



Energy transitions and the crisis of economic globalization

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*Special session on Globalization
and Transitions, IST conference,
Lund, 06/16/2011*

PLAN

- Overall framework on energy/economy/climate challenges and the globalization process
- Oil exporters and climate policy: macroeconomic, geopolitical dimensions

Economic globalization and global scale issues

Context of globalization:

- Integration of economies: a lasting trend? Convergence of development styles?
- Short term capital flows /long term economic trajectories :
 - Financial crunch: delay in investments or window of opportunity ?

Globalization, long term sustainability issues and energy transition

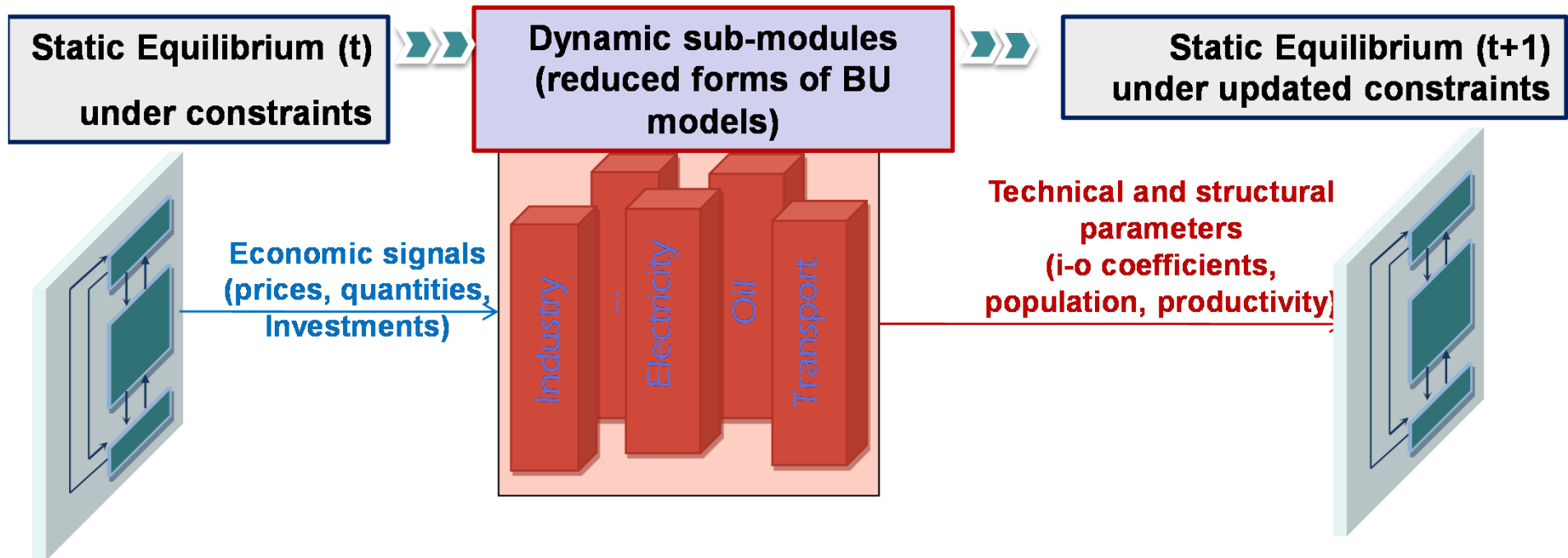
- Energy security concerns
 - Non renewable resources depletion
 - Geopolitical dimensions of international trade
- The climate change urgency:
 - The 2K objective (Cancun) vs uncertainties around a Post Kyoto framework
 - The environment/development Gordian knot

Key insight :

- Long term oil market and macroeconomic impact

IMACLIM, an energy-economy framework
to investigate transition pathways towards sustainable future

