

Transparency, Policy Surveillance, and the Comparison of Mitigation Efforts

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Transparency and Comparability

- Transparency: Role for Analysis
- Comparability Framework
- Modeling Analyses of Comparability of Effort
- Accounting for Heterogeneity in Domestic Mitigation in Future Modeling Analyses
- Policy Implications

Transparency: Role for Analysis

The Case for Pledge and Review

- Transparency and publicity of a commitment and outcomes enhances credibility
- Publicity requires information systems created by rules of international institutions
- “Naming and shaming” and prospect of adverse reputational consequences may promote compliance

Transparency: Credibility and Trust

- Repeated nature of climate negotiations allows for transparency to inform future talks
 - Countries unlikely to agree on subsequent round if they differ in understanding of previous round
- Sustaining cooperation requires effective monitoring
- Facilitates reciprocity that can accelerate ambition over time

Role for Economic Analysis

- Some INDCs a function of forecast emissions
- CO₂/GDP intensity goals require economic data
- Apples-to-apples comparisons available via internally consistent data and analytic framework
- Understand cross-border impacts of INDCs
- Enable policy learning
- Identify data and modeling needs for ex post review

Comparability Framework

Principles

- Comprehensive: captures the notion of “effort” in the widest possible sense. Similar countries ought to exhibit similar values in a “fair” agreement
- Measurable and replicable: directly observable or based on transparent analysis
- Universal: can be applied to efforts by a broad set of countries

Synthesis of Metrics and Principles

Metric	Comprehensive	Measurable/replicable	Universal
Emissions levels	A poor estimate of effort because it conflates natural trends	Yes; public domain data for energy and fossil CO ₂ available	Fossil CO ₂ data exist for all countries; additional work needed for all GHGs
Emissions intensities	Better than emissions levels, as it controls for economic trends, but a noisy signal	Yes; public domain data for energy and fossil CO ₂ available	Yes for fossil CO ₂ /GDP; additional work needed for GHG/GDP
Emissions abatement	Most comprehensive among emissions-related metrics	Challenging—requires modeling tools/subjective choices to determine counterfactuals	No, few modeling platforms evaluate more than ~10 countries
Carbon prices	Captures effort per ton but says little about tons	Explicit: yes; implicit: requires detailed analyses	No, given few explicit C pricing policies; modeling tools necessary for implicit C prices
Energy prices and taxes	Inadequate for nonenergy emissions; fails to account for nonmarket regulatory instruments	Yes, but unclear how to aggregate	Yes, but requires more detailed data collection than currently in public domain
Abatement costs	Best measure of effort, still requires benchmarking	Challenging—requires modeling tools/subjective choices to determine counterfactuals and to model costs	No, few modeling platforms comprehensively evaluate more than ~10 countries

