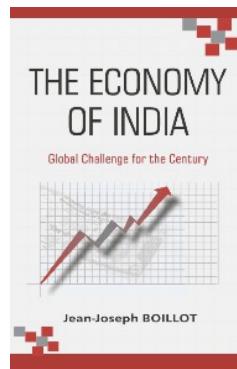


India: the Business cycle and the Trend in a global perspective, a European vision



Jean-Joseph Boillot

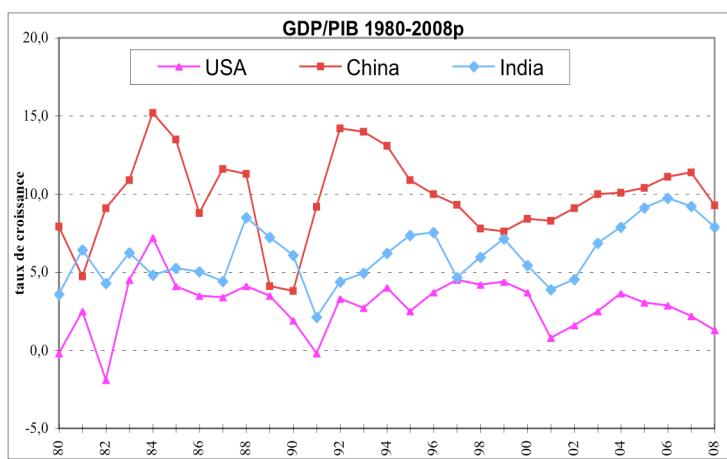
• Economist, co-founder of the EIEBG

India Cycle and Trend -J.J. Boillot

1

I- Is India entering a period of moderation or a cyclical turnaround, and if so, what kind of landing can be expected?

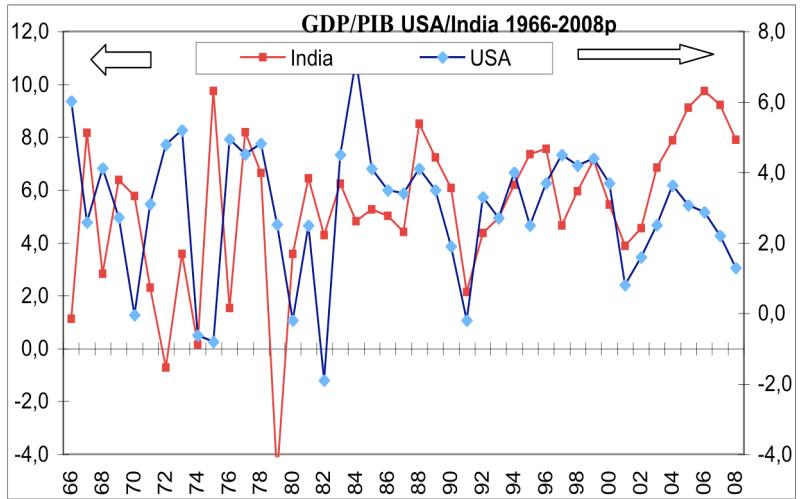
1.1- Since the 1980s the global economy business cycles



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2

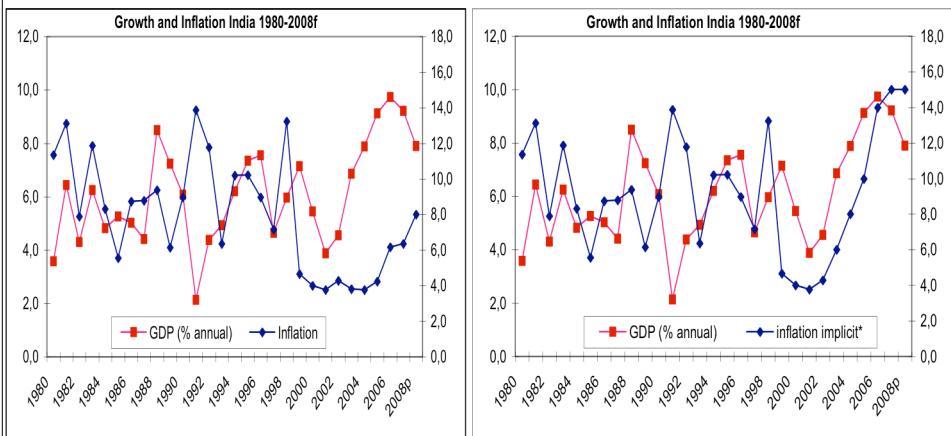
1.2- What single out the Indian business cycle after 2002, overheating or accelerating trend?



India Cycle and Trend -J.J. Boillot

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1.3- Growth and Inflation in India the two components: external and internal



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1.4- Overheating since 2006 as supported by JP Morgan

Monetary policy: Taylor rule prescriptions for policy rate changes from 4Q06eop to 2Q08eop

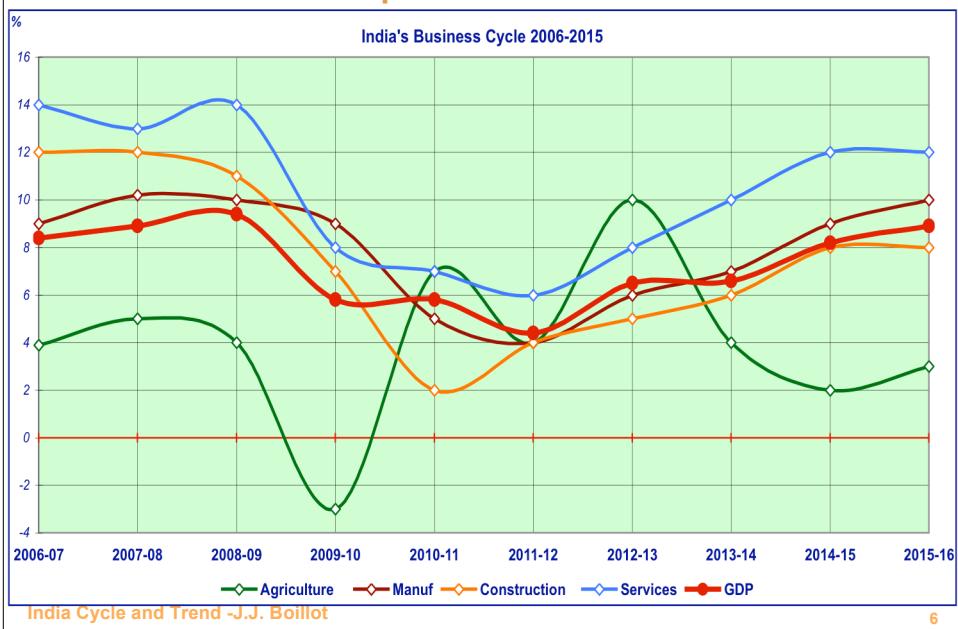
| | Potential Growth1 (i) | Average GDP growth2 (ii) | Change in output gap3 (iii)=1.5*(ii)-(i)] | Change in core inflation4 (iv) | Change in Taylor rule5 (v)=0.5*(iii)+1.5*(iv) | Change in actual policy rate6 (vi) | Difference (vii)=(vi)-(v) |
|----------------------|--------------------------|-----------------------------|--|-----------------------------------|--|---------------------------------------|------------------------------|
| Emerging | 6,0 | 7,3 | 1,9 | 1,2 | 2,8 | 0,7 | -2,1 |
| Latin America | 3,8 | 4,7 | 1,3 | 0,4 | 1,2 | 0,2 | -1,0 |
| Brazil | 3,5 | 5,4 | 2,8 | 0,1 | 1,5 | -1,0 | -2,5 |
| Chile | 4,8 | 4,5 | -0,5 | 1,8 | 2,5 | 1,5 | -1,0 |
| Colombia | 5,0 | 7,2 | 3,4 | 0,9 | 3,0 | 2,3 | -0,7 |
| Mexico | 3,5 | 3,3 | -0,3 | 0,4 | 0,4 | 0,7 | 0,3 |
| Peru | 7,0 | 9,2 | 3,3 | 0,4 | 2,3 | 1,3 | -1,0 |
| CEEMEA | 5,5 | 6,2 | 1,0 | 1,6 | 2,9 | 1,1 | -1,8 |
| Czech Republic | 4,6 | 6,1 | 2,3 | 3,3 | 6,1 | 1,3 | -4,8 |
| Hungary | 3,0 | 1,5 | -2,2 | 0,4 | -0,6 | 0,5 | 1,1 |
| Poland | 5,5 | 6,5 | 1,5 | 1,6 | 3,1 | 2,0 | -1,1 |
| Russia | 6,5 | 8,2 | 2,5 | 2,1 | 4,4 | 1,3 | -3,2 |
| Slovak Republic | 6,0 | 9,6 | 5,4 | 0,4 | 3,3 | -0,5 | -3,8 |
| South Africa | 4,5 | 4,8 | 0,4 | 2,5 | 4,0 | 3,0 | -1,0 |
| Turkey7 | 5,5 | 4,2 | -1,9 | -0,2 | -1,2 | -1,3 | 0,0 |
| Emerging Asia | 7,1 | 8,7 | 2,4 | 1,4 | 3,4 | 0,8 | -2,6 |
| China | 9,0 | 11,4 | 3,6 | 1,2 | 3,6 | 1,4 | -2,3 |
| India7 | 7,5 | 9,0 | 2,3 | 3,3 | 6,0 | 1,3 | -4,8 |
| Indonesia7 | 5,0 | 6,3 | 1,9 | 2,3 | 4,4 | -1,3 | -5,6 |
| Korea | 4,5 | 5,0 | 0,8 | 1,1 | 2,0 | 0,5 | -1,5 |
| Malaysia7 | 5,5 | 6,4 | 1,4 | 0,8 | 1,8 | 0,0 | -1,8 |
| Philippines | 4,5 | 6,2 | 2,5 | 0,4 | 1,8 | -2,3 | -4,0 |
| Taiwan | 4,5 | 5,6 | 1,6 | 0,4 | 1,4 | 0,9 | -0,5 |
| Thailand | 5,0 | 5,1 | 0,1 | -0,6 | -0,9 | -1,8 | -0,9 |

