Foreign offsets out of the woods? Acceptability of domestic vs. foreign reforestation programs

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Workshop on economic valuation of forest ecosystem services
Geneva, January 29th 2015

Research question

Our starting point:

- Emissions abatements have the same environmental effect regardless of their location
- Important cross-country differences exist in abatement costs
- Economics points to the use of carbon credits to minimize abatement costs
- Political resistance may however limit the use of abatements abroad

Hence, our question:

- What type of political discourse can modify people's preferences for domestic vs. foreign abatement?

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Why do we care?

Looking beyond the Paris Agreement: turning pledges into policy

- In spite of critiques, turning current pledges into domestic policies is already a hard challenge for policymakers
- Cost-effective measures are required, little room for failure
- Carbon pricing and carbon markets (article 6) would be 'first best' (+REDD, PES)
- However, carbon pricing and use of carbon credits highly unpopular
- Need to fill the gap between economists and the general public
- Lowering the cost of climate policy, lower carbon tax rates
- Chances would remain that post-2020 ambitions get us to $+2^{\circ}$ w.r.t. pre-industrial temperatures

Empirical approach

Hence, our question: what type of political discourse can modify people's preferences for domestic vs. foreign abatement?

- Empirical question
- Best analyzed with experimental methods (revealed preferences)
- Select two offset projects, one domestically and one abroad
- Three treatments, three messages

Efficiency	Same budget, more abatement
Credibility	Guarantees for offset projects in both countries
Benefits	Local projects provide local benefits

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Preview of findings

Three treatments, one effective, two have little effect:

Efficiency	Increase funding to foreign projects by 10%
Credibility	Increase funding to foreign projects by 2%
Benefits	Increase funding to domestic projects by 2%

Economic background

Two literatures:

1. Economics of carbon offsets
   - Voluntary provision following pure and impure altruism (Andreoni 1990, Nyborg et al. 2006) and guilt, compensation for bad behavior (Kotchen 2009)
   - Empirical analysis of demand for carbon offsets, mainly using survey data (stated preferences) but also some lab and field experiment (revealed preferences)
2. Political economy of climate policy
   - Lobbying from energy-intensive industries only part of the story
   - Pigouvian instruments highly unpopular: Pigou vs. Ramsey (Thalmann 2004, Dresner et al. 2006, Kallbekken et al. 2011, Cherry et al. 2012)

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Hypotheses

Efficiency Participants may pay attention to the amount allocated to offsets, but not necessarily to the emissions abated by one or the other project. Reminding them the cost differential between domestic and foreign offsets increases the frequency of foreign offsets and thus the overall abatement

Credibility Participants may not find foreign projects trustworthy. Providing guarantees on the trustworthiness of reforestation projects' providers increases the frequency of foreign offsets and thus the overall abatement

Benefits The main focus of the experiment is on greenhouse gas emissions and participants may neglect the local benefits of afforestation. Reminding them the benefits of local forests increases the frequency of domestic offsets

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Experimental design

Sample 307 participants recruited from a pool of students

Procedure Two stages, three randomized treatments

1. Endowments and voluntary contributions to an unspecified reforestation program
2. Randomized treatments and allocation between projects: projects disclosed and decision to allocate funding between the domestic and foreign reforestation project

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The allocation decision

Table 1: Reforestation programs

	Program 1	**Program 2**
1***Place**	Visp, Switzerland	Limay, Nicaragua
CO_2 sequestration / tree / year	15kg	15kg
Cost / tree	CHF10	CHF3

First stage

Table 2: Contribution and endowments: descriptive statistics

Variable	Contributors	Non-contributors
Endowment	7.15	7.34
	(1.90)	(1.93)
Contribution	5.81	0
	(2.59)	(0)
Contribution (%)	0.83	0
	(0.30)	(0)
Observations	261	46

Standard deviations in parentheses.

Second stage (1)

We estimate treatment effects B_i with the following equations:

$$Y_i = \alpha + \beta_1 T_1 + \beta_2 T_2 + \beta_3 T_3 + \gamma X_i' + \epsilon_i$$

Second stage (2)

Table 3: Treatment effects

	(1) OLS	(2) Tobit
Efficiency treatment	0.110*	0.114*
	(0.06)	(0.07)
Trust treatment	0.021	0.024
	(0.06)	(0.07)
Local benefits treatment	-0.023	-0.022
	(0.06)	(0.07)
Constant	0.340***	0.276***
	(0.08)	(0.09)
Observations	245	245
Adjusted R^2	0.16	
Pseudo R^2		0.18
AIC	142	255
BIC	184	301

Heteroskedasticity-consistent standard errors in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Discussion

Three treatments, one effective, two have little effect:

- **Efficiency** Increase funding to foreign projects by 10%
- **Credibility** Increase funding to foreign projects by 2%
- **Benefits** Increase funding to domestic projects by 2%

Implications and contribution:

- No specific issues of credibility, local benefits already taken into account
- Efficiency reasons (environmental impact) clearly overlooked
- Addressing informational asymmetries can increase support for foreign offsets
- Complements existing findings for energy, carbon and garbage taxes

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Conclusion

Turning pledges into policies is a hard challenge, and cost-effective climate policies may be unpopular. However, we find that:

- Effective communication from policymakers can overcome some of the resistance to foreign abatements
- The most effective argument relies on the cost-effectiveness of foreign offsets, i.e. higher environmental impact for a given cost
- Hence, similarly to Pigouvian taxes, suspicion about market solutions can be spurious, and showing their (cost-)effectiveness contributes to build support