



Malthus' revenge: the new production consumption patterns

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Outline

- Malthus' revenge: not of course the original version of Thomas Malthus but a more sophisticated, revised version.
 - Once the word "*population*" in the Malthus quote that: "*the power of population is so superior to the power of the earth to produce subsistence for man, that premature death must in some shape or other visit the human race*" is replaced by consumption, both present real consumption and aspiration, Malthus' statement takes on a new meaning.
- In a first section elaborate on the replacement of the word "population"
- In a second section elaborate on broadening "the power of the earth to produce" beyond agriculture to include more broadly natural resources.
- In a third section, we address the various forms of technological and institutional change needed to shift the balance so as to counter the 21st Century version of the Malthus predicament.



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1. From population to consumption

- Malthus has of course been most dramatically contradicted by the rapid growth in population over the last Century, and in particular after the Second World War, with world food production keeping well ahead. It is one of the major global achievements of the cold-war rapid economic growth period (1950-1973) with food production keeping up with an exponential growth rate in world population.
- Given the historically unprecedented growth in agricultural production it is actually surprising that so little attention is paid in the current food crisis debate on the characteristics of agricultural production during that period (*literature on the nature of technical improvements in agriculture production, role of the extension schemes, link with publicly funded research, limited role of intellectual property protection of seeds, dominance of local production over international trade, limited product variety more closely linked to seasonal production, etc.*)



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National growth obsession

- What remains striking is how the two largest countries in the world: China and India, saw their population's share of world population and their share of world GDP fall over the period 1820 till 1973. In 1973, the imbalance between the world's concentration of GDP and the world's concentration of population was probably the highest the industrialized world had ever witnessed.
- This extreme geographical inequality in world GDP has to some extent formed the basis of the unilateral focus of both social scientists and policy makers on domestic competitiveness and in particular on technological competitiveness as essential feature for a country's future economic growth. From dependence to independence.
- As Ulrich Beck put it: "The consequences of globalization for sociology have been spelt out most clearly in the English-speaking countries, but above all Britain, where it has been forcefully argued that conventional social and political science remains caught up in a national-territorial concept of society. Critics of 'methodological nationalism' have attacked its explicit or implicit premise that the national state is the 'container' of social processes and that the national framework is still the one best suited to measure and analyse major social, economic and political changes. The social sciences are thus found guilty of 'embedded statism' and thought is given to a reorganization of the interdisciplinary field".



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G-5 share of population and GDP

Percentage share of world population

Year	China	India	Brazil	South Africa	Mexico	Total
1820	36.6	19.9	0.4	0.1	0.6	57.6
1870	28.1	17.0	0.8	0.2	0.7	46.8
1913	24.4	14.2	1.3	0.3	0.8	41.0
1950	21.7	14.8	2.1	0.5	1.1	40.2
1973	22.5	14.8	2.6	0.6	1.5	42.0
2001	20.7	16.5	2.9	0.7	1.7	42.5
2006	20.2	16.9	2.9	0.7	1.7	42.3

Percentage share of world income

Year	China	India	Brazil	South Africa	Mexico	Total
1820	32.9	16.0	0.4	0.1	0.7	50.1
1870	17.1	12.1	0.6	0.2	0.6	30.6
1913	8.8	7.5	0.7	0.4	0.9	18.3
1950	4.5	4.2	1.7	0.6	1.3	12.3
1973	4.6	3.1	2.5	0.6	1.7	12.5
2001	12.3	5.4	2.7	0.5	1.9	22.8
2006	16.8	6.1	2.4	0.5	1.8	27.4

Source: Deepak Nayyar (2008) based on data from Maddison (2003); Maddison(forthcoming)



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The 21st Century and some EU international implications

- The advent of the ICT revolution in the 80's and 90's has radically challenged the national-territorial bias in research and policy making. The cluster of ICT represents from a global perspective a historically unique process of technological, organisational and above all social transformation in terms of speed and world-wide impact.
- In a certain way this means that compared to GDP as in the past, population is likely to become the indicator of future growth and likely market opportunities.
- For countries like the EU ones, it means that their future global role will decline, first because decline of share in world population, given the demographic structure of EU population with the ageing of the baby boomers, and second because likely relative lower labour based GDP growth compared to emerging economies.
- Migration and/or enlargement should from this perspective be seen as an important future additional growth factor for the EU.
- As Gijs Beets illustrated of the 15 most populated countries in 2025 (countries with more than 100 million), not a single one will be a European country. In short, the EU is primarily composed of small countries, and thus also small markets. Only if the EU-27 would act as a singly country, as in the case of WTO, will the EU still play an important international role.



