Competing Environmental Labels

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Introduction

- Globalization of trade and environmental issues create problems difficult for governments to address with standard policy tools
- Trade law makes it difficult for governments to regulate attributes of production processes outside their borders
- Many groups have put increasing effort into international market mechanisms such as ecolabeling

Labels Promulgated by a Non-Governmental Organization (NGO)

- Swedish Society for the Conservation of Nature

- Forest Stewardship Council (FSC)

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Industry-led Labels

- Pulp and paper
- Tuna canning
- American Forest & Paper Association (AF&PA) Sustainable Forestry Initiative

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Research Questions

- How do the incentives and behavior of industry groups and environmental NGOs compare in setting ecolabel standards?
- Is society made better off by multiple ecolabels in an industry, or do competing labels reduce overall effectiveness?
- Is there a role for government intervention in third-party voluntary labeling schemes?

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Previous Literature

- Still quite sparse, but growing
- Heyes and Maxwell (2004) compare a mandatory standard adopted by a "World Environmental Organization" (WEO), subject to political pressures, with an NGO-led voluntary ecolabel
  - NGO label may reduce welfare by pre-empting the more socially desirable WEO label.
  - If the two labels coexist, then the NGO label is beneficial
- Baksi and Bose (2007) compare NGO labels with self-labeling by individual firms
  - Self-labels can be better if the government is willing to engage in costly monitoring

Our Analysis

- Formal model of rivalry between NGO and industry-sponsored labels
- Each chooses a standard of stringency
  - NGO wants to minimize damages
  - Industry wants to maximize profits
- Firms are distributed across a spectrum of costs of complying with a standard
- Consumers have some willingness to pay as a function of standard stringency

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The Firm Decision

- Firms elect to join a labeling program if the net benefits outweigh the alternatives
- Single label / less stringent label:
  - if the price premium outweighs the costs of meeting the standard
  - i.e., below a cutoff level of the cost parameter
- More stringent of two labels:
  - if the price premium outweighs the costs of meeting the standard
  - *And* if the additional price premium outweighs the additional costs
  - i.e., *above* a cutoff level of preferring the looser standard

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Main Results for Industry

- If there is only one label, the NGO adopts a more stringent label than does the industry.
- Industry further relaxes its label if the two labels coexist.
- Industry profits increase with multiple labels.
  - Firms only voluntary if it increases profits
  - Industry only changes its standard if it increases profits

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Main Results for NGO and Environment

- NGO may tighten or loosen its standards in response to an industry label
- Environmental damages may be higher or lower with both labels than with the NGO label alone.
- Specific results depend on the distribution of types of firms in the market and consumer demand for label stringency.

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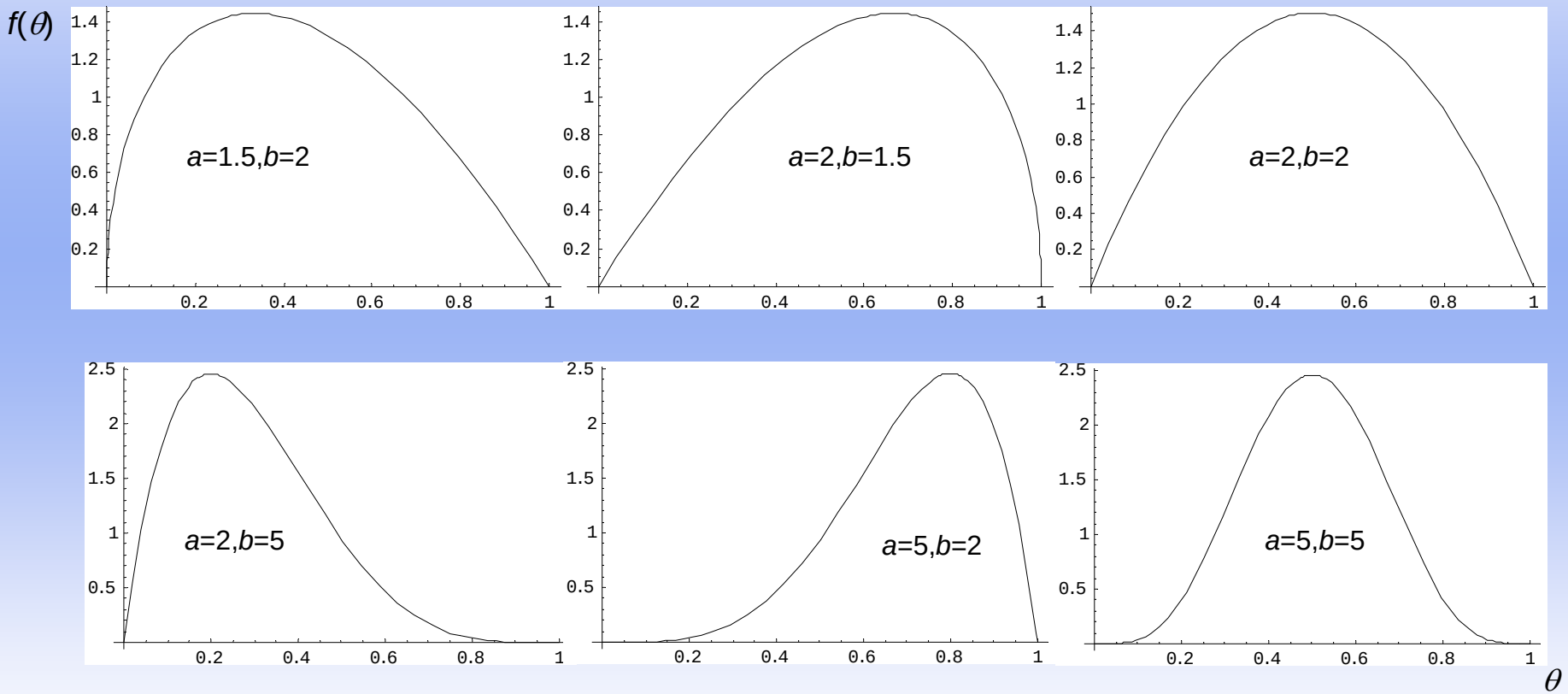
Simulations

