World Economy and Morocco in the horizon of 2050

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IRES

Rabat, June 17th, 2011

Beware of back of a napkin calculation

Example: China:

- Constant growth rate is 8% per year → China × 21 in 40 years;
- Linear convergence of growth rate of 8% to 3% in 40 years → China × 8 in 40 years;
- Major consequences for the raw material markets, carbon emissions, the strategies of multinationals, the political order, etc.
- finding plausible significant orders:
- Also useful for economic policies simulation (i.e. MIRAGE Model).

Project of the Centre of Prospective Studies and International Information

- Growth scenario for 2050 horizon for 122 countries
- Improvements in comparison to literature:
- Theoretical framework:
- Production function of three factors: Labor, capital and energy
- Two forms of technical progress (energy, capital-labor)
- Imperfect mobility of capital
- Savings rate related to the life cycle
- Consistent Balassa-Samuelson effect
- Empirical Work
- Econometric estimates
- World Crisis: projections as of 2013 (GDP at its potential level)

Principal elements

- Active population

Population: United Nations (Median fertility)
Participation rates by age: ILO until 2020, constant afterwards

- Accumulation of Capital

Investment relative to the savings by a typical Feldstein-Horioka relationship
Savings rates relative to the life cycle, growth and GDP per capita
Depreciation rate of 6% (MIRAGE)

- Energy consumption

Relative to energy prices and productivity

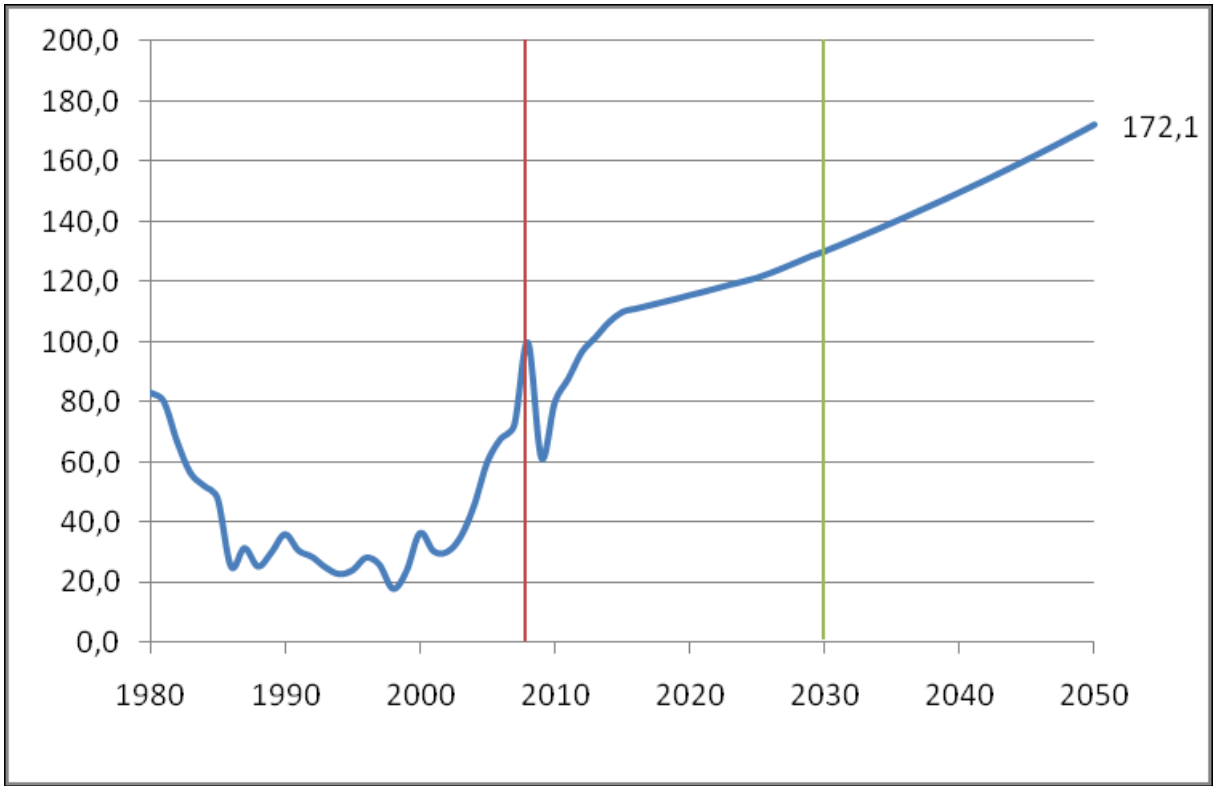
- Technical progress

Retrofit of TFP accelerated by human capital: Upgrading human capital towards the educative border
Energy productivity: Double catch (U-curve)