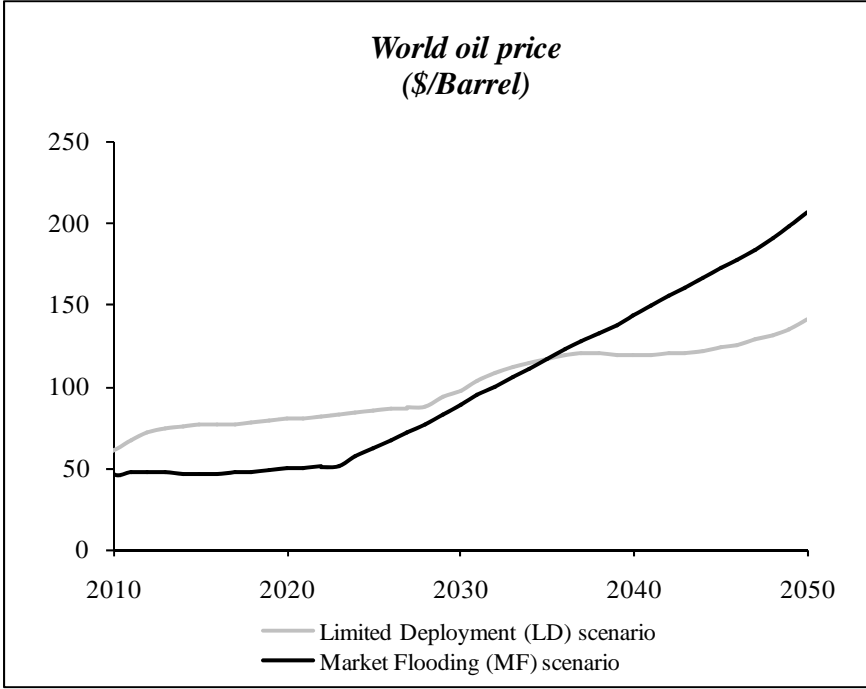
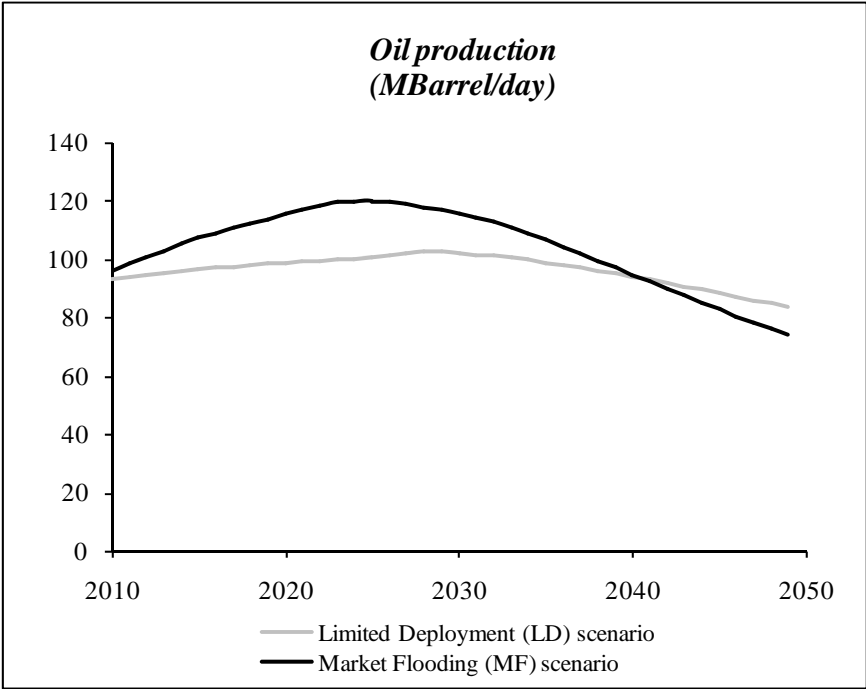
IMACLIM, a recursive and modular architecture



