About the timing and overlapping of economic signals

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IPCC: challenging physics but good economic news?

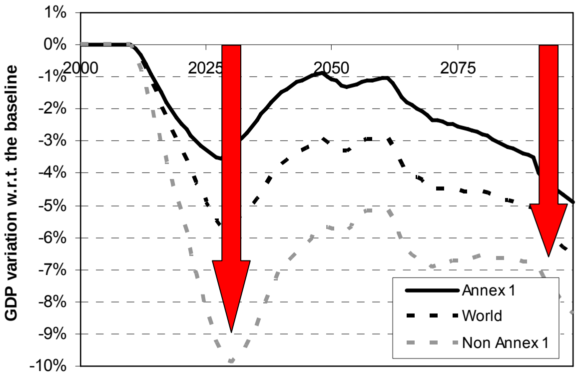
Category	Radiative forcing (W/m²)	CO_2 concentration[c)] (ppm)	CO_2-eq concentration[c)] (ppm)	Global mean temperature increase above pre-industrial at equilibrium, using "best estimate" climate sensitivity[b), c)] (°C)	Peaking year for CO_2 emissions[d)]	Change in global CO_2 emissions in 2050 (% of 2000 emissions)[d)]	No. of assessed scenarios
I	2.5-3.0	350-400	445-490	2.0-2.4	2000-2015	-85 to -50	6
II	3.0-3.5	400-440	490-535	2.4-2.8	2000-2020	-60 to -30	18
III	3.5-4.0	440-485	535-590	2.8-3.2	2010-2030	-30 to +5	21
IV	4.0-5.0	485-570	590-710	3.2-4.0	2020-2060	+10 to +60	118
V	5.0-6.0	570-660	710-855	4.0-4.9	2050-2080	+25 to +85	9
VI	6.0-7.5	660-790	855-1130	4.9-6.1	2060-2090	+90 to +140	5
						Total	177

Stabilization levels (ppm CO_2-eq)	Median GDP reduction[d)] (%)	Range of GDP reduction[d), e)] (%)	Reduction of average annual GDP growth rates[d), f)] (percentage points)
590-710	0.2	-0.6-1.2	<0.06
535-590	0.6	0.2-2.5	<0.1
445-535[g)]	not available	<3	<0.12

Stabilization levels (ppm CO_2-eq)	Median GDP reduction[b)] (%)	Range of GDP reduction[b), c)] (%)	Reduction of average annual GDP growth rates[b), d)] (percentage points)
590-710	0.5	-1 - 2	<0.05
535-590	1.3	slightly negative - 4	<0.1
445-535[e)]	not available	<5.5	<0.12

Mind the transition …. specifically for the poors!

(450ppm CO2 w/o biological sequestration)



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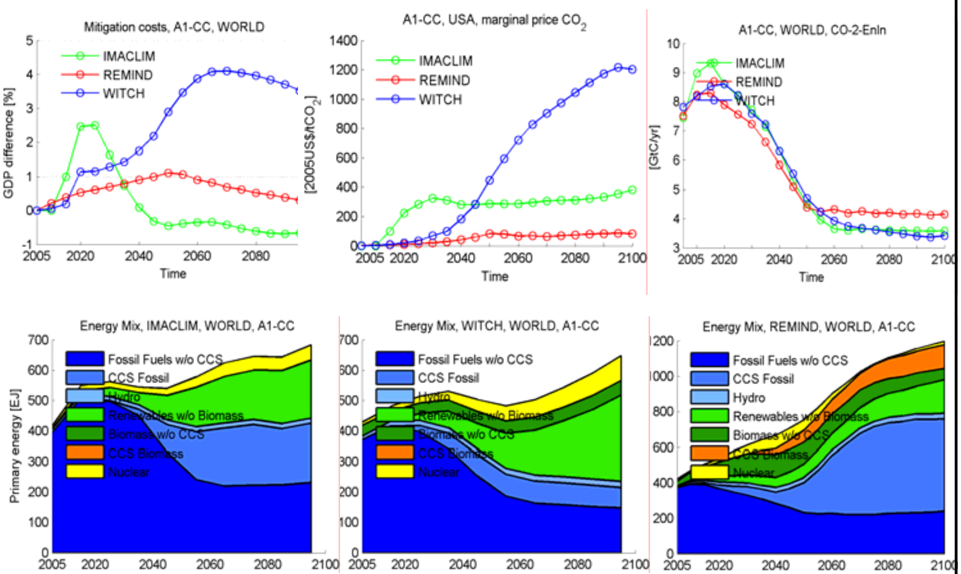
Why are we so pessimists for the short term?



