

Matching Researchers & Policy

HOW CAN CLIMATE POLICY MODELS SHAPE REAL DECISIONS?

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Models vs Policy

How have models informed policy wrt

1. Costs & Instruments
2. Timing (when do what)
3. International Cooperation (who does how much)

How should we want models to inform policy? Which models to develop, and how to present?

But first: language & beliefs

Failing vs successful language

Fortunate Language development

- ‘when and where’ flexibility: very useful to convey basic economics message to policy
 - Generally accepted as desirable

Unfortunate Language

- Timing of action: abused by economists and taken by policy makers to support delay.
- ‘no regret’ and ‘double dividend’: allowed opponents to picture proponents as day-dreamers. ‘low hanging fruit’ better
- Develop phrases that are clear and capture essentials:
 - “low-cost implementation” if you use efficient instruments vs “high-cost implementation” if you grandfather, allow exemptions, etc.

We can't solve different beliefs

- Models are only a representation of modeler's beliefs
- Some economists believe that economy is resilient, that people don't need to care for climate change. That adaptation is 'natural' to human psyche
- Others believe that climate change is dangerous
- You can't convince policy makers that climate change needs action if half the researchers tell that costs of damages is only 3% of GDP in 100 years time(!)
- In this sense, climate change policy is a moral decision.
- Are policy makers wise (wo)men? If not, then you need educated people to let populist policy support best decisions.
- Research needs to inform the people, not only the policy makers, but how?

1. Costs & Instruments

Why does no-one believe costs of abatement policy are 'low'?

Answer I: 'public doesn't understand'

- Are policy makers irrational? No, they have other interests
 - Economists say costs are low (e.g. 3% GDP for 450ppmv stabilization)
 - Policy makers believe costs are high (2% extra unemployed)
- Reasons
 - Models are optimistic and leave out transition costs
 - Politicians and public hear lobbyists who discredit researchers and exaggerate costs for their clientele
 - Note: public believes the interest groups & policy wants to be popular
- Solution: Researchers should use media more effectively
 - Jargon such as low-cost implementation and high-cost implementation?
 - discredit oil interest groups? (independent media does this already)
 - Problem: interest groups have more funds to spend on (mis)informing public

Costs, ctd.

Why does no-one believe costs of abatement policy are 'low'?

Answer II: 'researcher doesn't understand'

- Economists assume cooperation vs. Policy makers assume free riders
 - Economists assume flexibility markets, efficiency & equity separate
 - Policy makers realize equity needs to be addressed, which gives costly adjustment
- Solution I: researchers should come back to earth
 - There is no efficient global market
 - Tradable permits require initial distribution
 - 1 € in Europe is 'less' than in Asia, equal carbon prices is inefficient
- Solution II: Researchers & policy need to cooperate and come with inventive ideas: what can work
 - Linking climate change with WTO?
 - Rather than setting emission ceilings in agreements, setting ratio ceilings between carbon prices (e.g. if 10% of emissions have price above p , then all countries must set price at least at $0.25p$)?

Instruments

- There is not so much disagreement in literature about instruments
 - Auctions is clearly preferred over grandfathering
 - Auctioning versus taxes can be resolved through floor and ceiling prices, or even through dynamic adjustments of auctioning
 - Exemption of exposed emission-intensive sectors is rather costly, driven more by political reality than by economic analysis
- Policy seems to pick this up, in US faster than in EU
 - Practice: Emission Permit authority should be given policy target and independence, as European Central Bank of Emission Permits.
- Need for research: how to link different international emission markets

2. When to do how much?

- Conclusion from standard economists:
 - carbon price should rise with interest rate,
 - and start at low level (e.g. 5 euro/tonCO₂)
- ‘alternative’ literature with beneficial learning effects, inertia in energy systems, etc.:
 - Carbon price should start higher and increase less
 - ‘Alternative’ because most economists didn’t like it. Much confusion and disagreement in literature.

Root of problem: belief by many economists that Climate Change is not really a big problem (3% of GDP = 1 year growth!) that needed immediate attention. Too much focus on damage in terms of lower output (insufficient attention for acid ocean, bio-loss, etc.).

As a result, economists didn’t feel bad advocating delay as optimal policy.

