

# Linking Policies in a Mosaic World: Options and Issues

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**Linking Policies When  
Tastes Differ: Global  
Climate Policy in a  
Heterogeneous World**

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My remarks based on  
this recently released  
report

<http://belfercenter.ksg.harvard.edu/files/MetcalfWeisbachFinal.pdf>

# Global v. Mosaic Architecture

- Framework Convention envisions a global, top-down architecture
- Developed nations move first with subsequent participation by developing nations
- Kyoto Protocol the first step
- Much modeling follows this view
- Copenhagen marks a turning point

# Copenhagen: Glass is Half Empty

- No treaty
- No binding commitments
- Rejection of emissions monitoring
- EU sidelined in the negotiations leading to the Accord

# Copenhagen: Glass is Half Full

- Erosion of developed-developing nation dichotomy
- Major developing nations committed to emission reductions of some form
- Establishes a precedent for subsequent and more substantive reductions in the future

# Shift Towards a Mosaic World

- Lessons from game theory (Carraro, 2007)
  - Globally ratified agreement unlikely to be an equilibrium outcome
  - Global self-enforcing agreements unlikely to emerge as an equilibrium
  - Multiple coalitions of varying sizes a likely equilibrium
- Suggests the focus should be on harmonizing the shadow price of carbon rather than creating integrated systems

# Harmonization and Linkage

- Efficiency costs of unharmonized regional approach
  - Foregone opportunities to reduce emissions at least cost
  - Carbon leakage
  - Thin trading markets for cap and trade systems
- Linking systems reduces these costs
- Linkage: “policies that allow for regional carbon regulations to interact to narrow or eliminate differences in the marginal cost of abatement between different regions or countries”

# Implications for Linkage

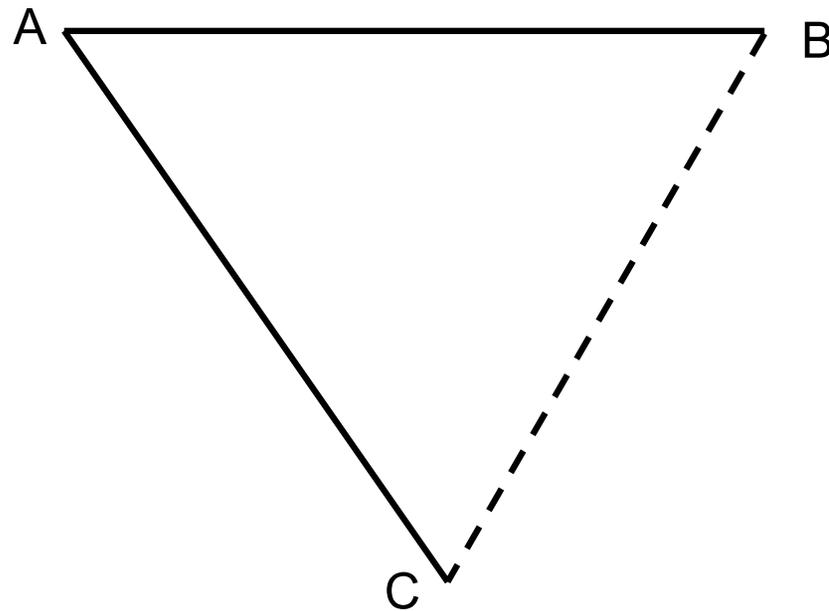
- Linkage can make both countries better off
- Magnitude of payments depends on each country's reduction obligation
- Potential for winners and losers within countries as carbon price equilibrates
- Linkage can be a challenge for national autonomy
- Possibility of linkage creates incentives for countries to set low reduction targets

# What are We Linking?

- Cap and trade systems
- Carbon charge systems
- Emission reduction credit systems
- Command and control regulations

# Linking Cap and Trade Systems

- Two-way and one-way linked systems
- Direct and indirect linked systems



# Linkage Issues

- Permit base
- Offsets
- Upstream v. downstream coverage
- Permit allocation rules
- Cost containment measures
- Enforcement mechanisms
- Compliance periods

# Linking Cap and Trade with Tax Systems

- In principle linkage is possible
  - Permits used in lieu of tax payments
  - Emission Tax Payment Credits (ETPCs) used in lieu of permits
  - ETPCs issued for carbon tax payments in excess of its emissions
- Unrestricted linkage unlikely
  - Arbitrage converts cap and trade to a tax

# Linkage Through Emission Reduction Credit Systems

- Linkage with cap and trade exists (CDM, JI)
- Linkage with tax systems straightforward
  - ERCs in lieu of taxes
- All problems with ERCs (e.g. additionality) apply equally to both linkage systems

# Linking with Regulatory Systems

- Quantity limits could give rise to ETPC-like credits that could be used to link with cap and trade or tax systems
  - Reductions in excess of required reductions give rise to credits
  - Similar approach possible for intensity standard systems

# Linking with Regulatory Systems

- Technology mandates face two issues
  - Additionality
  - Determining emission reductions associated with mandate
- Linkage in principle possible
  - Using ETPCs in lieu of mandate politically unrealistic (reverse CDM)
  - Some mandates might provide linkage opportunities (e.g. fuel economy standards in excess of mandated level)

# Summing Up

- Linkage opportunities exist in a mosaic world
- Benefits of linkage include
  - Lower cost of emission reductions
  - Reduced price volatility in cap and trade systems
  - Greater market liquidity in trading systems
  - Reduced market power potential

# Summing Up

- Full linkage unlikely for technological and political reasons
- Emission reduction credit systems likely to be a major avenue for linkage (both direct and indirect)
- Streamlining process for project or process approval will be essential

# Modeling Questions

- What are the likely coalitions in our mosaic world?
- Can we better model program frictions (e.g. CDMs) and political bottlenecks?
- How do we measure the shadow price of regulations?
  - some easy (RPS)
  - some hard (loan guarantees)
- What scenarios are realistic for restrictions on trading across programs?
- How fine-grained must our analysis of programs be to accurately measure program cost?