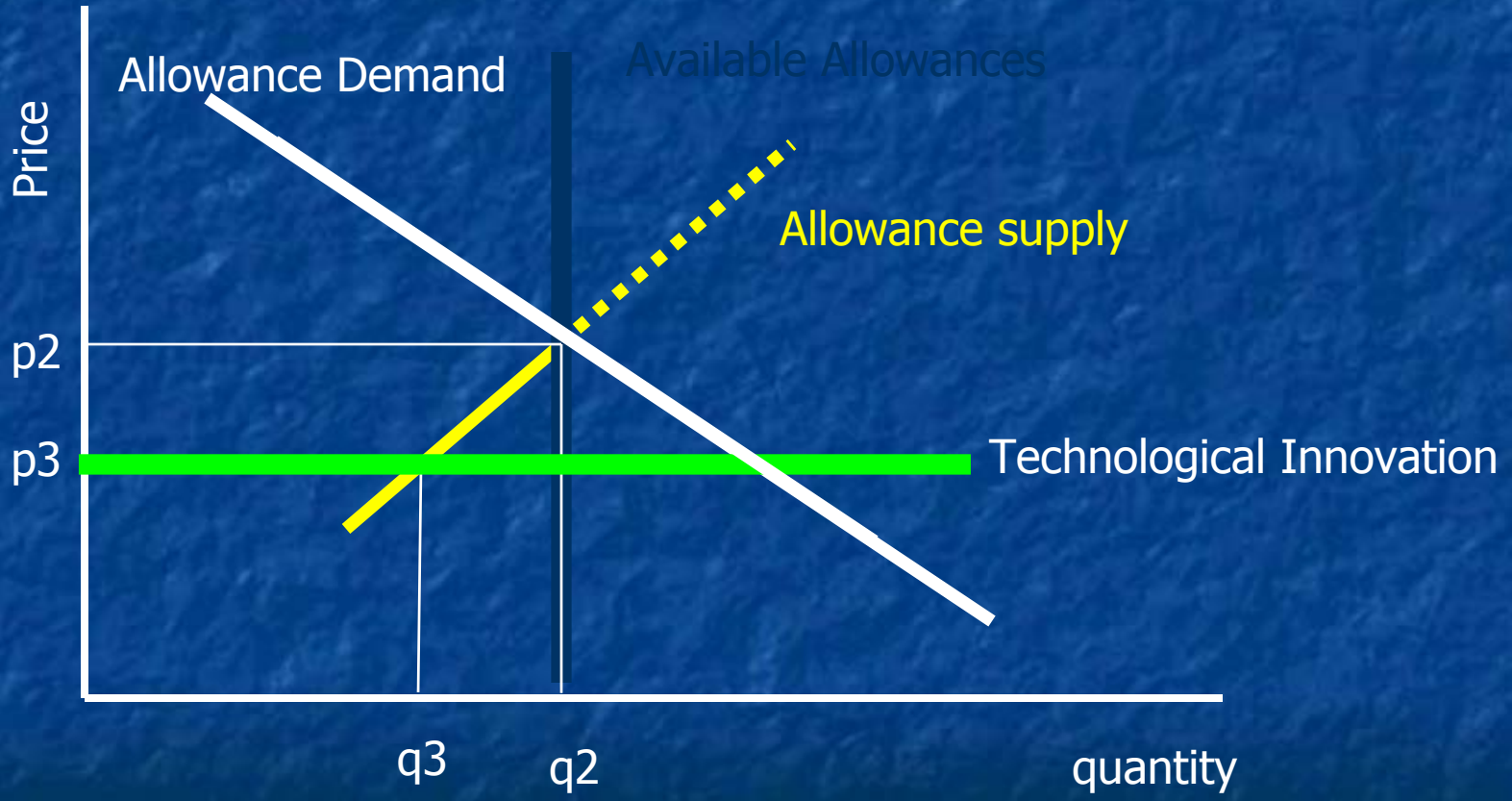
Allowance Market Behavior

Supply Reduction



Allowance Market Behavior

Technological Innovation



Allowance-Pollution Dynamic

- Government Imposed Reduction of Pollution Allowances → Rise in Prise
- Rise in Price of Pollution Allowances
  - Makes pollution control/reduction technology more competitive
  - Creates search for innovation
- New Technology Makes Pollution Allowances Less Valuable → Drop in Price
- Drop in Price of Pollution Allowances
  - Makes purchase & retirement of allowances by non-polluters (government, NGOs) possible
    - Raising allowance prices by reducing supply
  - Makes reducing aggregate permitted pollution limit possible

Economic Tools

- Still Require Government Monitoring & Enforcement
- Still Require Regulators to set Permit Cap