



Green Taxes for a greener environment

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Motivation

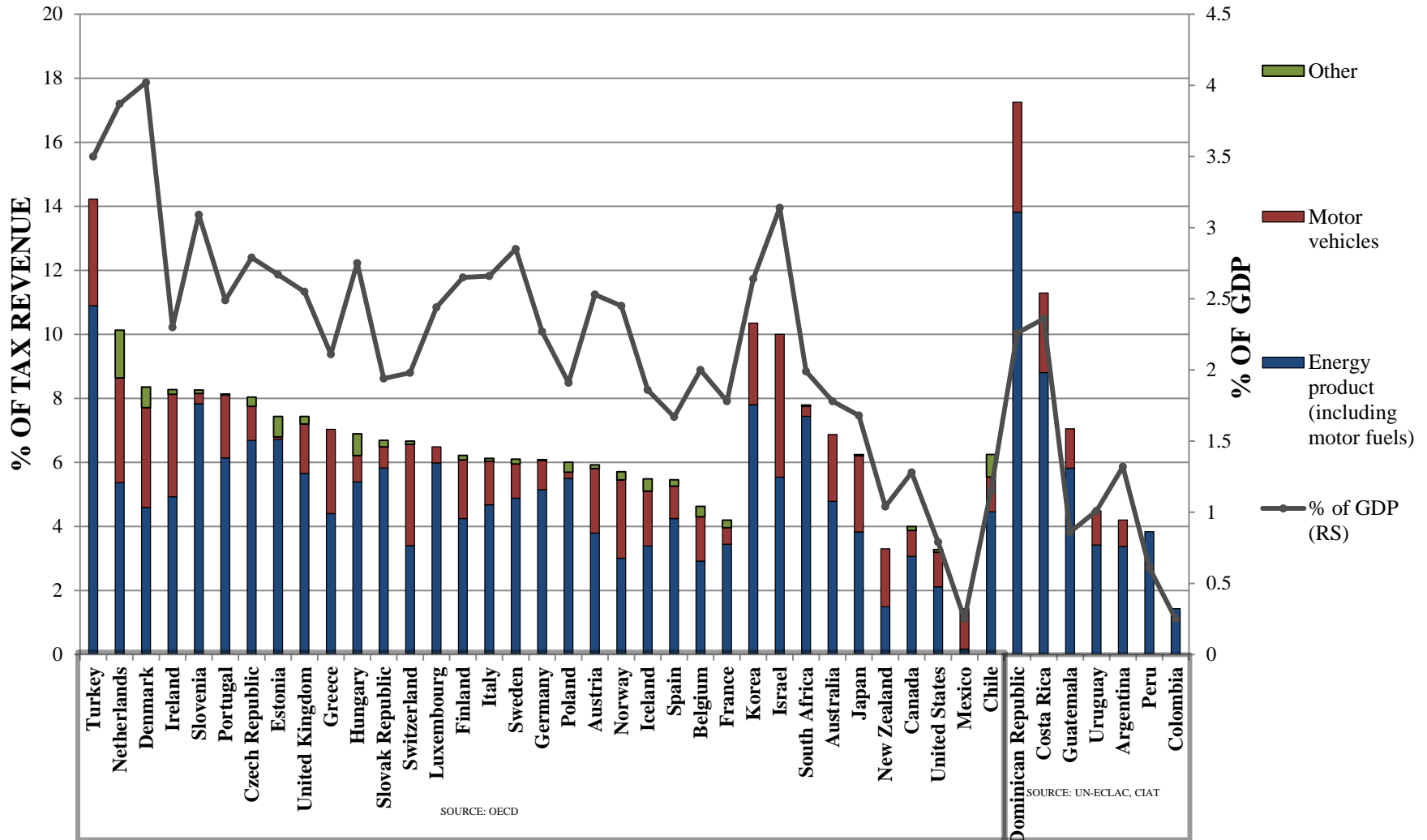
- Environmental taxes:
 - Correct externalities in an efficient way.
 - Address environmental problems.
 - Potential new source of revenue

