Economic Analyses of Kyoto Protocol: Is There Life After Kyoto?

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Current international approach to climate-change policy is the Kyoto Protocol.

Major provisions:
- Protocol negotiated in 1997
  - Limiting emissions to fraction of 1990 rates.
  - Limited to high-income countries
  - Only agreed for 2008-2012 period
  - Allows trading of emissions permits among countries
- US Senate passed a resolution in 1997 by 95-0 to warn that Senate would not ratify.
- Protocol went into effect in Feb 2005 after Russian ratification.
Concerns from economic analyses

• Summary of impacts analysis
• Severe attrition in global coverage
• Inefficient tool
• Strange distribution of costs and benefits
• Emissions reductions are likely to be small
• Carbon emissions prices close to earlier projections
Overview of Impacts Analysis

• Gradual climate change (standard approach)
  – Market sectors:
    • High-income countries: small impacts →
    • Low-income countries: mixed, possibly large impacts → to ↑
  – Non-market sectors (ecosystems, non-human elements): increasing concerns ↑

• Abrupt climate change (emerging science) ↑↑
  – Market sectors: highly uncertain: 2x to 10x GCC? ↑
  – Non-market sectors: “Dangerous”? ↑↑

(→↑↓ trend in results of analysis)
Attrition of Kyoto Protocol

Fraction of Global Emissions Covered by KP

With US
Without US
Enthusiasts

1990 vs 2002
Efficient attainment of Kyoto temperature path: $0.036 trillion

Annex I trade: $2.3 trillion

Winners, Losers, and Big Losers

Abatement Costs of Kyoto Protocol
with and without U.S. Participation

Abatement costs (trillions of 1990 $)

Emission Reductions Under KP Will Be Minimal

Differences in CO2 emissions from no policy

Carbon prices and earlier projections

Carbon Prices in Europe

- Estimates of KP with US
- Estimates of KP without US
- Current market price
- Low market price

Does the Kyoto Protocol Have a Future?

• There is no connection between emissions targets and ultimate economic or environmental policy objectives.
• There is no mechanism to broaden country participation.
• There is no enforcement mechanism.
• Given elasticities, it is likely that carbon emissions rights will be very volatile (like oil prices).
• Allocating emissions rights is poor public finance.
• Given the nature of the externality, price-type controls are more efficient than quantity-type controls (the “Weitzman effect”).
• Creating a new “green currency” is an invitation to corruption in developing countries and a pandemic of Enrons in high-income countries.
Prices of sulfur emissions permits are very volatile

![Graph showing volatile prices of sulfur emissions permits over time with price indexes (average = 100), CPI, and stock prices on the graph.](image-url)
Are there alternatives for the next round?

More effective might be “harmonized carbon tax.”
- Under this approach, countries set domestic carbon taxes at uniform levels (e.g., $10 per ton).
- Alternatively, countries could comply with minimum/maximum tax.

How to make taxes more attractive politically?
- Link revenues to politically popular program such as health care or retirement.

US policies moving quickly nowhere
- McCain-Lieberman close to Kyoto mechanism, but with smaller reductions and strong ideological opposition.
- Interesting use of “civil penalties” instead of taxes/fees