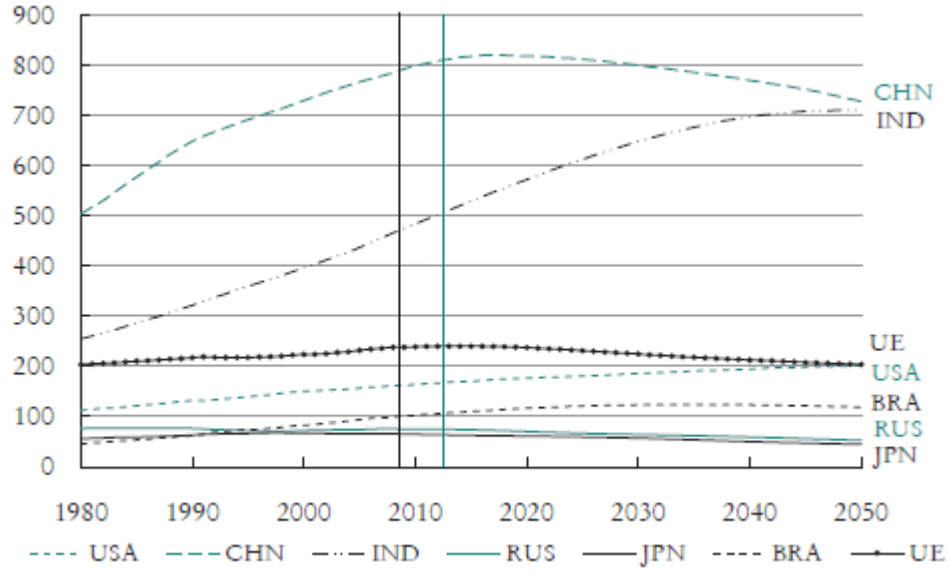
- Balassa-Samuelson Effect

Consistent with the production function

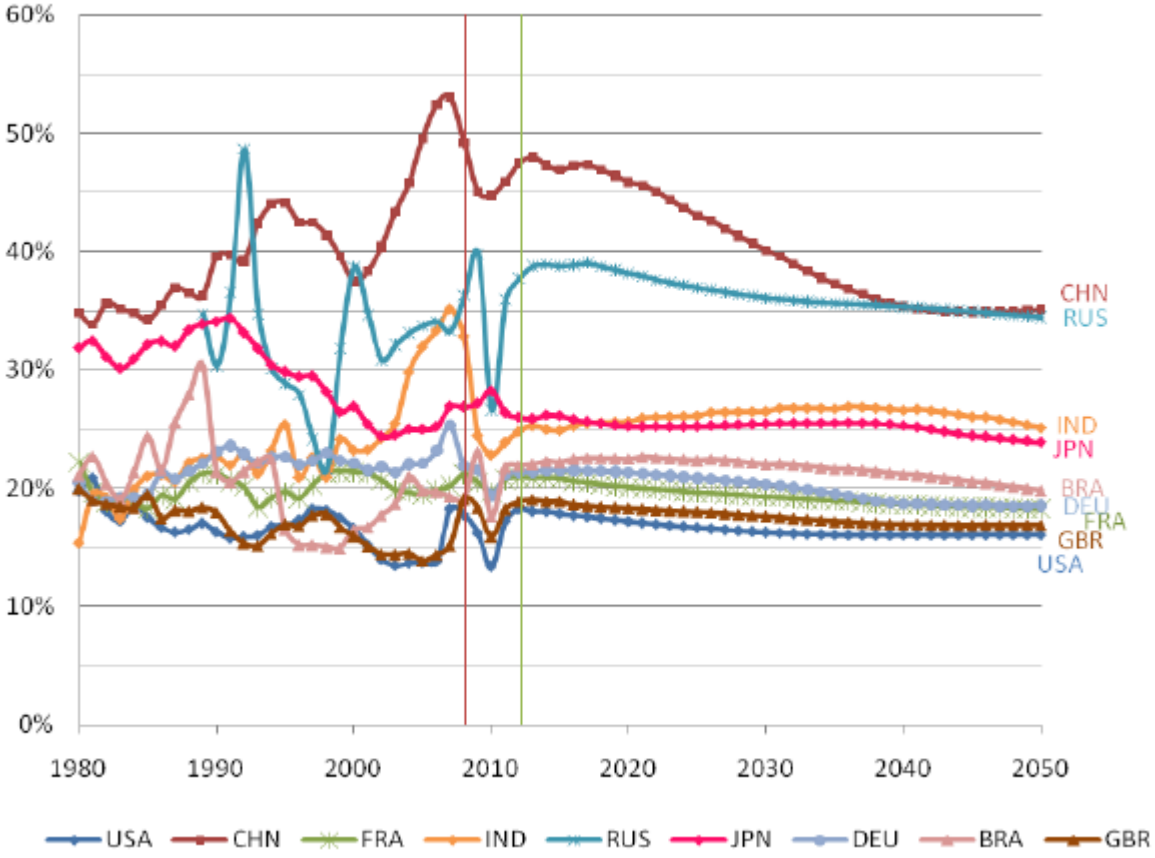
Real oil price
Dollars in 2005



Active population
Millions



Saving rate
%GDP


60%
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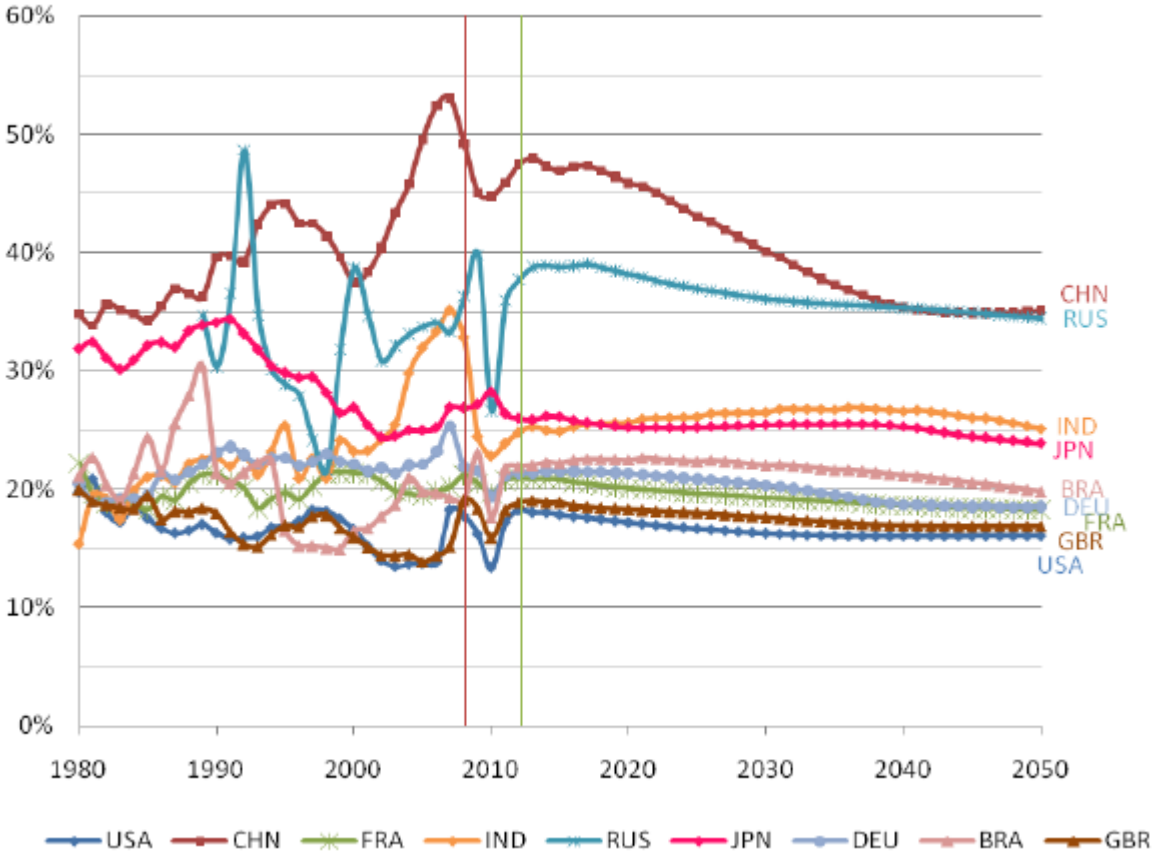
60%
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1980
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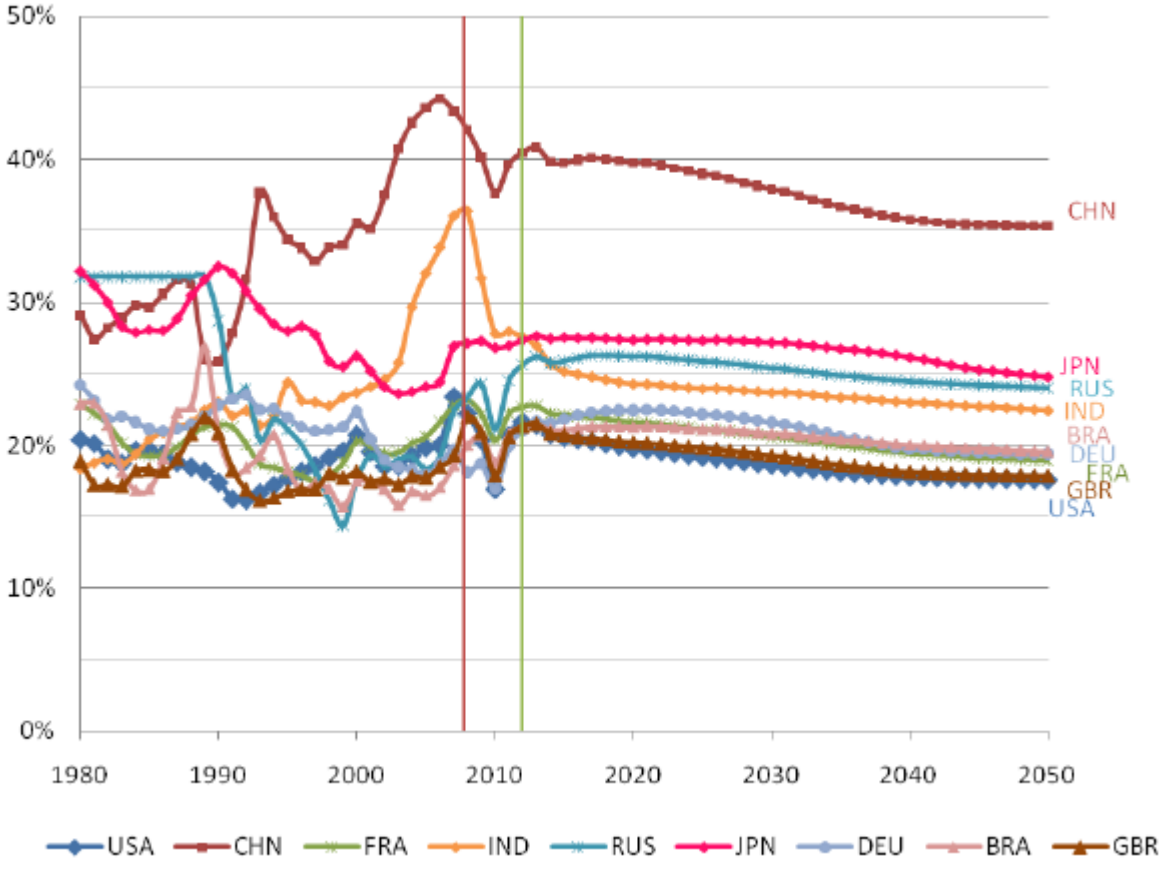
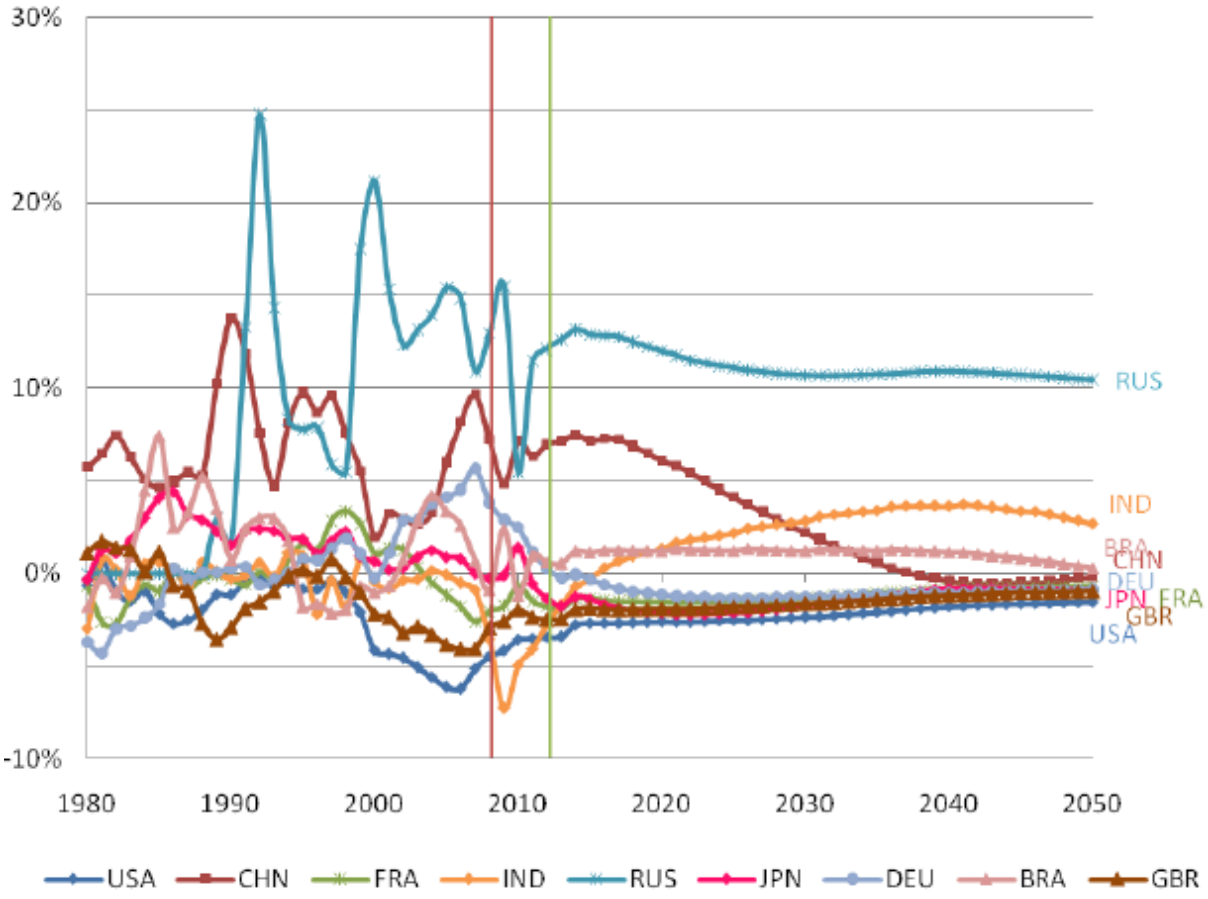
BRA
GBR