Environmental related taxes - OECD

	Main Taxes	Sub Taxes
Fuel	Mineral Oil Tax	
Vehicle	Motor vehicle registration fee	Tax on import cars, Tires Tax, Railway Tax, Duty of airway security
	Motor vehicle tax (payment/year)	Gas guzzler tax
	Road tax (€year)	Tax on congestion, tax on permits to enter historical city district
Energy	Energy consumption tax	Tax on installing nuclear equipment
	Air pollution tax	Tax on CO2 emissions in petroleum activities
Waste	Packaging charge	Duty on tyres, Hazardous waste
	Waste Deposit Levy	Tax on the landfilling and incineration of waste , Charge on exceeding of GHG emission limits.
Water	Water pollution tax	Tax on pesticides, Charge to discharging of wastewater, Oil release charge
	Taxes on water quantity	Tax on ground water
Other	Duty on ozone depleting chemicals	Duty on raw materials

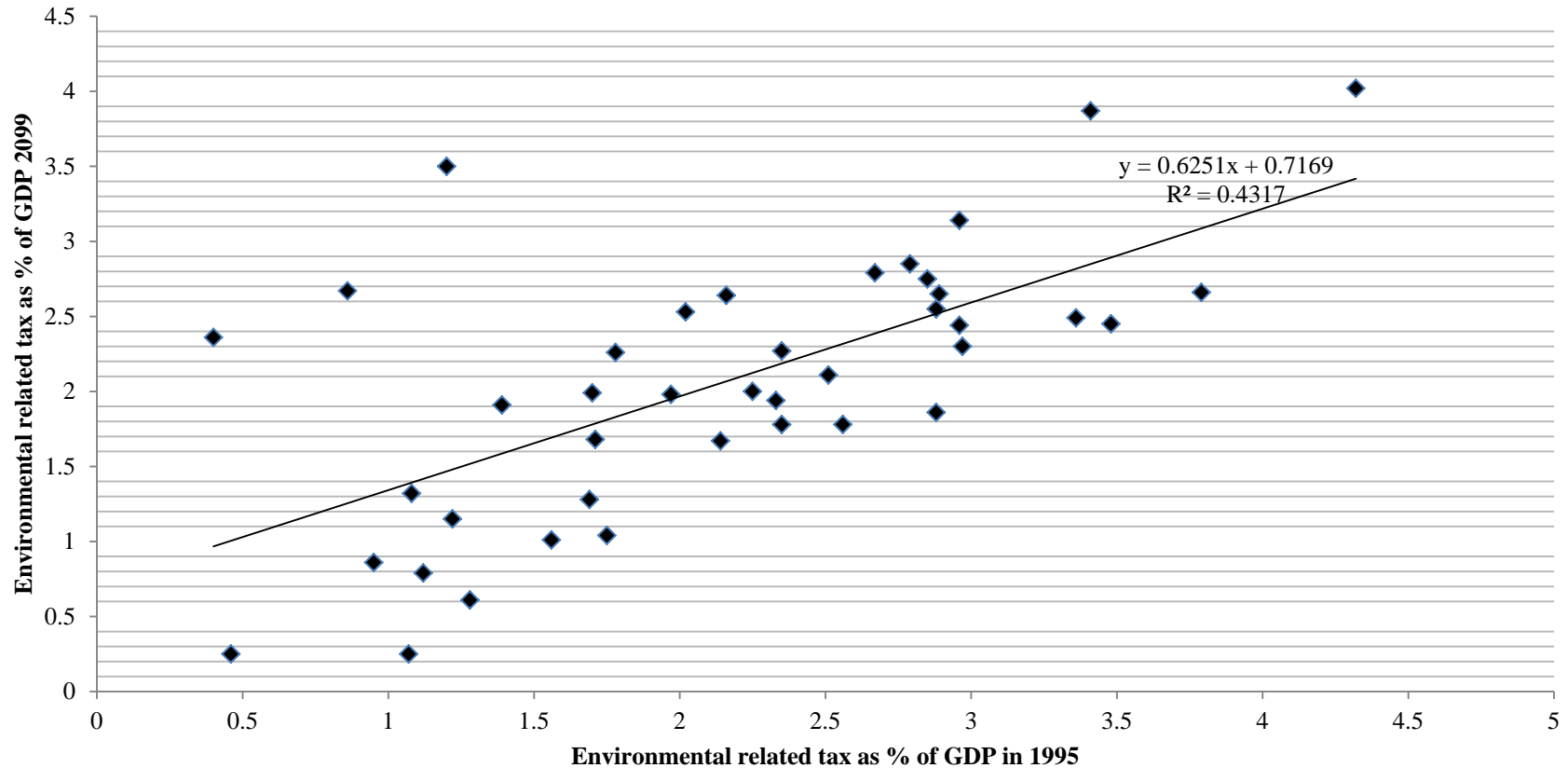
Current State of ERTs

Environmental related taxes as % of Tax revenue and GDP (2009)



