Pros and cons of carbon pricing: tax vs. market mechanisms
Carbon Markets and Carbon Taxes today - driven by national climate & energy policies

Locations of Existing, Emerging & Considered Carbon Pricing Instruments

Source: State and Trends of Carbon Pricing 2014
Elements of Carbon Pricing

Quantity (market) or price (tax) target

User pays principle: purchase of emission

ances or tax per unit of fossil energy use

er cost = lower use of fossil energy

ue recycling: to fund mitigation actions
Carbon taxes

Objectives
• Public Revenue
• Pricing of external effects of fossil energy use = higher cost = reduced use of fossil energy carriers

How Much Carbon Pricing is in Countries’ Own Interests? (IMF)
• On average: $57.5 per ton of CO2 (for year 2010): health co-benefits from reduced air pollution at coal plants reduces CO2 by 13.5 percent

Weakness
• Low mitigation impact: fossil energy users pass-through costs to customers instead of reducing use (price inelasticity)
• No direct incentive for investing in mitigation actions (unless tax revenues are recycled)
• Little control over reaching quantified GHG emission targets
Market based instruments

Objectives (generally)
• Allocation efficiency: finding the cheapest mitigation actions first
• Direct and targeted intervention to facilitate certain mitigation actions

Specific objectives of a cap and trade system
• Manage inventory of facilities & GHG emissions to achieve a target
• Public revenue generation (in case of auctioning of allowances (works like carbon tax))

Specific objectives of results-based finance instruments
(examples: feed in tariffs, carbon credit purchase)
• Direct, targeted incentive for mitigation actions
• Geared towards reaching quantified targets at lowest costs

Weakness
• Price volatility
• Enforcing environmental integrity
• Re-financing for RBF incentives needed
## Government Objectives & Instruments

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<td>Economic development</td>
<td>-</td>
<td>0</td>
<td>+</td>
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<td>Public revenues</td>
<td>+++</td>
<td>++ (auctioning)</td>
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<td>0 (grandfathering)</td>
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<td>Political feasibility</td>
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<td>Co-benefits</td>
<td>+</td>
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<td>Climate mitigation</td>
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<td>Enforcement</td>
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Reality: Instrument Integration
(the title of the presentation was a trick question: it’s not one vs. another)

Carbon taxes are used for revenue generation
• Swiss Climate Cent
• Mexican Carbon Tax
• EUETS Auctioning

RBF instruments are used to incentivize mitigation actions
• Feed in tariffs in plus 30 countries
• International carbon credit purchases
• Domestic carbon credit procurement tenders

Context-specific institutional arrangements are created to manage financial flows
• National Energy Policies re: recovery of FiT payments (usually recovery by the utility via energy prices)
• CDM and rules re: use of carbon credits under national regulation
• Swiss Climate Cent Foundation
• International Climate Initiative (Germany)
• UK/Germany NAMA Facility
#ReadyFor2020

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Practical Design of Fiscal Policy Instruments

Any carbon pricing scheme needs to have three key elements:
• a revenue generating mechanism
• a revenue use mechanism
• a mechanism to organize financial flows from revenue generation to use

(all of these require MRV for operation)
Examples for Revenue Generation Mechanisms

- **Feed-in-Tariff Pass Through Rules**: Utilities are allowed to recover above market payments to RE from electricity consumers
- **Tipping Fees**: Polluters pay a fee for waste disposal
- **Carbon Taxes**: tax on use of a fossil energy source
- **Auctioning of GHG Emission Allowances**: emission permits are sold by a government authority to polluters
- **NAMA Support**: public payments made to finance mitigation actions
- **Budget Allocations**: a government funding mitigation actions from general taxes
Examples for Revenue Use Mechanisms

- **Feed-in-tariffs**: eligible RE producers receive above market payments to make RE viable.
- **Climate finance (grants, loan guarantees, …)**: clean tech investors receive financial support to leverage commercial investment.
- **Results-based finance**: other direct payments that are made upon delivery of mitigation impacts.
- **Tax incentives for clean tech**: tax/fee reductions for clean tech investments.
- **R&D support for clean tech**: to reduce the future cost of clean tech.
- **Venture capital for clean tech**: funding for high-risk innovation companies.
- **Clean tech acceleration services**: support services to facilitate more rapid growth for clean tech.
Examples for Mechanisms to Organize Financial Flows

- **Feed-in-Tariff System**: utilities directly recycle payments (under supervision of regulatory authority)
- **Other results-based financial incentives** (for delivered impact): domestic/international programs to purchase carbon credits, RECs or EECs
- **Emissions Trading System**: organizes transfers between polluters & implementers of mitigation actions
- **NAMA Incentives**: potentially combine a range of financial and non-financial incentives to remove barriers to clean tech investments
- **GCF**: accredited entities write proposals to fund actions that remove barriers to clean tech investments.
- …
Emissions Taxes vs. Cap and Trade

Emissions taxes and cap-and-trade systems are potentially equally effective at reducing emissions, so long as they are applied to the same base. As the price of emissions allowances is (at least in part) passed forward into higher prices for fuels, electricity, and so on, a cap-and-trade system would exploit the same behavioral responses across the economy for reducing emissions (reductions in energy demand, shifts towards clean power generation fuels, etc.) as under an emissions tax.

Carbon taxes directly raise government revenues. Using this revenue productively (e.g., to lower other distortionary taxes or for climate finance) is important for keeping down the overall costs of the policy to the economy. Cap-and-trade systems can raise comparable revenues if all allowances are auctioned and revenues accrue to a finance ministry.

Emissions price volatility can be problematic under cap-and-trade systems. Under cap-and-trade, allowances prices are determined in the market and will vary with energy demand, changes in the relative price of clean and dirty fuels, technological advances, etc. This price volatility raises program costs over time and can deter clean technology investments (which often have high upfront costs and provide emissions savings over many years).1 Usually, price stability provisions (e.g., allowance banking and borrowing, price ceilings and floors) are recommended to make cap-and-trade systems behave more like a carbon tax (which fixes the emissions price).

Carbon taxes are additive to other emissions reduction efforts, while cap-and-trade systems may not be. If emissions are rigidly fixed by a cap, other measures (e.g., energy taxes, efficiency standards) that cover the same emissions sources are environmentally ineffective (they only change the allowance price). In contrast, under a carbon tax other mitigation efforts can still be environmentally effective.

1: IMF Background Paper on Domestic Fiscal Instruments for Climate Finance)  