Information Sources for Metrics

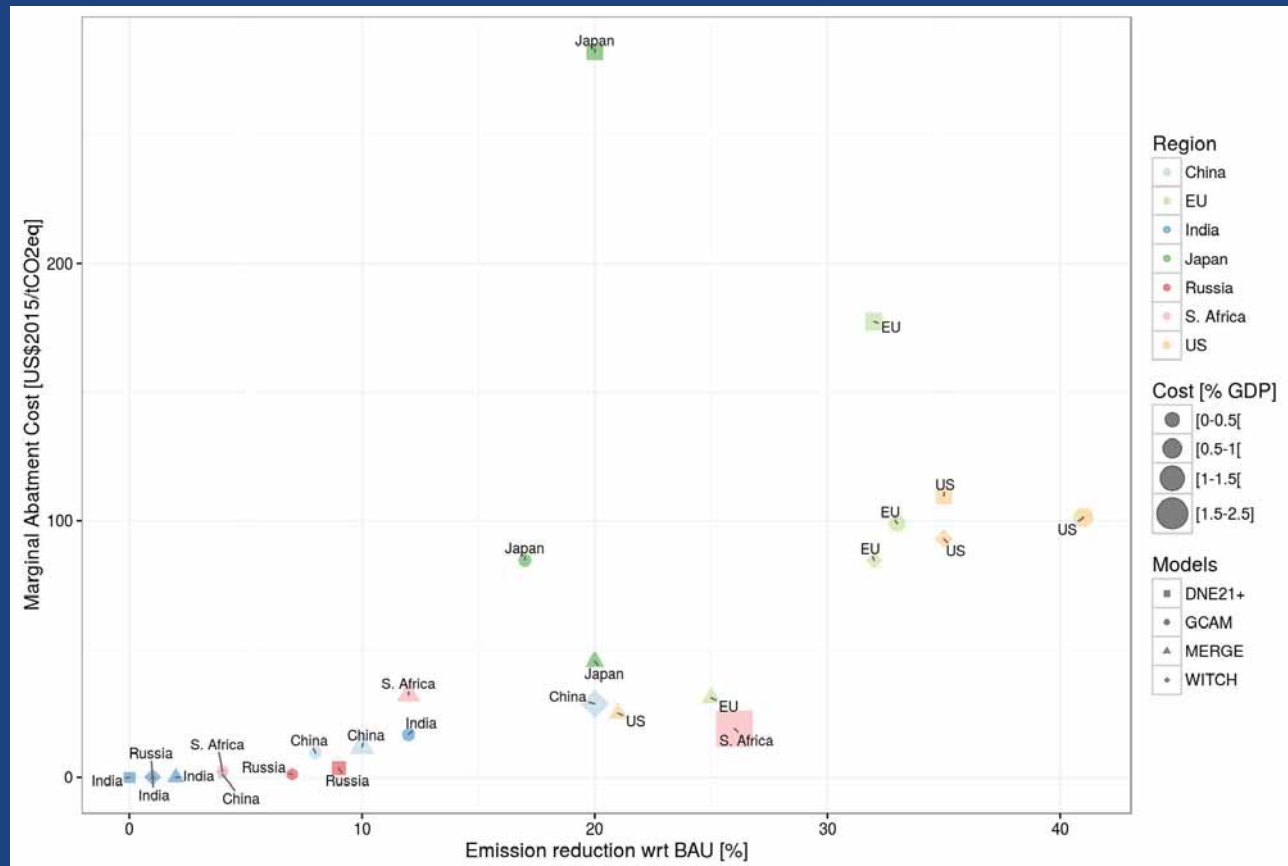
	Ex Ante Analysis			Ex Post Analysis		
	US	EU	China	US	EU	China
INDC	2005 –26% to –28% by 2025	1990 –40% by 2030	Peaking by 2030, CO ₂ /GDP goal	Implemented Contributions (TBD)		
Emissions						
vs. historical year	<directly observed>	<requires modeling>	<requires modeling>	<directly observed>		
vs. future year BAU	<requires forecast>	<requires modeling>	<requires modeling>	<requires modeling>		
Target year GHG/GDP	<requires forecast>	<requires modeling>	<requires modeling>	<directly observed>		
Δ (GHG/GDP) 2015–30	<requires forecast>	<requires modeling>	<requires modeling>	<directly observed>		
Prices						
CO ₂	<requires modeling>	<requires modeling>	<requires modeling>	<carbon pricing: directly observed; other policies: require modeling>		
Energy	<requires modeling>	<requires modeling>	<requires modeling>	<directly observed>		
Costs						
\$ cost vs. BAU	<requires modeling>	<requires modeling>	<requires modeling>	<requires modeling>		
\$ cost/GDP	<requires modeling>	<requires modeling>	<requires modeling>	<requires modeling>		