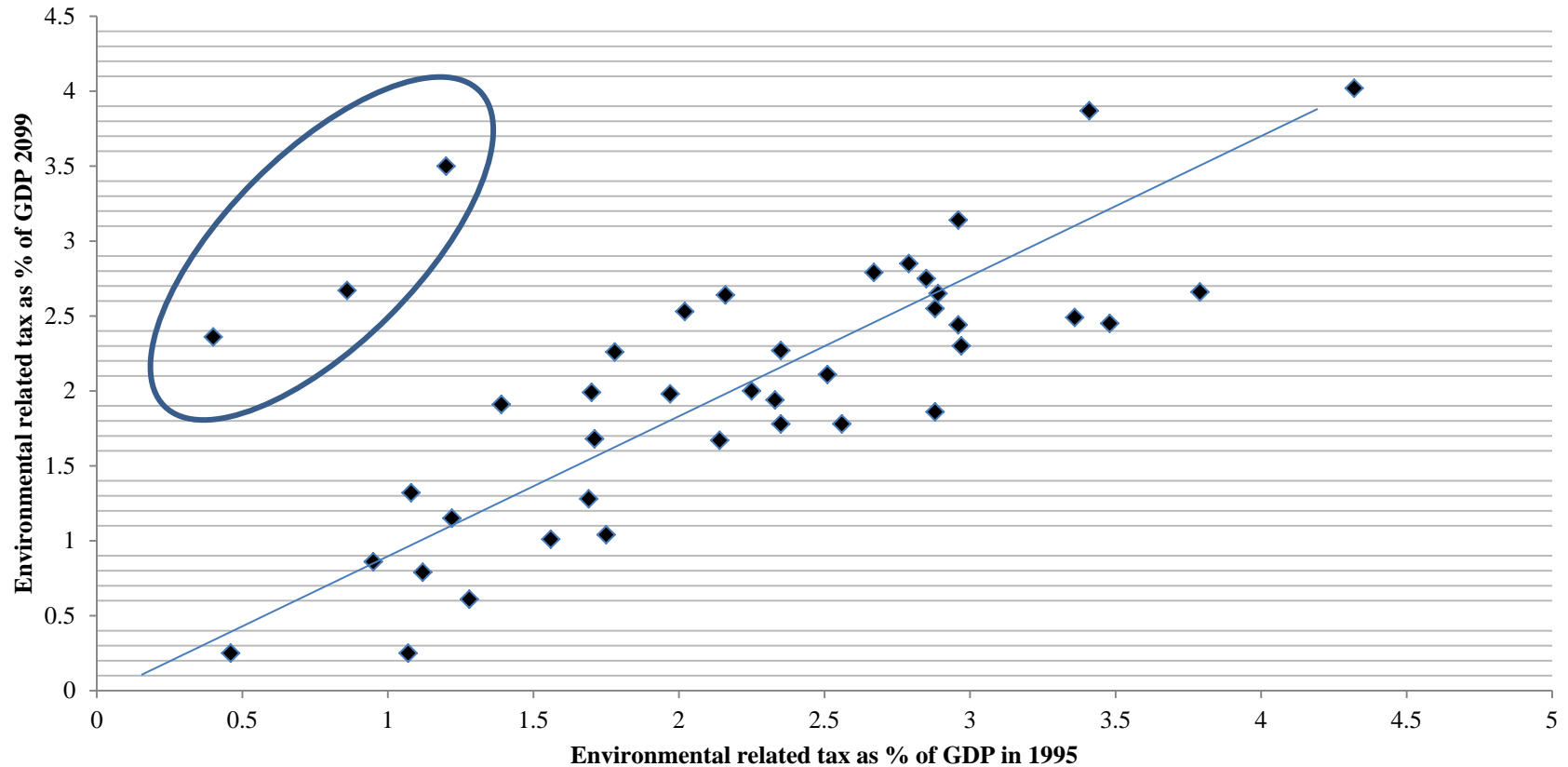
How have they evolved?