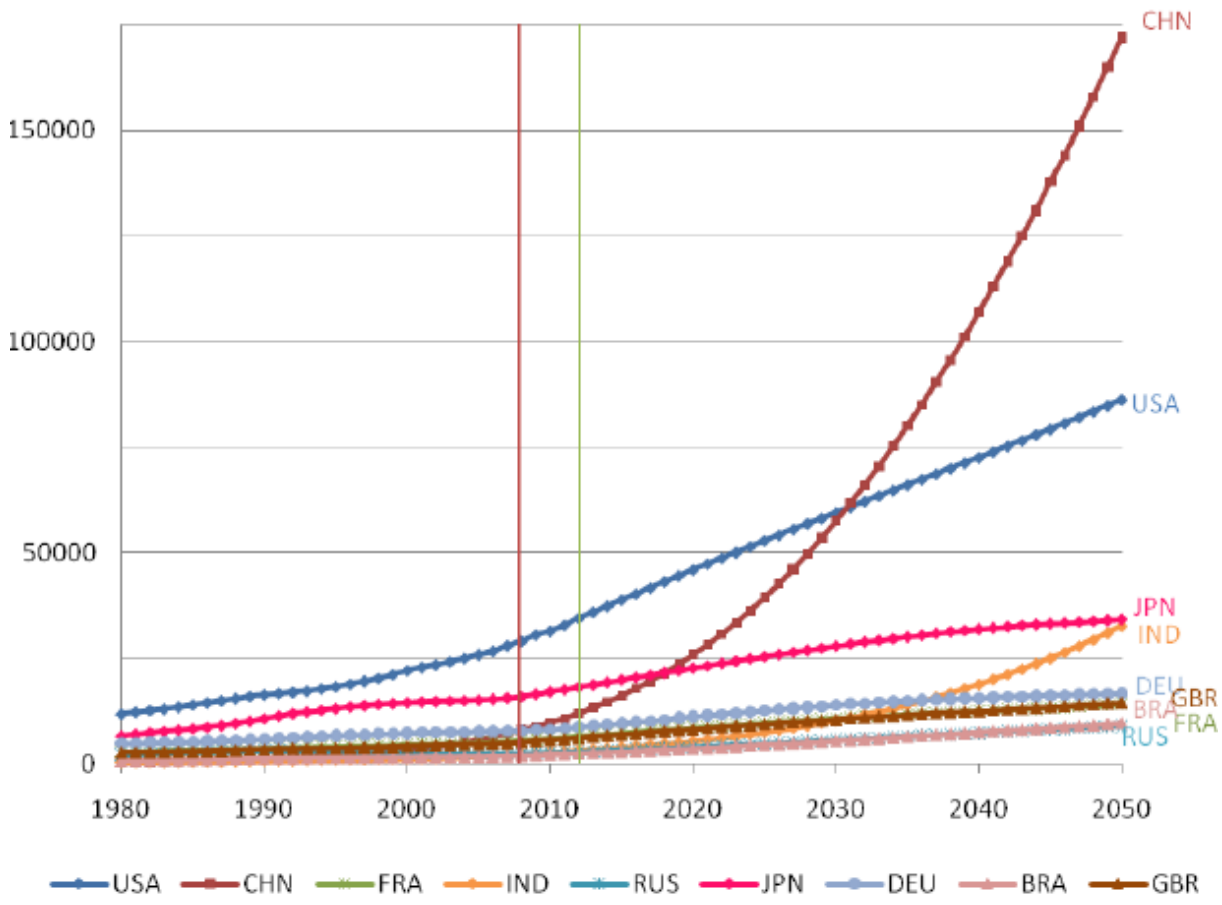
Investment rate
%GDP



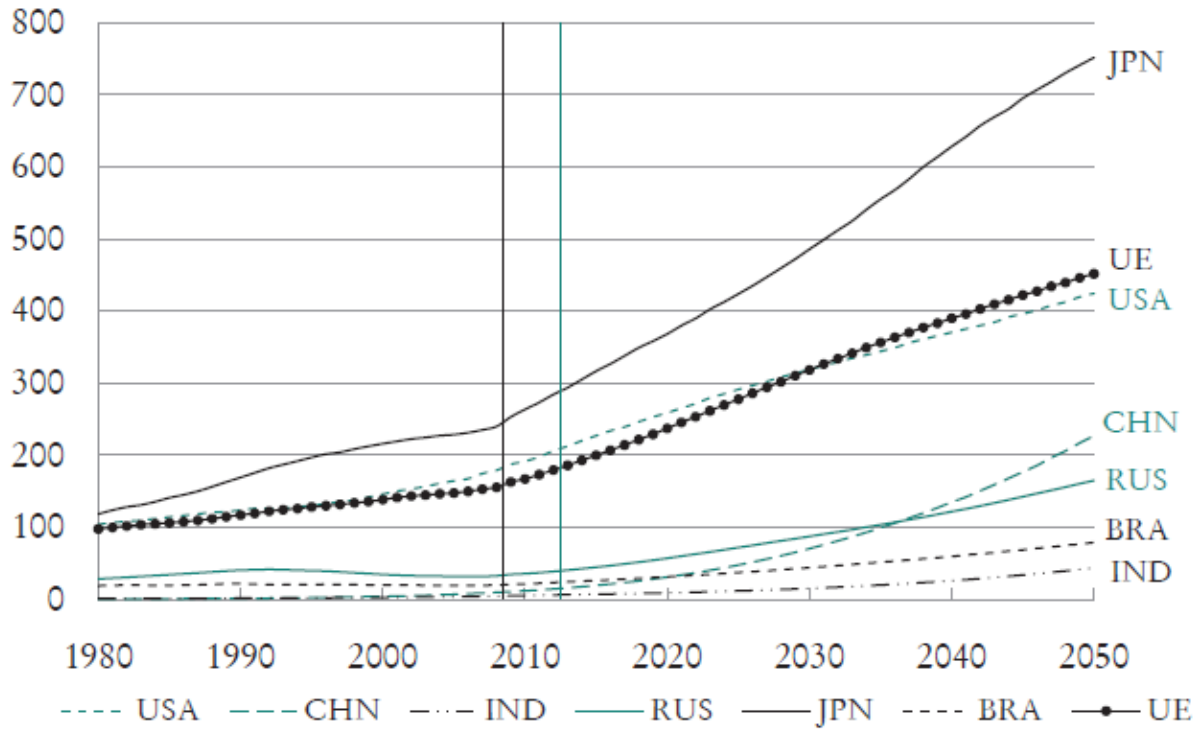
Savings-investment imbalance
% GDP



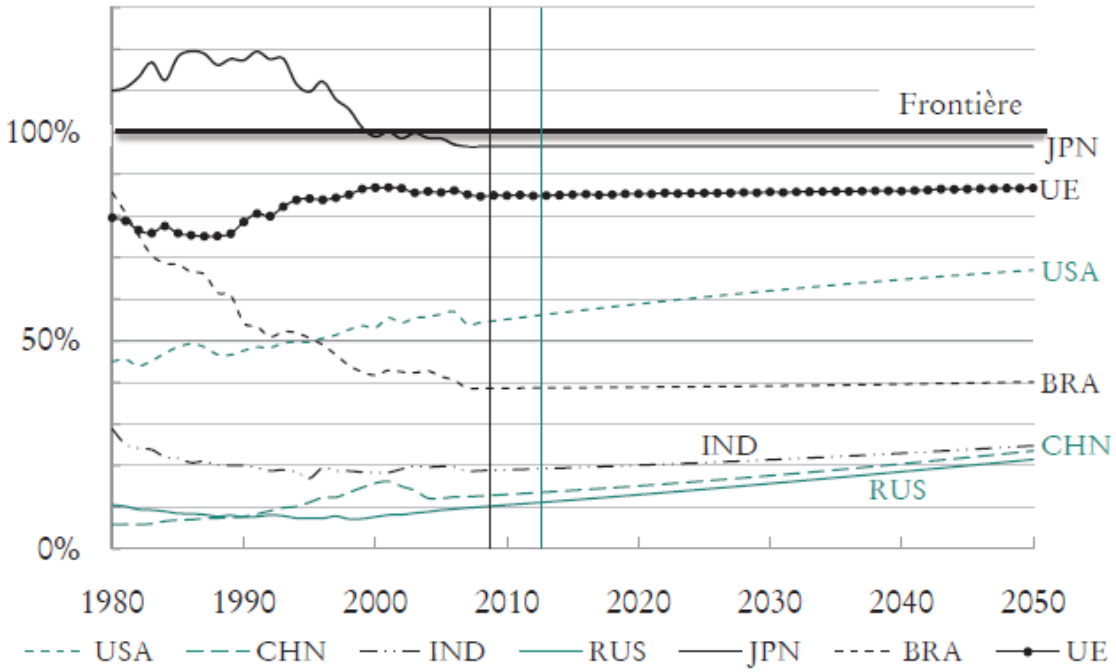
Capital stock
Billions of dollars in 2005



Capital per worker
