

PIGOUVIAN TAXES

14.42 LECTURE PLAN 7: MARCH 1, 2011

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DISCUSSION QUESTIONS

1. Connect the readings to an economic issue that we have discussed in class. What's interesting about this issue?
2. What influences allowance prices?
3. Was the program a success? Why?
4. What should have been done differently in program design?
5. What can we learn about this for design of carbon markets?
6. Is it indeed "tragic" that EPA's summer 2010 CATR law caused a "collapse" of the market?

PASTURE 1: UNDERSTANDING THE FACTS

The law – dates, who is covered

Emissions changes

Compliance strategies

How much they cost

How common?

What share of the abatement are the

PASTURE 2: INTERESTING ECONOMIC ISSUES

Key economic issues:

- Average vs. marginal cost
- Efficiency vs. cost effectiveness
- Allowance price trends

Efficiency vs. Cost effectiveness

Question: How did they set the 10 million ton goal?

No quantitative sense of marginal damage function! Round number.

Question: Is there an economic way to justify?

Hoff Stauffer's abatement cost curve kink.

Allowance prices

Question: What determines allowance prices?

- Banking – should rise at the interest rate and equal the marginal cost of abatement at the time when they run out
- Power demand
- Natural gas prices
- High vs. low-sulfur coal prices

Question: Why were allowance prices lower than expected?

- Railroad de-regulation

Question: Should banking be allowed?

- Reduces volatility in prices
- Increases volatility in emission levels

Volunteers/Opt-In

Question: talk about the opt-in units. How many were there, etc. How much abatement from them?

Question: is this good?

Question: when do we want opt-in?

- When we want to allow flexibility for lower-cost abatement – i.e. unobserved heterogeneity in *compliance costs*.
 - (But if want flexibility, why not just include all units from the start?)
- When there is good information about the counterfactual *emission levels* of the opt-in units. This is what generates the adverse selection problem.

Abatement Strategies

Question: What does business risk aversion do?

Interaction with regulation: Fowlie paper. Regulated utilities are in low-damage states, so they put on scrubbers but have less of an impact on air quality.

Push question: How does volatility in allowance prices affect this?

Takeaway: this is one reason to prefer taxes, if they are convincingly more certain.

Question: 2/3 of the Phase I abatement from 7 units! Did these guys get screwed by the regulation?

Answer: No: this means that they were able to produce a valuable resource (allowances). These are probably the best off firms!

Political Economy

Question: How does this affect the profitability of power generator?

Why is this more feasible than a tax?

Go through the pass-through in detail using a stylized electricity supply curve.

Allowance Allocations

Question: Why have auctions? Were they necessary?

Here, no.

Question: Would you have allocated allowances differently?

Answer: it doesn't really matter for efficiency.

Question: Does the Coase Theorem seem to hold here?

Question: Should we give allocations to entrants/exiters?

Stavins calls the lack of allocations to entrants a barrier to entry. Is this really a problem?

NOx

What's different about NOx?

Seasonal

Most important on highest-demand days.

So there's a lot of time-differentiation.

PASTURE 3: POLICY QUESTIONS

Question: Was the program a success?

Question: both Schmalensee and Stavins says this was a success because of over-abatement. Was this a good thing? (Yes, from a cost-effectiveness standpoint, suggests average compliance costs low) But from a welfare standpoint, suggests that the cap could have been set tighter

Question: What should have been done differently in designing the program?

- Opt-in provisions?
- Better effort to set optimal level of cap?

Question: What differences between this and CO2?

- Differing MD across space
- Multinational problem, so worried about leakage.

Question: Is it really "tragic" that the EPA's CATR rule sent prices to zero?

Question: Clarify what does CATR do?

Question: What could justify CATR? A new realization that:

- Homogeneous or unknown damages case: Realization that damages localized *and* steep. If damages not local or are flat, then flexibility is better. This is the same as the Weitzman argument.
 - Unless you know the local compliance cost curve, in which case you want to set locality-specific emissions targets.
- Heterogeneous and known damages case: Realization that damages vary a lot across regions.

TAKEAWAYS

People view this as a success because it satisfies a lot of the usual requirements:

1. Clear damages (from acid rain)
2. Heterogeneous and unobserved costs
3. Homogeneous damages
4. Large (liquid) market

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