Correlation of ERT's in 1995 and 2009



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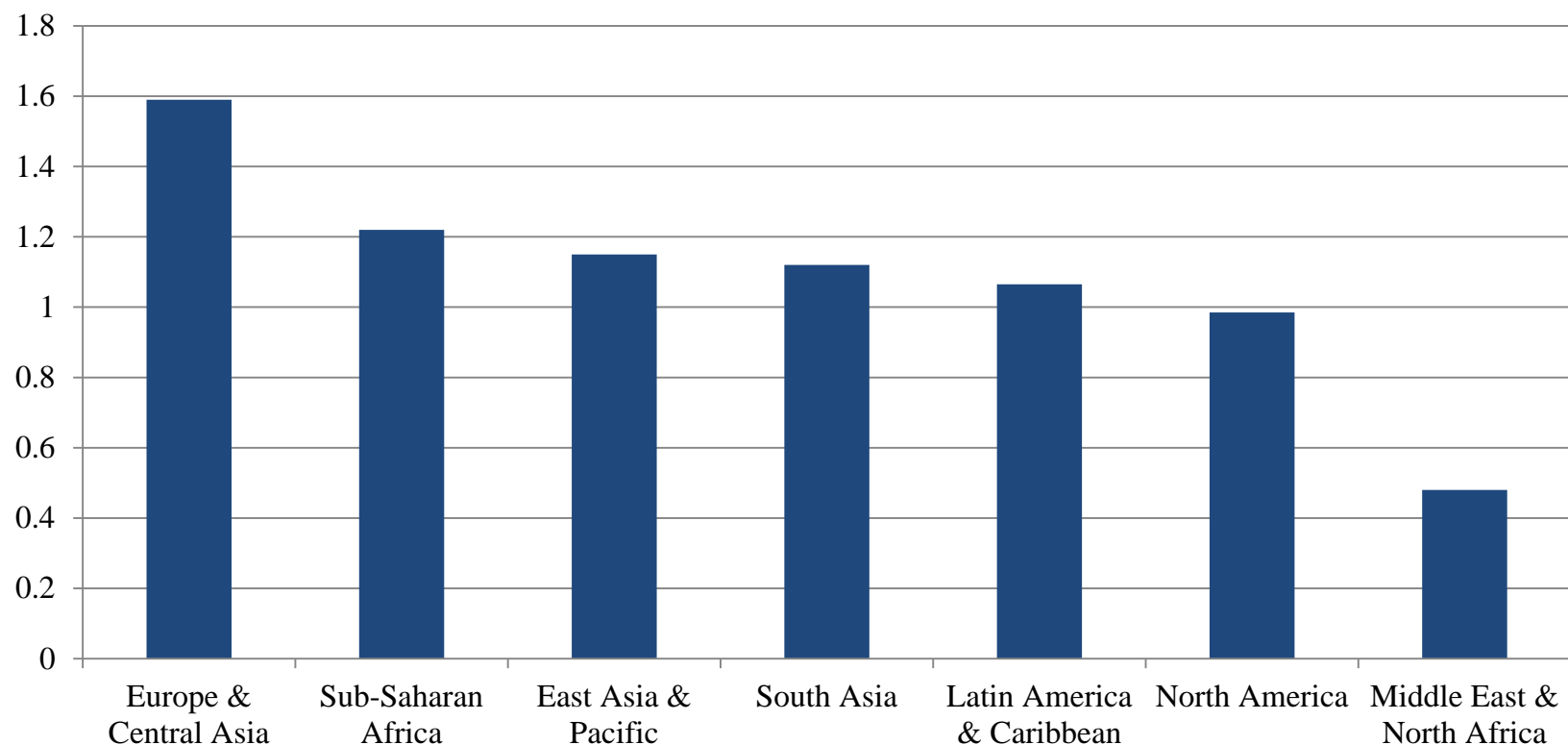


Do they work?

- Revenue?
 - Depends.
- More important environmental quality?
 - Higher ERTs =>
 - Lower: CO2 emissions per capita, PM10 emissions, Water pollution, fossil fuel consumption, electricity production from fossil resources, reduced.
 - Higher: Renewable energy, percentage coverage area of forests.