- Explore role of firm-type distribution and consumer willingness-to-pay functions
- Find both kinds of NGO and damages response
- NGO loses substantial participation when industry label present

Distribution Function Examples



(Beta distribution function)

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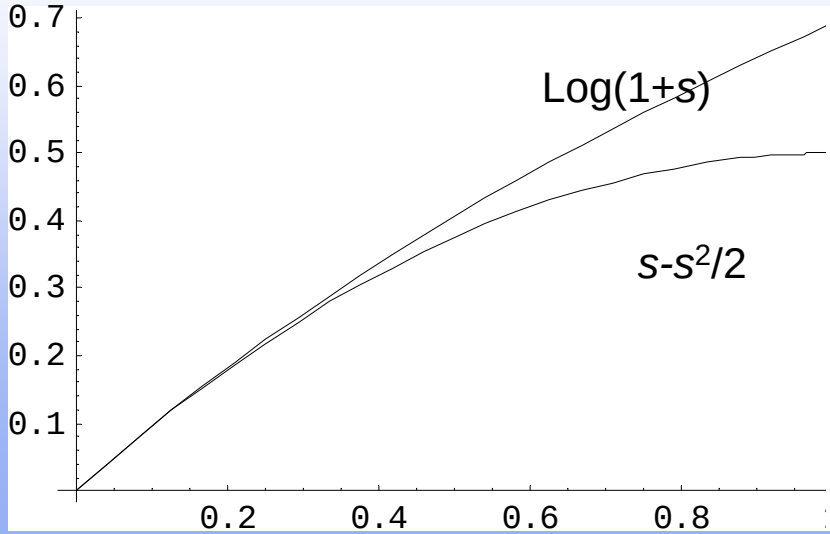
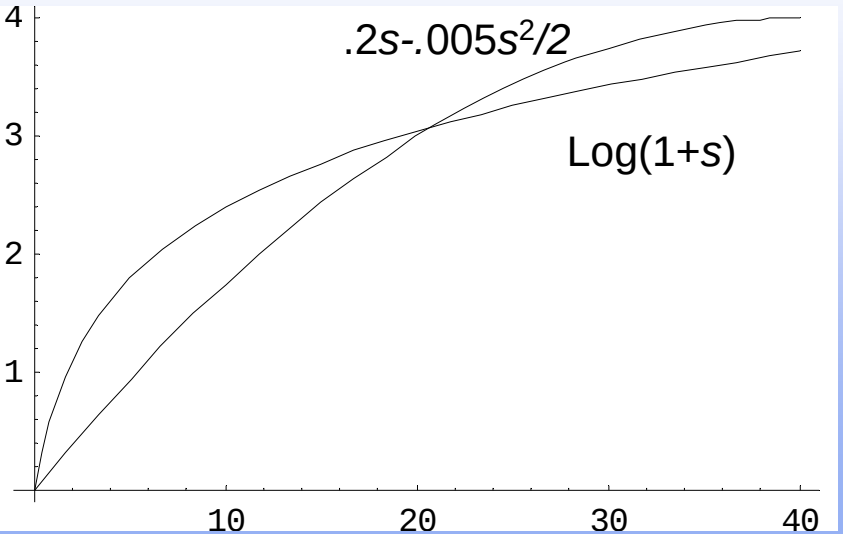
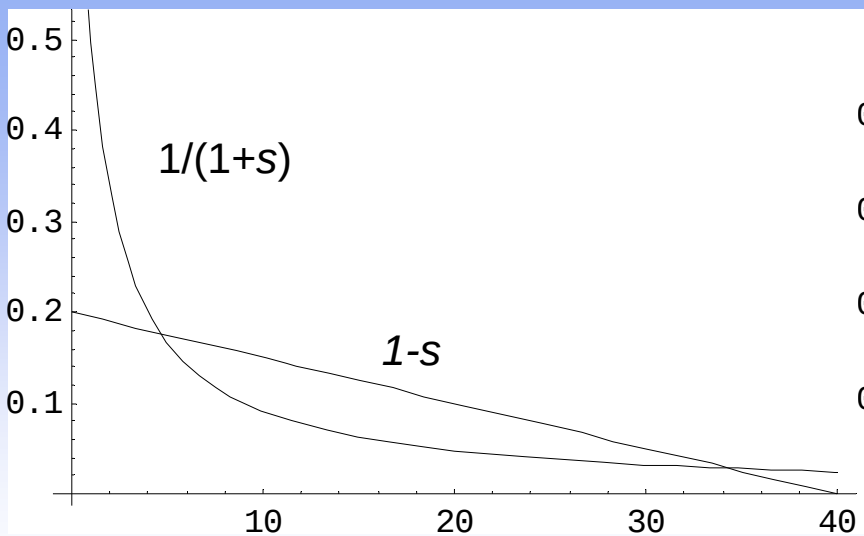
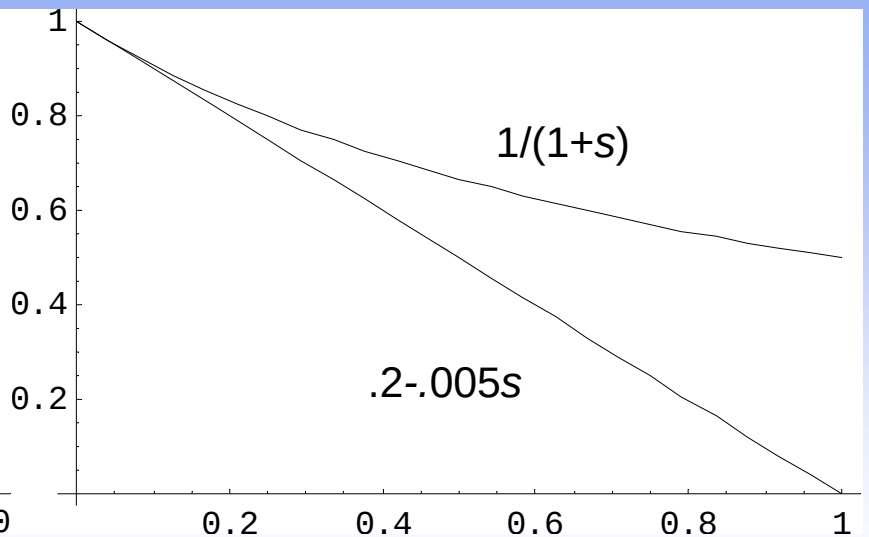
Price Premium Functions