Billions of dollars in 2005

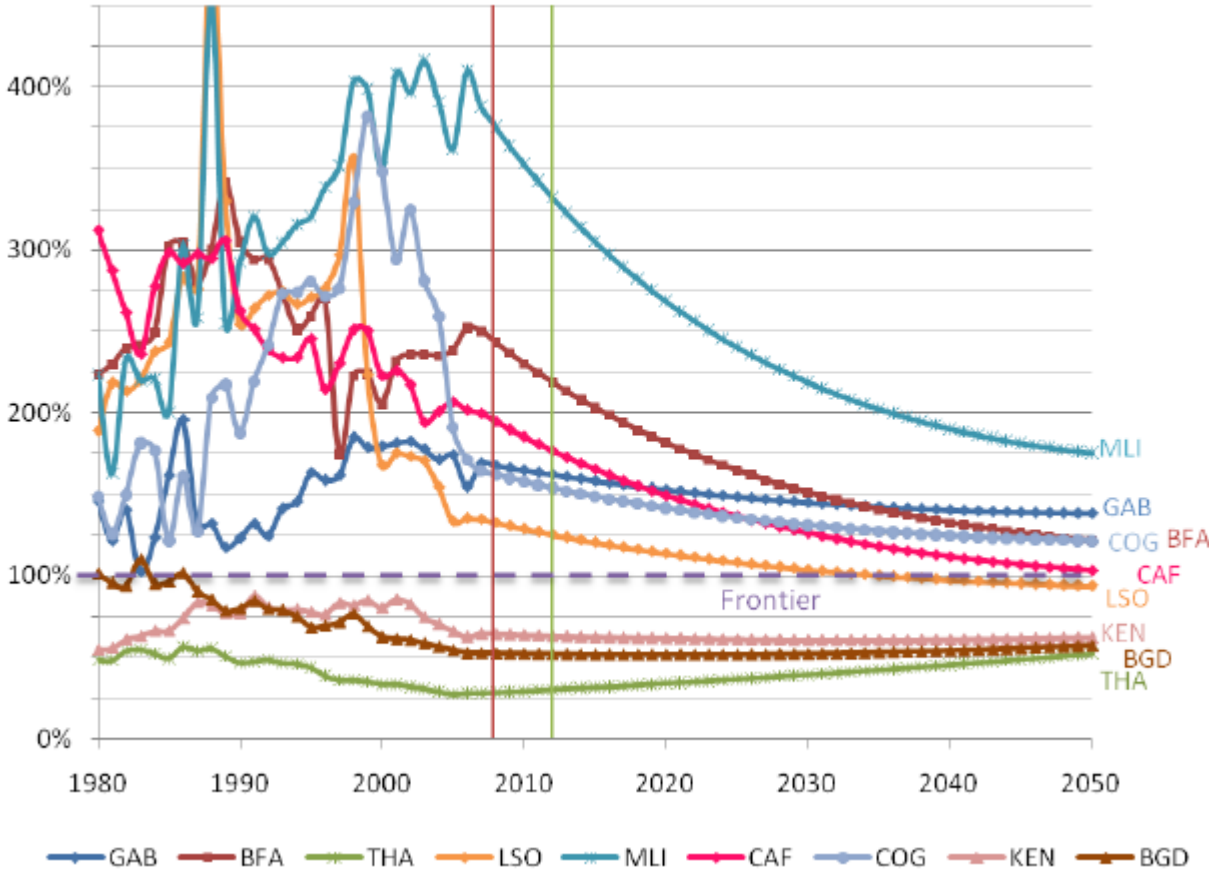


Energy Efficiency
(Distance from the border in %, advanced countries and BRIC)

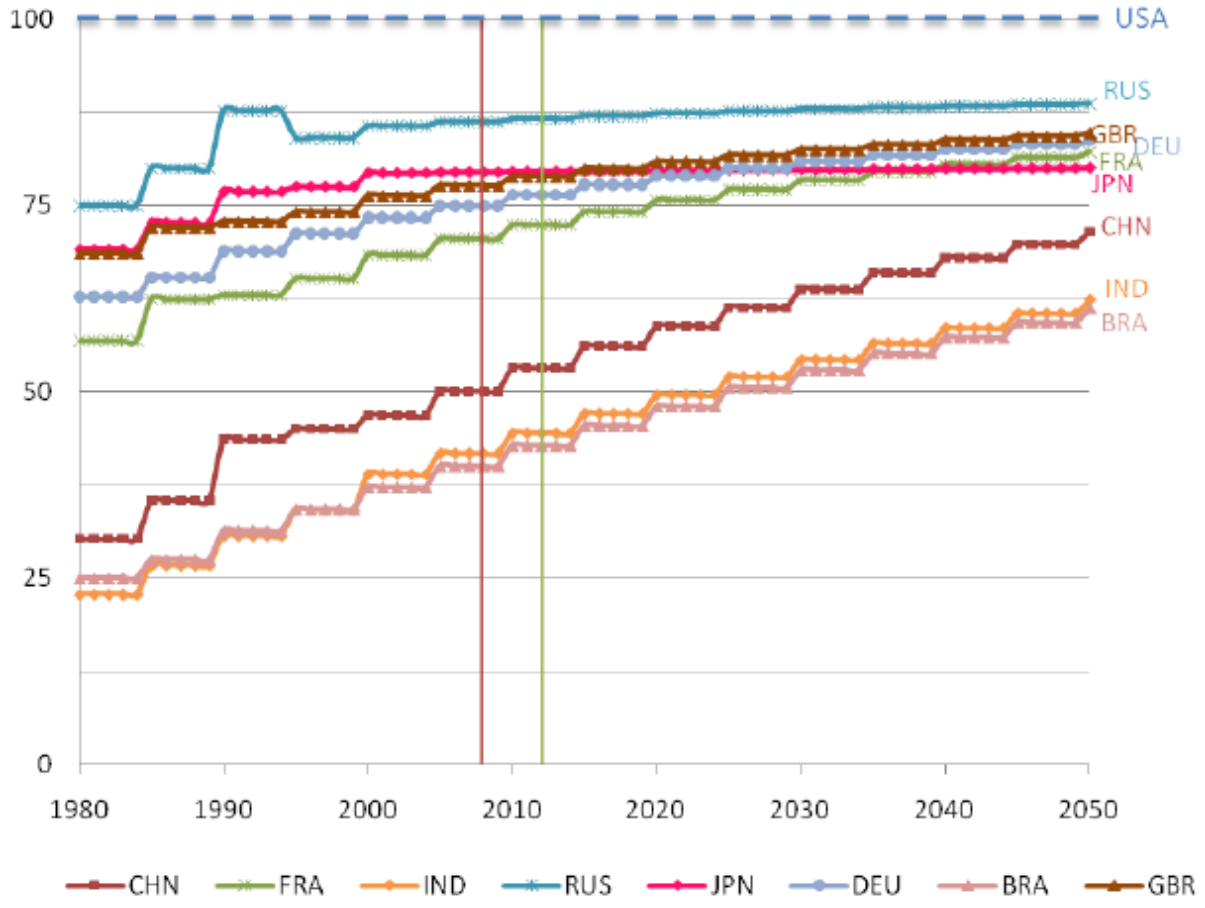


* Moyenne du Japon, de l'Allemagne, de la France et du Royaume Uni.

