

Growth, Degrowth, and the Commons

Green Growth Conference

Grantham Institute and Global Green Growth Institute

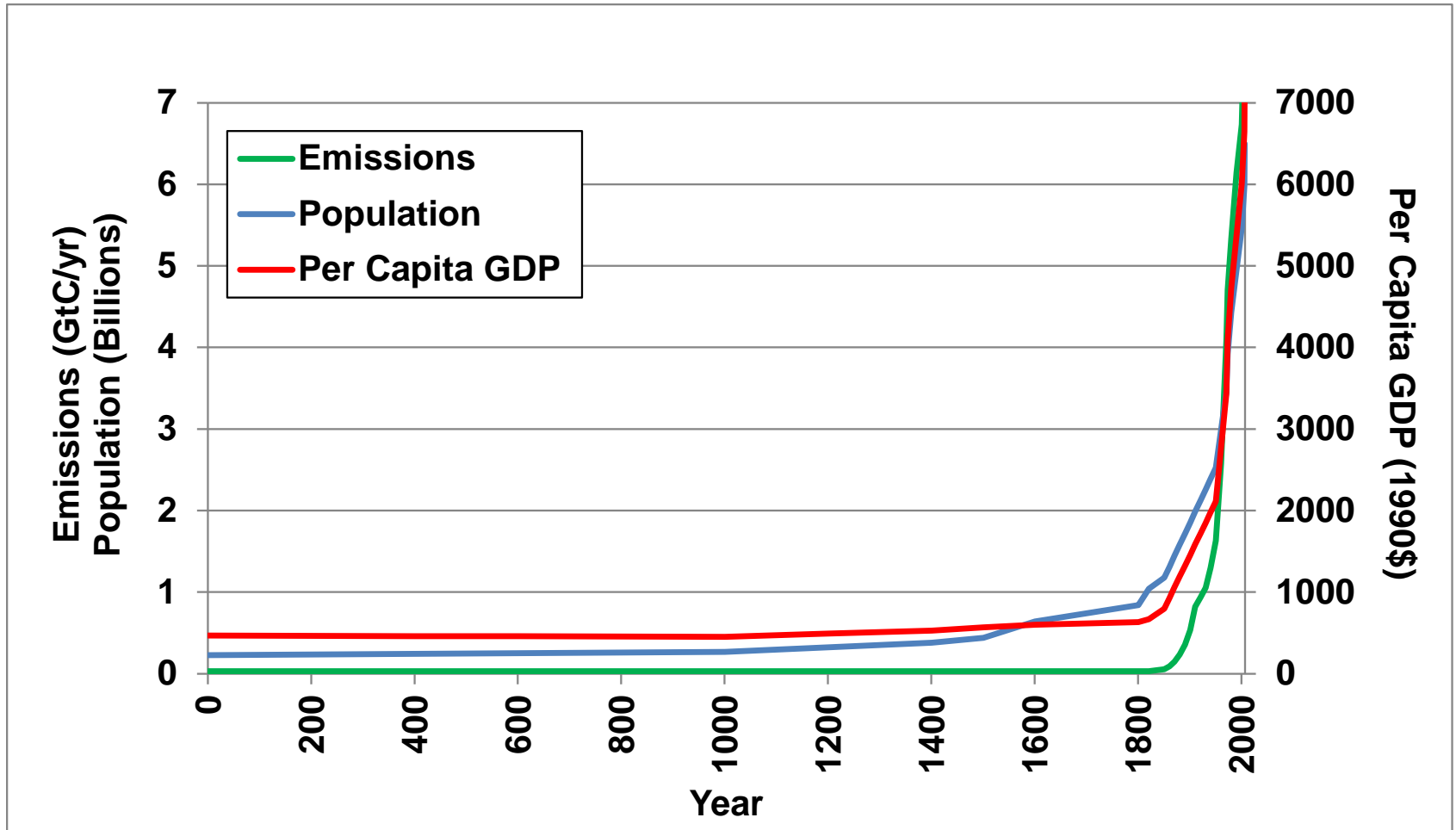
London, 1st October 2013

Michael Jakob / Ottmar Edenhofer

Outline

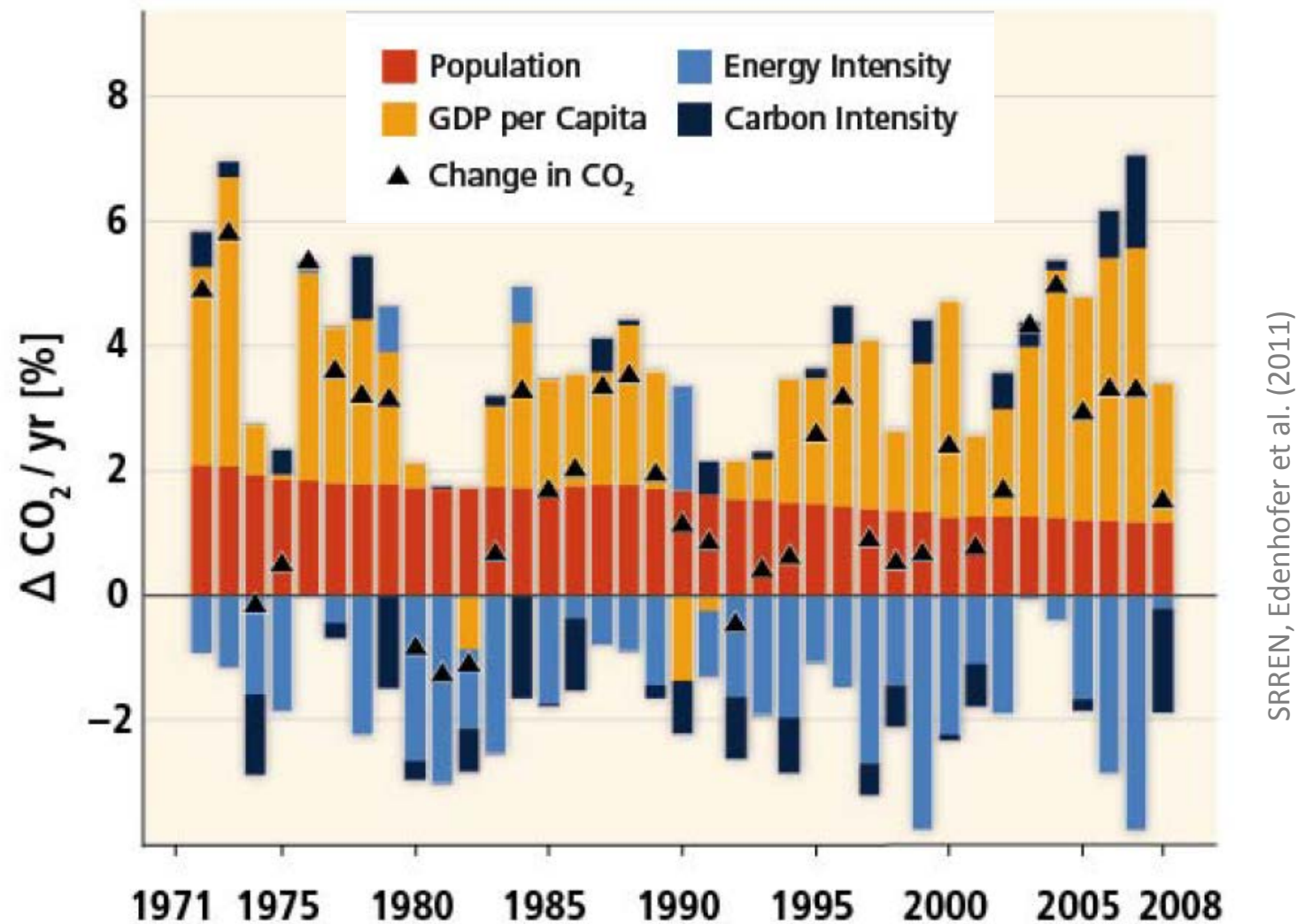
1. Green Growth vs. Degrowth?
2. From growth to welfare
3. Commons as a new paradigm
4. Conclusion