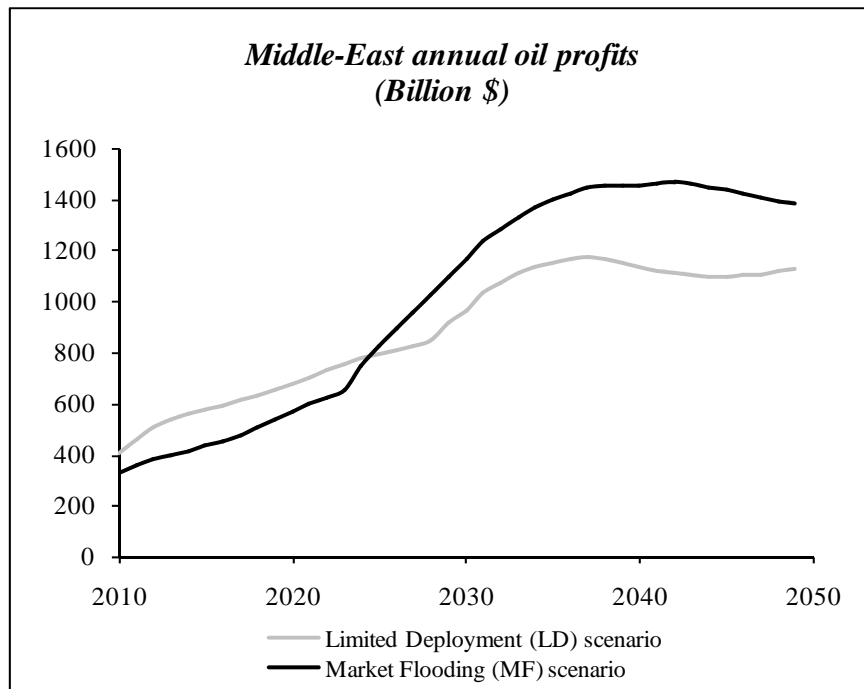
- ❑ Explicit content of contrasted views of globalisation and sustainability
 - *Hybrid matrixes in values, energy and « physical » content*
 - Secure the consistency of the engineering based and economic analyses
 - Explicit accounting of inertias on equipment stocks
 - Technical asymptotes, basic needs
- ❑ Investigating the transition towards sustainable future
 - *Solowian growth engine in the long run but transitory disequilibrium*
 - Unemployment, excess capacities
 - Investments under imperfect foresight (informed by sectoral models)

Long term oil market and climate policy: macroeconomic,
geopolitical and technical dimensions