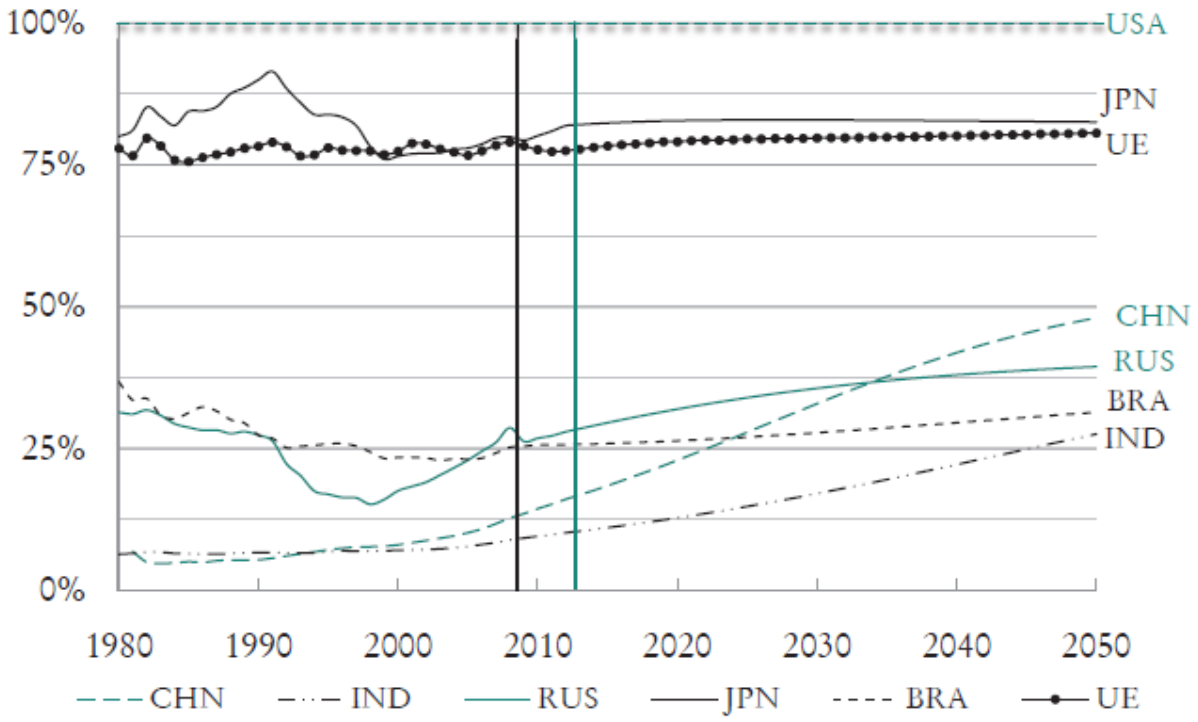
Energy productivity
Developing countries



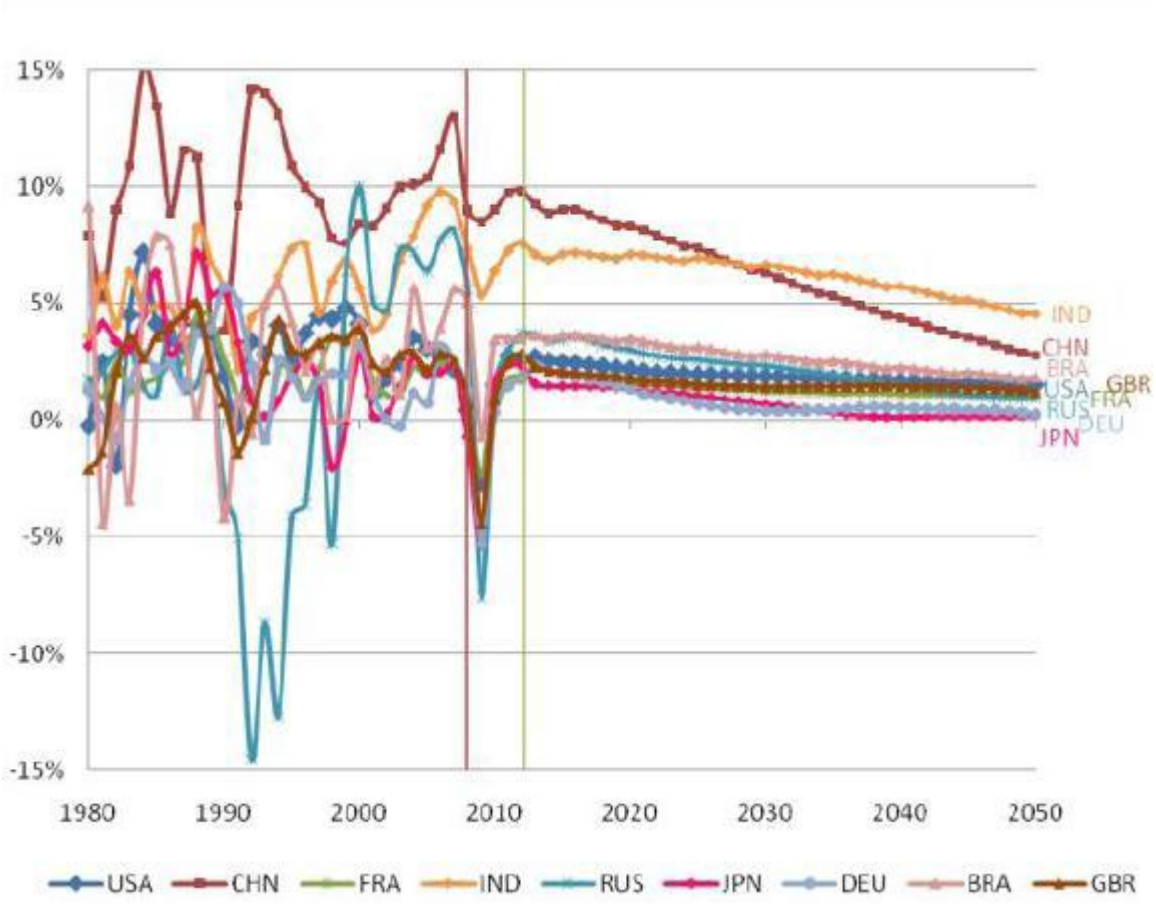
Human capital
(Years of schooling, in % of U.S. level)