Economic Growth in Perspective



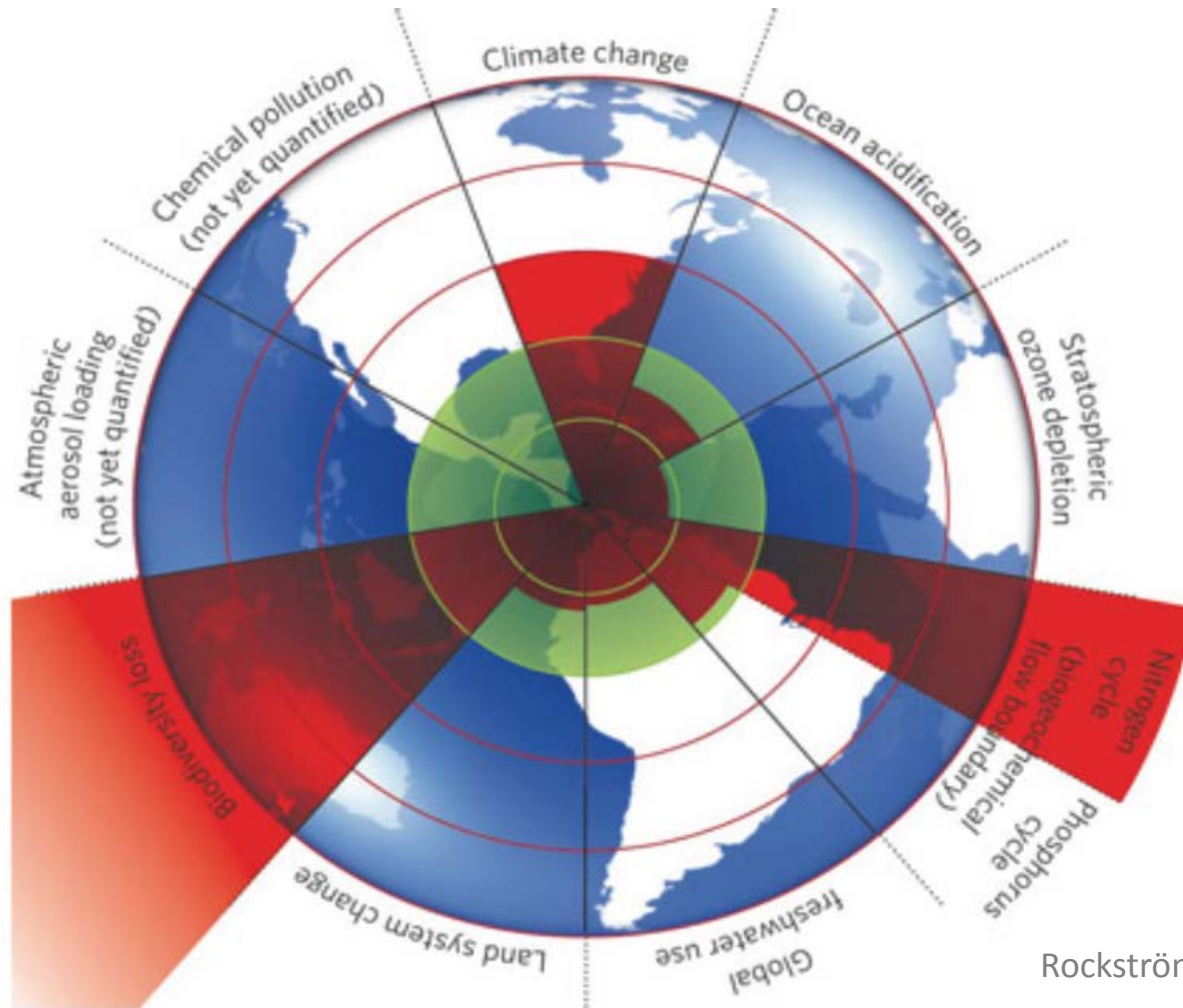
Edenhofer et al. (2012)

What Drives Emissions?



Economic growth – particularly in newly industrializing countries – drives global emissions !

No Limits to Economic Growth?



Rockström et al. (2009)

Danger of overstepping “planetary boundaries”?

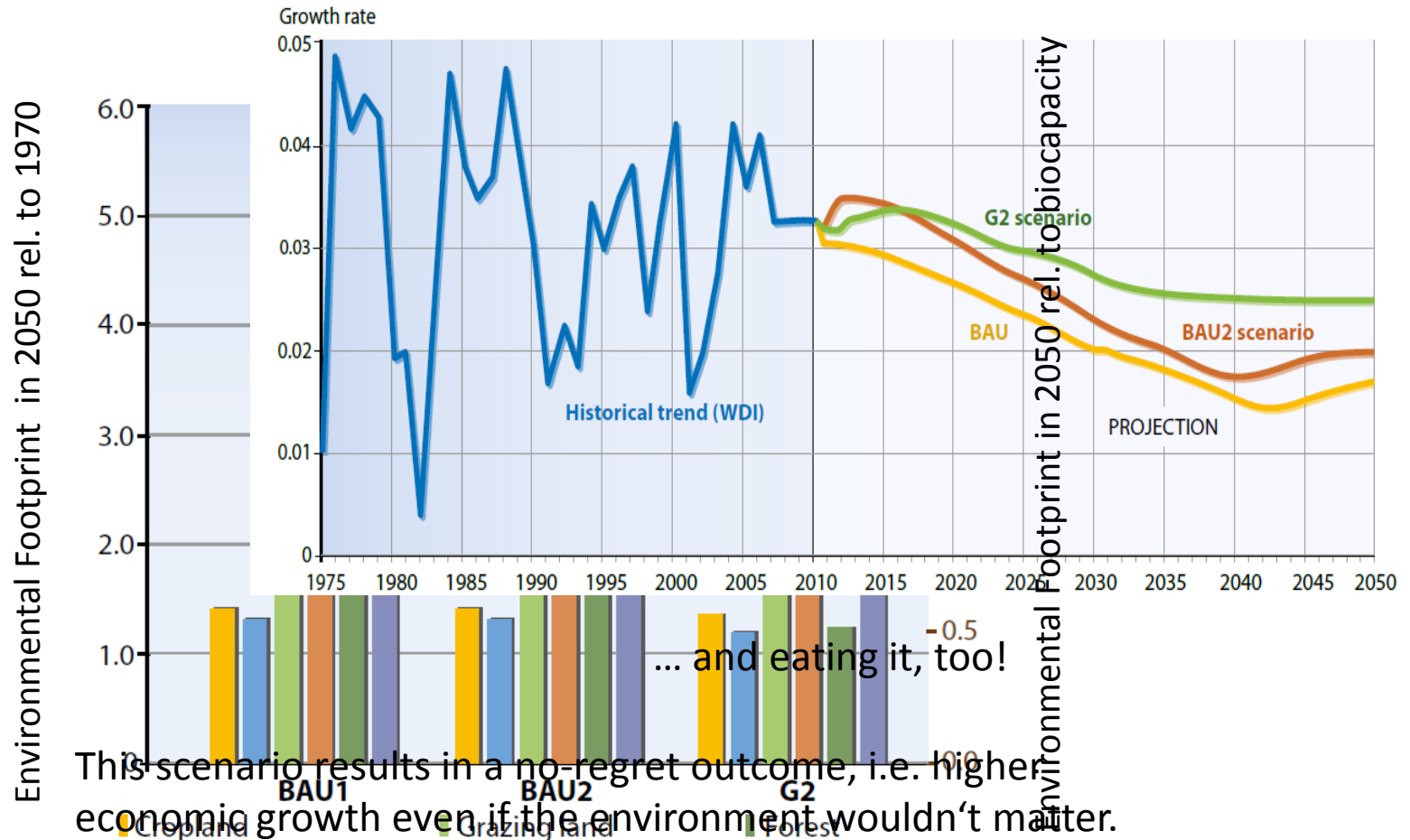
Green Growth to the rescue?

Can we keep up economic growth and still protect the environment?

What is Green Growth?

- “Green growth [...] is about fostering economic growth and development while *ensuring that natural assets continue to provide* the resources and environmental services on which our well-being relies” (OECD 2011).
- “UNEP defines a green economy as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. [...] The key aim for a transition to a green economy is to *eliminate the trade-offs* between economic growth and investment and gains in environmental quality and social inclusiveness” (UNEP 2011).

UNEP's Green Growth Scenario



This scenario results in a no-regret outcome, i.e. higher economic growth even if the environment wouldn't matter.

Has been criticized for unrealistic assumption of additional investment that drives up growth (Victor and Jackson 2012).
Having your cake...

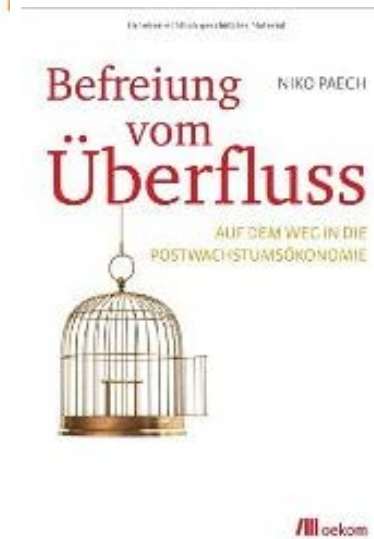
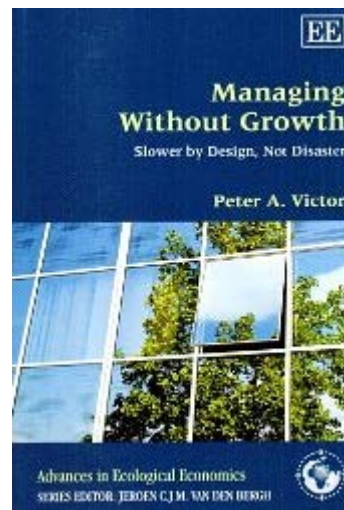
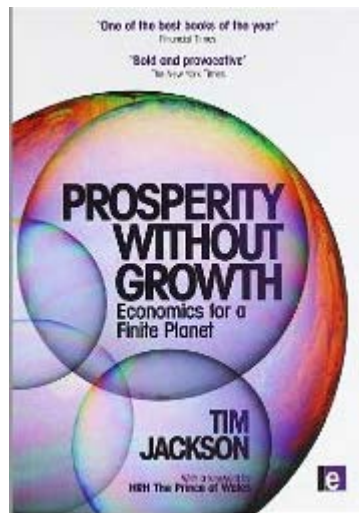
Green Growth is not a sharply defined concept, and it lacks empirical verification...