source: JP Morgan July 2008, Economic Research

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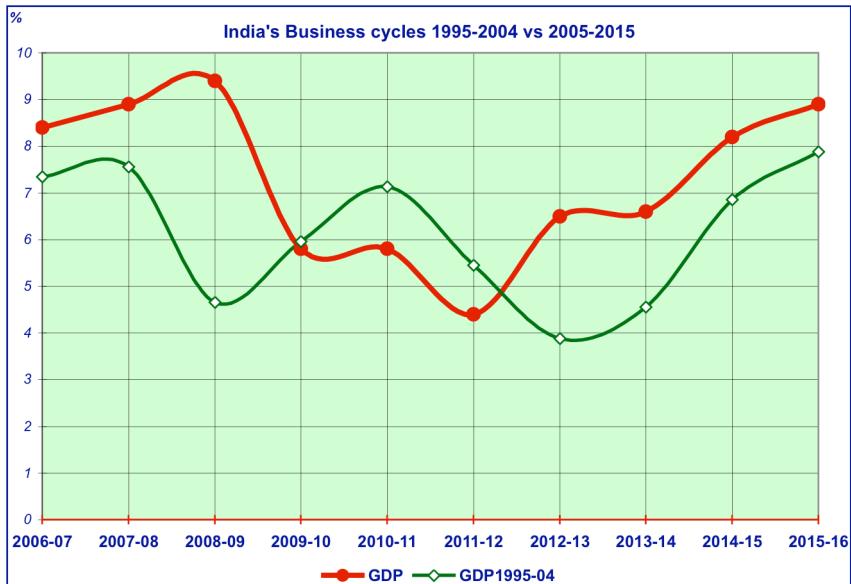
5

1.5- Reinforcing the forecast of a cyclical adjustment for the period 2008-2015



6

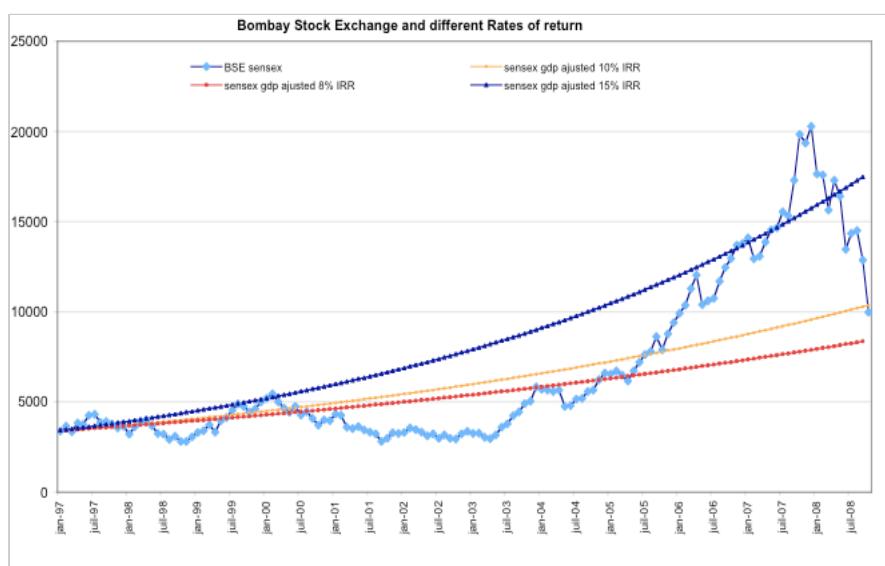
1.5- (2) Which fits well the previous Business Cycle



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1.5- (3)and shoudl lead to a stock market shock Sensex updated october 2008



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I- Some conclusions

1/ There is not much doubt that the Indian economy was overheating by a rather large margin since mid-2006 due to the combination of a very large overliquidity on the world economy, the new attraction of India as a fast growing economy and a huge untapped market.

Just for 2007, inflows of foreign capital has been on the magnitude of almost 10% of the GDP and the credit growth have clearly overshoot till the peak of the expansionary or laxist monetary policy in July 2007.

2/ But overheating and expansion phases are not that problematic in itself. Like Greenspan put it but also the late A.O. Hirschman, they triggered economic forces which nobody can foresee and unleash expectations which act as a formidable driver of economic growth in terms of consumption and investment.
"Imbalances growth" is quite often better than no growth or "artificially balanced growth" since it triggers forward and backward linkages which can restaurer the required balances like only crowded roads tell you where are the shortages.

3/ So the major issue as Suman Bery put it is how to manage the cycle on the short run and create the conditions to respond to the new constraints which appeared during the boom.

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II- India 2025: Beyond growth, the ``Great Transformation``

Some available studies

GOLDMAN SACHS 03: WILSON Dominic, PURUSHOTHAMAN Roopa : Dreaming with BRICs: the path to 2050, Global Economics paper n° 99

GOLDMAN SACHS 07: India's Rising Growth Potential, Global Economics Paper No:152, January 22, 2007

Rodrick Dany and Subramanian Arvind (2004), « Why India Can Grow at 7 Percent a Year or More: Projections and Reflections », IMF Working Paper

CEPII - Sandra PONCET, The Long Term Growth Prospects of the World Economy : Horizon 2050, Document de travail CEPII, N° 2006-16 octobre 2006

Banque Mondiale, Global Economic Prospect 2007

And also: Deutsche Bank, PriceWaterCoopers, CLSA, McKinsey.....