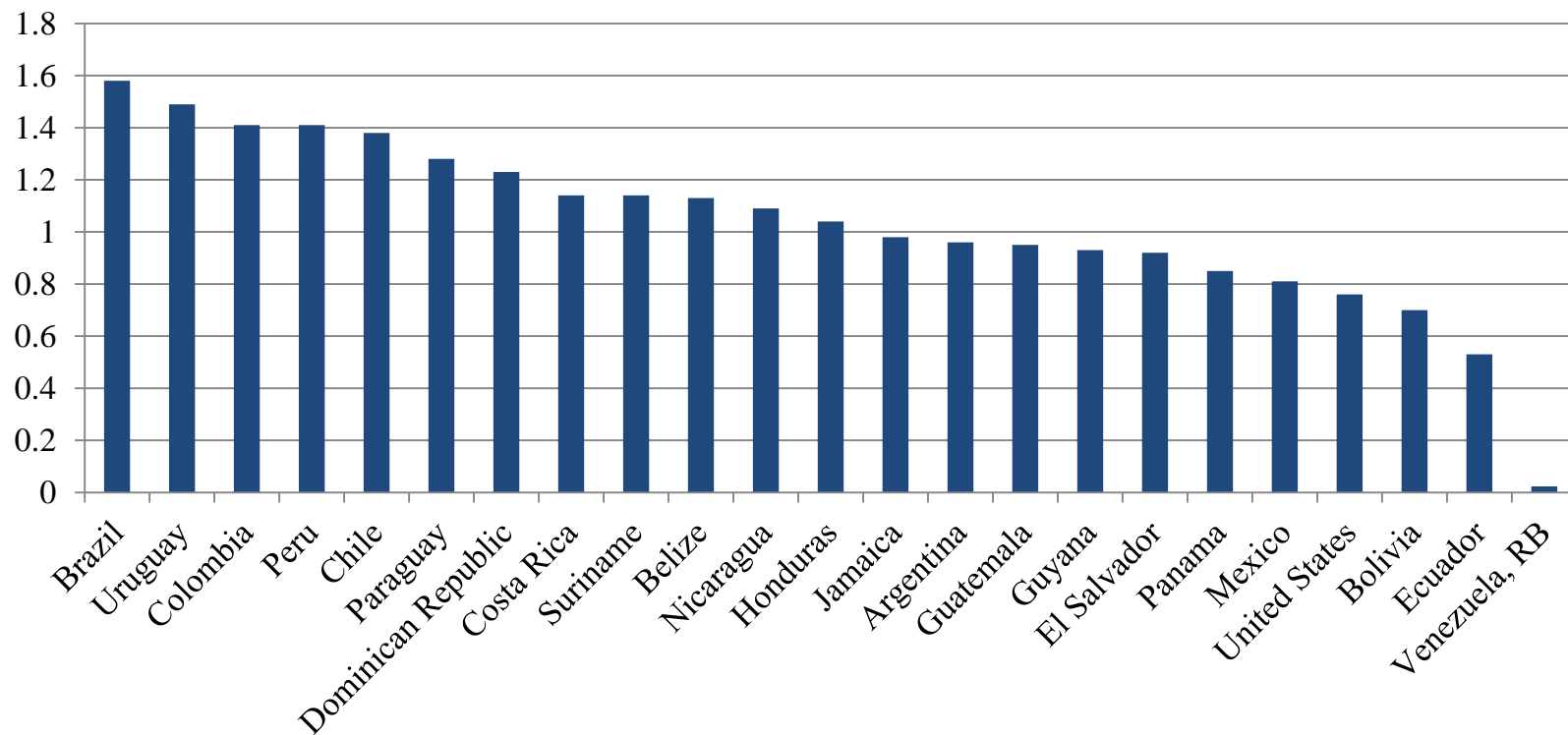
Fuel Taxes in the world

Pump price for gasoline US\$ per litre (2010) Average by region



source: World Bank

Pump price for gasoline US\$ per litre (2010) American countries



What can be done in LAC?

- Important to consider interaction of the tax with other elements in the tax system and other environmental policies.
 - Not consensus on how to estimate the optimal second best tax rate.
- Parry and Strand (2010): plenty of room to increase diesel fuel taxes in Chile.

Optimal fuel tax in Chile

Tax Computations	Automobiles (gasoline)		Trucks (diesel)	
	(US\$/gal)	(%)	(US\$/gal)	(%)
Optimal fuel tax	1.83		1.69	
Local tailpipe emissions	0.36	20	0.35	21
Carbon	0.07	4	0.08	5
Congestion	0.59	32	0.49	29
Accidents	0.82	45	0.34	20
Noise	0.00	0	0.03	2
Road damage	0.00	0	0.39	23
Reduction in fuel use under optimal tax (%)	5.3		16.3	
Tax revenue under optimal tax (US\$ millions)	1,400		1,300	
Increase in tax revenue relative to 2006 level (%)	24%		≈300%	

