

Macroeconomic models and sustainability

Presentation at NETØK seminar, 21 Oct. 2024

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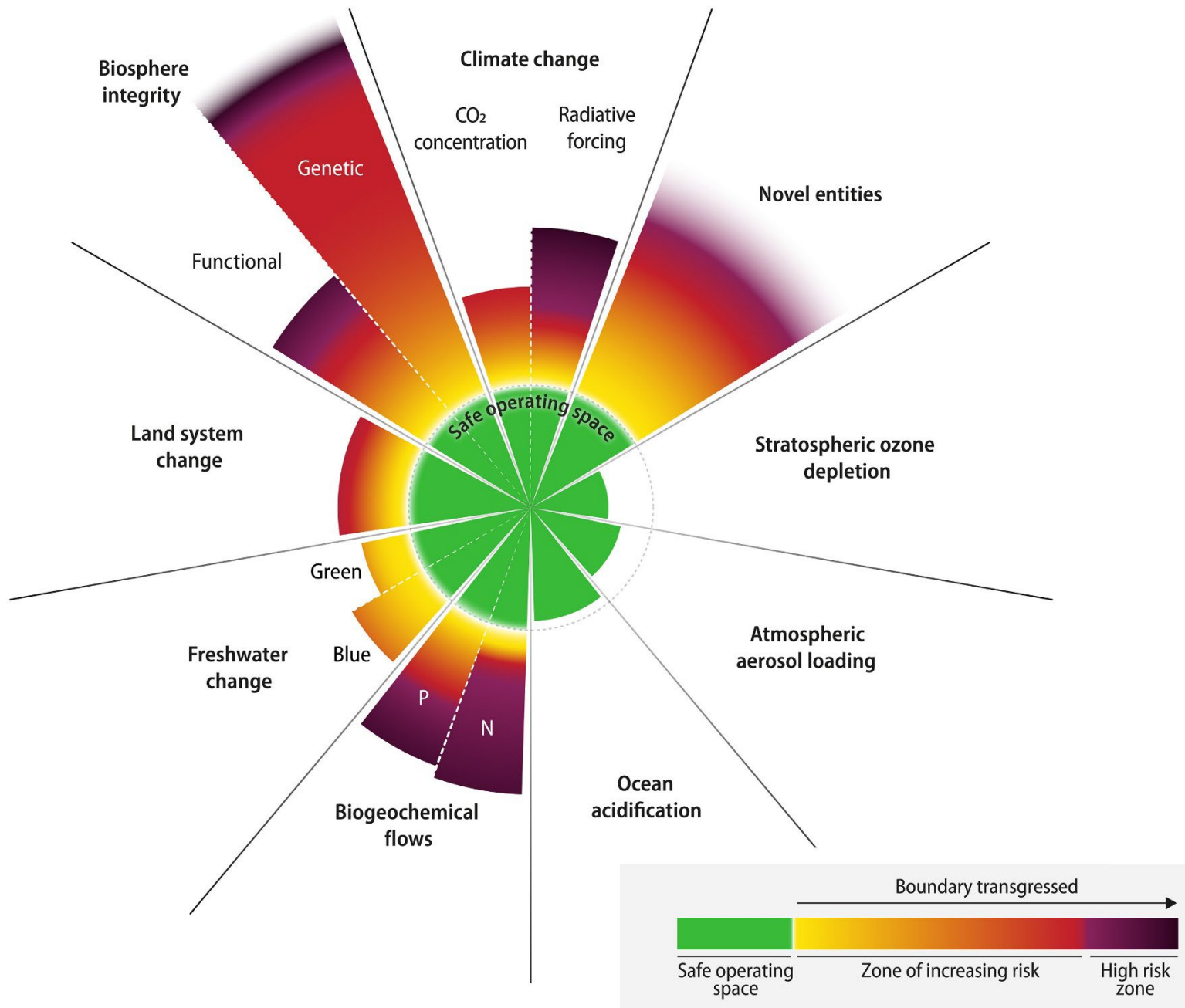
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Outline

- The challenges
- Goals and responsibility
- Transformation requires knowledge: Is the combination of MAKRO and submodels the way to go?
 - MAKRO
 - GreenREFORM
- What else to do?