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2.1- What could be the India 2025 GDP Standart economic model

All models use a Cobb-Douglas fonction of Production :

$$Y = A K^\alpha L^{(1-\alpha)}$$

- Y= GDP

- K = capital

- L= labor

- A= Technical Progress or Total Factor Productivity (TFP).

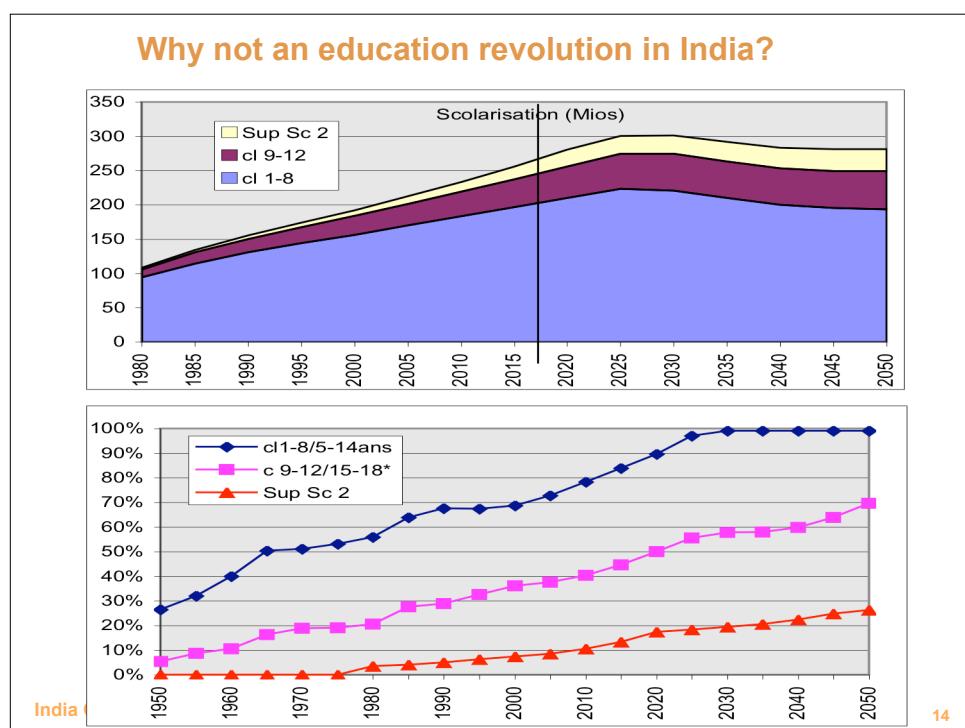
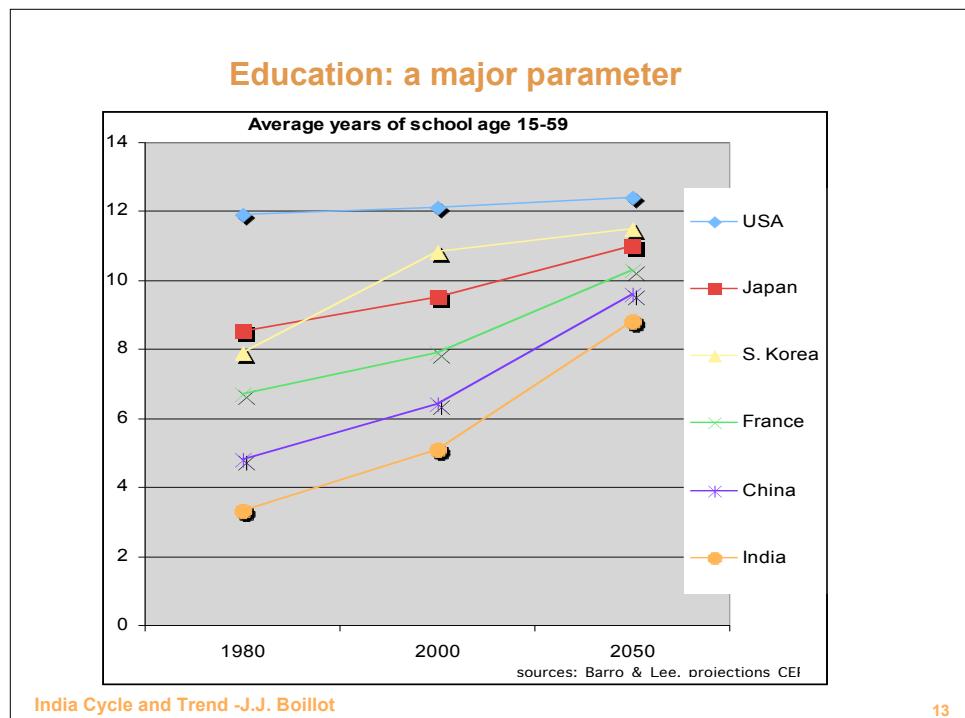
But :

- 1/ Specifications in the models are quite different

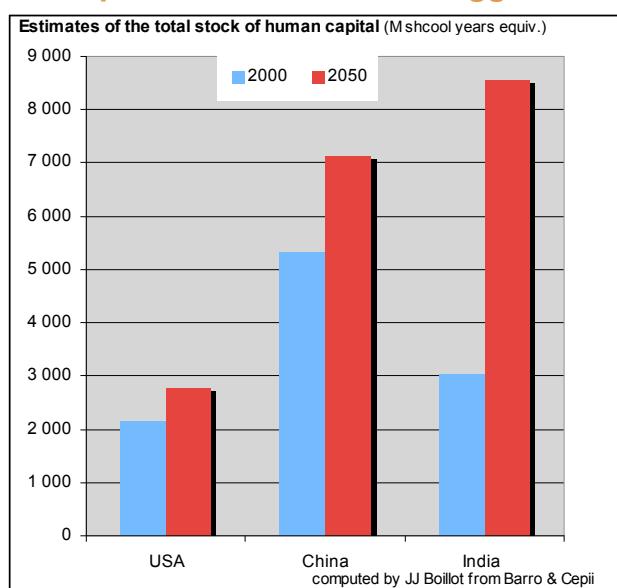
- 2/ Parameters also

Puzzling results!

| | Annual rate of Growth | | | | | % |
|----------------|-----------------------|-----|---------|-------------|-----|-----|
| | GDP | TFP | Capital | Labor | Edu | |
| CEPII (2050) | 4,5 | 2,2 | 4,7 | 0,7 in PGF | | 20% |
| GS03 (2050) | 5,7/7,4 | 4,6 | | 1,9 in PGF | | 22% |
| GS07 (2020) | 8,4 | 3,2 | 7,8 | 1,8 | 2 | 29% |
| (2020-50) | 8,2 | 2,2 | 7,9 | 0,6 | 1,4 | 29% |
| Rodrick (2025) | 6,7 | 2,5 | 8,3 | 1,9 sc +1pt | | 39% |
| BM (2030) | 4,9 | | | | | |



A 1st paradox of the « India laggard »