Modeling Analyses of Comparability of Effort

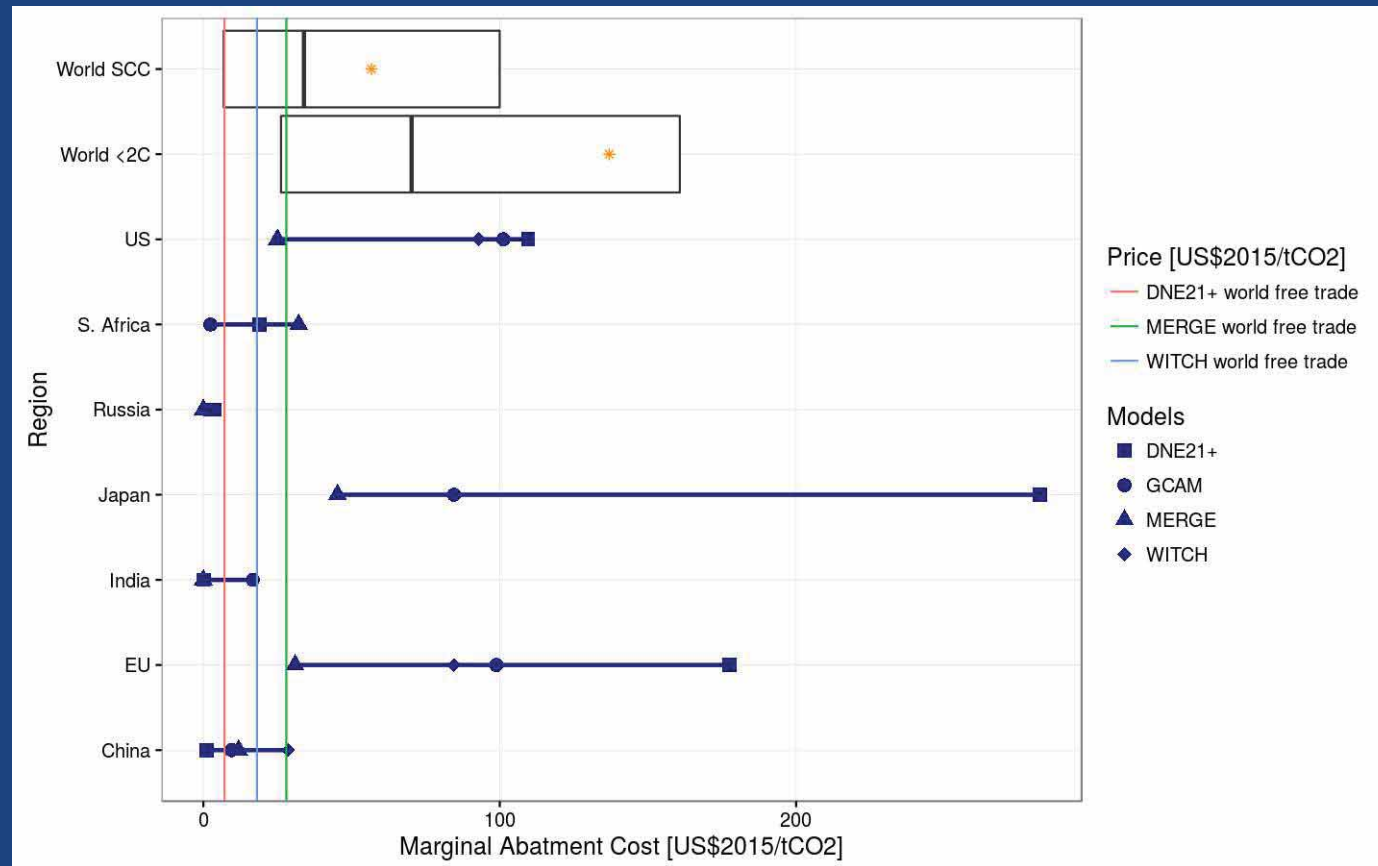
Using 4 Global Models to Evaluate INDCS

- Employ 4 models:
 - DNE21+
 - WITCH
 - GCAM
 - MERGE
- Evaluate INDCs submitted as of February 2015
 - Assume least-cost implementation
 - economy-wide carbon price