... so maybe reducing economic output or at least slowing down its growth is a more straightforward solution?

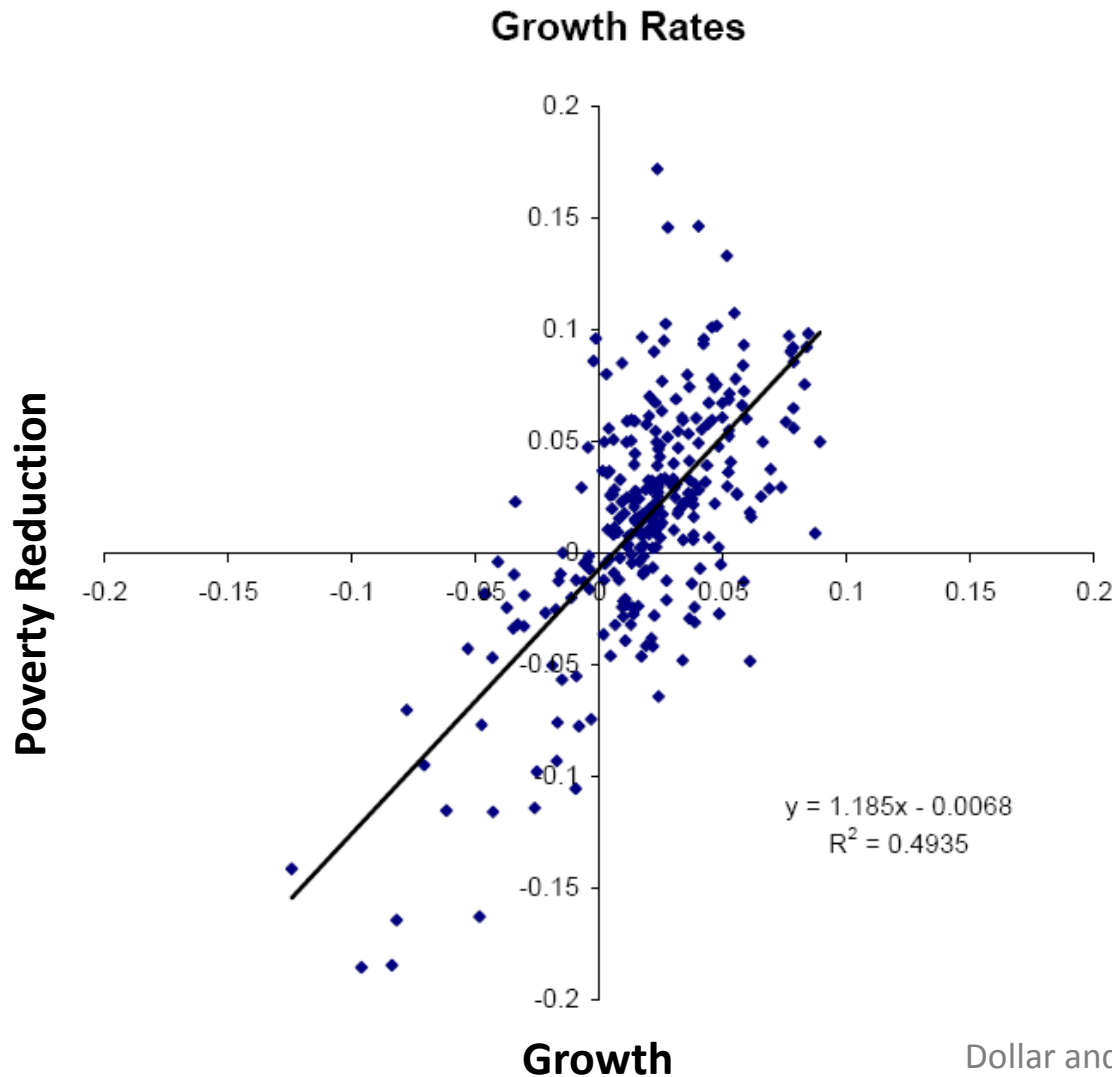
This approach is frequently labeled '*degrowth*'.

Degrowth is at least conceivable as a new post-materialistic lifestyle in industrialized countries...

... but how should degrowth be put into practice in poor countries?



Growth and Poverty Reduction



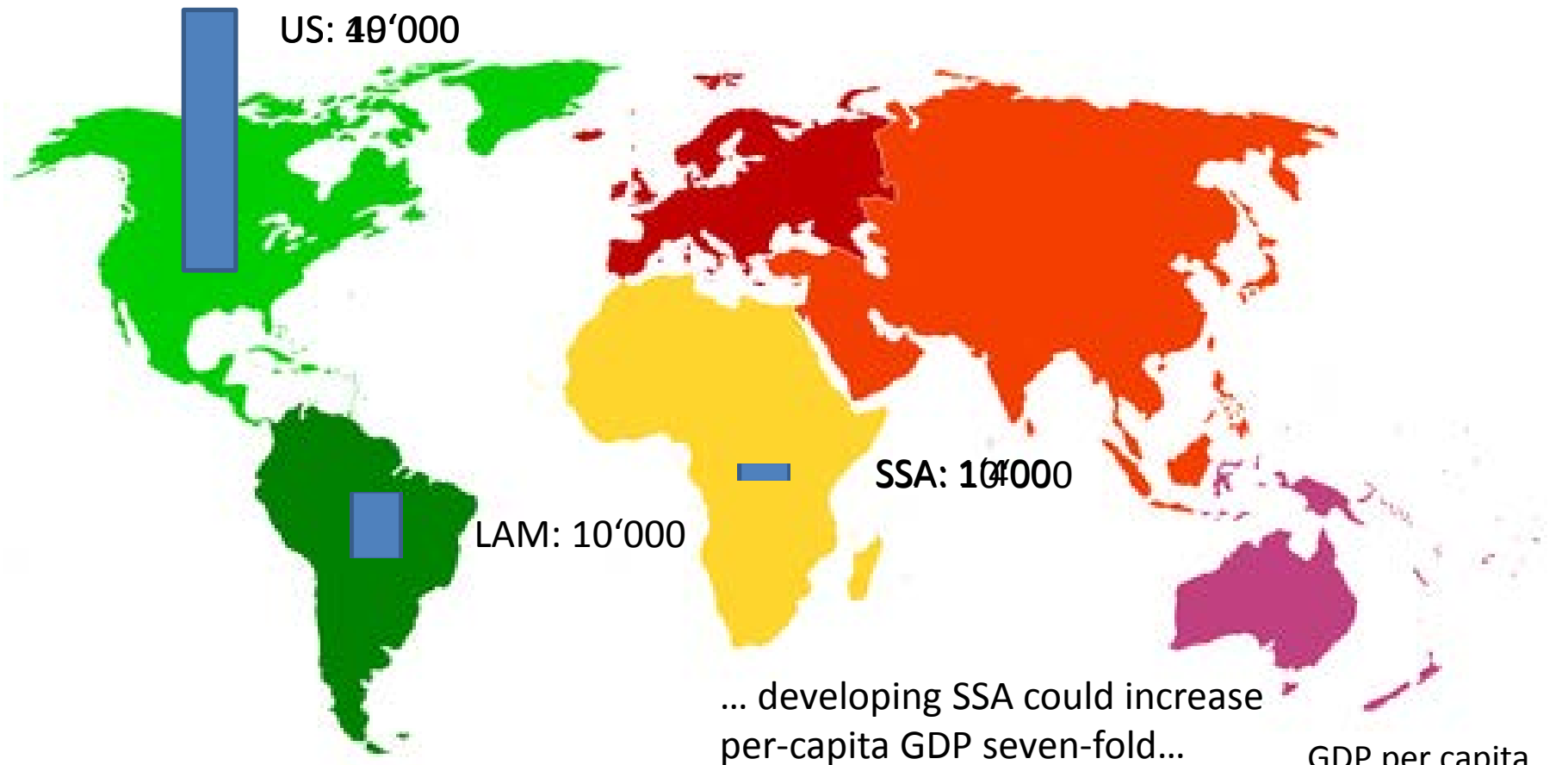
- People mired in absolute poverty: >1 billion.
- Without economic growth, chances to escape poverty are diminished.

Dollar and Kray (2002)

What Does Degrowth Mean for Income Distribution?

... and the US would have to degrow by about 80%

If global income were distributed equally...



GDP per capita
in current US\$

(Source: WDI 2012)

Limiting global warming to $<2^{\circ}\text{C}$ requires reducing carbon intensity of GDP ($\text{CO}_2/\text{US\$}$) by $\sim 4\text{-}7\%$ per year. Degrowth might reduce the needed annual reductions by 2%...

... but where should the other roughly 2-5% come from? (Hepburn and Bowen 2012)

Further, reducing GDP by 1% to get 1% of emission reductions corresponds to a carbon price of more than
 $\text{USD } 2'000 / \text{tCO}_2$

... why not go for much cheaper technological solutions and use the remaining money elsewhere?

Hence, growth might not be desirable per se, but
there is no reason to restrict economic growth
directly...