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Comparative results

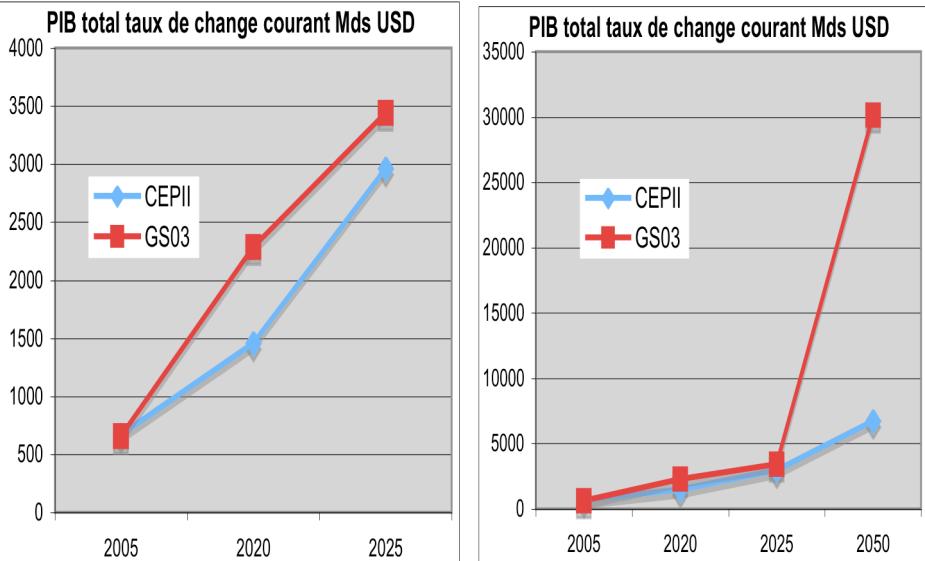
Projection 2025 in Bn USD (current US \$ and current relative prices base 2000)

| GDP | US | China | Japan | Germany | India | India* | France | Brazil | Monde |
|--------------------|--------|-------|--------|---------|-------|--------|--------|--------|--------|
| 2005 | 11 100 | 2 300 | 5 190 | 1 840 | 671 | 671 | 1 400 | 615 | 36 294 |
| 2025 | 19 287 | 8 287 | 7 113 | 2 692 | 1 890 | 2 772 | 1 833 | 605 | 60 902 |
| GDP/capita | | | | | | | | | |
| 2005 | 37 222 | 1 748 | 40 563 | 22 169 | 608 | 608 | 22 951 | 3 366 | 5 614 |
| 2025 | 55 091 | 5 749 | 58 486 | 33 647 | 1 354 | 1 986 | 29 097 | 2 644 | 7 704 |
| Population Mios | | | | | | | | | |
| 2005 | 298 | 1 316 | 128 | 83 | 1 103 | 1 103 | 61 | 187 | 6 465 |
| 2025 | 350 | 1 441 | 122 | 80 | 1 395 | 1 395 | 63 | 229 | 7 905 |
| GDP% World | USA | China | Japan | Germany | India | India* | France | Brazil | Monde |
| 2005 | 30,6% | 6,3% | 14,3% | 5,1% | 1,8% | 1,8% | 3,9% | 1,7% | 100% |
| 2025 | 31,7% | 13,6% | 11,7% | 4,4% | 3,1% | 4,6% | 3,0% | 1,0% | 100% |
| GDP/capita USA=100 | | | | | | | | | |
| 2005 | 100% | 5% | 109% | 60% | 2% | 2% | 62% | 9% | 15% |
| 2025 | 100% | 10% | 106% | 61% | 2% | 4% | 53% | 5% | 14% |
| Pop % Monde | | | | | | | | | |
| 2005 | 5% | 20% | 2% | 1% | 17% | 17% | 1% | 3% | 100% |
| 2025 | 4% | 18% | 2% | 1% | 18% | 18% | 1% | 3% | 100% |
| Croiss. val/an | 2,8 | 6,6 | 1,6 | 1,9 | 5,3 | 7,4 | 1,4 | -0,1 | |

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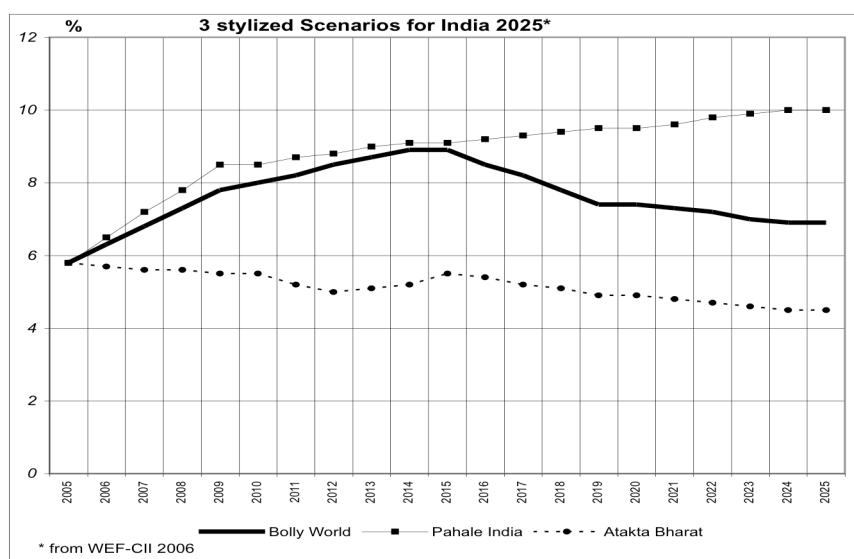
Quite similar to GS for 2005-2025, but explosive in 2050



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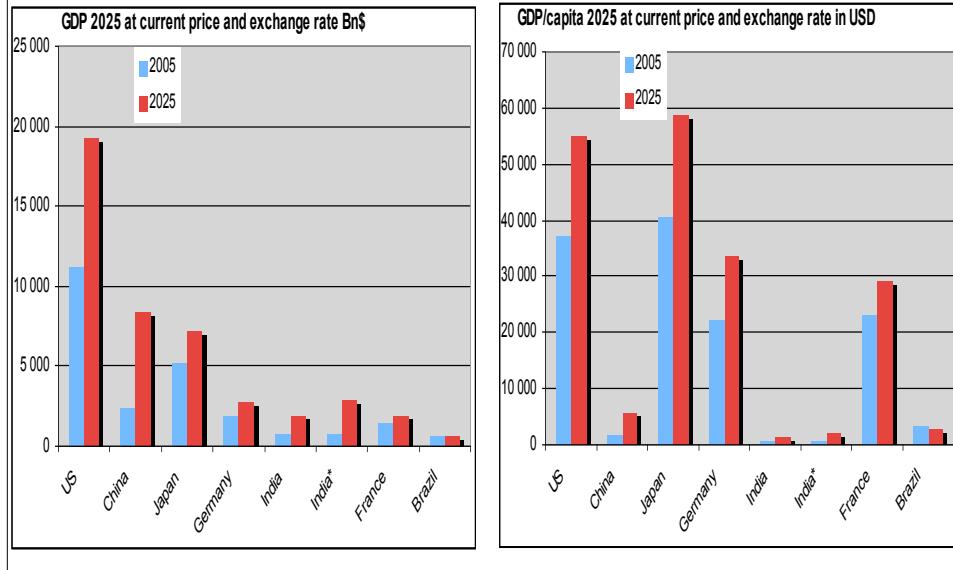
2.2- Possible Paths and Scenarios of the Indian catch up? Hypothesis of a « Middle Path » or « Unfine Balance »



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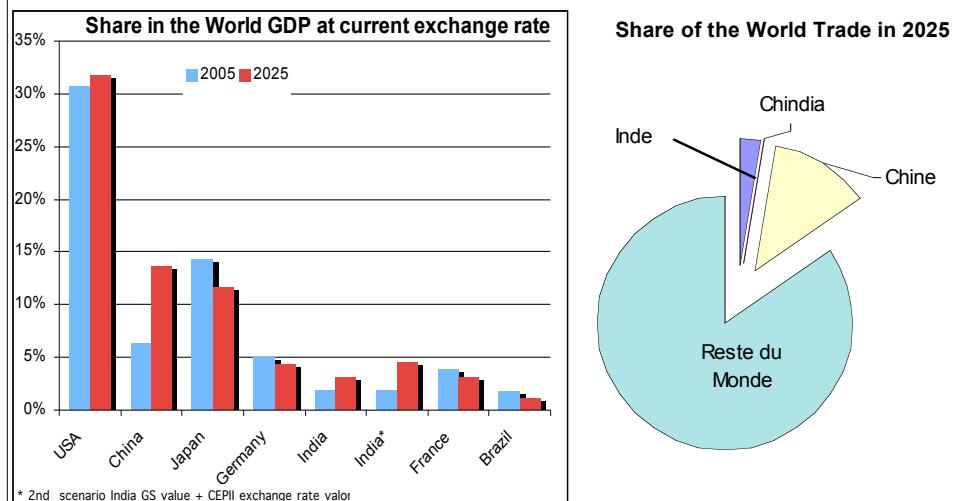
2.3- What economic power for India in 2025? Not so macroeconomically



