Discussion of the quantitative analyses of the AB32

Christopher Knittel  
Department of Economics  
UC Davis and NBER

(Thanks to fellow EAAC members)

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**Basic economics: The costs**

- AB 32 is a suite of policies, it is not just a cap & trade program  
  - Most modeling efforts focus on the entire suite
- Climate change policy increases the cost of greenhouse-gas-intensive activities, this leads to three types of costs:
  - 1. The increase in cost of selling these goods using cleaner technology or by buying allowances
    - These are *net costs* (which may be negative), net of any benefits from new product
    - Most of these costs will be borne by consumers, some by firms
  - 2. The costs to consumers from consuming less of the product as a result of rising prices
  - 3. The macro economic costs associated with changes in prices
The benefit side

- Climate change policies lead to benefits too
  - Three types:
    - Benefits from a cooler climate (that is the point, after all)
      - Which may also come from pushing national policies
    - Benefits from policies that actually have negative costs
    - Macroeconomic benefits from replacing distortionary taxes with revenues raised from the policy (if revenues are used in this way)
  - In principle, these benefits can be larger than the costs
    - In the presence of a negative externality, absent policy intervention social benefit coming from some GHG emissions are below social costs
      - Getting rid of these emissions is a net positive
    - There may be other market failures that keep net cost reducing technologies out of the market
  - Whether it is a net benefit depends on:
    - How efficient the climate change policy is
    - Whose benefits you include, as some of these benefits flow to people outside of California

Getting under the hood of modeling efforts

- At the most basic level, modeling the costs of climate change policy requires four things:
  - 1. The technology costs associated with making cleaner products
  - 2. Demand information for goods and services that generate GHGs
  - 3. Macroeconomic model
  - 4. Model of BAU

- Other features include:
  - 1. Supply curve for offsets
  - 2. Models of leakage/reshuffling
What are the costs?

- **Social marginal abatement curve** will encompass both increases in the cost of production and consumer welfare from consuming less.
- **Efficiency**: requires picking the lowest fruit first...

![Social Cost of Abatement](image1)

Efficiency not guaranteed

- Complementary measures may not be the lowest hanging fruit.

![Social Cost of Abatement](image2)
The presence of other market failures

- The argument for complementary measures:
  - Some low hanging fruit may not be picked under just pricing the externality
  - In principle, some of this fruit might have negative costs

Free lunch? Unlikely.
Stresses importance of tech cost curves
My “priors” going into EAAC

- Don’t trust any of the modeling
  - Coming up with technology cost curves is difficult
    - Easy to overstate things like learning by doing, technological progress, etc.
  - Estimating demand and supply curves is difficult
    - Estimating LR demand and supply curves next to impossible
    - Often 100s of equations, with equations coming from empirical exercises that were...uh...less than ideal
  - Macro models! Come on...
- Costs of AB32, especially the C&T component likely to be small
  - Enough “play in the system” to restrict allowance prices
- Most of the complementary measures are probably outside of the allowance price in terms of their costs per ton
  - But, as is typical in the policy arena these are more politically palatable as they hide the costs better
- Value of AB32 is in (a) influencing federal policy (b) the ability to auction allowances and reduce distortionary taxes

Why C&T small effect? A $30/ton price of CO2

- Increase gasoline prices by 10 percent
- If all of this gets added to marginal price, worst case scenario (or, best case):
  - Increase electricity price by 10%
  - Increase natural gas prices by 15%
- Remember, this is not the cost to society
  - This is the rectangle, not the triangle
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**My “posteriors” coming out of EAAC**

- Comforted by the relative agreement between ARB and CRA
  - Can point to explicit assumptions that might drive the differences
- A fall is GSP of 1.0 to 2.0 percent seems reasonable but may be high,
  - *Ignore the potential benefits from distortionary tax reductions*
  - Long run demand elasticities likely too low
- Costs of some complementary measures (LCFS, Palely II, VMT reductions) likely too low
Why the differences between ARB/CRA?

- Obviously different models
  - May come from this
  - Doesn’t appear to come from different technology supply curves
- More fundamentally, ARB assumes there are additional market failures that lead consumers/firms to undervalue future cost savings
  - E.g., consumers don’t correctly account for future fuel savings when purchasing vehicles/appliances
- This is an unsettled topic in economics
  - Empirical evidence mixed, although the best paper out there (uh..my own) suggests consumers correctly value fuel economy savings
  - These issues can exist elsewhere (e.g., insulation, appliances, etc.)

Notes on other studies

- Tanton
  - Misleading discussion, double counts “costs”
    - For example, firm A will have to buy $X in permits
    - Consumers of A will have to pay $X more
    - *This provides no information about economic costs!*
  - Costs to consumers ignore adjustments, I think
    - This will overstate costs
- Brattle study
  - Reasonable. Ignores macro-economic effects and indirect demand effects
- Varshney study
  - Shouldn’t be taken seriously
What we need more of...

- Transparency!
  - Even as an EAAC member, it was not possible to see all of the underlying assumptions

- Discussion of key parameters/sources

- Confidence intervals

- Studies that focus on the costs to consumers need to understand that this is impossible to discuss without knowing allocations

- extras
Case 1: California firms marginal

Case 2: Out-of-state firms marginal