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Simulation Results

Distribution Parameters		*Prices*				*Participation Rates*				*Change in Damages*		
a	b	pIA	pIB	pNA	pNB	%IA	%NA	%IB	%NB	Industry	NGO	Both
2	5	0.64	0.60	1.23	1.54	82%	29%	80%	5%	-2.75	-4.62	-4.14
1.5	2	0.58	0.55	1.42	1.90	59%	11%	60%	2%	-1.64	-2.71	-3.03
2	2	0.46	0.41	0.89	1.15	59%	22%	60%	5%	-1.12	-1.49	-1.55
5	5	0.34	0.33	0.53	0.81	84%	53%	84%	2%	-1.00	-1.26	-1.06
2	1.5	0.42	0.38	0.80	1.19	51%	20%	52%	3%	-0.83	-1.05	-1.17
5	2	0.21	0.20	0.30	0.67	59%	41%	60%	1%	-0.38	-0.41	-0.40

Price Function	*Prices*				*Participation Rates*				*Change in Damages*		
	pIA	pIB	pNA	pNB	%IA	%NA	%IB	%NB	Ind.	NGO	Both
Log[1+s]	0.53	0.49	1.03	1.38	71%	25%	70%	4%	-1.67	-2.45	-2.44
(.2-.005s/2)s	2.60	2.55	3.07	3.92	1.4%	1.2%	1.4%	0.0%	-0.23	-0.24	-0.23
(1-s/2)s	.127	.125	.192	.191	90%	71%	88%	3%	-.576	-.688	-.578

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Finer Points

- In more cases, fewer reductions with both labels than with NGO alone
- Dueling labels more likely to be beneficial to the environment if firm types are broadly distributed
  - Else competing within a tight range

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Thinking About Welfare

- Societal objective function would likely balance profits and environmental damages (and consumer surplus)
- Profits and consumer options increase with more labels, but environmental benefits may decrease
- Role for influencing the number of labels and their criteria
- Incentives for NGOs to work *with* industry groups to avoid excess competition

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Caveats and Further Research

- Consumer willingness to pay for one label may depend on the qualities of the other labels
  - additional interactions between competing labeling schemes
- We assume standards set targets for reductions in damages; absolute standards may create twin distributions of firms by costs and emissions

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Thanks!

- To EPA-STAR
  - RD-83285101

- For more information:
  - Resources for the Future
    www.rff.org
  - Erb Institute for Global Sustainable Enterprise
    http://www.erb.umich.edu/

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