How to make contested decisions about time and risk

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Global IQ, Brussels, June 2014

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  - Assuming agreement only extends to partially specifying time and risk preferences, spaces for agreement $\equiv$ partial orderings

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- Therefore the conceptual task is to unify the approaches, yielding a theory of *Time-Stochastic Dominance (TSD)*

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- While we are unable to find standard time-stochastic dominance in the data, we find that the toughest emissions targets 'almost' dominate their weaker counterparts
  - We can say that only those with ‘extreme’ preferences would not opt to cut emissions by a large amount

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  - In Time-Stochastic Dominance these are *cdfs* of cashflows, i.e. $D_i^j(z,t) = G_i^j(y,t) - F_i^j(x,t)$
- The order of dominance is the number of times the distribution is cumulated/integrated

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- Intuition: broad classes of preferences include extreme risk aversion

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  - Close to 0.5: large violation and many functions are thrown out, hence small space for agreement

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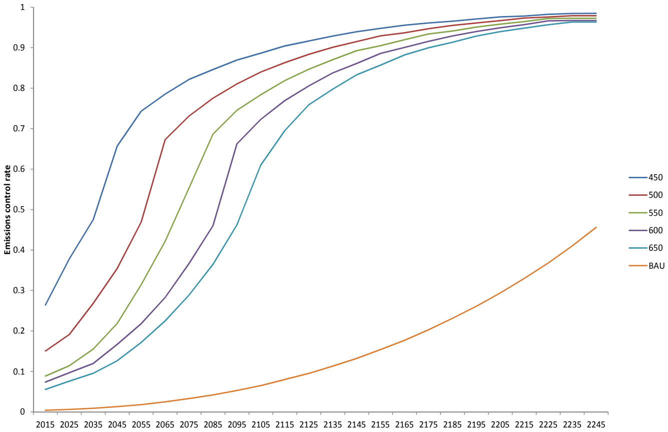

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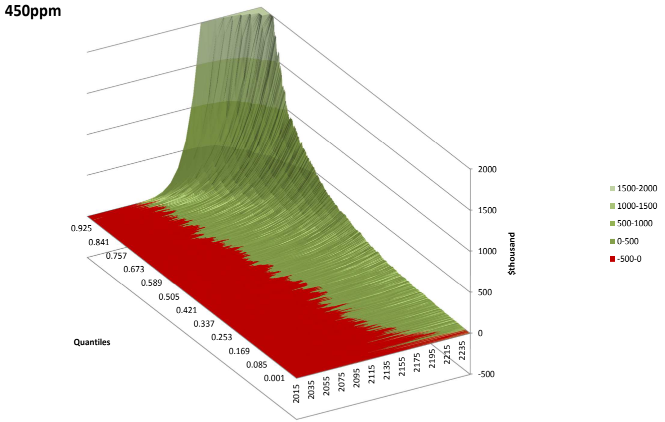

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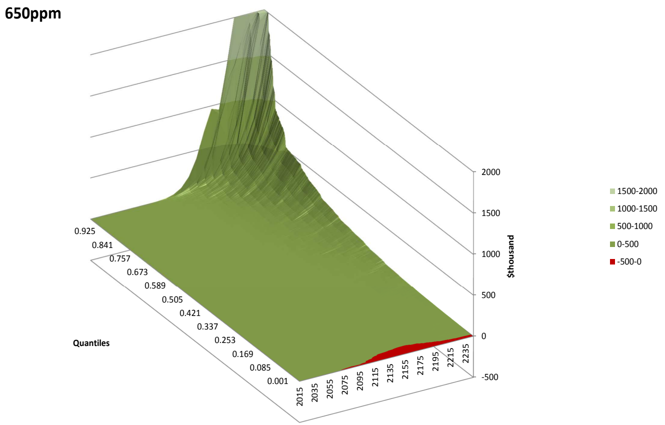
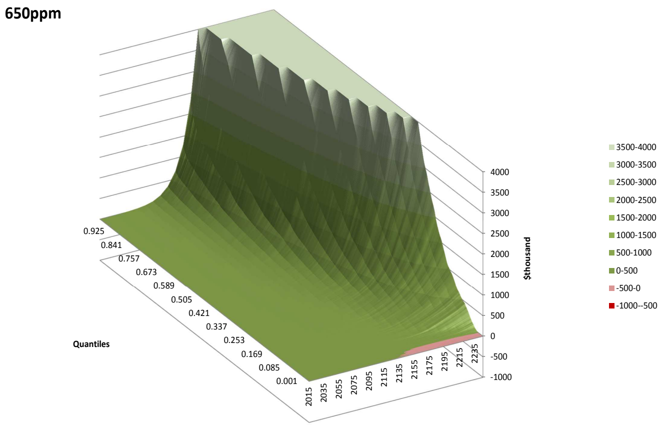


Results, 1T2SD



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CO_2 limit (ppm)	γ_1	ε_{1T}	γ_2	ε_{2T}	λ_{1b}
650	0.00009	0.00003	0.00002	8E-07	0
600	0.00045	0.00003	0.00045	2E-06	6.01E-08
550	0.00092	0.00003	0.00231	2E-06	0.00014
500	0.00188	0.00004	0.00605	3E-06	0.00086
450	0.00388	0.00004	0.01363	4E-06	0.00245

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	γ_1	ε_{1T}	γ_1	ε_{1T}	γ_1	ε_{1T}	γ_1	ε_{1T}
600	0.00255	0.00012						
550	0.00351	0.00011	0.01054	0.00034				
500	0.00517	0.00011	0.01260	0.00032	0.01764	0.00050		
450	0.00859	0.00013	0.01870	0.00036	0.02480	0.00052	0.03701	0.00107

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- We can give the violations an interpretation in terms of the decision-maker's utility and discount functions
  - We use this to argue that only those with 'extreme' preferences would prefer weaker to tougher emissions targets in our set
  - Another way of looking at this is that the debate about time and risk preferences may not be so important after all