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2. Malthusian exponential growth in global consumption

- Replacing population with consumption in the Malthus quote, raises issues about exponential consumption growth which resemble in many ways Richard Freeman's concerns with respect to the global labour market implications of China and India's entrance as representing a doubling of world labour force with long term impact on wage formation in the US, likely leading to labour/wage adjustment for 30 years.
- What would be the impact of a doubling of consumption aspirations on world growth? In recent macro-simulations carried out using the Cambridge growth model this leads to unsustainable development (Ajit Singh).
- This appears to be closely related to shifts and upgrading in consumption patterns in the direction of more energy and mobility dependent consumption patterns in emerging economies in agriculture, manufacturing and services.
- Political awareness today globally: Obama yesterday: "like all of you, my responsibility is to act in the interest of my nation and my people, and I will never apologize for defending those interests. But it is my deeply held belief that in the year 2009 — more than at any point in human history — the interests of nations and peoples are shared."



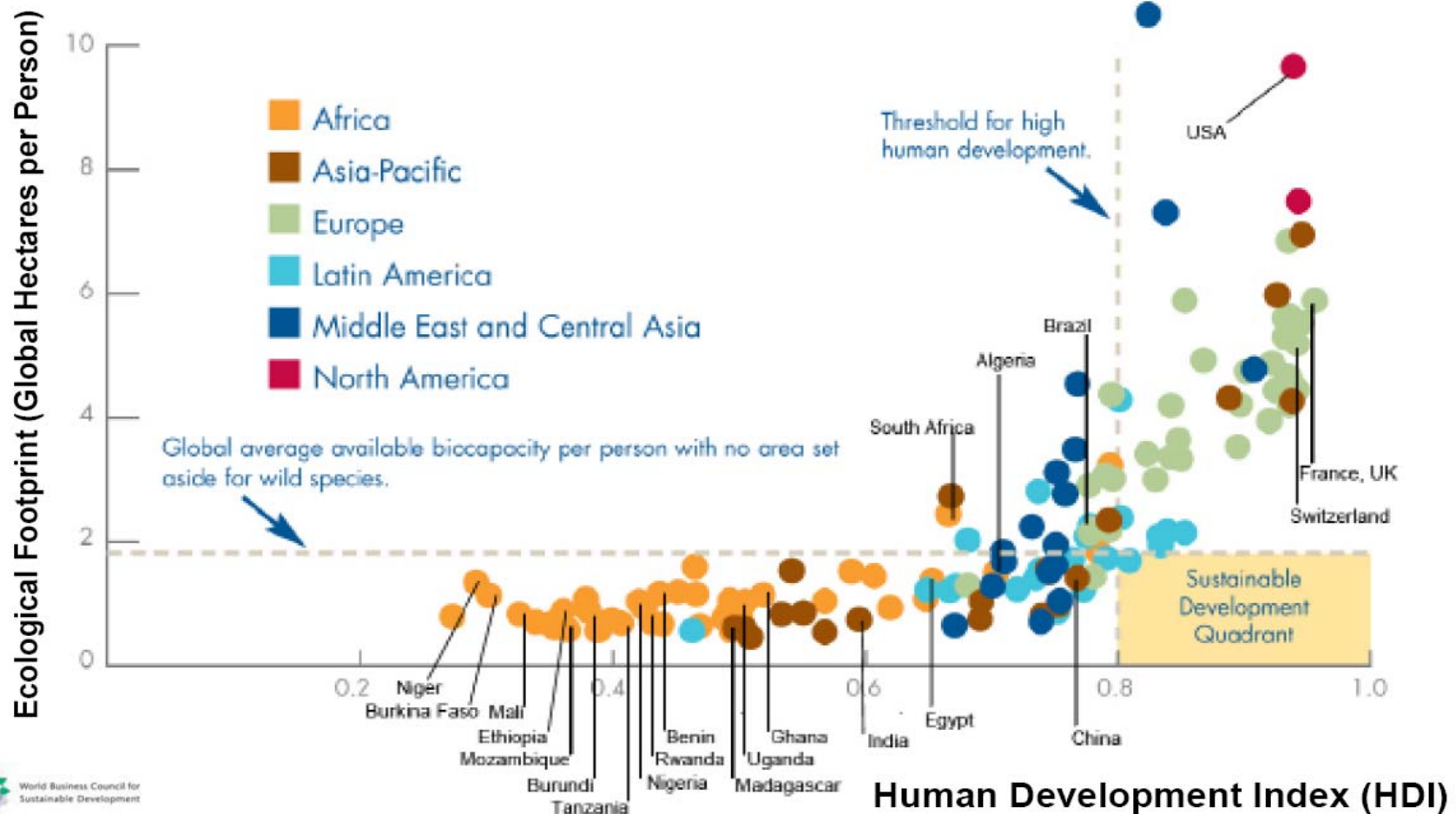
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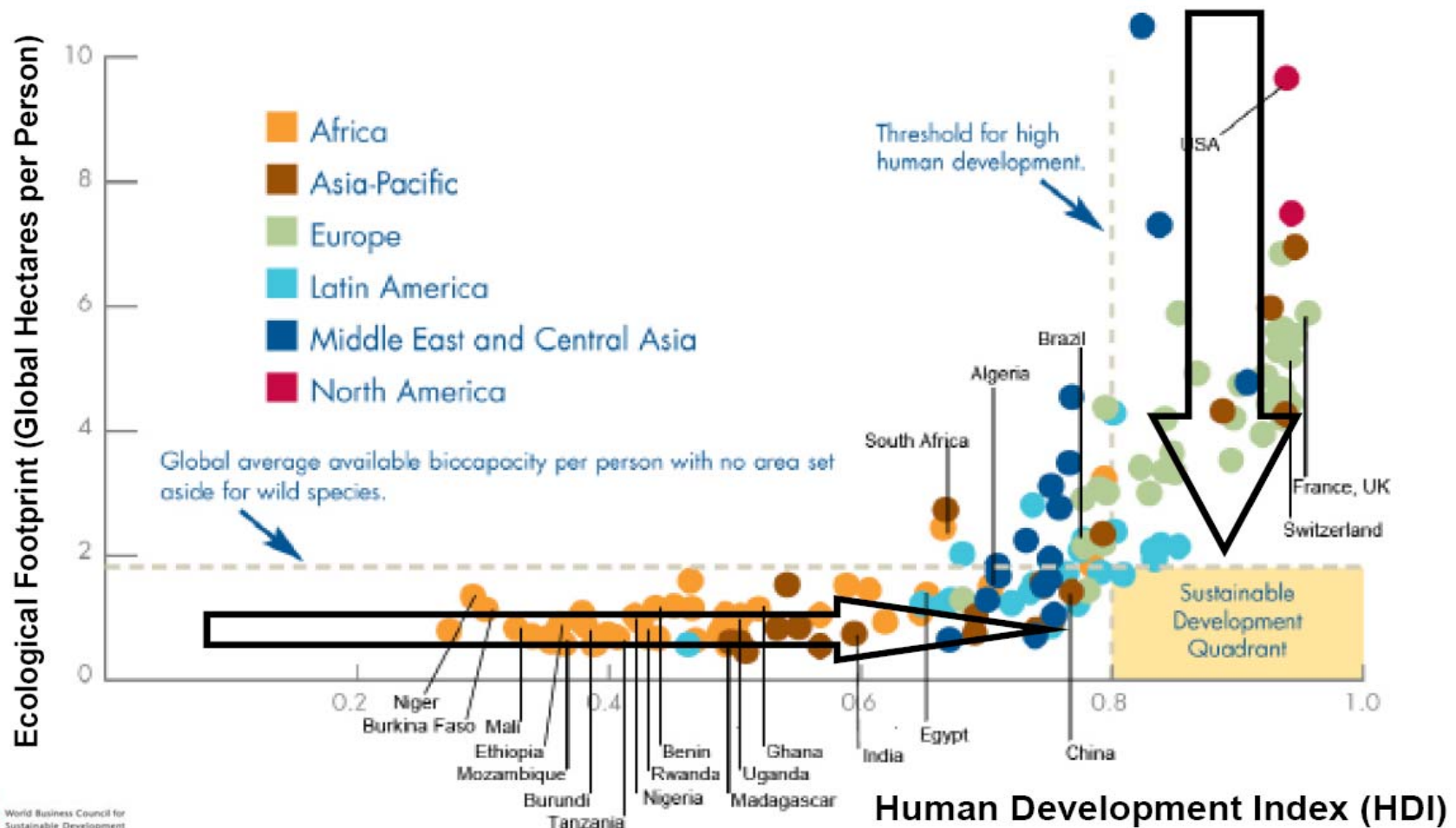


The challenge: HDI and demand on biosphere (ecological footprint)





How will future society look like with human development within planet's ecological limits?





