

# Why a carbon market for Chile and a proposal

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# A new market mechanism for emerging economies

- the EU, for example, would like to see (2011 UN conference in Durban) a new market mechanism implemented in emerging economies to replace the project-based Clean Development Mechanism (which was a bad idea in the first place!)
- instead, these economies should adopt economy-wide caps on carbon or at least caps covering whole economic sectors
- such a mechanism could form a stepping stone towards a system of globally linked economy-wide cap-and-trade systems (or ETS)

# Benefits from adopting a carbon market (ETS)

- Economic transformation
  - reduce greenhouse gas emissions in a more cost-effective way
  - more efficient production and consumption
  - sustainable and secure energy supply (e.g., from renewal)
  - Innovation and rapid adoption of technology
- Trade benefits
  - Profiting from unit sales (linking to an international market) and new market opportunities
  - Positive trade relations
- Other co-benefits: economic, environmental and human health

# Question for Chile

- eventually and rather soon (2020?) Chile must start moving towards a lower-carbon economy anyway (and project-based-CDM approach is clearly not the way)
- why should Chile adopt (and the sooner the better) an economy-wide cap on carbon emissions as opposed to a economy-wide carbon tax?
- two reasons; first, it is not clear how reduction efforts under a tax system can ever be "linked" to international carbon markets
- today's linking proposals:
  - EU-ETS and Australia's ETS (2015)
  - California's ETS and Quebec's
- and second, a ETS can be made work very much like a tax for period of time (best example is Australia's scheme)

# Chile's experience with quota markets

- does Chile have the institutions to implement a carbon-ETS?
- Chile has a good amount of experience with quota markets
- fishing quotas or ITQs (first introduced by the 2001 law and later made them more easily tradable in the recently signed 2013 law)
- water rights (introduced in the water code of 1981 and the reform of 2005 considers a penalty fee for not use)
- particulate pollution permits (Supreme Decree 4 of 1992 allowed stationary source to generate pollution credits to be sold to other existing or new sources); there is also NO<sub>x</sub> trading.

# Chile's lessons from quota markets

- lessons of design and implementation on various aspects
- the political economy of why tradable quotas (as opposed to what instrument?)
- initial allocation of rights: grandfathering vs auctions (and how that have changed, if at all, overtime)
- market manipulation (in the quota market and in the final market)
- transaction costs
- monitoring, enforcement and compliance
- adjustment of the overall quota overtime

# Specific questions for the implementation of a carbon market

- the Base Law of the Environment (Law No. 19300) requires Congress to approve legislation for the use of ETS; draft proposals going back to 1995 have been numerous and unsuccessful
- does the implementation of a carbon market requires such legislation?
  - it would be hard to design common legislation for both local and global pollution
  - why not eliminate the requirement in the existing Law?
- ETS discussion can be part of a broader discussion on tax reform
  - auctioning of a fraction of permits can generate revenues
  - Australia's scheme recycles those revenues, 50% to emissions-intensive trade-exposed industries (in the form of free permits) and 50% to poor households (by lifting the threshold for income tax full exemption)

*Artículo 48.- Una ley establecerá la naturaleza y las formas de asignación, división, transferencia, duración y demás características de los permisos de emisión transables.*



# Why tradable quotas?

- Water markets were introduced in the water code of 1981
  - 100% "grandfathering"
  - quite successful in valleys in the central district
  - less so in northern and southern districts
- ITQ for fisheries were introduced in 2001 in Law No. 19713
  - came to replace the previous Olympic race that only set the total catch
  - large cost savings as a result
  - 100% grandfathering
  - a legal reform just passed this last January in Congress (ITQs were preserved!)
- A market for particulates was established in Santiago in 1992
  - based on an executive order (didn't require Congress approval)
  - not much else since then (a more general ETS law waiting approval since 1995)
  - 100% grandfathering (by construction because credit-based system)

