



Internship proposal

Climate sub-national initiatives and international agreements

International climate negotiations have been ongoing for 25 years (UNFCCC signed in 1992). International agreements, the Kyoto protocol and the Paris agreement, have been criticized for their lack of ambition related of their voluntary nature. The Paris agreement was perceived as a great diplomatic success, though its contribution to future emission mitigation efforts is debatable.

Besides negotiations between states, several 'transnational' initiatives have emerged, these initiatives involve firms, NGOs, sub-national public authorities. These initiatives range from the California-Quebec-Ontario CO2 permit market, the network of cities C40, the reforestation Bonn Challenge.

The objective of the internship is first to review some of these initiatives, and then to analyze the emergence of such transnational initiatives using game theory.

Questions to be addressed are:

- What are the incentives of subnational actors to implement mitigation initiatives?
- Are they likely to provide a non negligible mitigation effort?
- Are international agreements and subnational initiatives complementary or substitutable?
- Should transnational initiatives be integrated within an international framework?

Useful links

- The C40 Cities Climate Leadership Group connects more than 90 of the world's greatest cities, representing over 650 million people and one quarter of the global economy. <http://www.c40.org/>
- The Bonn Challenge global effort to bring 150 million hectares of the world's deforested and degraded land into restoration by 2020, and 350 million hectares by 2030
<http://www.bonnchallenge.org/content/challenge>

Academic litterature

On international negotiations :

- Barrett, S. (1994a), 'Self-Enforcing International Environmental Agreements', *Oxford Economic Papers*46 (October, special issue on environmental economics), 878–894.

- Hoel, M., & Schneider, K. (1997). Incentives to participate in an international environmental agreement. *Environmental and Resource economics*, 9(2), 153-170.
- Barrett, S. (2008). Climate treaties and the imperative of enforcement. *Oxford Review of Economic Policy*, 24(2), 239-258.

On sectoral approaches :

- Meunier, G., & Ponsard, J. P. (2012). A sectoral approach balancing global efficiency and equity. *Environmental and Resource Economics*, 1-20.

On subnational initiatives :

- GRAICHEN, Jakob, HEALY, Sean, SIEMONS, Anne, *et al.* International Climate Initiatives—A way forward to close the emissions gap?. 2017.
- Chan, S., Brandi, C., & Bauer, S. (2016). Aligning transnational climate action with international climate governance: the road from Paris. *Review of European, Comparative & International Environmental Law*, 25(2), 238-247.

<http://onlinelibrary.wiley.com/doi/10.1111/reel.12168/full>

Requirements and further information

Good knowledge of microeconomics,

Some familiarity with the economics of climate change and the economics of energy

Analytical and modeling capability (no need for econometrics)

The internship will take place under the joint supervision of Guy Meunier and Jean-Pierre Ponsard (Eco Department).

Students interested should send their CV and motivation letter to guy.meunier@polytechnique.edu