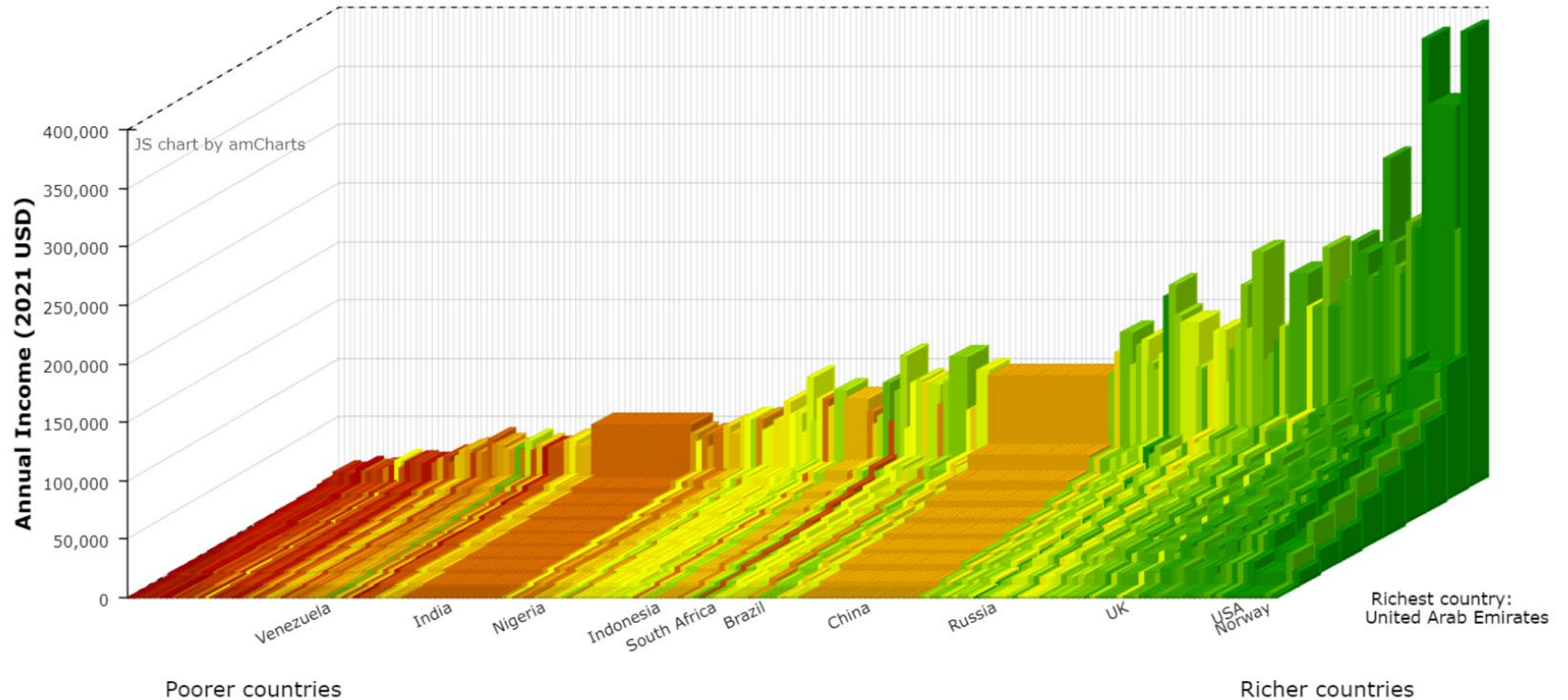


The planetary boundaries framework

Far more than climate

Climate solutions run into other boundaries

The ethical challenge in a "full world": poverty problems cannot be solved with growth



Global Market Income Distribution 2020

https://r.core-econ.org/income-inequality-app-v2/fig_income_2020.png

And so many more challenges...