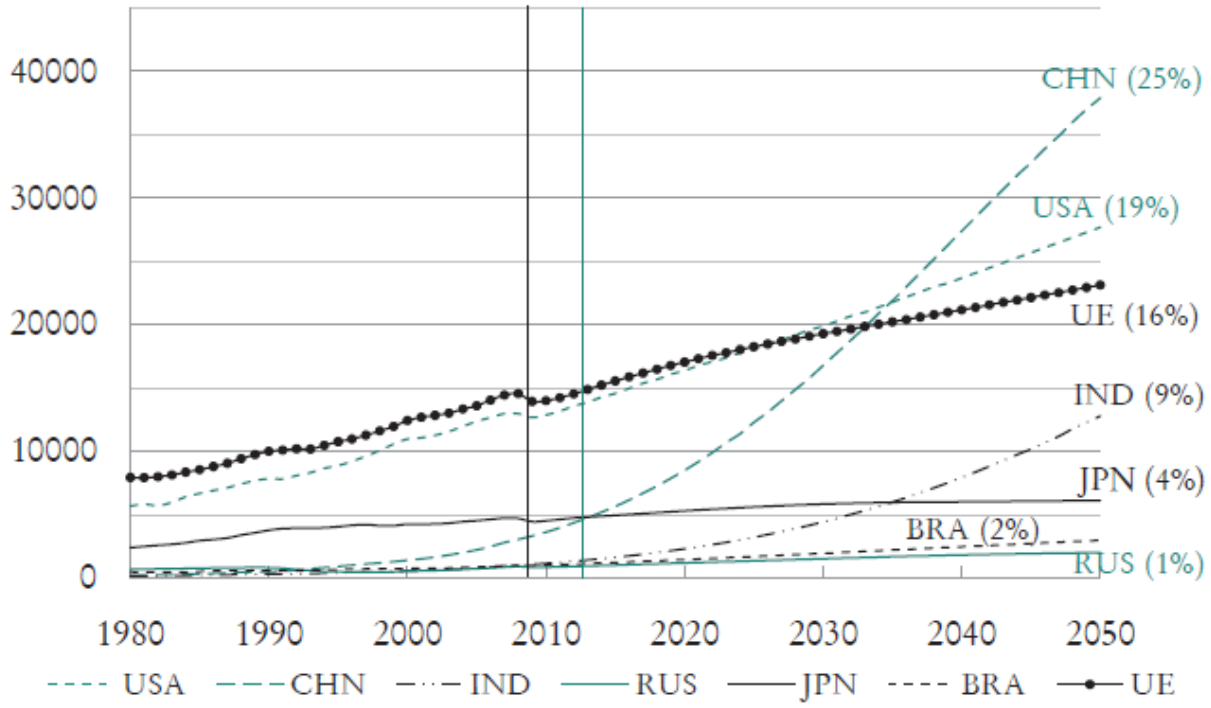
Total Factor Productivity (TFP)
% of American level



Increase of Gross Domestic Product (GDP)
% per year, fixed price

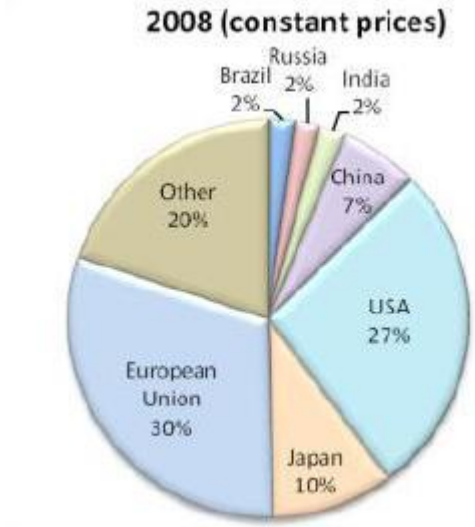


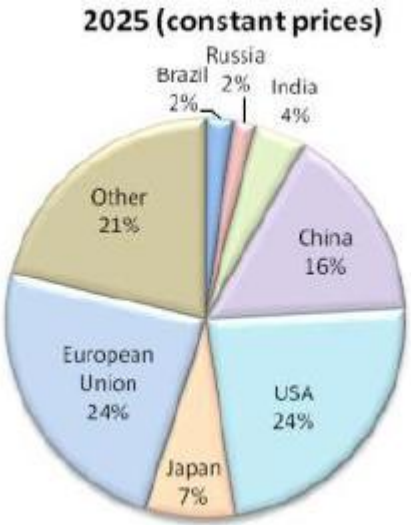
GDP in Volume
Billions of Dollars in 2005

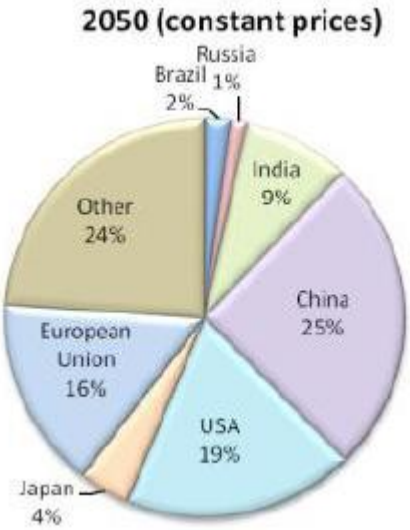


GDP

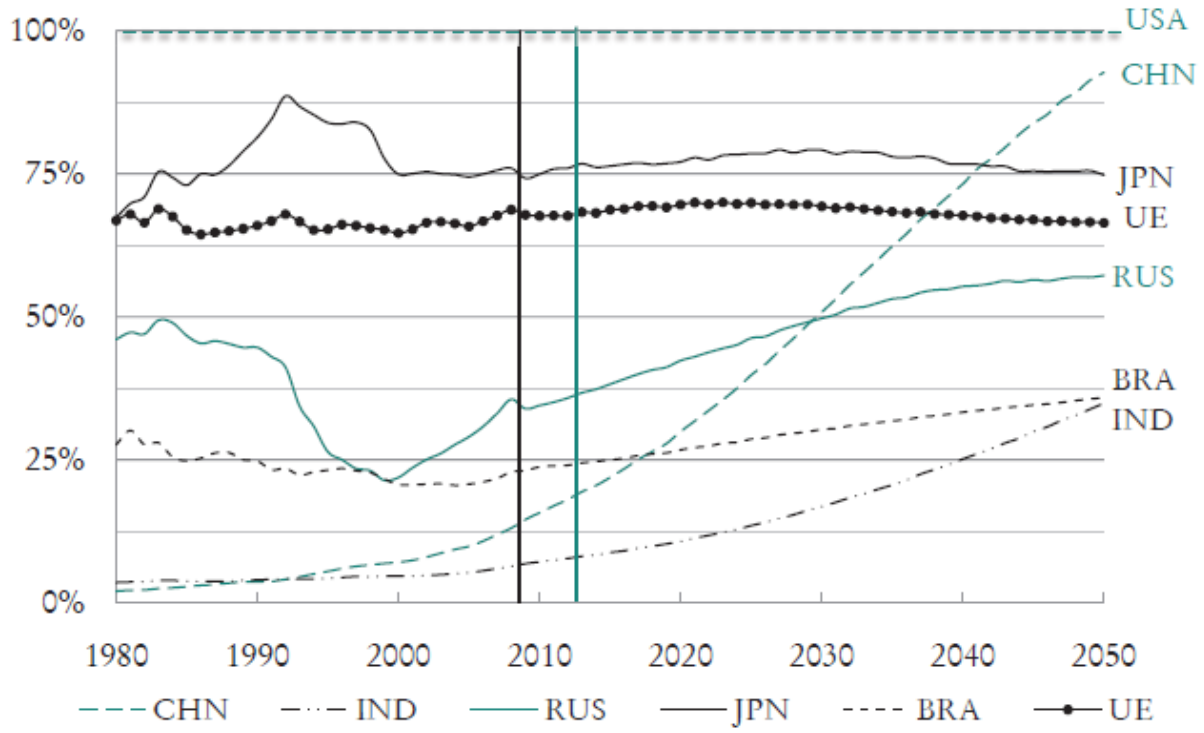
Parts in the world GDP, in Dollars in 2005