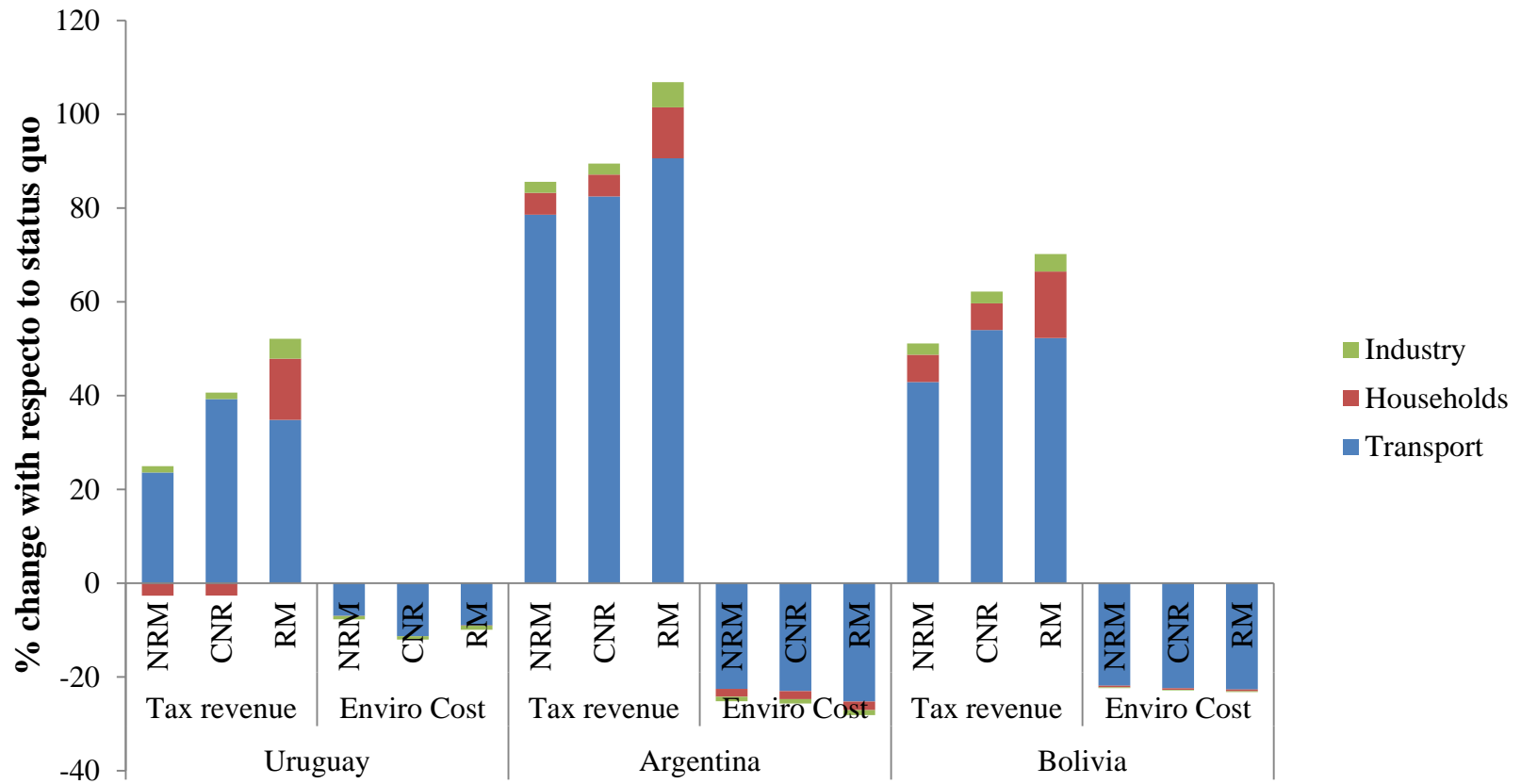
Source: Parry and Strand (2009)

Environmental damages from fuel use in transport sector (US dollars per liter)

	Parry and Strand (2010)		Navajas et al. (2011)		
	Chile	Santiago	Uruguay	Argentina	Bolivia
Gasoline					
Local emissions	0.154	0.317	0.099	0.153	0.061
Global	0.018	0.018	0.016	0.016	0.016
Total	0.173	0.336	0.115	0.169	0.077
Diesel (gas oil)					
Local emissions	0.135	0.317	0.662	0.927	0.327
Global	0.022	0.022	0.016	0.016	0.016
Total	0.157	0.339	0.678	0.943	0.343
Value of Statistical Life (VSL; (000 USD)	1,120	1,120	892	818	147

