Carbon Pricing Modelling (Chile)

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Context

- The new government of president Bachelet promotes major reforms in three areas: political, educational and financial.

- The educational reform discussion generated a political window of opportunity.

- In 2014, a tax reform was designed mainly to pay for this reform. Into this complete package three new green taxes were introduced.

- Despite the fact that these taxes inherently raise revenue, the main aim of these taxes is to mitigate local pollutants and contribute to curbing emissions that result in climate change.

- So one of our main challenges is to create the institutionality required to implement them.

Green Taxes

- In September 2014, Chile passed a green tax law. The three new taxes that were introduced include:

  1. A tax on CO_2 emissions from stationary sources with boilers and turbines.

  2. A tax on local contaminants also on stationary sources with boilers and turbines (PM, SO_2 and NO_X), and

  3. A tax on the first sale of new cars considering the expected NOx emissions over their lifetime.

- These taxes will go into force in 2017, and require detailed regulation which will be developed during 2016.

Carbon Tax

- The carbon tax is fixed at US$5 per ton of CO_2 emissions.

- The tax is levied on 'sources' with boilers and turbines that produce a heat power of 50 megawatts considering the sum of the combined facilities´ heat output.

- Co-benefits:
  - Health
  - The tax generates a price signal
  - New institutional infrastructure.

- By upgrading Chile´s reporting capacity in the future it will be possible to develop more sophisticated policy instruments.

- This bill does not include 'offsets' after the full implementation of the tax it will be possible to introduce offsets if the authorities consider it appropriate.

Carbon Tax

- By improving our MRV systems it will be possible in the near future either scaling up the taxes or to develop Emissions Trading Schemes (ETS).

- Why was the threshold fixed at 50 megawatts? and why was it set at US$5 per CO2 ton?.

  - The threshold was set at 50 megawatts because the main target is the electricity sector, which accounts for around 30% of our total national emissions.

  - The Ministry of Social Development estimated that the social cost of CO_2 was US$5 per ton.

Modelling Exercises

- Ex post, supported by the PMR Upstream Policy analysis we are carrying out a study to provide policy insight into the potential impacts of the carbon tax on the electricity sector.

- Using of a software to forecast a least-cost generation expansion plan using a market model that predicts some economic effects.

- This study aims to interpret the outputs of the model to inform policymakers and stakeholders about the potential effects of different levels of carbon tax, and different approaches to the application of the carbon tax, on trajectories of power generation mix and greenhouse gas mitigation.

Modelling Exercises

- The modeling exercise that is at the basis of this study must be understood as a tool to think about policy.

- It is not a tool to determine one specific trajectory of power generation mix and greenhouse gas mitigation.

- It is also not a general equilibrium model claiming to determine detailed effects of the carbon tax, or policy choices in other sectors or the economy more broadly.

- The study models various scenarios of power generation, defined by different values of carbon tax and different ways of applying the tax.

Context of the analysis

- The main impacts that the study analyzes include:

    - Potential changes in the energy generation mix due to the entrance of new investment in energy sources that are less carbon intensive.

    - Early retirement of high-emitting power generation units. Potential impacts in GHG emissions.

Scenarios of analysis

- The scenarios will aim to test the impact of the carbon tax at the current 5$ level, at a politically viable price and a price in which a change between coal and gas is seen.

- Additionally a scenario will be run to test the impact of the tax once Chile connects their electricity grid with Peru.

Lessons Learned

- Define the scenarios as soon as possible.

- Make sure and make a conscious decision with respect to using a partial equilibrium model or a general equilibrium model.

- Be aware of how the difficulty of estimating sector specific emissions impacts that are based on national INDC commitments, will impact the outcome of the study

- Be aware that the values that are chosen for the modelling exercise should reflect a political reality

- The inclusion of a wide variety of clearly defined and coordinated stakeholders is key

- Present early results to heads of the divisions that the recommendations are aimed at, before making any results public.

- Keep in mind future follow-on studies that can be undertaken in future reports to compliment the modelling exercise

- If possible, use local modelling experts to check the outputs and inputs and to build internal capacity.