... and we instead need to think about how we
define social welfare!

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What is the Currently Used Welfare Indicator?

- By „historical accident“ and a lot of positive feedback it is this:

GDP =

The monetary value of all the finished goods and services produced within a country's borders over a year's time.

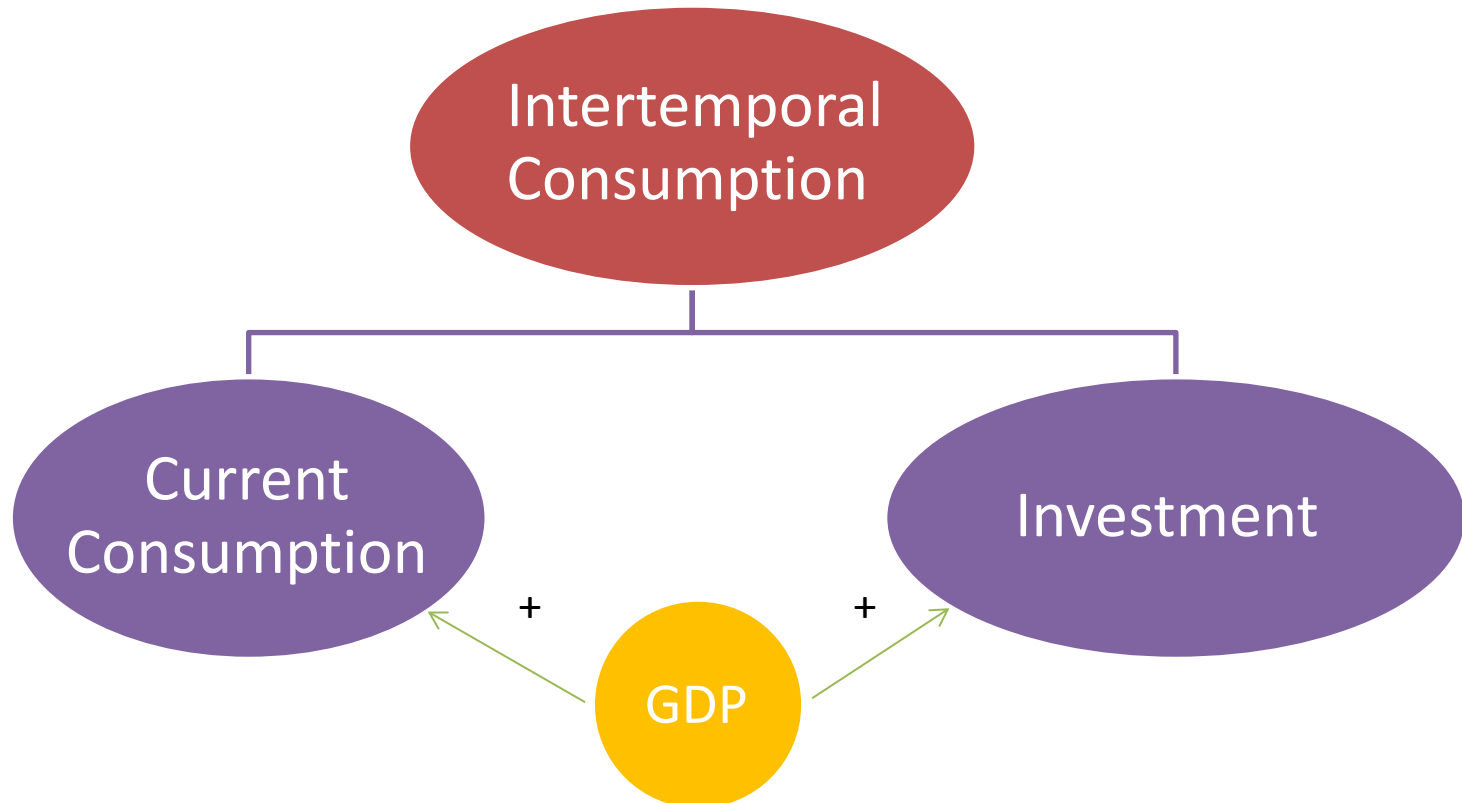
GDP = C + I

- **GROWTH PARADIGM:** By the logic of many political actors, growth in GDP is a welfare improvement and the solution to social (and environmental?) problems.
- ‘Heterodox’ Economists believe that this is inappropriate for affluent societies, although it may be correct for the developing world.

Social Welfare as Material Well-Being

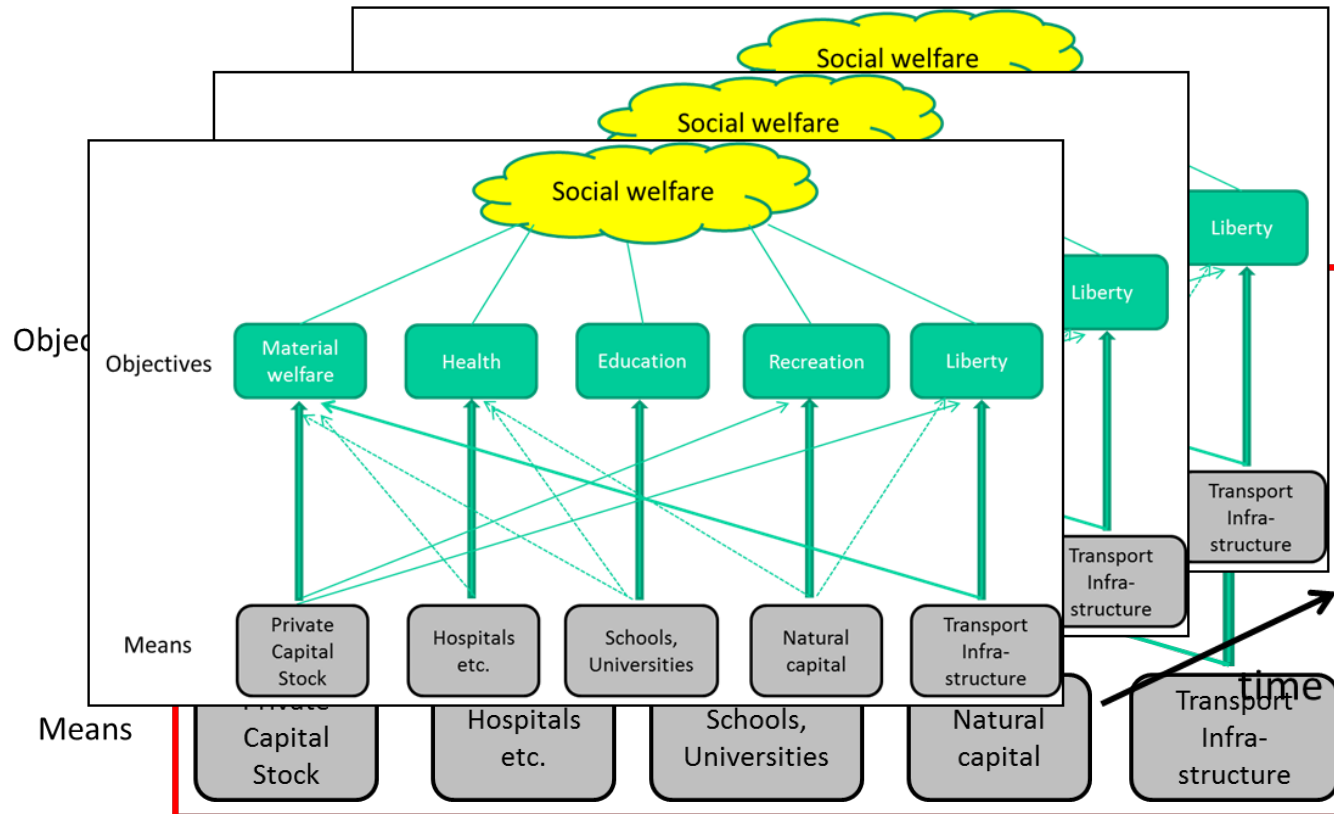
Consider the most simple case (only physical capital)

- utility: $\int_0^{\infty} U(C_t)e^{-\rho t} dt$
- GDP is a function of the (physical) capital stock: $F(K_t)$
- capital dynamics with zero depreciation: $I = \dot{K}_t = F(K_t) - C_t$



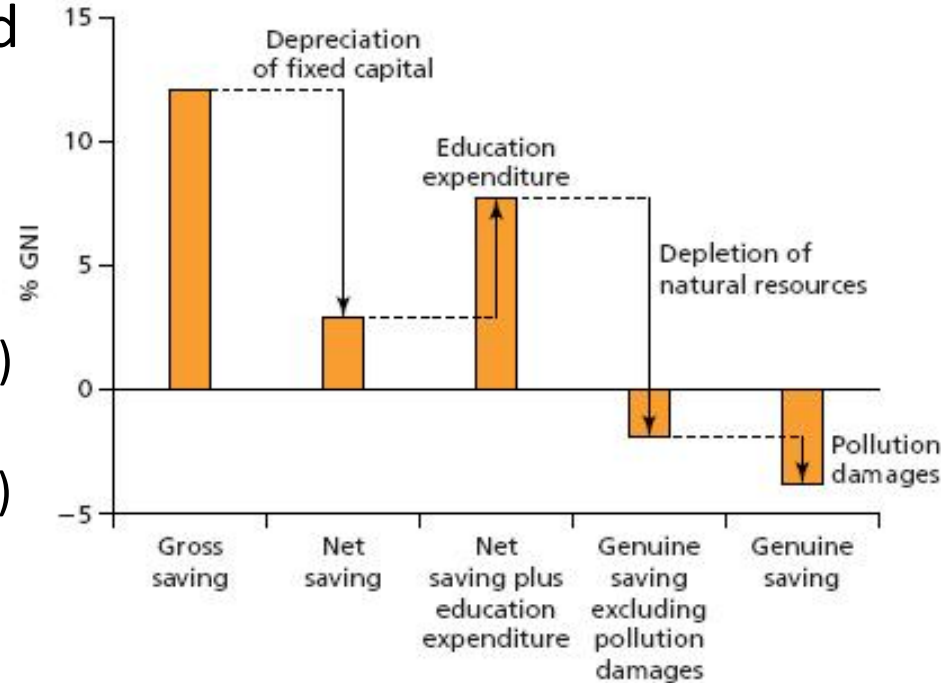
A Broader Account of Social Welfare

...and over time (inter-generational, dynamic problem)
 Trade-offs exist between objectives and means at a given point in time
 (intra-generational, static problem)...