Energy taxes in Argentina, Bolivia and Uruguay

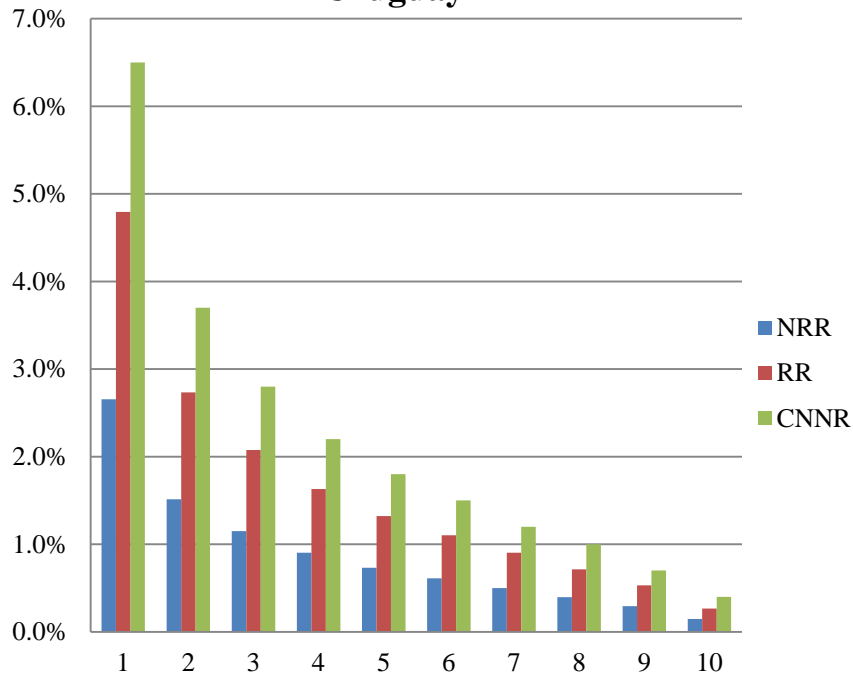
Impacts of Tax Reforms on revenues and Environmental Costs