(European centered)



Some of the challenges (environment and justice) transformed into goals

Point of departure:

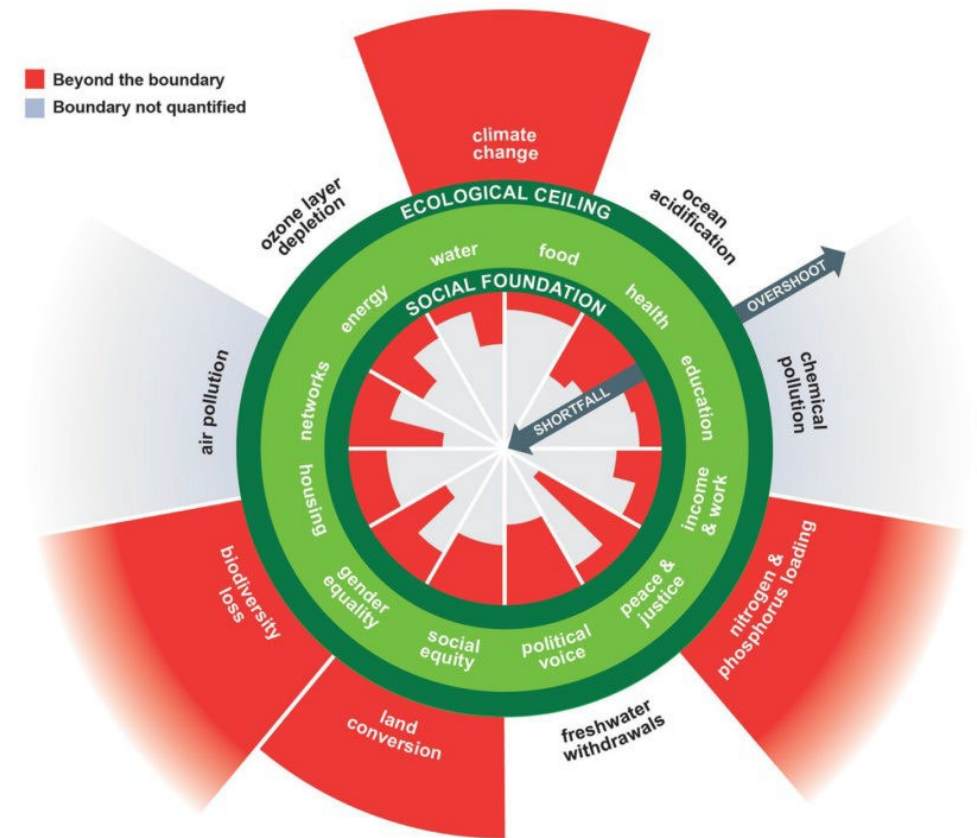
- The challenge is enormous (do without the "energy slaves", limited resources)
- Technology is not enough
- We should share, globally and nationally

Goals:

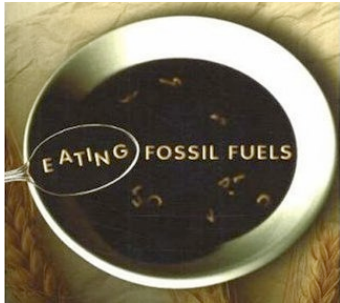
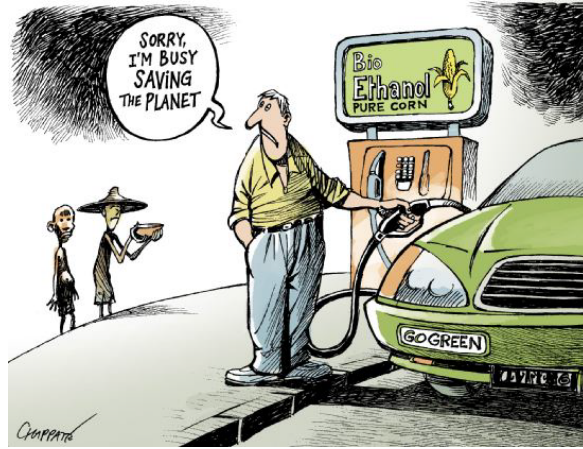
- Within planetary boundaries
- Fulfilling basic needs for everyone