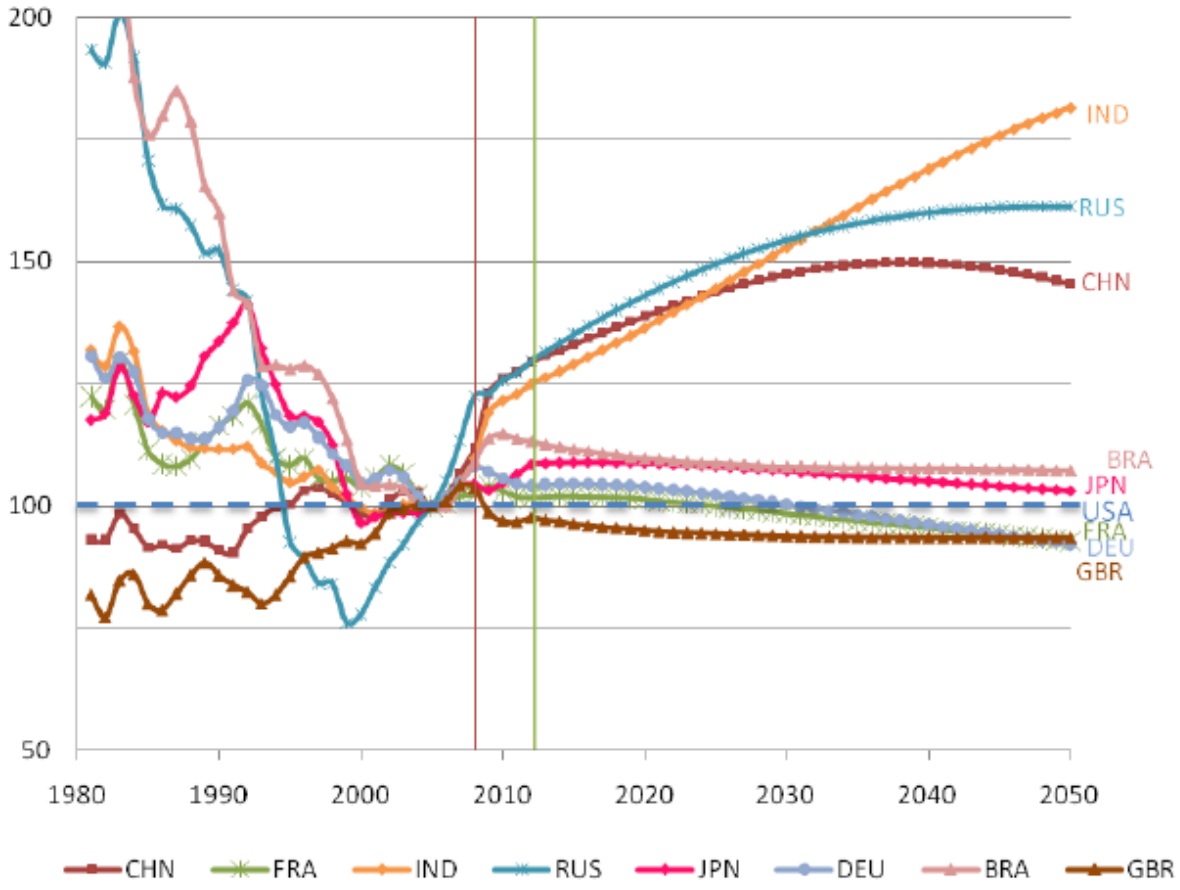




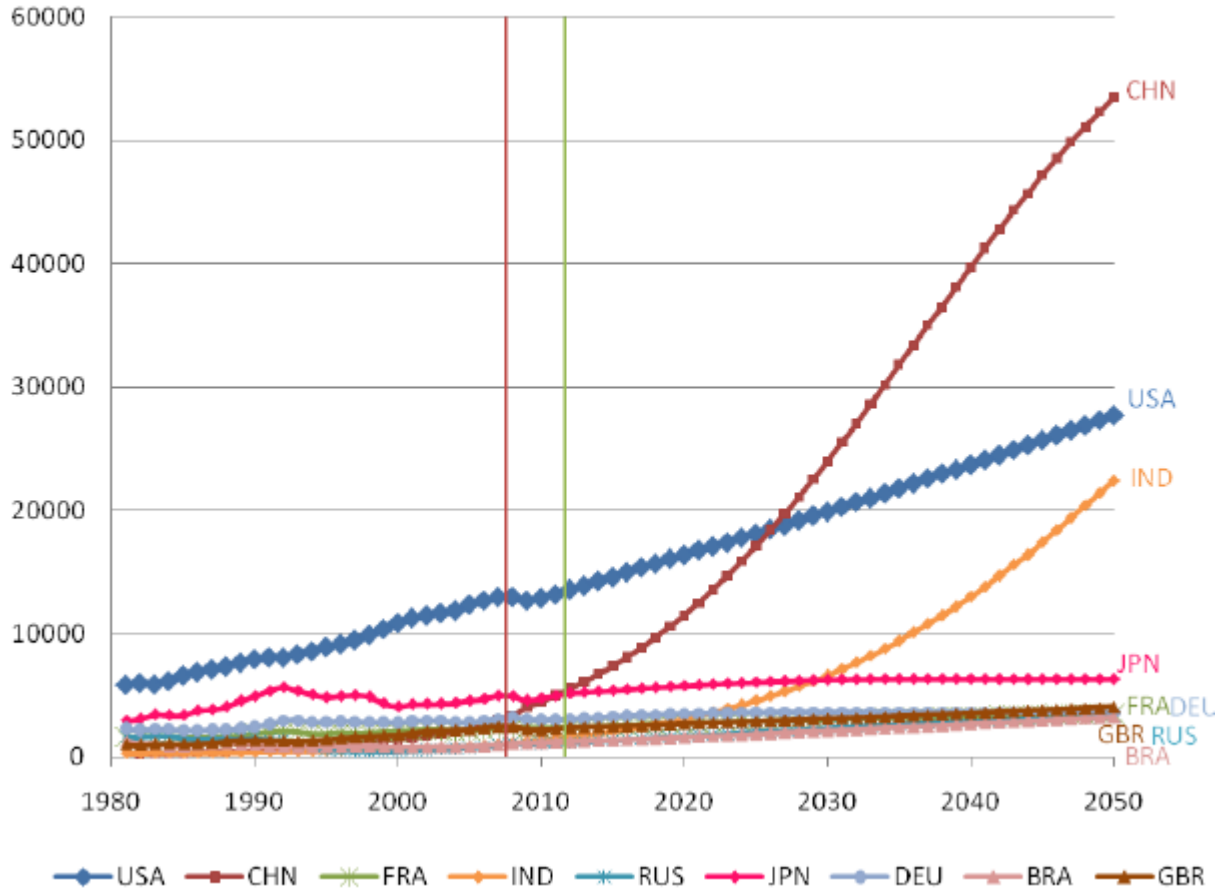
GDP per capita
$ Purchasing Power Parity in 2005, % of American level



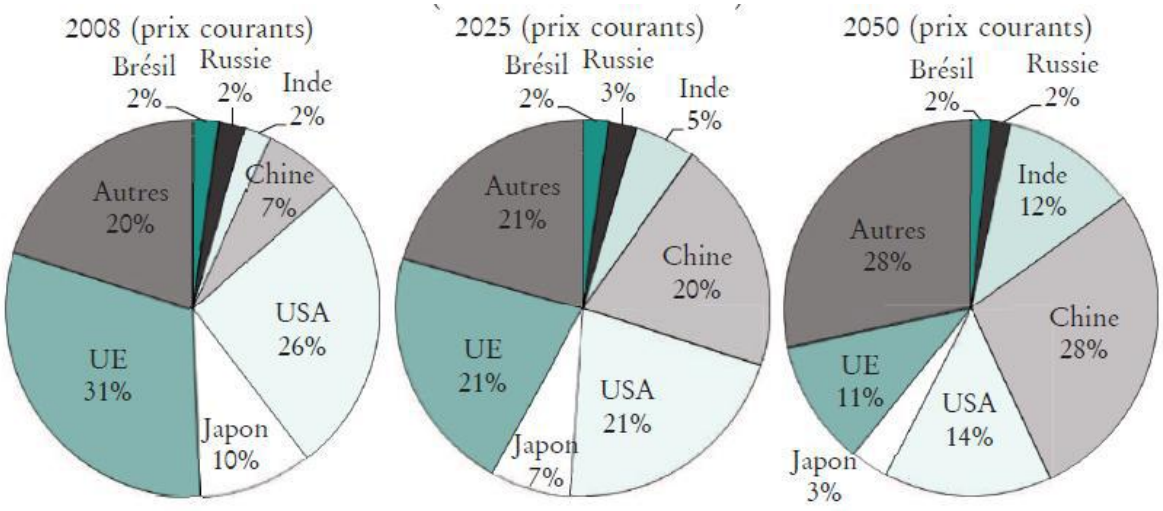
Real Exchange rate against the dollar
100 in 2005



GDP with real exchange rate variations
Billions of $



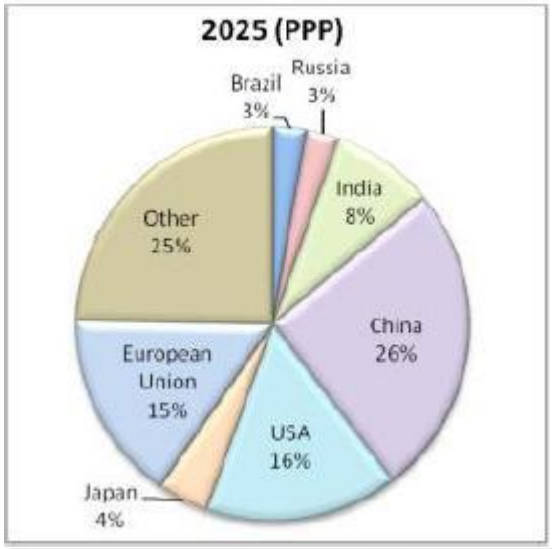
Weight in world Economy
% of world GDP

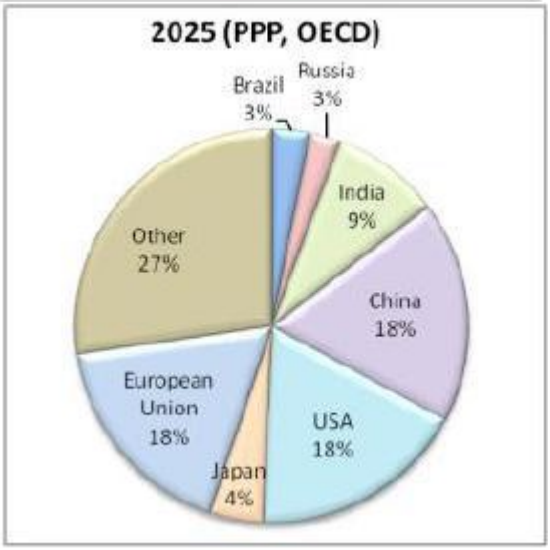


Comparison with the Organization for Economic Co-operation and Development and the Goldman-Sacks