NNP as an Appropriate Welfare Measure?

- World Bank introduced “Adjusted Net Savings”
- Correct gross investment (I_1) for:
 - Depreciation of physical capital ($-\delta K$)
 - Investment in education (I_2)
 - Depletion of natural resources ($-RF_p$)
 - Pollution damages ($-RG_p$)



$$\rightarrow NNP = C + I_1 + I_2 - \delta K - RF_p - RG_p$$

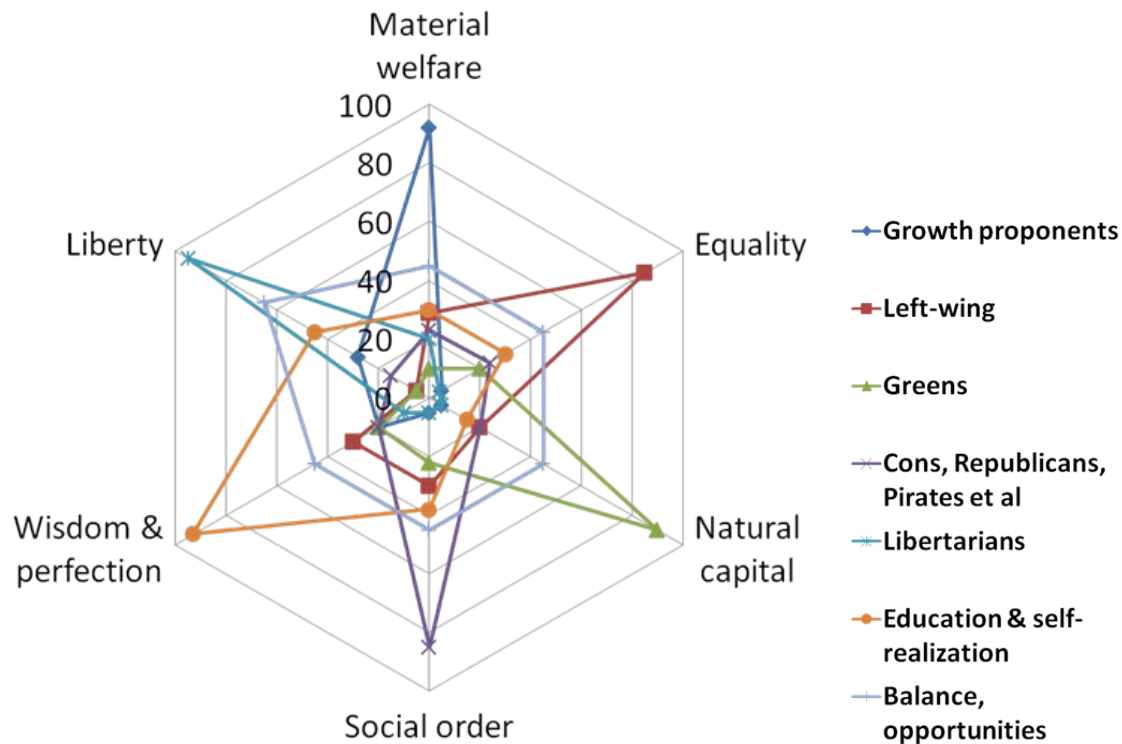
World Bank (2011)

Problem of NNP approach: need shadow prices for accounting.

These are not observable and further depend on the social welfare function.

Towards 'Welfare Diagnostics'

- There are many different perspectives on social welfare
- Can we at least identify and remove the most crucial constraints by focusing on areas most people would agree on?

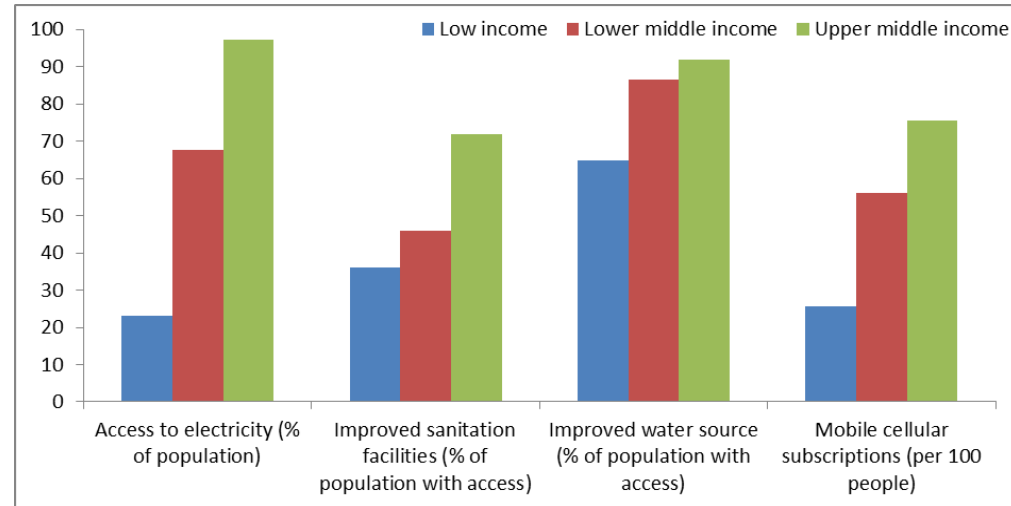
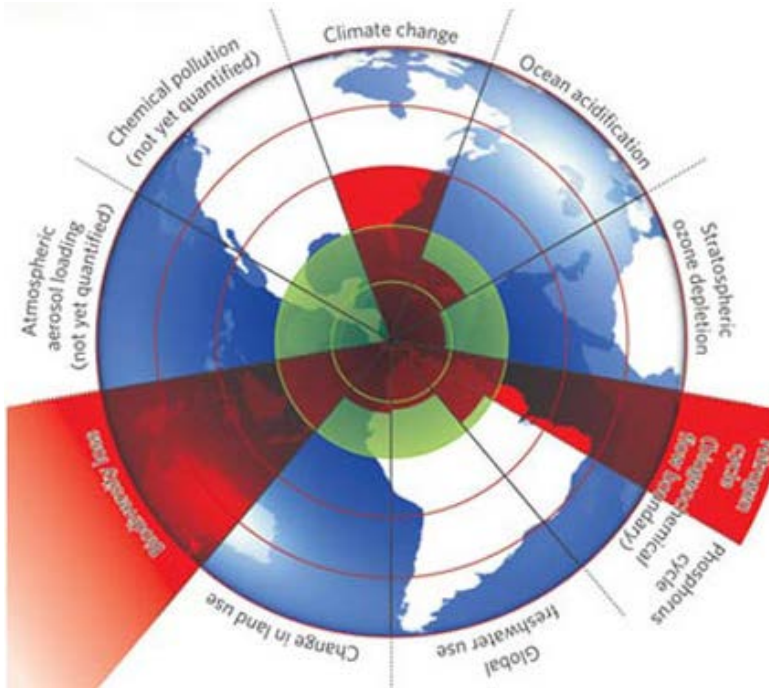


- Parallel to Sen's (2009) 'Intersection Principle'
- Also related to Hausman et al.'s (2005) 'Growth Diagnostics'

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Welfare-Relevant Capital Stocks



Jakob and Edenhofer (submitted)

Natural Capital is over-used...