At the roots of a pessimistic view

- An hybrid model IMACLIM-R incorporating
  - a growth engine with ETC and **disequilibrium**
  - explicit **technical asymptotes** (expert judgments)
  - a description of the **inertia of capital stocks** (including infrastructures and end-use equipements)
  - « **rebound effects** » specifically in the transportation sector
- numerical experiments with « **Semi-perfect foresight** » of energy prices for the energy sector, « **myopic foresight**» for the others
- Carbon price only policies -> necessity to **yell** to attract the attention of the **deafs in one ear**

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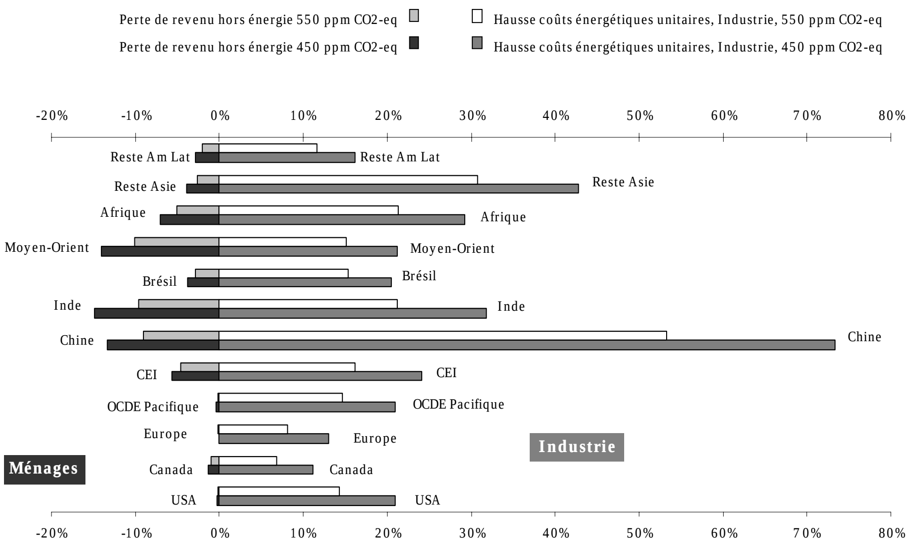
Why such transition costs in emerging economies?



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Compensatory transfers for a 'fair' burden sharing?

- **Unrealistic amounts** (direct or through quotas allocation) to respect the BSL rule

  Afrique +8% of GDP
  Inde +6% of GDP
  CEI -4% of GDP (better-off thanks to gas exports)
  Europe -1.2% of GDP
  USA -1.7% of GDP

- **Political untimeliness … and economic risks of « manna from heaven » revenues**

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The economic wisdom in question?

- Put a **price** on carbon to internalize its **social cost**
- **Equalize marginal costs** across countries and sectors to minimize costs of a given environmental target
- **Trigger investments** in low carbon technologies
- **No distortions** in **international industrial competition**

… a 'tabula rasa' utopia?

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Facing the heterogeneity of the real world

- **income levels**

- **households consumptions structures**: basic needs, meteorological conditions, urban forms, density

- impacts on **economic sectors** (e.g. air transport vs. steel production): cost structures, exposition, inertia

- **preexisting taxes and price structures …. beyond** energy prices

- **macroeconomic feedbacks** and **local co-dividends**

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The nature of the squeeze

• Climate policies may be **beneficial over the long run**

•**Need of early action to** shift **infrastructure investments**

• but uniform carbon prices (only) policies are squeezed:
  • **they hurt emerging economies over the short run** (when the carbon prices are low relatively low!!!)
  •Without preventing **risks of lock-in** in carbon intensive development pathways

•**Non negotiable « equity »** of the burden sharing and compensations (thanks for the « fairness » but ….)