Sustainability transformation:

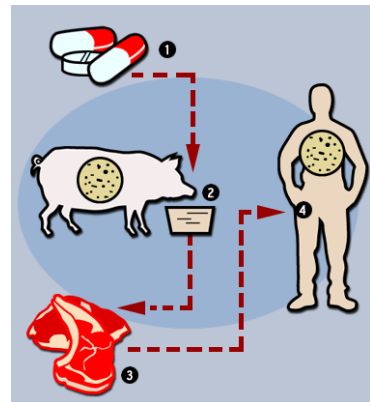
The Nordics have **responsibilities** regarding: production, consumption, systems



Kate Raworth:
Doughnut economics

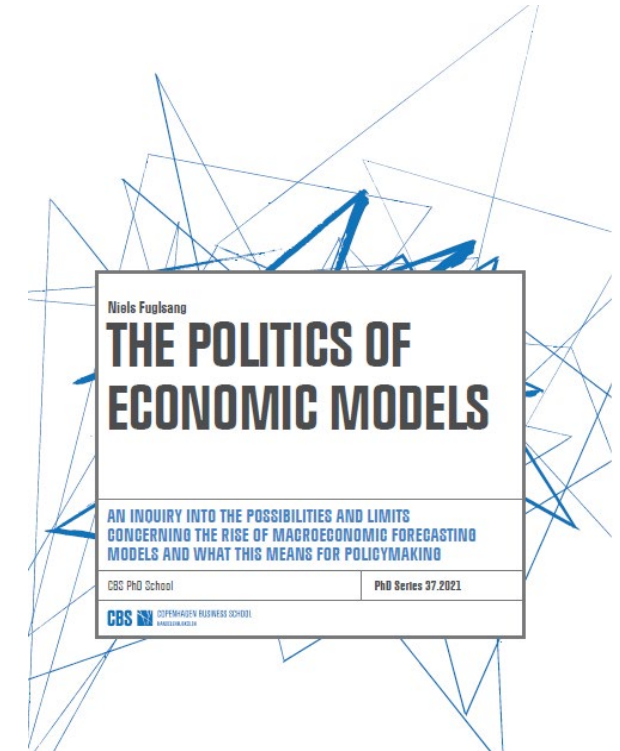


A systems perspective on food provisioning – not just particular problems. Effective cogwheels in irrational machines is no solution



Transformation requires knowledge

- Gathering empirical information about energy, transport, agriculture, waste and carbon emissions is necessary
- Input-output relationships are also relevant
- **Is it useful to organise all this information in submodels related to the core macroeconomic model MAKRO?**
- Does MAKRO respond to the criticisms raised?
- Dialectic interplay between models and politics
- Risky: no longer the same separation between modellers and users



What is wrong with a CGE model?

- The basic theoretical perspective: All markets are moving in the direction of equilibrium between supply and demand. Basic mechanisms unchanged
 - Modifications regarding adaptation: rigidities in the short run
- No endogeneous crises. Dynamics: exogenous shocks. E.g. financial crises
- Calibration based on the idea that the economy in a given year is in general equilibrium. Post-real economics
- Calibration opens for political choices. Right-wing orientation, e.g.
 - Tax relief and reduced unemployment benefits increase the supply of labour
 - Labour supply creates demand (transmission mechanisms)
 - Crowding out in relation to public investment
 - No positive impacts related to public spending
 - Limited understanding of inflation (Isabella Weber)
- Economic theory is on the move in different directions. Outdated model?