# On the initial allocation of these "property" rights

- initially grandfathering in all three cases; little attention to auctioning and much less so to revenue recycling
  - free allocation important in the particulates market particularly useful to complete the initial inventory of emissions (rent seeking behavior)
- moving gradually towards auctioning
- the reform to the water code of 2005 establishes:
  - new water rights (not many!) must be allocated through auctions
  - rights that are proved not in use must pay a fee
- the new fishing law of January 2013 establishes a limited amount of auctioning for fisheries that have returned to their maximal sustainable yield
  - by far the most contentious issue in the discussion of the new law (some wanted 100% auctioning; industrial fishermen 0%)...(I should mention that I was heavily involved in this debate; more later)
- proposals for ETS legislation pay more attention to auctioning (not much else to say)

# Market manipulation

- never a concern in the Santiago market for particulates (600 sources)
- big issue in water markets in the south:
  - existing power companies accused of withholding water rights in a effort to block the entry of smaller hydro-power projects
  - reform of 2005 responded with the introduction of a penalty fee for not use (hard to implement; not assessment available of how effective it has been)
- big issue also during the discussion of the 2013 fishing law
  - case brought to the Competition Tribunal (important to have this institution in place)
  - existing large companies accused of both colluding in the final products (fish oil and powder, frozen, etc) and withholding to fishing quotas for blocking expansion/entry of smaller firms
  - solution proposed: auctioning 100% of the ITQs

Table 1: Individual (mackerel/anchoveta) allocations in Center-south zone

| <b>fishing company</b> | <b>quota share 2009</b> |
|------------------------|-------------------------|
| Alimar                 | 13.4%                   |
| El Golfo               | 12.8%                   |
| SPK                    | 11.4%                   |
| Itata                  | 11.1%                   |
| San José               | 10.1%                   |
| Lota Protein           | 1.8%                    |
| Others                 | 39.4%                   |
| <b>Total</b>           | <b>100%</b>             |

## more on fisheries: manipulating the final product market?

- the way to exercise market power in the output market (e.g., fish powder, fish oil, etc.) is catching below the total allowable catch (TAC) or overall quota. Any evidence from the Mackerel/Anchoveta market?

| year | Overall quota (tons) | Total catch (tons) | difference |
|------|----------------------|--------------------|------------|
| 2009 | 2,847,525            | 1,586,203          | -44.3%     |
| 2008 | 3,026,813            | 1,797,615          | -40.6%     |
| 2007 | 2,875,919            | 2,174,284          | -24.4%     |
| 2006 | 2,647,796            | 2,025,141          | -23.5%     |
| 2005 | 2,692,734            | 2,531,811          | -6.0%      |
| 2004 | 2,993,273            | 2,861,525          | -4.4%      |
| 2003 | 2,479,629            | 1,863,964          | -24.8%     |

# Transaction costs

- they have proved important in the particulates market
  - case-by-case approval, lengthy process
  - weak price formation (auctions are good here)
  - regulatory uncertainty about the future value of credits
- also in the water markets in the north
  - lengthy approval process and much uncertainty about approval (technical restrictions)
  - mining companies have instead gone for desalinization
- and also in ITQ-fishing trading
  - in the 2001 law, ITQs were attached to vessels and, hence, must be sold as a bundle (which makes trading too lumpy and introduces large information asymmetries)
  - this restriction is removed in the new legislation; ITQs are now freely tradable
  - Note: after the Competition Tribunal found no evidence of market power, "auction supporters" turned to transaction cost (and asymmetric information) arguments for 100% auctioning

# Monitoring and compliance

- less than full compliance has been recognized as a problem in all quota markets
- the new fishing law includes provisions to increase compliance (closer monitoring)
- it is not clear that compliance would be higher with alternative instruments!

# Adjusting the total quota

- the overexploitation of the resource has been an issue in both water and fishing quota markets, but for different reasons
- in the case of water
  - there has been an overallocation and the pattern of trading—from partial or intermitted consumption (agriculture) to continuous consumption (mining)—has worsen the problem
  - the government cannot buy back rights (unlike in Australia)
- in the case of fisheries
  - there has been a systematic overallocation of a quota (some argue industrial fishermen are largely responsible for that)
  - the new law establishes a new protocol for setting the TAC, more scientifically based (fishermen are not part of the protocol)
- this has not been an issue in the particulates market (by construction since it is a credit-based program)