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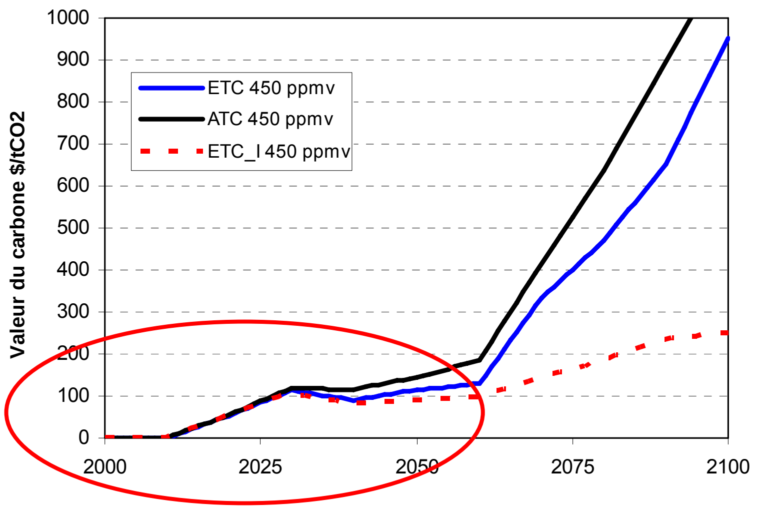
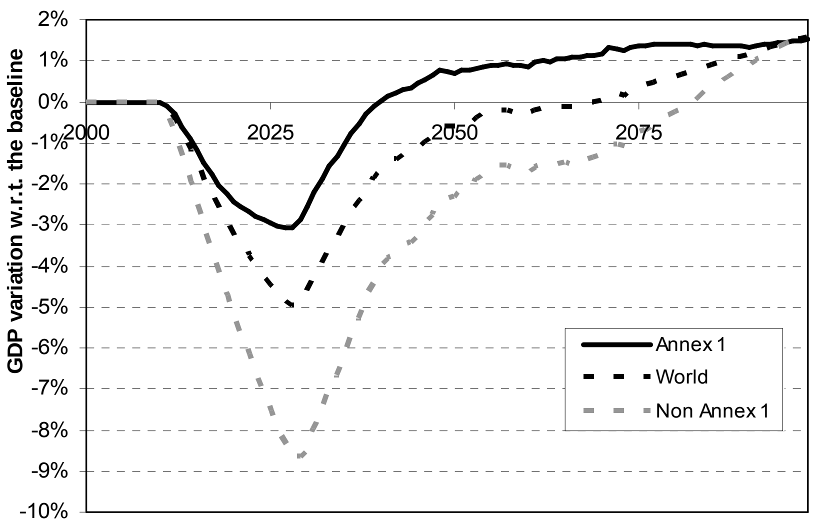
Out of the squeeze: the ‘timing’ of benefits from infrastructure policies



Optimistic end-points but still transition problems



Out of the squeeze: offsetting short term adverse income effects of climate policies

- domestic **differentiation of carbon and energy prices** (allowed by a correctly interpreted Kyoto framework)
- Fostering the penetration of **efficient end-use equipments for emerging middle classes** **…** 2CV or electric cars?
- Aligning the increase of domestic carbon prices to:
  - the penetration of energy efficient equipments
  - the **"climate friendly" re-orientation of fiscal systems**
- Developing support to low income classes to **enhance the efficiency of 'informal' energies**

Timing the use of a wide palette of signals

- **Carbon prices as a long term inducement** not as the only driver of technical and behavioral changes
- Mobilizing **a wider set of price signals: ** prices of real estates, price of land, prices of other production factors (labor,capital)
- Mind the **upfront public and private investments** on urban infrastructures and long distance transportation
- **Reducing investment risks** on carbon saving equipments and fostering R&D
- **Timing the use of this set of signals to mitigate the overall adverse distributional impacts** of policies without undermining the overall incentive effect

To conclude on how to untie the climate development Gordian Knot

- Changing context for overseas aid and funding
  - Decreasing amounts
  - Emerging countries ≠ LDCs;
- The issue is **no longer** about **capital shortage** but about the direction of savings (sovereign funds, pension funds)
- **Risk mitigation instruments** and public-private initiatives (from exchange rate risks to project risks)
- Upgraded monitoring and «**good quality money**»
- In search of a short term **macroeconomic leverage effect** …. and of calming down erratic capital flows

'Financial' crisis: a moment of opportunity?

- Towards a climate friendly « Marshall Plan »?
  - Less export oriented industrial policies in emerging economies
  - A wider domestic market
  - An global 'spill-over effect'
  - a calming down of industrial competition through wages
- Climate regime and the reform of the international financial system
  - Socialisation of bad debts ….in exchange of what?
  - Balances of power in the governance of ….
  - « social value of carbon » as a way out the dictature of the « shareholder value »
- Many sources of intellectual hypnosis to be broken quickly