Baseline scenario: oil production and oil prices



Baseline scenario: Oil profits and development strategies

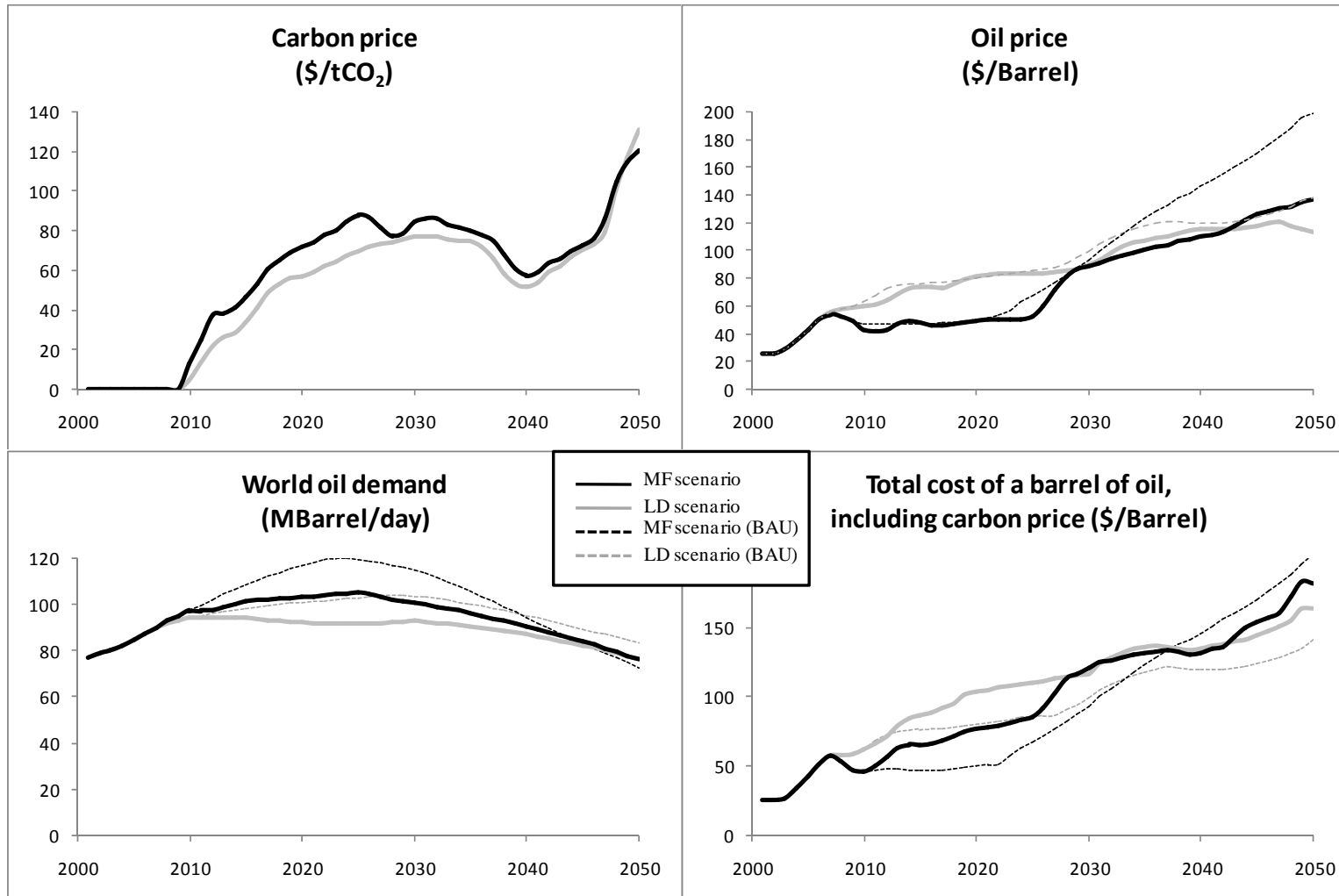


Oil discounted profits: maximizing profits on the short term

Discount rate	Limited Deployment	Market Flooding
	Scenario	Scenario
0%	38.9	43.6
1%	28.9	31.8
2%	21.9	23.6
5%	10.6	10.8
6%	8.7	8.6
7%	7.2	7.0
15%	2.4	2.2

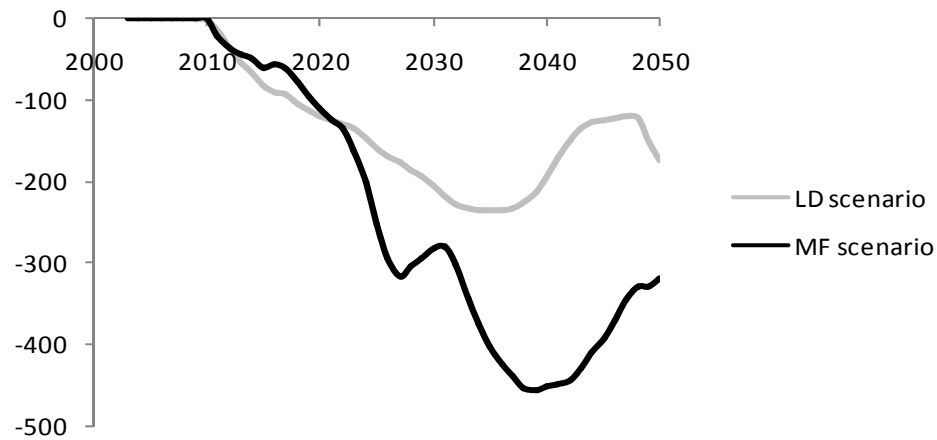
***Incorporating broader government objectives:
range of discount rate for which MF desirable **6-13%**
(Discounted Households' Surplus)***

