Do we do enough for the future?

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Discounted marginal damage of one tCO_2

	Discount rate	Social value of CO_2
Nordhaus	5%	8 $/tC0$_2$
Stern/Hope	1.4%	85 $/tC0$_2$

- Price of permits on the ETS market in October 2011: 11€/tCO_2.
- Carbon tax in France: 17€/tCO_2.
- Cost of abatement:
  - Solar : 600-1200 €/tCO_2
  - Wind: 25-200 €/tCO_2

Why do we discount the future?

- Inequality aversion: In a growing economy, why should we sacrifice our welfare for the very wealthy future generation?

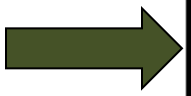
- Precaution: Growth is uncertain. That should induce us to do more for the future.

Investment choice under the veil of ignorance

- The welfare of a generation is an increasing and concave function of consumption.
- Growth is exogeneous.
- Under the veil of ignorance,
  - you don't know in which generation you will be born;
  - which decision rule does maximize ex ante welfare?

Aversion to inequality

- Consider an economy with 2 social groups, A and B. Each agent in group A is 2 times wealthier than in group B.
- We can transfer wealth from A to B. What is the maximum sacrifice of A that Society should accept for B to get 1€?



γ	MRS 2 wA = 2*wB	MRS 10 wA = 10*wB
0	1,00	1,00
0,5	1,41	3,16
1	2,00	10,00
1,5	2,83	31,62
2	4,00	100,00
4	16,00	10000,00

Calibration of a random walk for the growth rate, using country-specific data 1970-2010

Country	discount rate
United States	3,37%
France	3,45%
Germany	3,45%
United Kingdom	3,60%
Japan	4,51%
China	15,36%
South Korea	10,68%
Taiwan	10,10%
India	6,71%
Former Soviet Union	1,70%
Gabon	-0,23%
Liberia	-15,94%
Zaire (RDC)	-6,23%
Zambia	-1,84%
Zimbabwe	-1,81%

Term structure when shocks are persistent