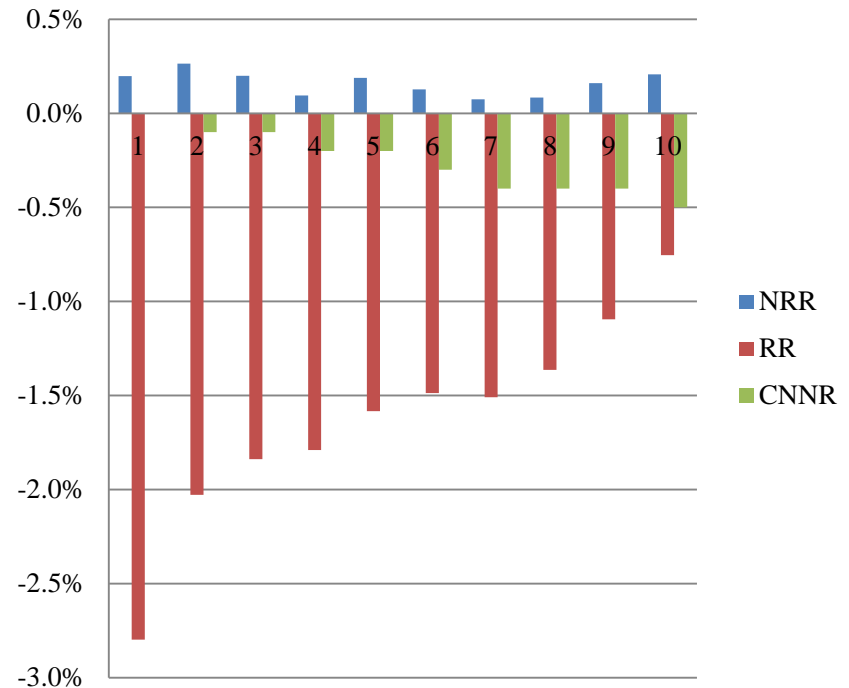
Source: Navajas et al 2012

Distributional Effects

Environmental Benefits by Decile for Uruguay



Price impact by Decile for Uruguay



Source: Navajas et al 2012

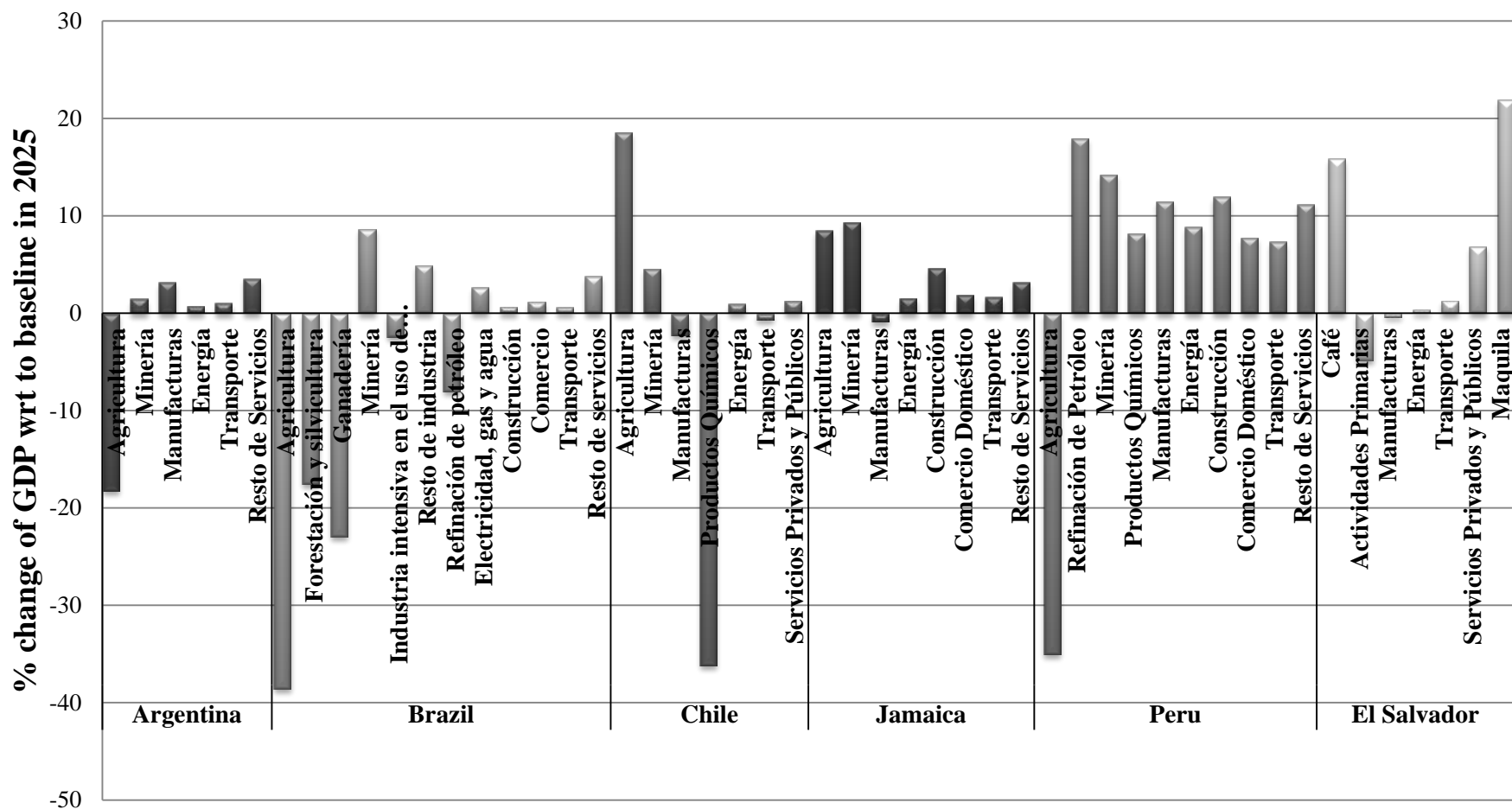
Carbon Taxes in selected LAC

Effects from a Carbon Tax

	GDP	Fiscal Impacts	CO2 Emissions
Argentina	-	+	--
Brazil	-	+	--
Chile	0	+	0
Jamaica	0	+	0
Peru	+	+++	---
El Salvador	0	++	-

Source: Chisari (2012)

Sectoral Effects of a Carbon tax



Source: Chisari (2012)

Other future green Taxes

- Congestion Pricing
 - Deal with negative externalities of traffic.
 - London & Singapore (Germany)
- Waste and wastewater fees
 - Taxes/fees for waste disposal management.
 - “Nudges”: plastic bags fees.

Conclusions

- Environmental instruments for environmental policy.
- Environmental related taxes traditionally been set for revenue purposes.
- The goal must be efficiency. But efficiency is hard.
- Optimal rates are not in place. Scope for improving environmental quality, raising “some” revenue. Might be efficient in some cases.
- Ets are not the only tool. Other market mechanism.

Thanks



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