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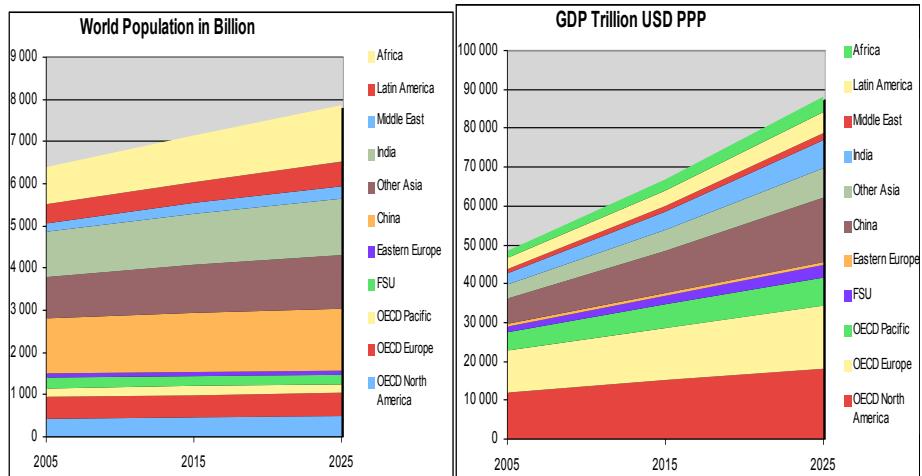
Comparative Value at the world level can be tracked by: share in the world current GDP & International Trade



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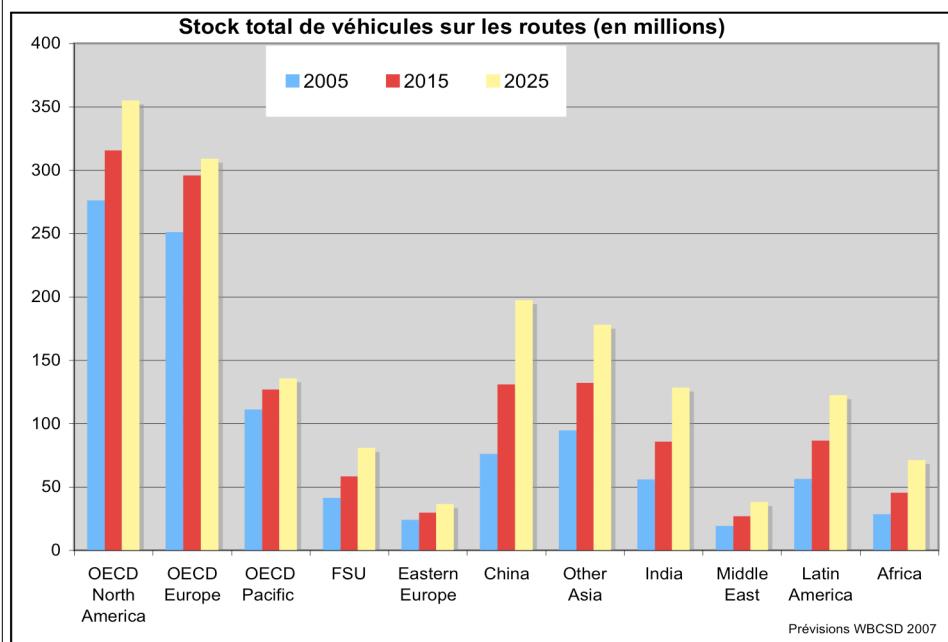
And a more Multipolar World in GDP and Population



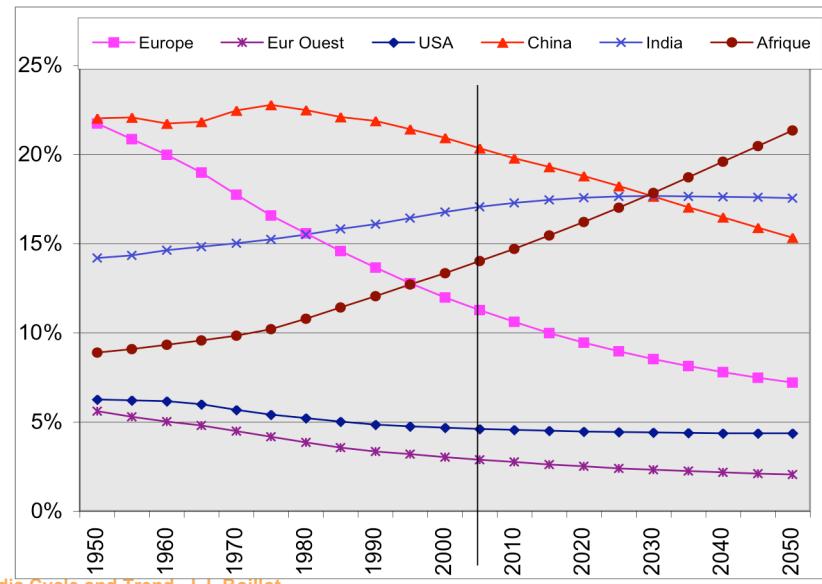
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2.3- (2) But in some sectors domestically ...

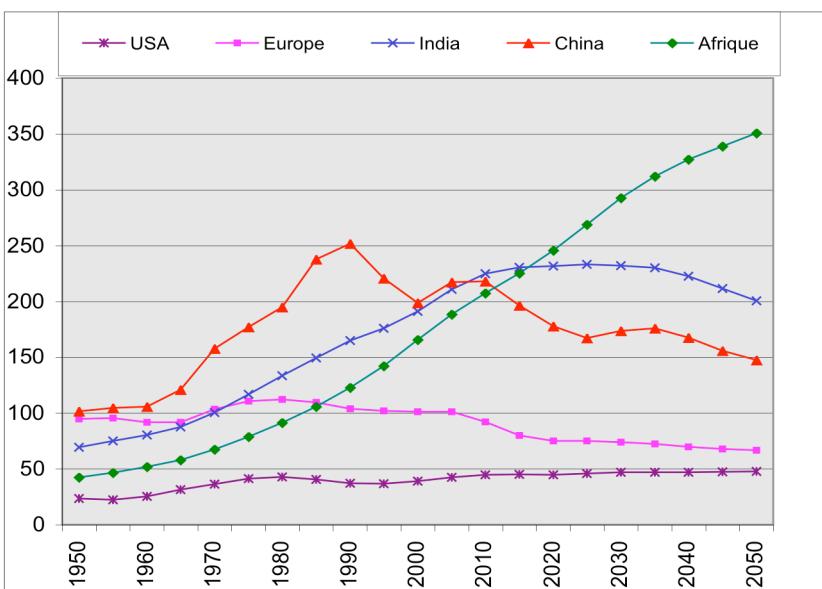


**2.3- (3a) and Take care of New Comers in Human capital
the strange story of rising India replacing China**
% World population 1950-2050