What is wrong with a large model?

- It is not always easy to interpret the results of the model: what are the transmission mechanisms?
- The model is intended to support political decision-making, but the lack of transparency reduces the usefulness for debate
- The integration of the submodels makes it even more difficult to interpret the results
- The integration process may reduce relevant information from the submodels? Power struggle between ministries?
- A large model becomes powerful. But it can never include all important issues – the power is not deserved



Some are happy, others less so

The Ministry of Finance (my translation): "MAKRO includes more than a million equations ..., and it is great fun (guf) for the nerds in the ministry's office for macroeconomics"

Podcast: the advisory board remarked that the complexity budget has been used up

My addition: and much interesting stuff is still exogenous...

Positive: The publication on GreenREFORM is open about the resistance from some of the stakeholders

Not all are happy about strengthening the Ministry of Finance

In particular, in a period when specific knowledge on sectors is losing ground



Problematic focus and criteria

- Main focus in MAKRO: Public budget balance and the fiscal room for maneuver (the rationale of the model)
- In addition, a healthy economy is considered to be about: growth, balance of payments, employment, price stability
- Lack of focus on environmental and social responsibility

Does GreenREFORM help with regard to environment?

- Limited inclusion of the role of energy (EROI, exergy) and materials
- Problematic criteria in policy assessment:
 - Cost efficiency, but prices are not good measures
 - The use of MAC is not systemic
 - The long-term illusion and the limited scope

Prices provide a problematic basis for decision-making

Prices are distributional mechanisms – based on historical conditions, institutions, power relations, inequality, etc.

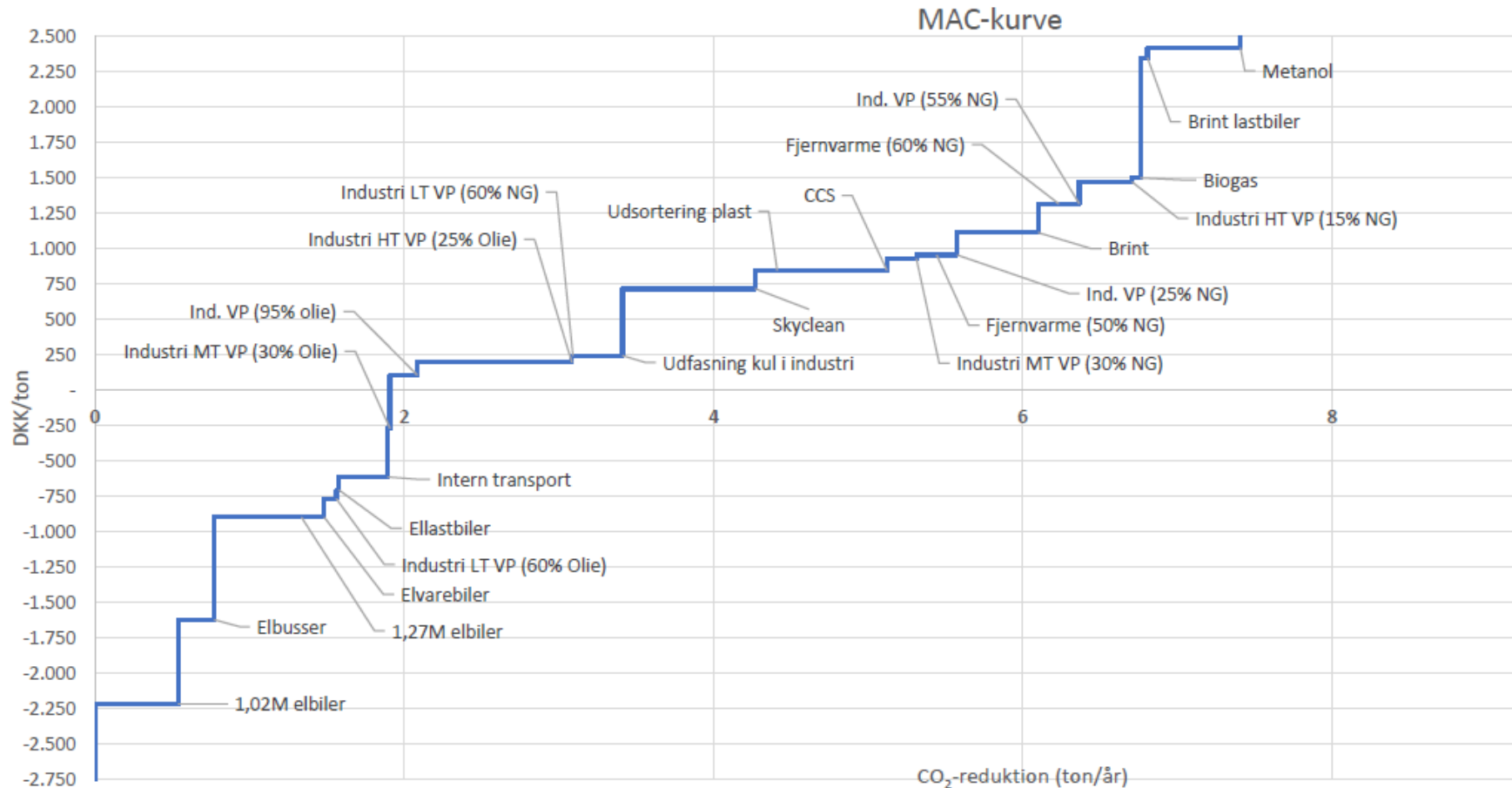
Our wealth and others' poverty are two sides of the same coin

