Ricardo
Energy & Environment

Brazil PMR – Carbon Pricing in Fuel Sector

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ETS mainly cover large emission sources in the fuel sector, where as carbon taxes can be applied more flexibly

Fuel combusting sectors	Concentration of emission sources	ETS coverage (downstream)
Electricity	**Concentrated**	✓
Industry		✓
Transport		X
Commercial / residential		X
Agriculture	**Diffuse**	X

- **Emissions trading**: administrative practicalities of trading mechanism in sectors with diffuse sources makes ETS **unfeasible**
- **California ETS** was able to cover transport, residential and commercial fuels with an upstream approach;
  - Only fuel provided to diffuse consumers included (remainder was netted out)

- **Carbon taxes**, more flexible with regards to the point of regulation (no trading requirement)
  - Governments are quite familiar with taxing fuel consumption
  - In 2016, 14 European countries had carbon taxes complementing the EU ETS
  - Developing countries are interested particularly in carbon taxing for the Transport sectors (e.g. Colombia)

→ **This presentation focuses on the Transport sector.**

Carbon pricing can complement transport mitigation policies, but is only effective under certain conditions

Policy objectives	Instruments	Carbon Pricing overlaps
Transport demand management	Traffic management	None
	Regulation (speed limits, Rodízio)	
Slowing down private motorisation	Vehicle purchase taxes	Complementary (May be designed to encourage low CO_2 vehicles)
	Fuel taxes	Complementary
Reduce vehicle circulation	Circulation/ road taxes	None
	Fuel taxes	Complementary
Improve carbon efficiency of vehicles	Support biofuels (subsidies, blending mandates, green certificate schemes)	Complementary
	CO_2 standards, labelling	None
	Support Electric Vehicles (investement in R&D, pricing...)	Carbon prices usually too low, but revenues may be recycled
Support modal shift: • Private to public passenger transport • Road to rail freight transport	Investment in mass transit programmes (BRT, metro) and rail projects	
	Preferential pricing	None

- Carbon pricing is effective in the mid range abatement cost options: **fuel switching**, but not at extremes (e.g. infrastructure projects)
  - It is insufficient on its own

When does carbon pricing make sense in the Transport sector? Depends on:

- **Availability of low cost abatement options.** Elasticity of demand will be a function of substitutes available (biofuels, public transport).
- **Policy interactions.**
  - **Potential conflicts** with current fuel pricing policy: existing taxation, price stabilisation, protection for low income households.
  - **Potential duplication** of existing price based biofuel policies; less so with quantity instruments, e.g. RenovaBio.

Colombia found a hybrid CPI in transport more cost effective than a carbon tax due to limited abatement options

Columbia studied the introduction of a carbon tax for urban transport fuels

Low elasticity of demand in Colombia: lack of switching or alternative transport

Carbon Tax

Low elasticity would required **doubling** fuel prices to achieve **10% reduction of CO2**.

Carbon levy + offset scheme

Levy of \$10/tCo2
4% rise in fuel prices
Invested in public transport = **10% reduction of CO2**.

Lessons for Brazil	
	• Elasticity in Brazil is probably higher due to widespread use of biofuels, although access to public transport is also limited • If carbon levies can be earmarked, these can be channel into similar infrastructure projects.

Aligning incentives in fossil fuel and carbon policy is fundamental

EU proposed aligning taxation with climate and energy efficiency goals

	2011	2011 reform Proposed
Tax design	The **EU Energy Taxation Directive** has volume based taxation	Tech neutral carbon tax of 20€/tco2 + GJ (energy content) tax
Incentives	Promoting diesel over petrol; discriminating against renewables	Incentivises rational use of energy (energy not volume!), and low carbon fuels

Mexico took advantage of broader energy policy reform in 2013, to align incentives and introduce carbon pricing

- Introduced competition in fuel production
- Removed of unsustainable price stabilization mechanism
- Carbon tax set a low rate, sufficient to make Natural Gas the reference fuel ($5.7 to $3.2/t$CO_2$e)
    - **Impact: Removal of price stabilisation dominated the impact of the carbon price.**

Lessons for Brazil	• Aligning existing energy taxation to promote rational energy use may be as (or more important) as introducing carbon pricing. • Carbon tax can be set at the right level to encourage fuel switching.

Importantly for Brazil, CPIs can be designed to support fuel policy objectives such as protect the most vulnerable

Expected impacts

Ireland and British Colombia carbon taxes were found to be regressive

Contradicted fuel pricing policy which provided protection for low income households

Alignment of Carbon pricing and energy policies

Policy design to protect vulnerable groups:

- In Ireland, the tax level increased gradually to allow time to adjust, low income fuel allowance (fuel neutral) also existed
- B.C. introduced Tax Credit introduced for low income and rural groups

Lessons for Brazil	**Providing such protection for low income groups will be very important in Brazilian context**