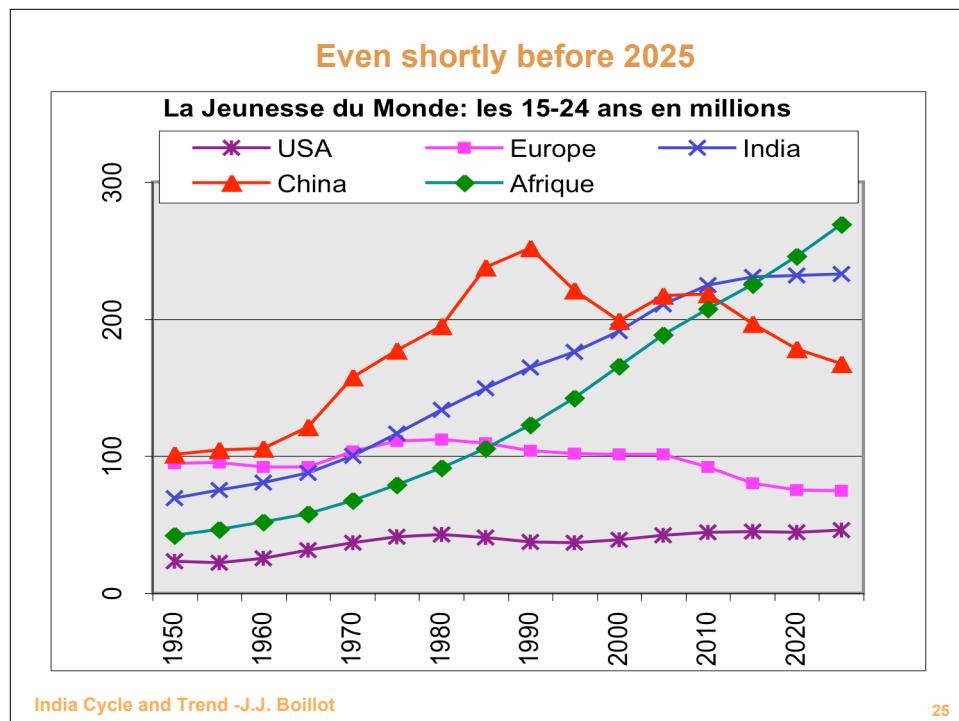


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2.3- (3b) ... more so with the 15-24 age group



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2.3 (4)- Much more importantly, India is getting into its « Great Transformation »

1/ Paradox : global picture moving only gradually and nevertheless impression of a huge take-off

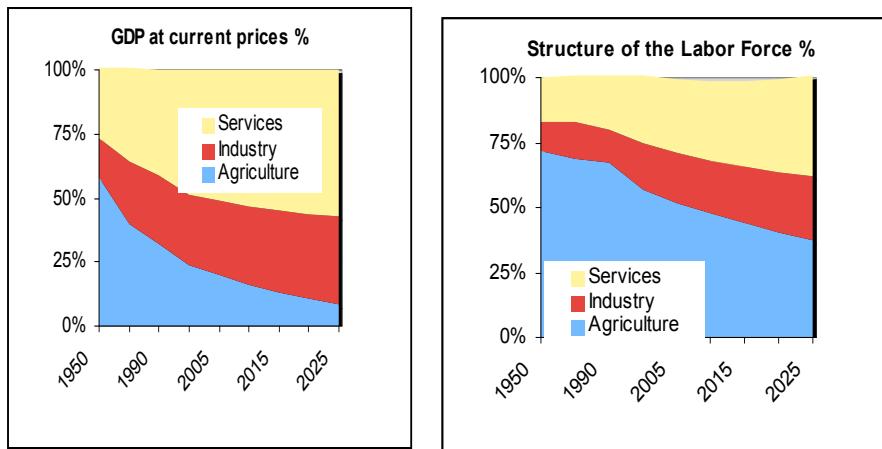
2/ Characterize the « Big Transformations » historically experienced by most developed countries (see France of la *Belle époque* in 1900)

3/ Small relative change indicates large transformations coming. Yes, 1 million Young Professionals weight as much as 200 million farmers!

4/ The Size effect of India (as for China) makes small relative change huge potential impact on the world stage, ie : 1/3 of the coming global young labor force in 2025

1/ Transformation of the GDP Structure

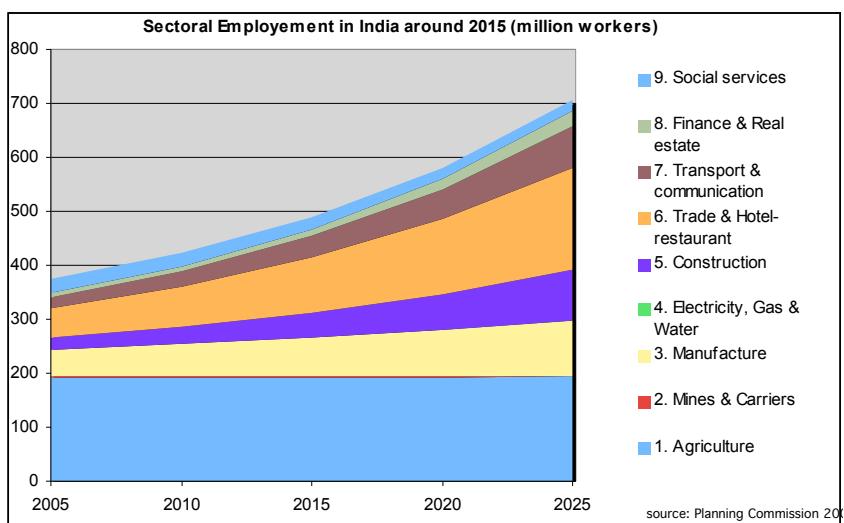
The silent révolution of services pulling industrialisation, urbanisation, education, feminisation and globalisation of India



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2/ The huge Employment Transformation

Half of the jobs will be New (wage class) and the number of farmers will remain stable only apparently

