The Social Cost of Carbon in Government Regulatory Analysis

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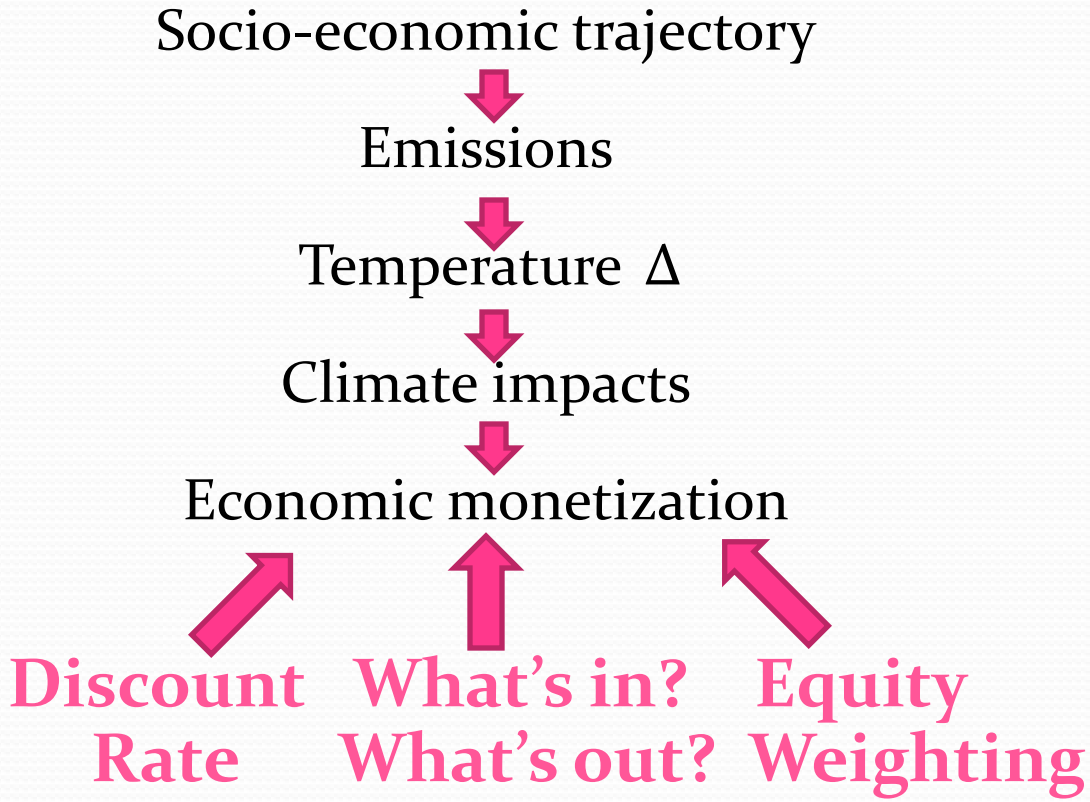
The social cost of carbon: What is it?

- Monetized damage incremental increase in ghg emissions
- Intellectual framework: maximize net gains from mitigation
- Highest level of critique
  - "Maximizing profits" or "minimizing chances of catastrophic risk (insurance framework)?"
  - Can US reductions be viewed as marginal? What if they cause other countries to reduce more?

How is it estimated?
Integrated Assessment Models (IAMs)



Enormous Variance in SCC

Some examples

What's In	What's Out
•Agricultural output (e.g. extended growing seasons in northern latitudes, crop devastation from temperature increases in warm latitudes) •Property damages (e.g. sea level rises) •Energy demand (e.g. expenses for more cooling, savings from less heating) •Public health (e.g. increased deaths from heatwaves, less deaths from cold weather)	•Entire ecosystems •Species extinction •Negative feedback loops (e.g. methane release from tundra, loss of sea ice reflection of sun's heat) •Catastrophic events (e.g. hurricanes, West Antarctic or Greenland ice sheet goes (20 ft sea level rise from either), extreme drought or loss of glacial drinking water supplies that supply millions of people) leading to: mass migration, inter and intra-nat'l resource scarcity and violent conflict

Brief Regulatory History

Ruling against NHTSA

Center for Biological Diversity v. NHTSA, 538 F.3d 1172 (9th Cir., 2007)

"NHTSA's reasoning is arbitrary and capricious for several reasons. First, while the record shows that there is a range of values, the value of carbon emissions reduction is certainly not zero."