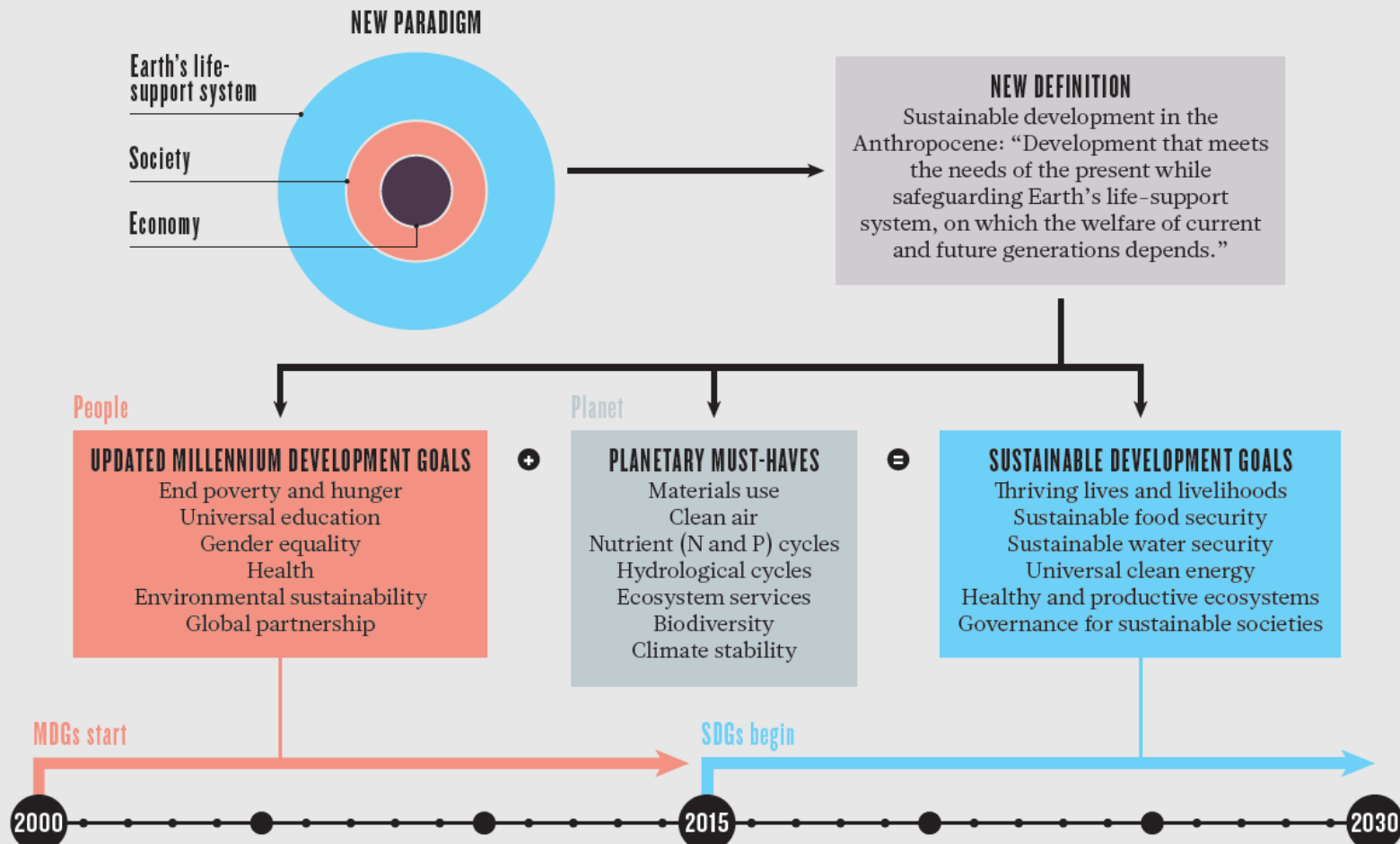
...while public infrastructure is under-provided.

- Welfare Diagnostics to identify minimum thresholds
- These thresholds can be understood as Rawls's (1979) 'primary goods' or as providing the material foundations for 'capabilities' à la Sen (1999) and Nussbaum (2011)

Sustainable Development Goals

A UNIFIED FRAMEWORK

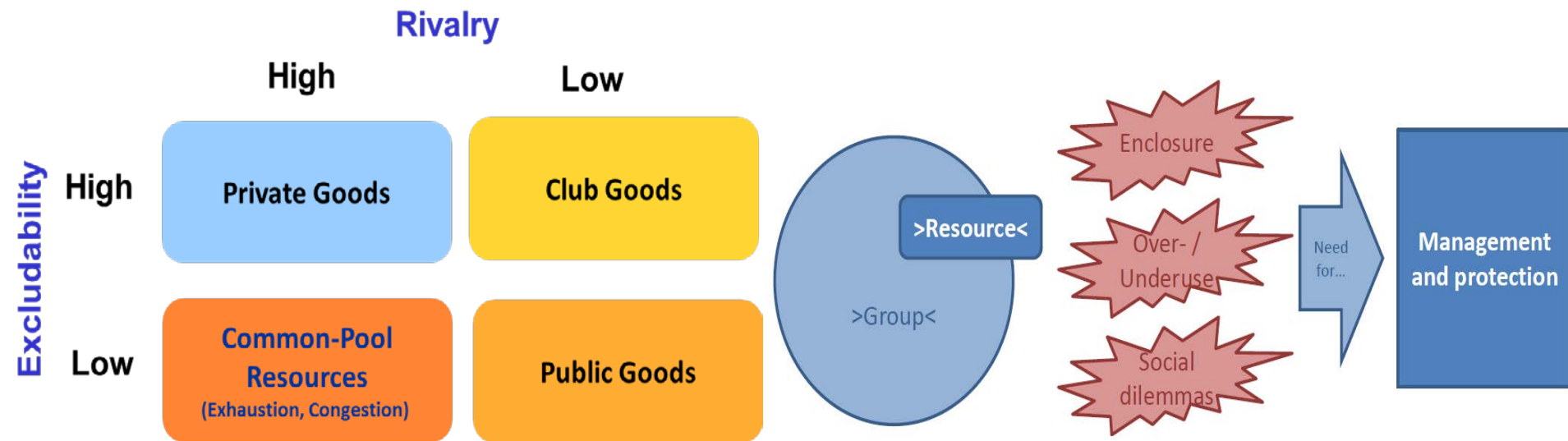
A set of six sustainable development goals (SDGs) follow from combining the Millennium Development Goals (MDGs) with conditions necessary to assure the stability of Earth's systems.



Public Policy as Management of Commons

Most general definition of 'commons': "everything that belongs to or affects the whole of a community" (see Oxford Dictionary 2013)

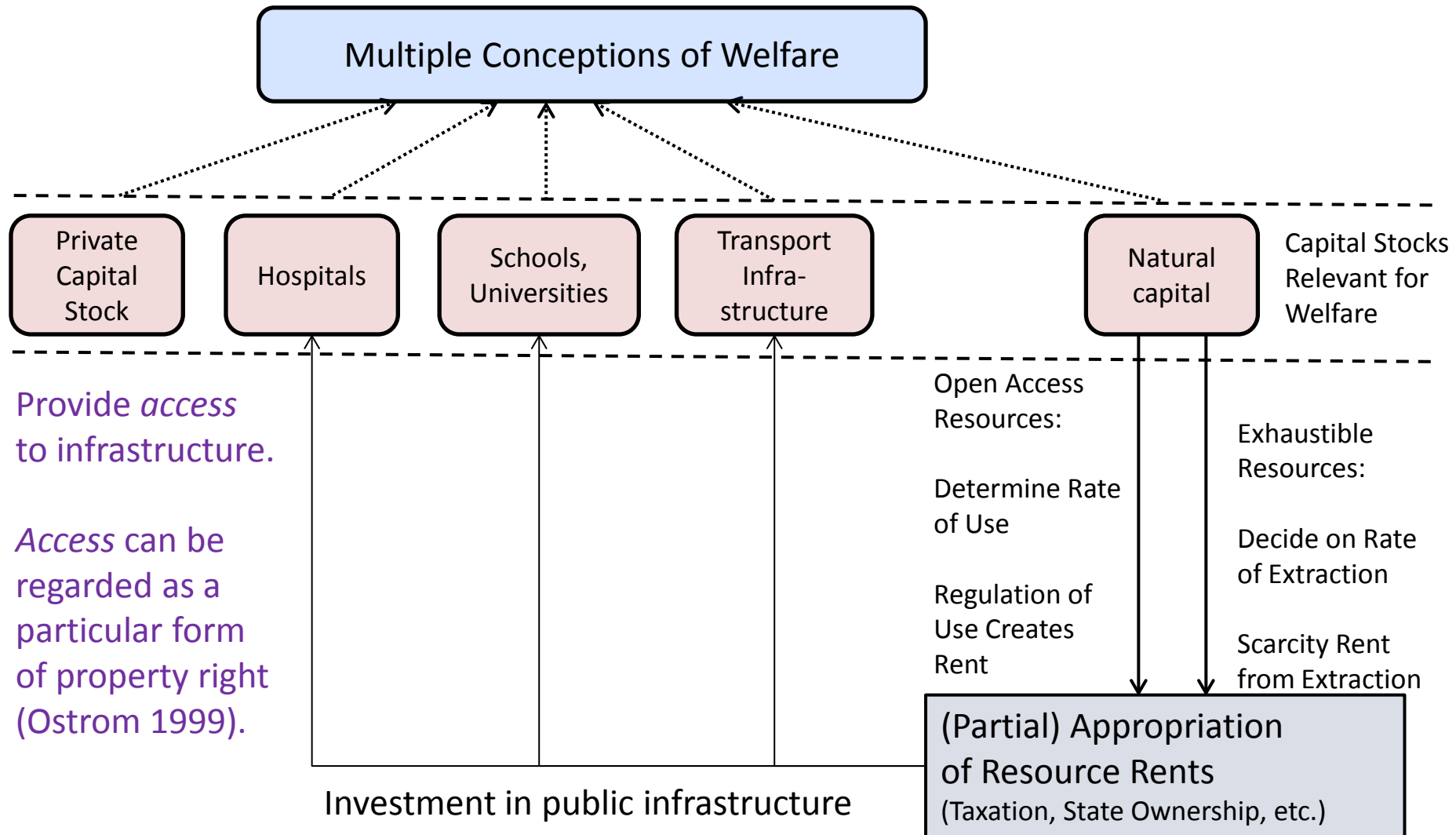
Normative approach: "everything that should belong to or be accessible for the whole community".