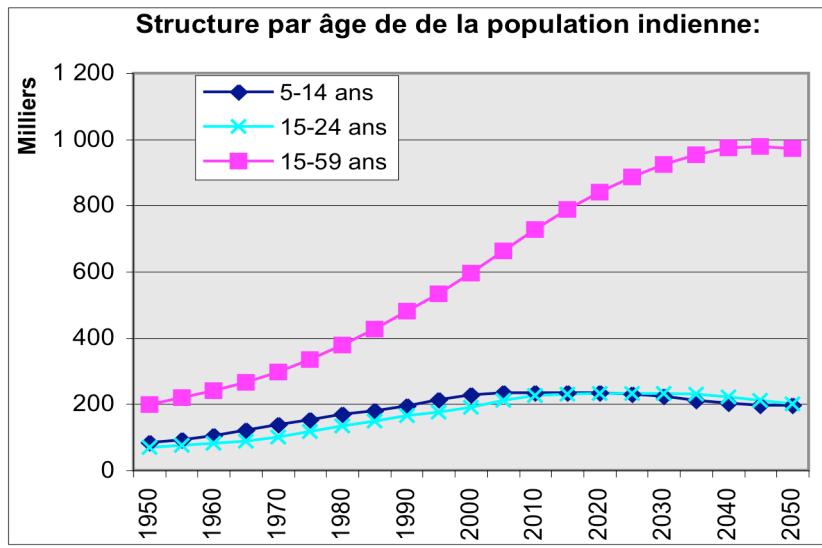


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3/ Youth Revolution

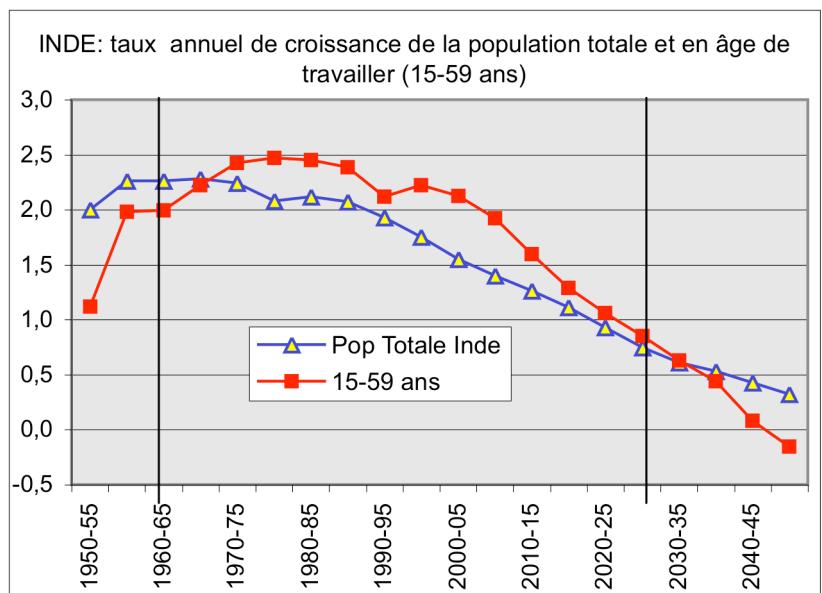
The Peak of 2025. Not only economy but social values



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The Turning Point of 2025: window is closing!

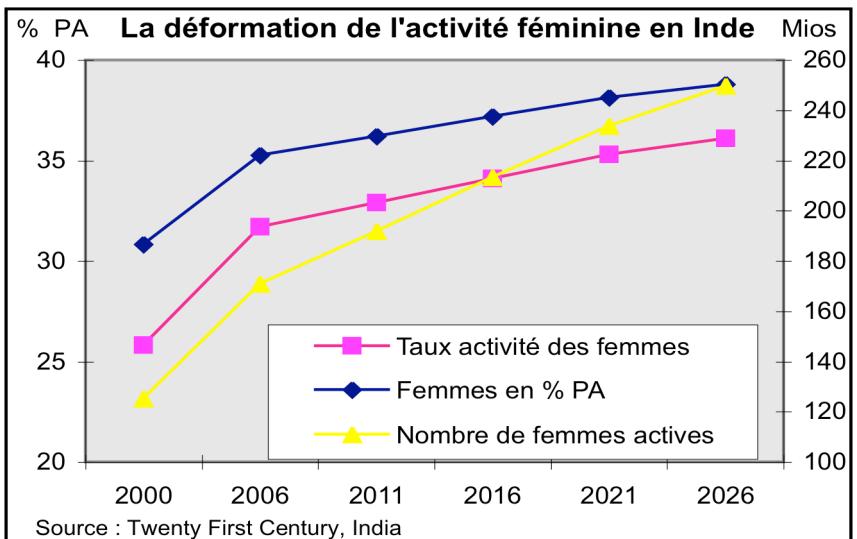


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4/ Feminisation

On serait en 2025 proche du niveau chinois (45% de la PA)

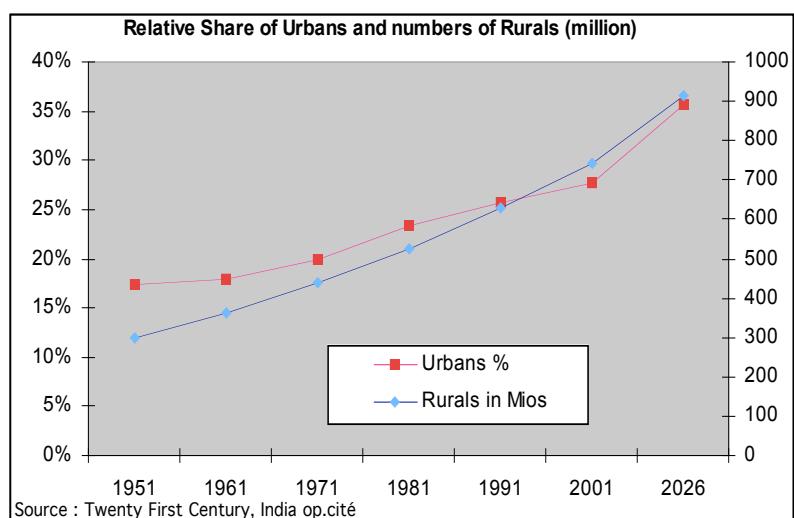


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5/ Urbanisation

The Paradox of the double Rise: conflicting or virtuous trend?



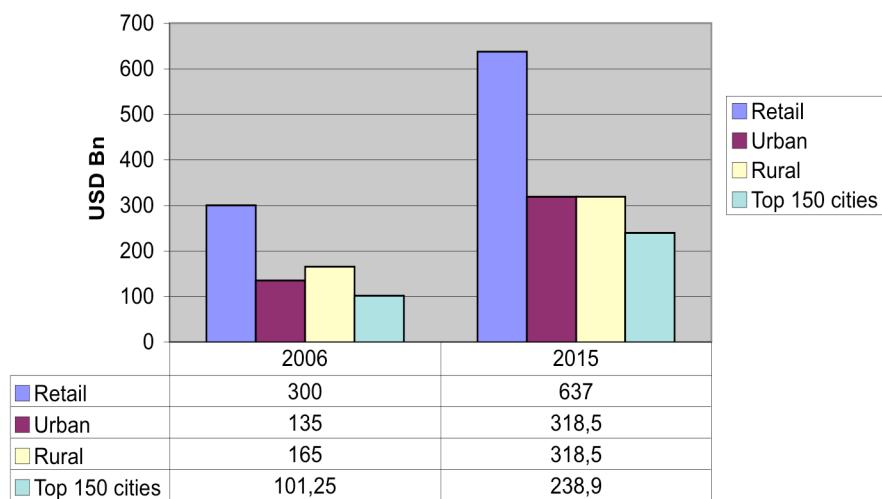
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6/ Retail

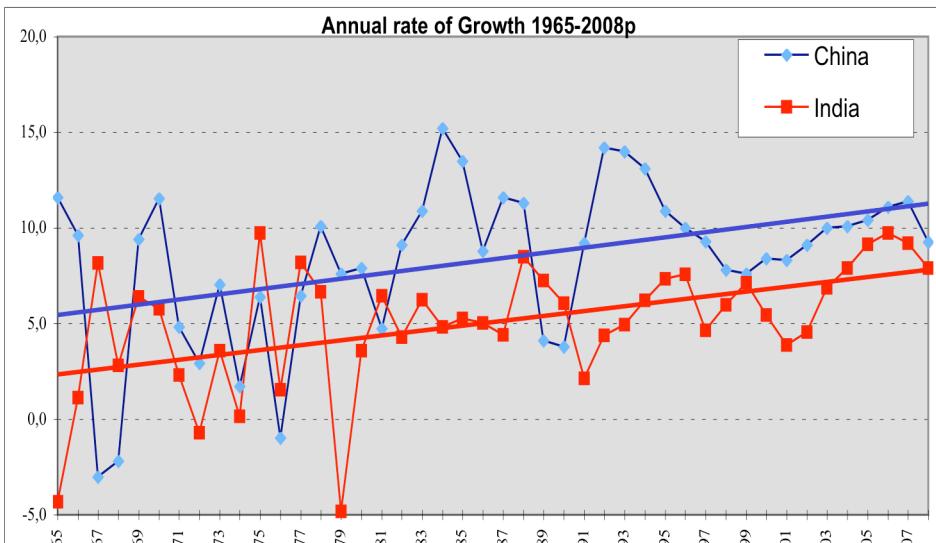
The retail revolution and the 150 cities target (source: Technopak)

Break-up of Retail Sector - India (current prices)