The impact of a climate policy

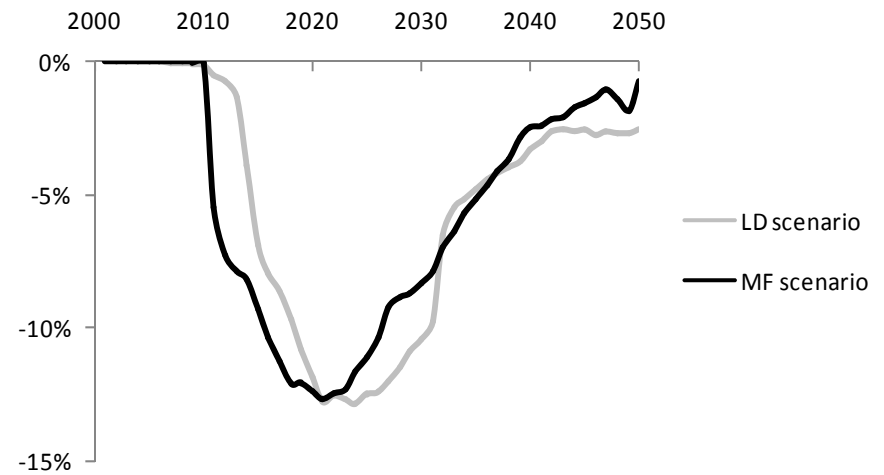


A costly transition for the Middle East countries

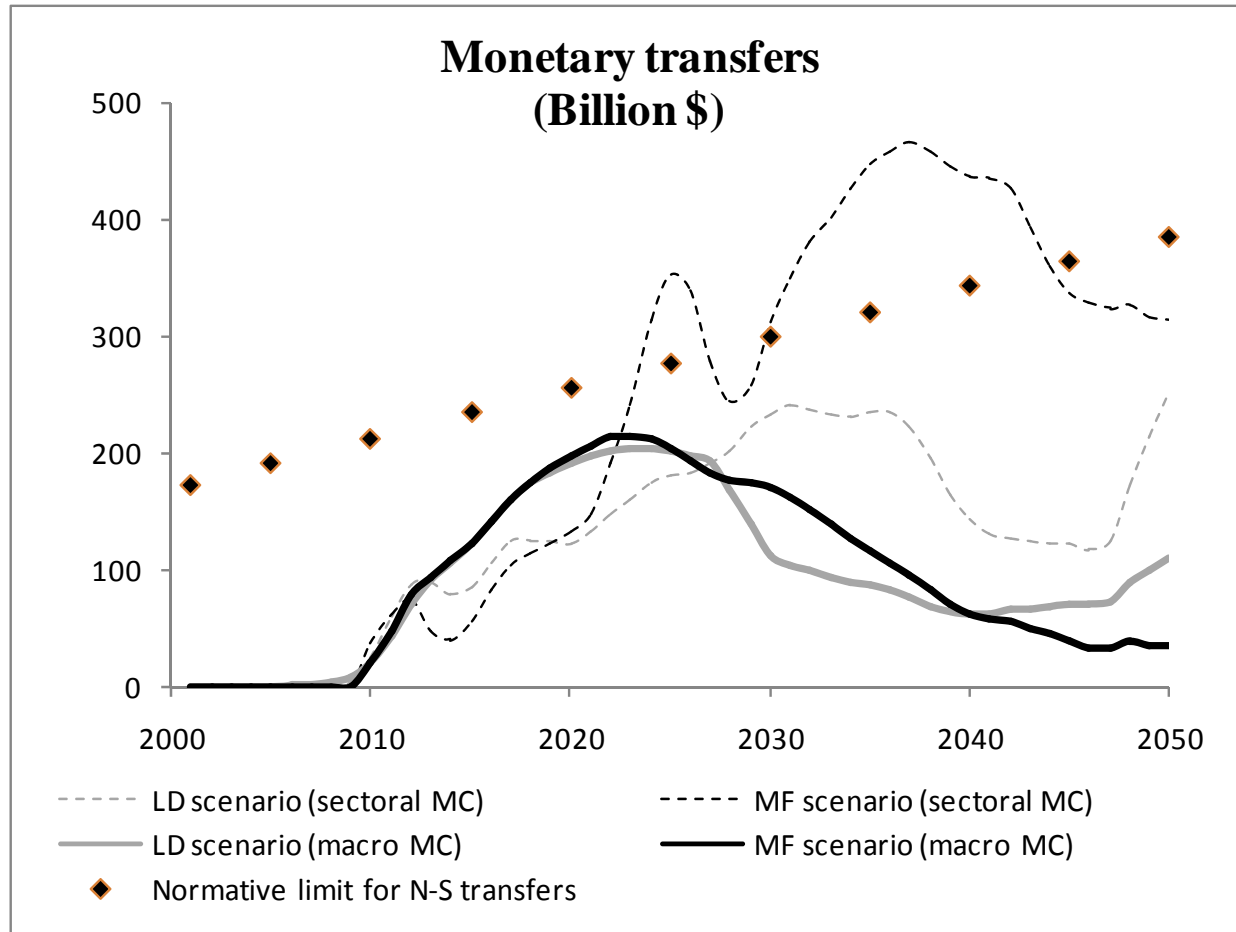
Reduction of Middle-East's oil exportation revenues under climate policy (Billion \$)