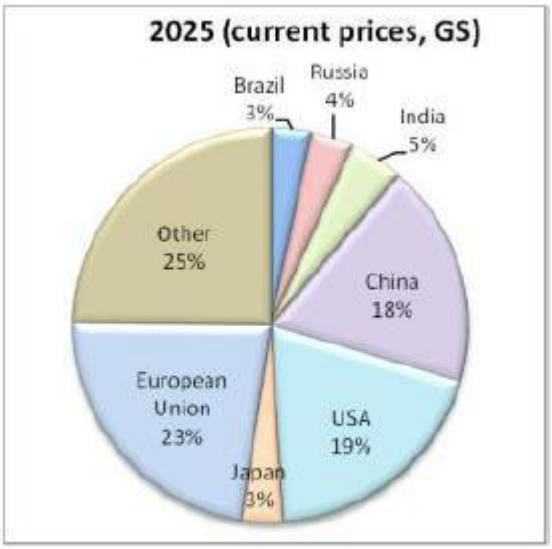
2025 Horizon

CPSII versus OECD, 2012-2025, PPP



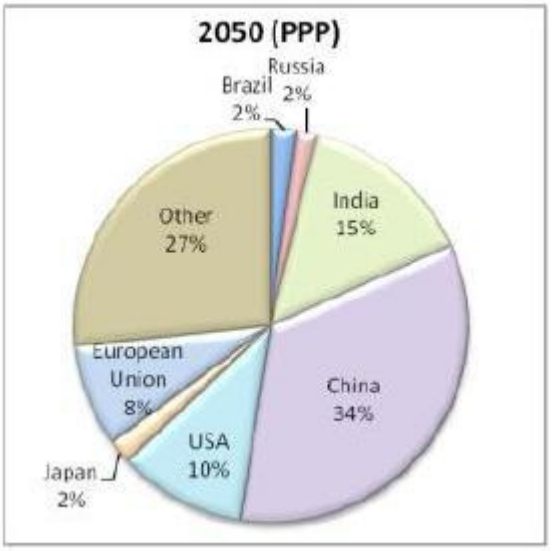


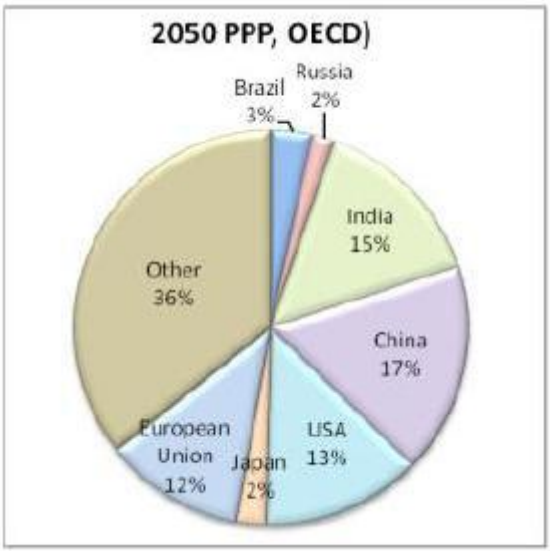
CPSII versus GS, 2012-2025, courant $



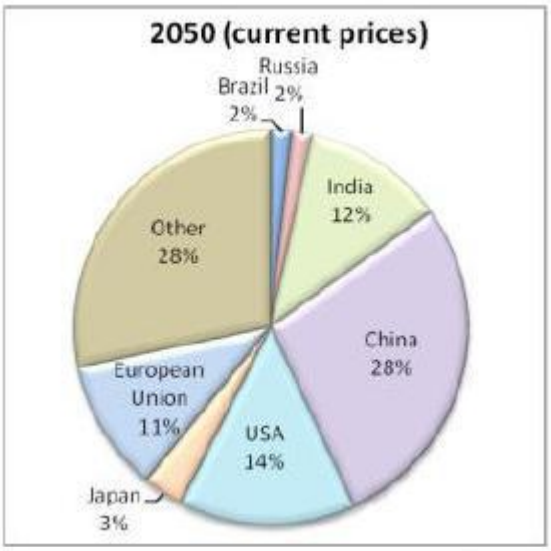
Comparison with OECD and GS
2050 Horizon

CPSII versus OECD, 2012-2025, PPP





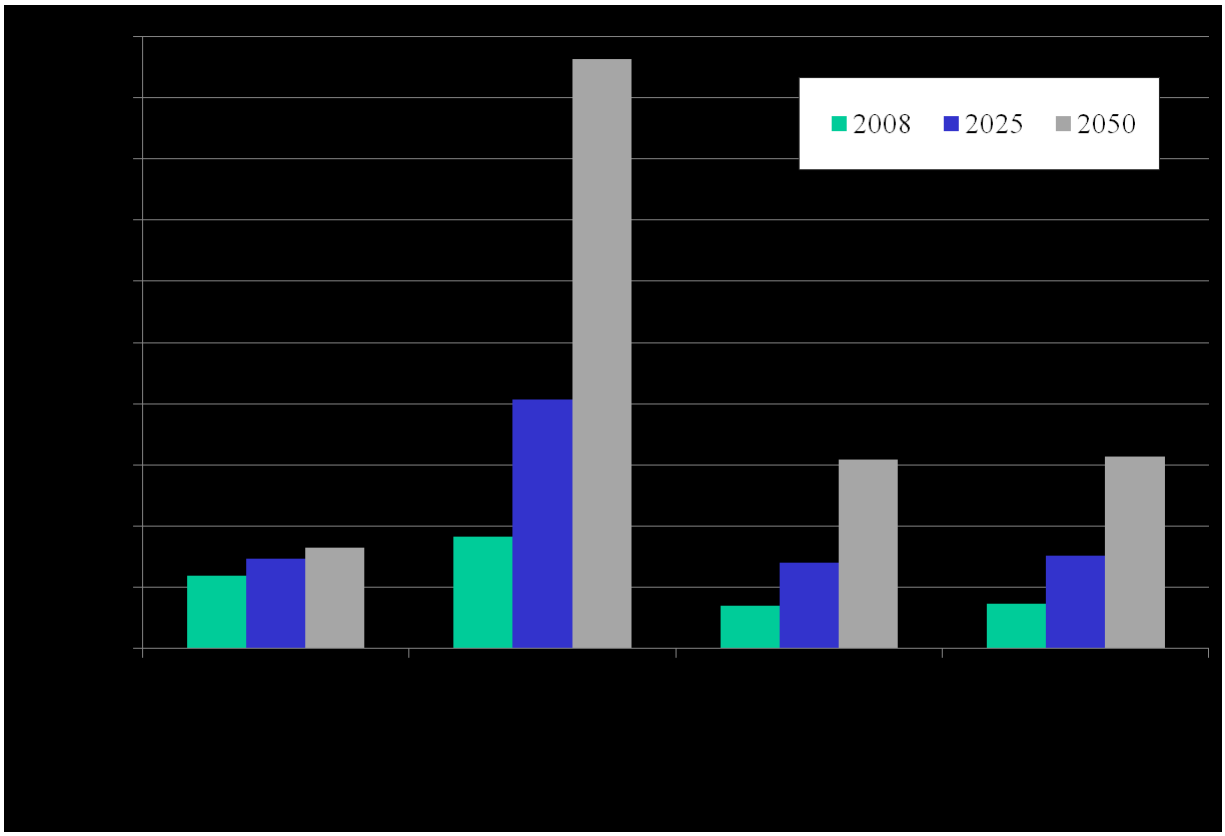
CPSII versus GS, 2012-2025, courant $



Large countries' conclusions

- China and India increased by 13 times between 2008 and 2050 at fixed prices, while the U.S. by two times, EU by 1.6. China is expected to surpass the U.S. in 2030 while India is expected to surpass Japan in 2035.
- Taking into account the relative prices changes: China × 16, India × 20, USA ×2, EU× 1.4. China is expected to surpass the U.S. in 2025 and India is expected to surpass Japan around 2030.
- China is still 10% below the U.S. in terms of living standards in 2050.
- Significance orders for downstream studies.

Morocco



Morocco

GDP per capita
$PPP in 2005, in % of American level