3. Collaborative innovation: “Recherche sans frontière”

- The global dimensions of “collaborative innovation” **can** go hand in hand with a huge concentration of R&D efforts in the US, Japan and the EU with the BRIC countries rapidly catching up... But such physical concentration will need increasingly to address global welfare problems and demands:
- In this sense the most urgent policy concern linked to such world over-concentration of R&D must be in enhancing access to such knowledge an absolute priority
 - Energy saving technologies should be diffused as rapidly and as cheaply as possible
 - Other basis for global framework programmes
 - Agricultural research and production enhancement at global level: reform of CAP in different direction than generally thought...
- Not just global aspects (food, health, climate change, environment, energy, safety);
 - But also with respect to local issues such as water management, transport, logistics, urban mobility, migration, etc. (Preparing for China’s Urban Billion)
 - The complexities of the problems confronted will involve many players: public, private, local, national, international.
 - In all those areas the old policy obsession with national technological competitiveness appears outdated. One witnesses the coming to an end of geographically determined technological competitiveness



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A new emerging innovation development paradigm

- Innovation, and in particular new product innovations seems to have been driven in the past by *professional use* demand and in particular innovation directed towards the tip of the income pyramid. One may call this ***the long tail of product segmentation and product quality***.
- But there is also a long tail of innovation at middle and low income levels. These needs have been by and large ignored by Western firms
 - Top down (Prahalad) from large Western foreign companies: difficult to implement, insufficient top management support, CSR burden...
 - Bottom up emerging from grassroots innovation (Gupta) in alliance with firms from emerging economies: Indigenous innovation: difficulties in up-scaling and reaping scale economies;
 - Need for close link with development of purchasing power (micro-finance and micro-insurance): addresses in general above poverty line households.
- Covers a much wider spectrum than consumer good innovations, also in health, agriculture, communication, also finance...



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Global research challenges: from the South to the North

- Developing markets appear to raise a number of motivating research/innovation challenges
 - Autonomy, unwired to high quality infrastructure (energy, water, roads, terrestrial communication);
 - Low education hence necessity of simplicity in use;
 - Less maintenance/repair facilities, so an intrinsic need for long term sustainability;
 - Extreme income inequalities with strong needs in urban slums and poor rural villages, but little current purchasing power and high living risks, hence low willingness to invest or borrow money in the long term.
- All these features appear also and increasingly of particular value to consumers in developed countries:
 - Autonomy of high quality infrastructure as “freedom of movement”;
 - Shift in the democratization of innovation: from the needs of sophisticated, beta users to the needs of (digital) illiterates;
 - Need for zero maintenance and ecological sustainable: cradle to cradle
 - Relevance of new financial products such as micro-credit and micro-insurance in poor urban areas
- Feedback from users and from design developers upstream towards more applied research assistance, even fundamental research is interesting new example of reverse transfer of technology (from the South to the North), re-invigorating and motivating the research community in the highly developed world “in search of relevance.”



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Conclusions: on the need for knowledge investments

- Surprising how current economic crisis (contrary to financial crisis) is in policy terms being discussed purely in national terms...
- Yet, global access to knowledge central in current crisis.
 - Higher growth in emerging and developing countries dependent on technology transfer and access to knowledge;
 - Global access to markets raises return to knowledge investments in the developed world;
 - Global and local environmentally sustainable growth is crucially dependent on access and fast diffusion/use of eco-innovation.
- New central challenge to technology and innovation policy: from the political obsession with technological competitiveness to a new global view in which access, diffusion and effective use become the central elements.
- Citizens in Europe, the US or Japan are ultimately dependent on the speed and effective use of (green) knowledge diffusion in **both** their countries as well as those in the rest of the world.



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