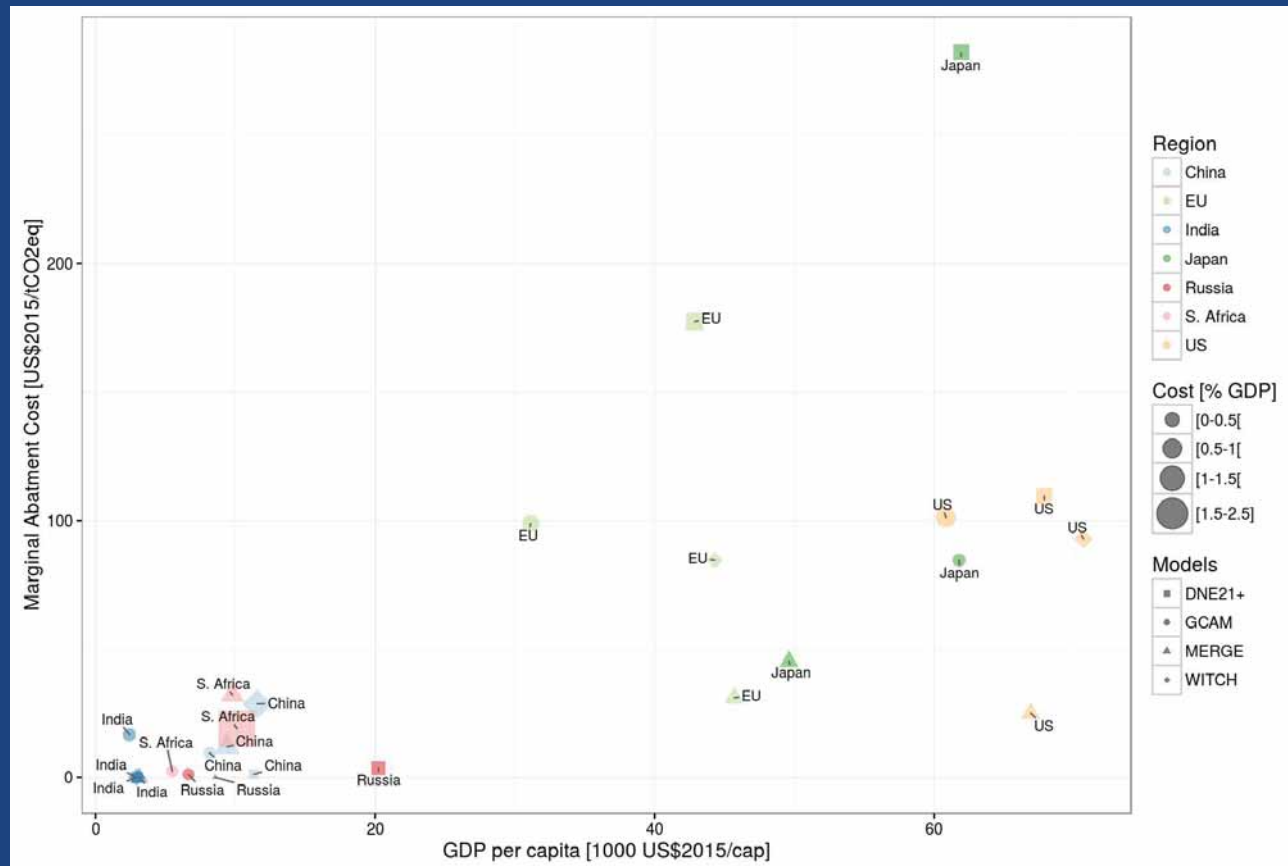
Paris INDCs: Marginal Abatement Costs vs. Emission Reduction from BAU



Paris INDCs: Marginal Abatement Costs vs. SCC and 2°C Pathway



Paris INDCs: Marginal Abatement Costs vs. GDP per capita



Accounting for Heterogeneity in Domestic Mitigation in Future Modeling Analyses

Domestic Mitigation Programs

- Major economies provide some information on their domestic mitigation programs
 - In INDCs, national communications, BURs
 - Policies much more than economy-wide carbon price
- Important economic and environmental impacts
- Implications for modeling and construction of comparability metrics

Policy Implications

Policy Implications

- Pledge and review places significant demands for a rigorous transparency mechanism
- Given heterogeneity in INDCs, economic analysis will play an important role in transparency
- Initial modeling of INDCs can produce preliminary measures of comparability metrics
- Refining modeling to reflect domestic mitigation programs can inform future rounds of pledging

Papers and Contact Information

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