Ensuring an optimal capital stock portfolio is a major task for public policy.

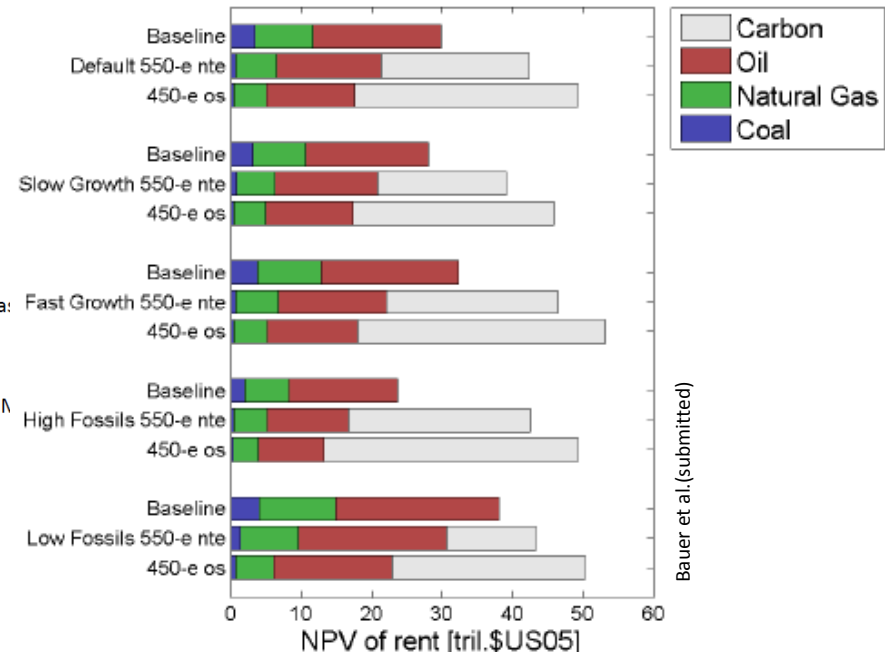
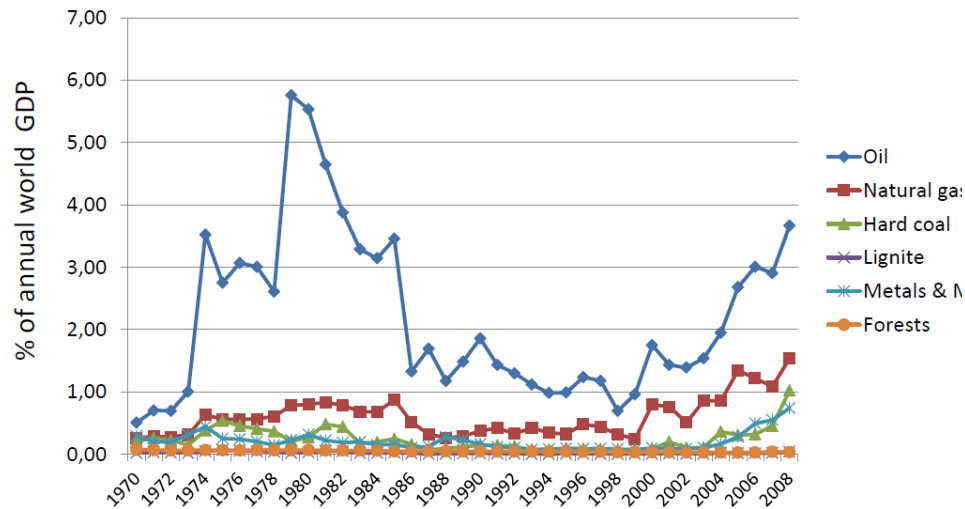
1. Some stocks may require protection (e.g. natural capital), others investment (e.g. public infrastructure)
2. Stocks (and policies affecting them) may interact

Infrastructure Investment and Resource Rent Taxation

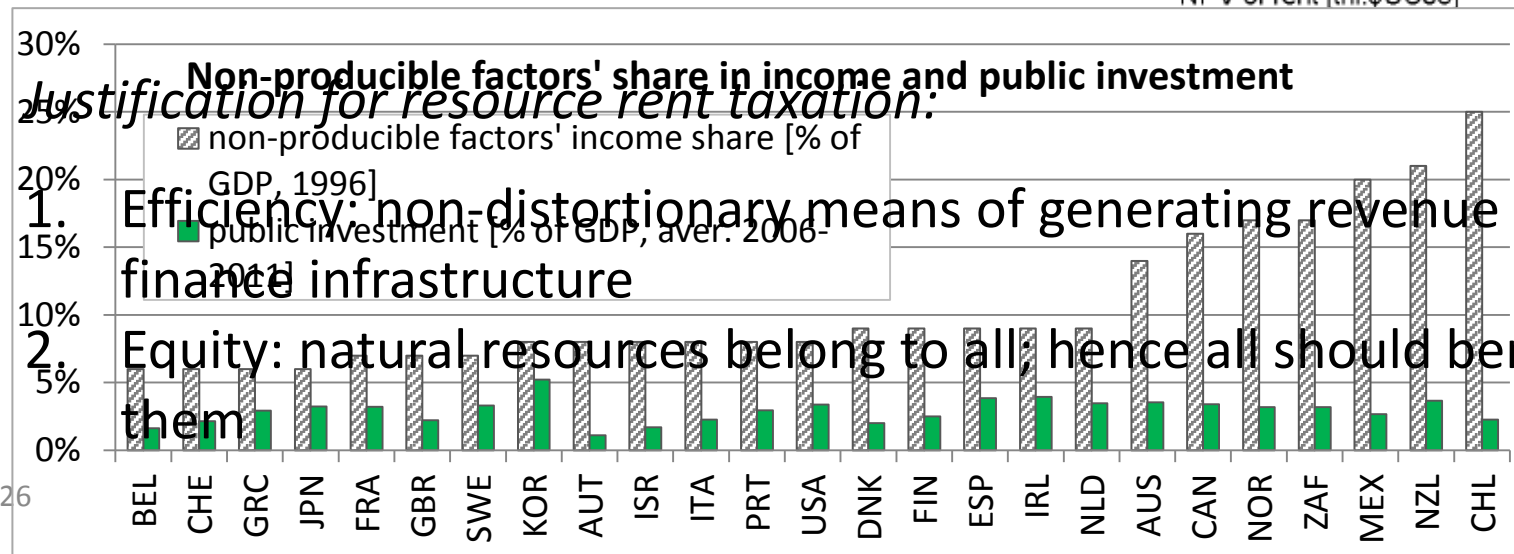


Resource Rents and Investment Needs

World natural resource rent as share of annual world GDP



Bauer et al.(submitted)



Edenhofer et al. (2013)

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Conclusions

- Public policy should not primarily be concerned with *growth*, but with *welfare*.
- Economic growth cannot be a goal in itself. But it could help to attain desirable objects (i.e. happiness, prosperity...).
- Different members of society do not necessarily have to agree on a definition of welfare, It is sufficient that they agree on minimum thresholds to remove most severe deprivations ('welfare diagnostics').
- Public policy can then be understood as managing a portfolio of welfare-relevant capital stocks, in particular regarding minimum levels of access.
- Improved management of natural resources creates economic surplus that can be employed to invest in physical infrastructure.

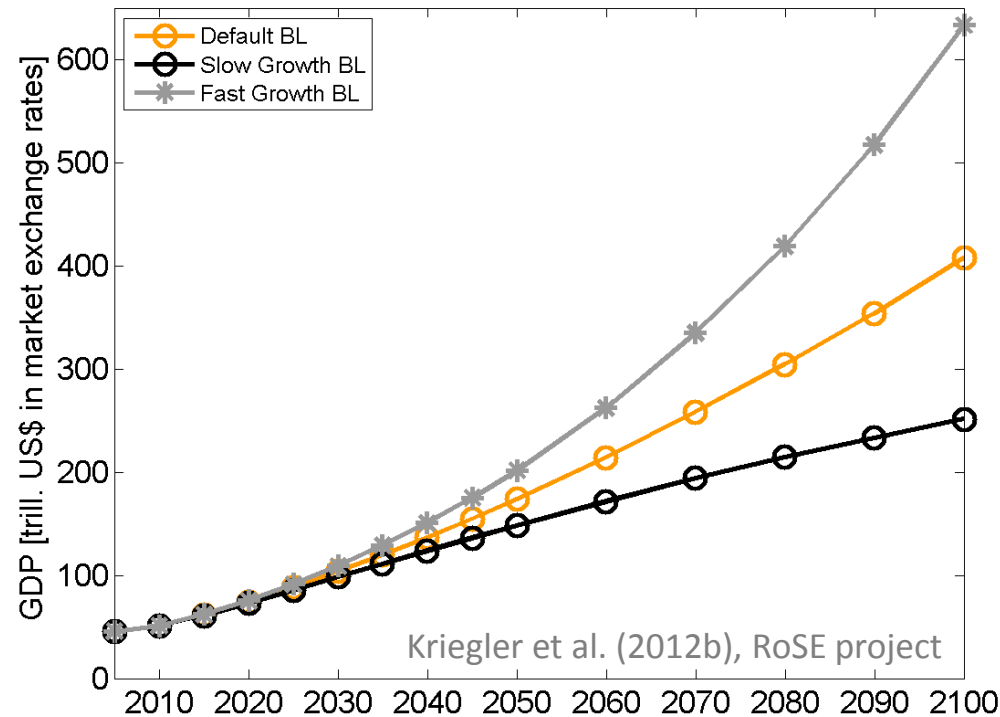
Thank you very much for your attention.