Inconsistent value across agencies

Pink = Core/Central value

	Domestic	Global 1	Global 2
DOT 2006 ruling	$0	$0	
DOT 2008 proposed ruling*	$7	$14	
DOT 2008 final ruling	$2	$33	$80
EPA 2007 proposed		$40	$68
EPA technical support document 2008		($6)	$695

* midpoint of $0 and $14

Executive order to agencies to develop one SCC to be used consistently across all

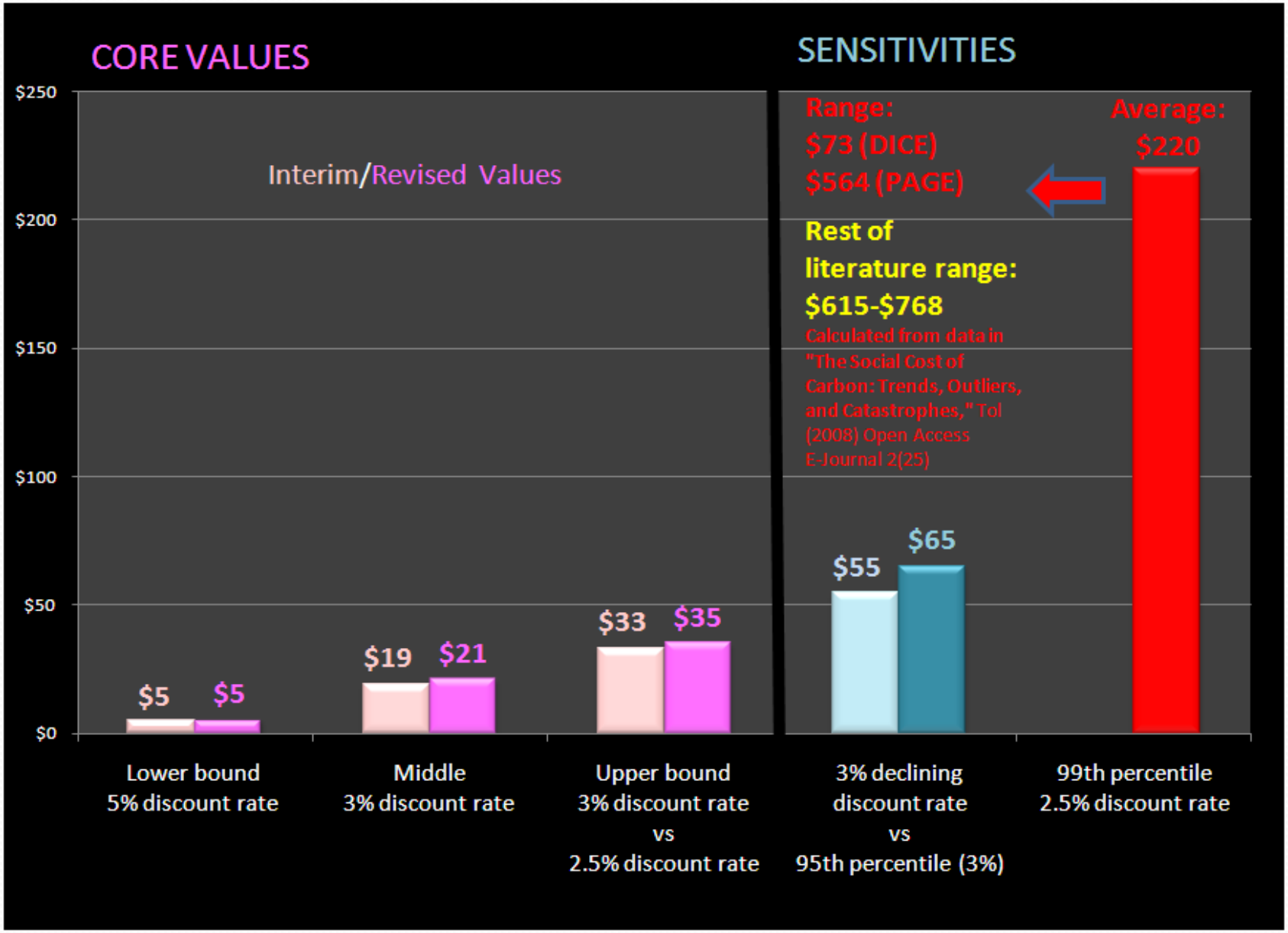
"Interim SCC values" for GHG proposed rulemaking

- Surveyed literature estimates from three widely used models (DICE, FUND, PAGE)
- "Filtered" estimates
  - Chose only those with discount rates of 3% and 5%
  - No equity-weighted estimates
- Central estimates were used, which were then averaged, compounding the central estimate bias (loss of high catastrophe/low probability representation)

Revised SCC methodology for final ruling

- Used a randomized procedure (following Stern Review) to include low probability/high damage estimates, not just central temperature changes and damages
- Added 2.5% discount rate, keeping 3% and 5%
- Ignored OMB/EPA intergenerational supplementary guidelines 1% to 3%
- Agreed to using a global rather than domestic SCC

Interim vs. Revised SCCs



Given all the problems, is there any value to using an SCC?

Conclusion:

Not pretty in pink