The costs of transition are calculated on the assumption that power relations remain skewed:
growth can continue – no need to save

Forming the price of a mobile phone



MAC: Marginal Abatement Cost curve



Inclusion of technology combined with cost efficiency:
 The measures are not seen in a **systemic perspective**
 Focus on cog wheels

The measures are interdependent

When one measure is used, the conditions for the curve change

(Too limited focus on climate)

The long-term illusion and the limited scope

- Marginal changes are assessed on the basis of optimization of economic welfare (consumption) over a long time period
- However, no deep structural changes are considered (when the concept of structure is used, the meaning is narrow)
- The potential political measures are limited: no complex industrial policies, no regulation of finance, change of property institutions, new forms of business, citizen assemblies, etc.
- No other aspects of welfare
- No strategic reasoning
 - How can change become politically acceptable? Distribution decisive
 - Subsidies can change the composition of industries (Rodrik's example)



What else to do? A new toolbox?

- **Open letter:** "The European Green Deal requires a renewed economic modelling toolbox". Based on a paper by Souffron and Jacques
- Very modest claim: **more diverse models in the toolbox.** The heterodox also wish to get funding and to be heard
- Interesting argument, p. 51: Underlying theoretical choices present the risk of having models that cannot by construction advocate for certain required economic policies.
- And: In the context of the European Green Deal, it is necessary to have some models that recommend European expansionary policy packages. Therefore, diversification of models is needed...
- **So: we know what to do, but we need the models to make the argument**

One model is not sufficient to deal with:

- Planning for the development of Power-to-X
- The hydrogen infrastructure
- Priorities in relation to the green competition from China
- Structural changes in agriculture
- Regulation of finance (managing investments)
- Prevention of yellow vests
- Green job guarantee
- Reprogramming of existing infrastructures
- Strengthening of democratic institutions
- Improving conditions for cooperative and employee-owned businesses
- ...



Concluding remarks

- Go for smaller models
- With transparency regarding mechanisms and theories
- Extend diversity beyond economics
- Strengthen broader debate

In addition:

- Develop a limited set of macro indicators focusing on environmental and social responsibility
- Do not combine GreenREFORM with Green GDP