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Backup Slides

Technology Differences Due to Economic Growth

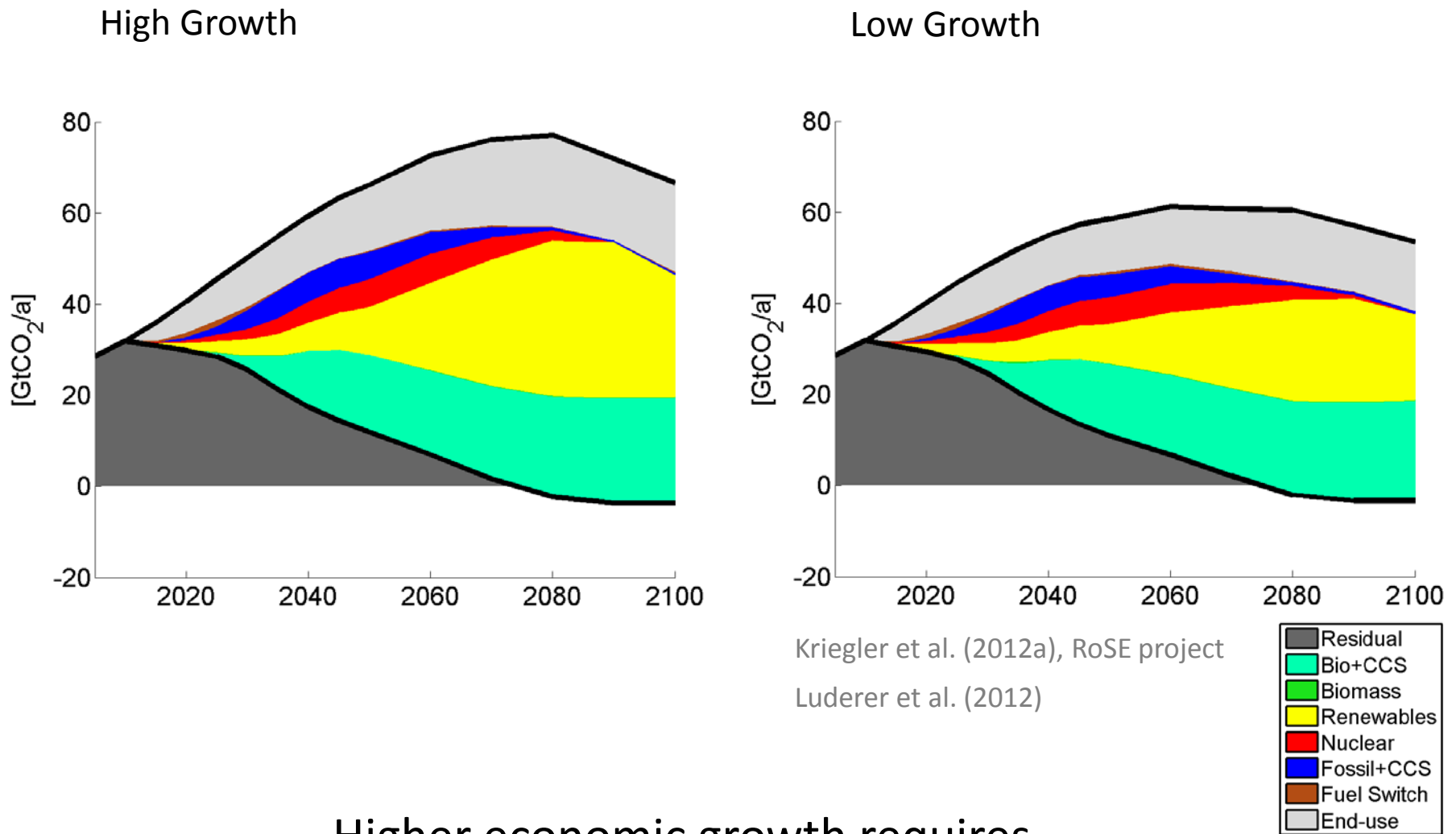
Scenarios for global GDP development



Drivers of growth:

- ⇒ Population
- ⇒ Labour participation rates (age, gender, ...)
- ⇒ Human capital (schooling, ...)
- ⇒ Productivity growth
- ⇒ Capital accumulation

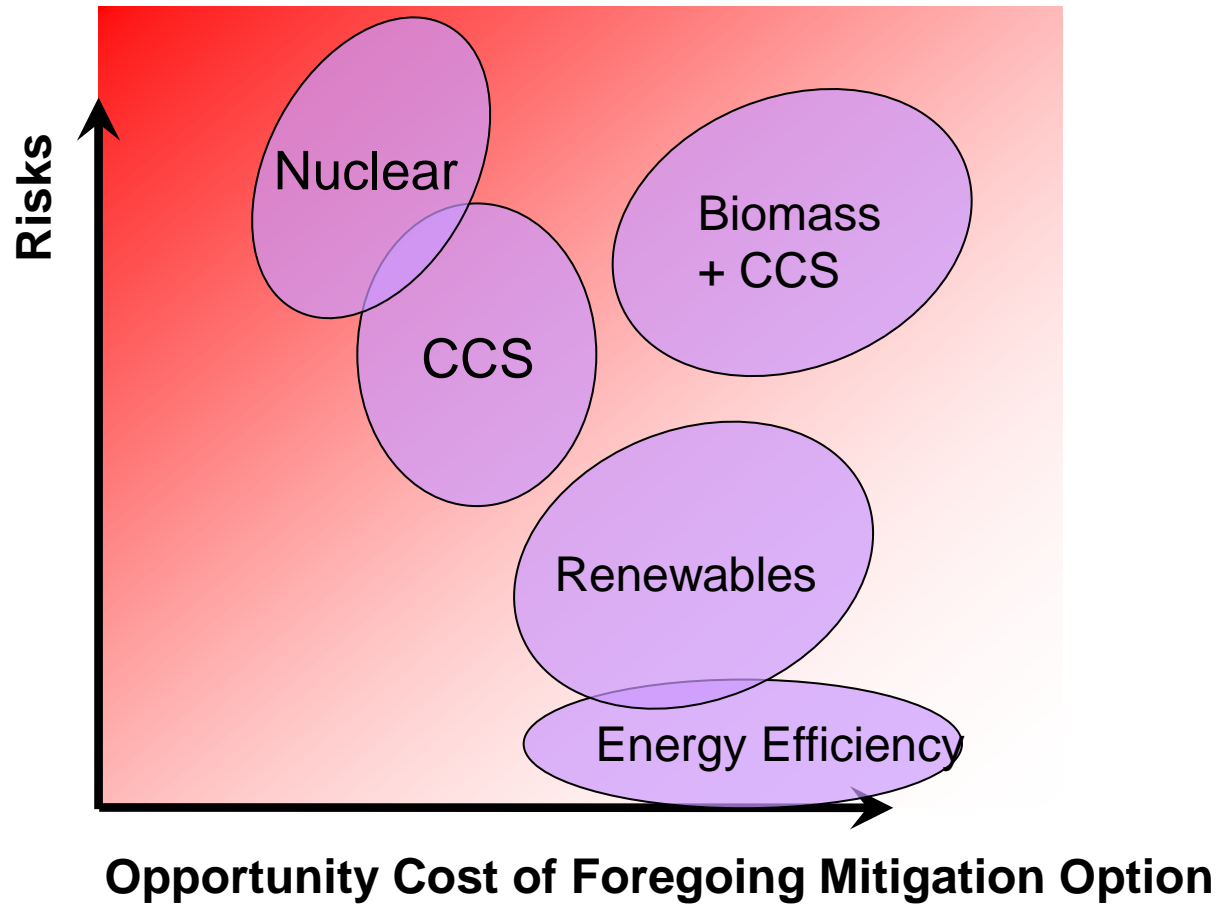
Technology Differences Due to Economic Growth



Higher economic growth requires
more efficiency improvements and **renewables**

Opportunity Costs vs. Risks

High Growth Scenario



A degrowth strategy would reduce these risks
at best indirectly...

...and we have to distinguish the *ends* that a
policy should achieve from its *means*.