When to do how much? Ctd.

Root of problem: belief by many economists that Climate Change is not really a big problem that needed immediate attention. Too much focus on damage in terms of lower output.

As a result, economists didn't feel bad advocating delay as optimal policy.

- Good news: widely agreed that we need quite drastic action quite soon
- Still, to policy makers, climate change is just one of the many headaches, and a difficult one to cure.
- What do we convey: it starts only in about 100 years, so policy maker thinks that another 4 years doesn't matter?
- Language: stress direct causality between current emissions and climate in 2100. Uncertainty is about size, not causality. 4 years higher emissions is hundred years of higher temperatures.
- Use language/logic from fully funded pension system? Every year contribution pays out 20 years of higher income, even when it's in the 'far' future.
- But notice that many countries don't have a proper fully funded pension system!

When to do what?

- Major mismatch models vs. reality: perfect foresight vs. large uncertainty
 - Models (hedging): we learn about true state of climate damage and then adjust optimal policy. Many different futures translate nicely into average expected future
 - Reality: firms don't know what to expect and stay put at status quo
 - Example: major energy firms (Shell, BP,...) leave renewables aside
- Required Policy: reducing uncertainty by ensuring floor carbon price for future periods (e.g. no permit auction below 50 euro/tonCO₂ in 2020)
- Required research: do we need to analyze in models why policy uncertainty is worse than 'possibly too stringent' policy?
 - It's not only uncertainty that matters, but the combination with shorter planning horizons in firms that makes it problematic.

3. International cooperation

Cooperation

- Economists: cooperation is optimal but not in interest of each country
 - It is impossible to have a proper global agreement
- Policy makers and public: The rich should pay, unless it is us
- Psychology: people like to cooperate even if it is 'irrational' (unless they studied economics)
- Solution I (reject cynicism): Policy makers should simply forget about economists and appreciate the joy of cooperation.
- Solution II: cross-link, embed Kyoto in WTO? Look for innovative solutions jointly with policy makers

International instruments

- Economists: Global emission trade is efficient
- Opposition: it's unfair to allow the rich buy cheap abatement in poor countries so that the rich don't have to clean up their own mess.
- Theory: it is also not necessarily efficient (just adds to confusion)
- Remark: Economists should accept that their efficiency dogma is indeed not that certain. Effectiveness of international aid is not proven. What happens with large income flows from rich to poor countries if abatement is bought? Who owns the abatement option in developing countries?
- Solution: look for simple & effective innovative solutions with low administrative burden. Let policy makers suggest, and researchers assess.

Overall

- Future questions: costs, how much and when?
 - We're passed that. The answer is: quickly, as much as we can politically force
- Main future general questions seem to me:
 - How to minimize costs (effective and efficient instruments, simple language)
 - Fine-tuning instruments (auctioning with floor price, dynamic adjustments)
 - Linking different sectors (EU-ETS with petrol, EU aviation, international aviation, and small firms)
 - Linking different countries (EU-ETS with China/India/Rusland/US)
 - Political economy (independence of an EU-Emission Bank?)
- EC/EU parliament should pay varied top researchers to come to workshops organized by EC/EUP discussing instrument development + free entrance to all other researchers (instead of FP projects that sell outcomes)
 - E.g. Use annual EAERE conference!
- Much of the discussion should be arguments, supplemented by numbers, therefore modeling will be formal, supplemented with numerical.

Future research, ctd

- Main future applied research questions should be empirical
 - We need to know more details about energy alternatives. Policy needs to set robust long-term signal so that market will supply a robust volume of alternative energy. Policy should accept some inefficiency as a way of learning.
 - 20% renewables target should be interpreted as ‘pilot’ intervention, that can be analyzed ex-post.
 - Different renewable policies in various countries are not necessarily bad. They provide variation in data, if they are robust in the sense of having sufficient long duration.
 - Policy should think jointly with researchers: what do we need to find out how well an instrument works, such as feed in tariffs for renewables.
 - Also, EU-ETS should have guaranteed a robust intervention level (floor price) so that effect is measurable.
 - Policy makers should join up with researchers to think how international cooperation can work. Researchers will learn about relevant questions, policy makers will learn about nuances of instruments.