GDP variations under climate policy



Monetary transfers : orders of magnitude

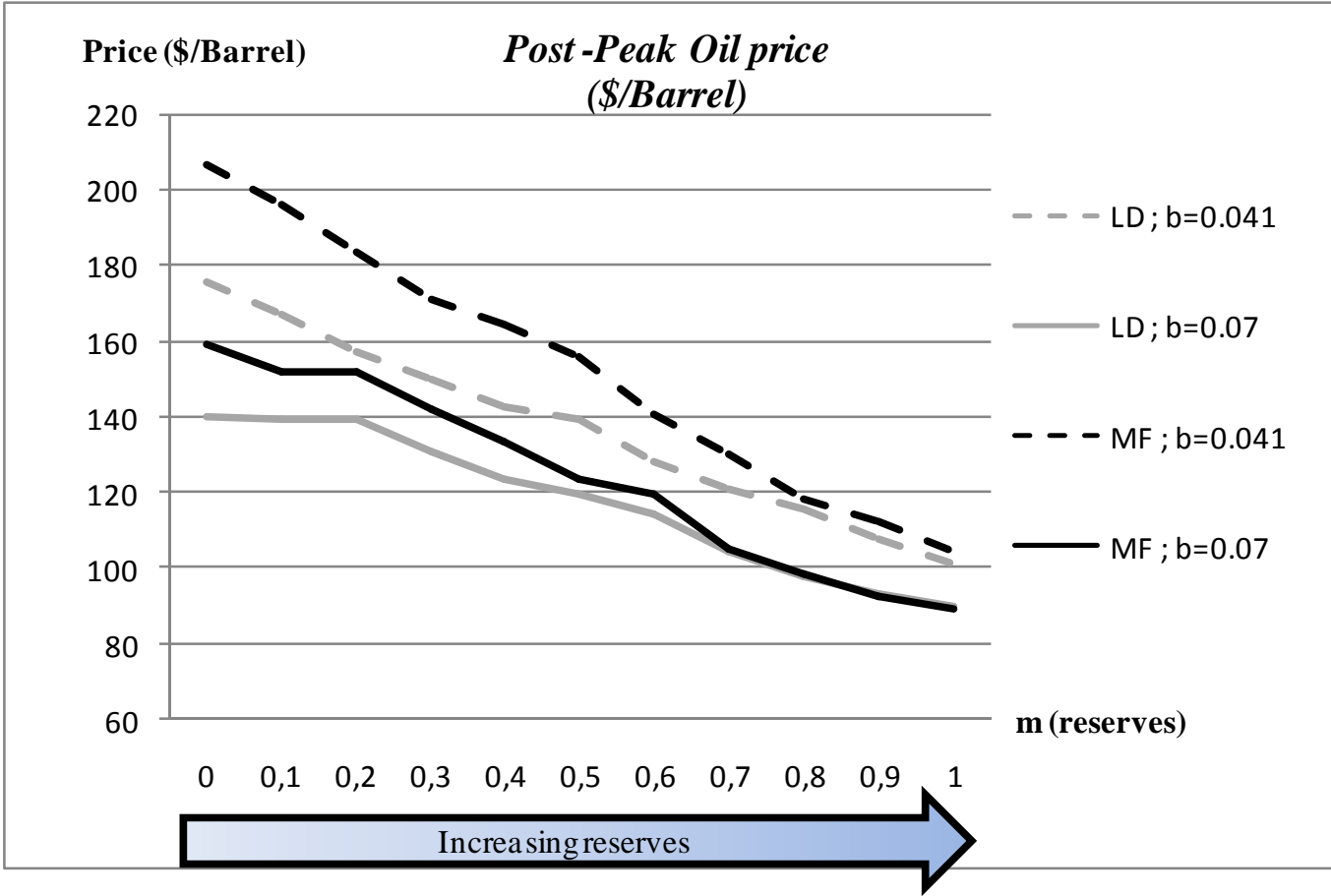


Conclusion

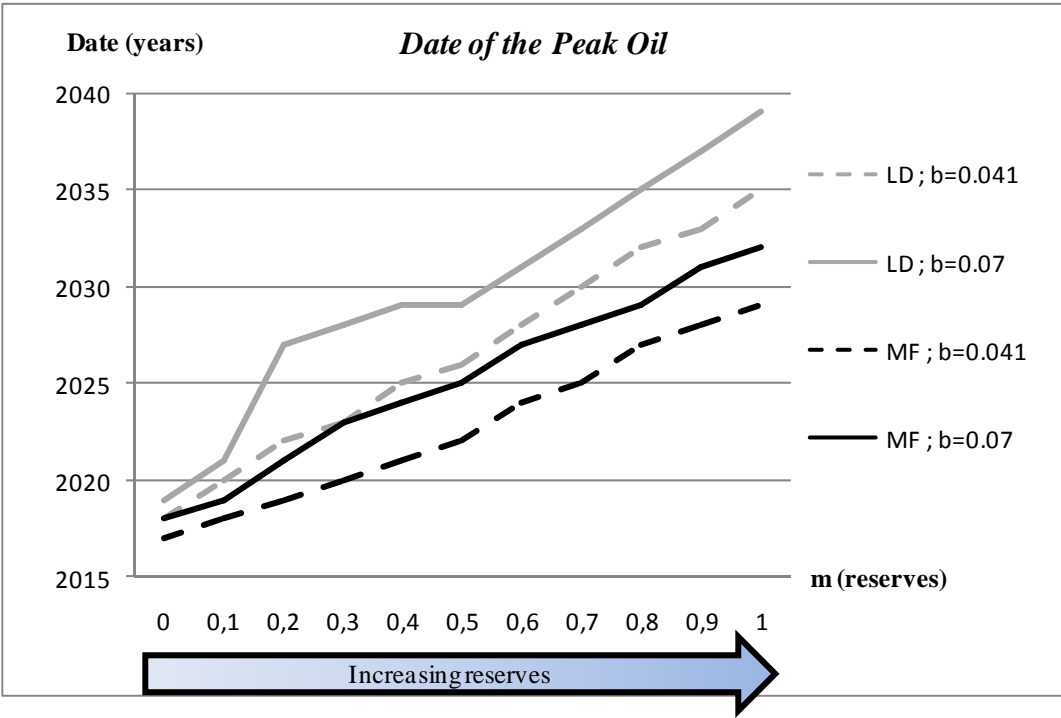
- Energy security is a key challenge for the economic globalization:
 - Oil market will be a key driver of the long term energy transition
- The interplay of climate policies and energy transition:
 - Short term development options and long term effect
 - Adverse effect of CP on oil producers vs co-benefits in terms of energy security for importers
- The issue of oil producers' involvement into an international climate agreement
- Perspectives