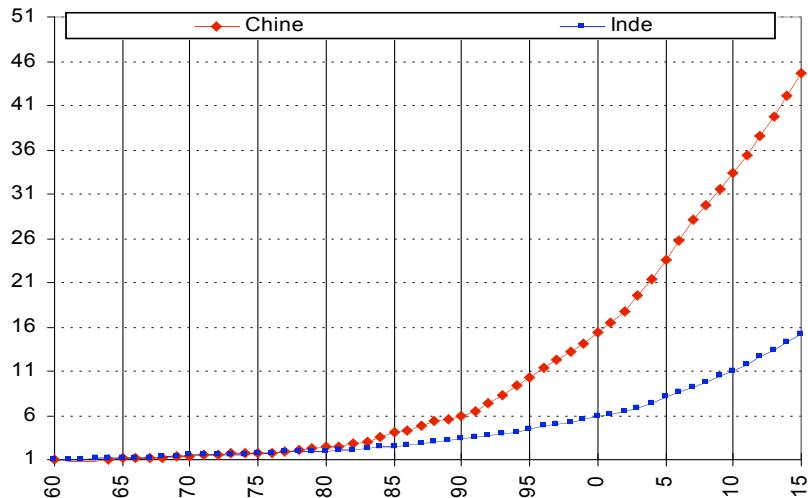
2.4- India-China, the unfolding and untell story

(1) India is also taking off



2.4- (2) ... But small differences make big gap!

PIB indien et chinois base 1 en 1960

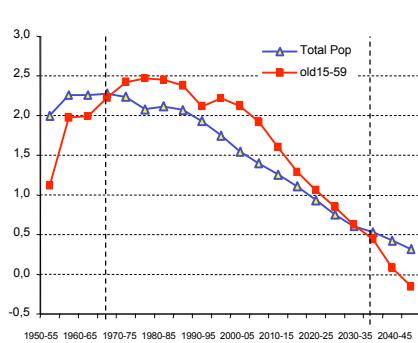


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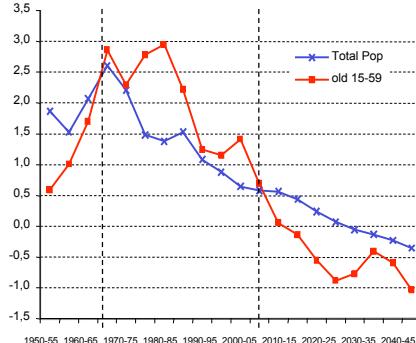
37

... even if time could play in favor of India in the long run

INDIA: annual rate of growth total and active population



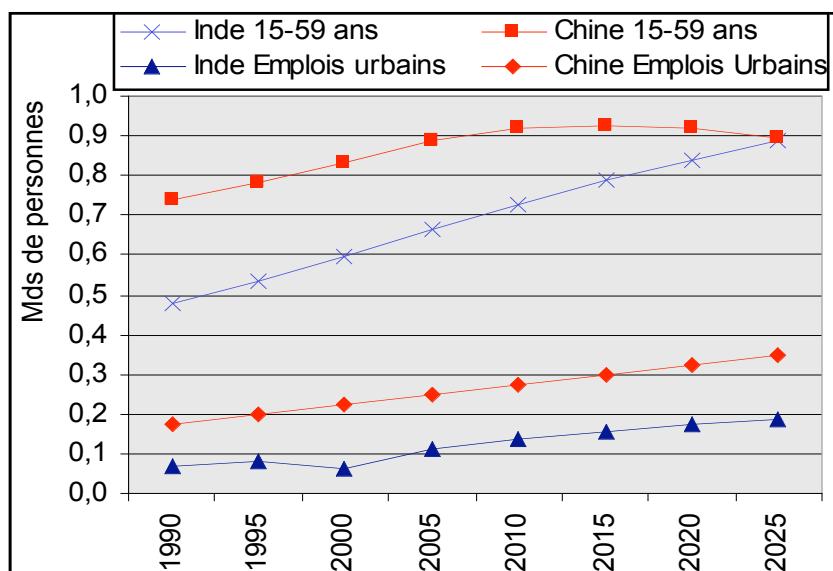
CHINA: annual rate of growth total and active population



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... but demographic transition is not economic transition
still China much ahead in term of urban working population



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2.4- (3a) Difficult to buy the CHINDIA story ...

| Industrial/commodities data | | | | Agricultural indicators | | | |
|-----------------------------|-------|-------|-------------------------|---------------------------------|-------|-------|-------------------------|
| Consumption | India | China | Chindia as a % of world | | India | China | Chindia as a % of world |
| Steel (m t) | 35 | 320 | 35 | Total land (m ha) | 297 | 933 | 10 |
| Aluminium (m t) | 0.9 | 6.3 | 24 | Arable land (m ha) | 162 | 145 | 23 |
| Nickel (000 t) | 30 | 143 | 13 | Cotton consumption (m t) | 3.0 | 9.0 | 37 |
| Copper (m t) | 0.3 | 3.3 | 22 | Soya oil consumption (m t) | 2.1 | 9.5 | 30 |
| Oil (m t) | 120 | 253 | 11 | Sugar consumption (m t) | 20.0 | 31.5 | 22 |
| Cement (m t) | 125 | 817 | 48 | Cereal production (m t) | 226.3 | 422.6 | |
| Coal (m t oil equivalent) | 178 | 799 | 37 | Cereal yield (kg/ha) | 2,358 | 5,185 | 3,316 ^a |
| Iron ore (m t) | 59 | 406 | 37 | Tractors per 1,000 agri workers | 6.0 | 2.0 | 20 ^a |
| Bauxite (m t) | 5 | 29 | 21 | Rice production (m t) | 117 | 181 | 52 |
| Power gen capacity (000 MW) | 115 | 440 | 15 | Wheat production (m t) | 72 | 87 | 28 |
| | | | | Tea (m t) | 0.8 | 0.8 | 52 |
| | | | | Milk (m t) | 83 | 16 | 17 |

^a world average

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2.4- (3b) Better to buy the Yin Yang story with Differences...

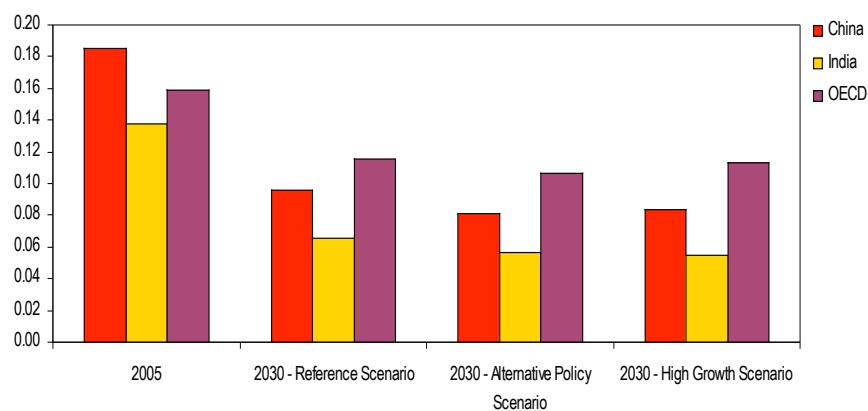
| | India Yin | China Yang |
|-------------|---------------|---------------|
| Space | decentralised | concentrated |
| Power | federal | imperial |
| Politic | demand | command |
| Impulsion | micro | macro |
| Culture | spiritual | material |
| Bureaucracy | ground | celestial |
| Society | castes | guangxi |
| Geography | ground | sea |



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2.4- (4) ... and common challenges like energy intensity the World will have to find the « Fine Balance »



Note: Primary energy consumption per unit of GDP (at 2006 prices and market exchange rates).

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