Thank for your attention!

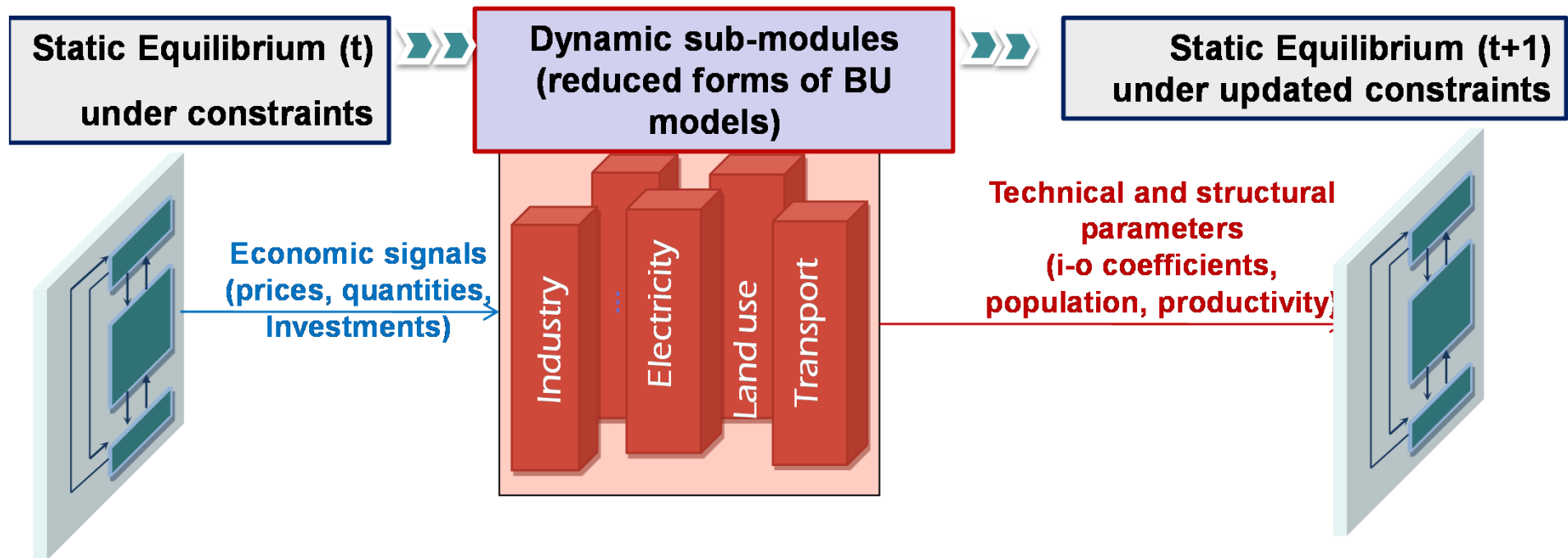
Different assumptions on geological constraints: Date of Peak Oil



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