Can a hybrid global climate regime anchored in national policies deliver ambitious mitigation?

Prof. Dr. Ottmar Edenhofer

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Joint Side Event

Identifying options for a new climate regime arising from the Durban Platform for Enhanced Action

Potsdam Institute for Climate Impact Research (PIK)
Centre for European Economic Research (ZEW)
Harvard Project on Climate Agreements
Mercator Research Institute on Global Commons and Climate Change (MCC)

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INTERGOVERNMENTAL PANEL ON climate change
Working Group III (WG III) – Mitigation of Climate Change

WMO UNEP

Revisiting incentives for ambitious climate policy

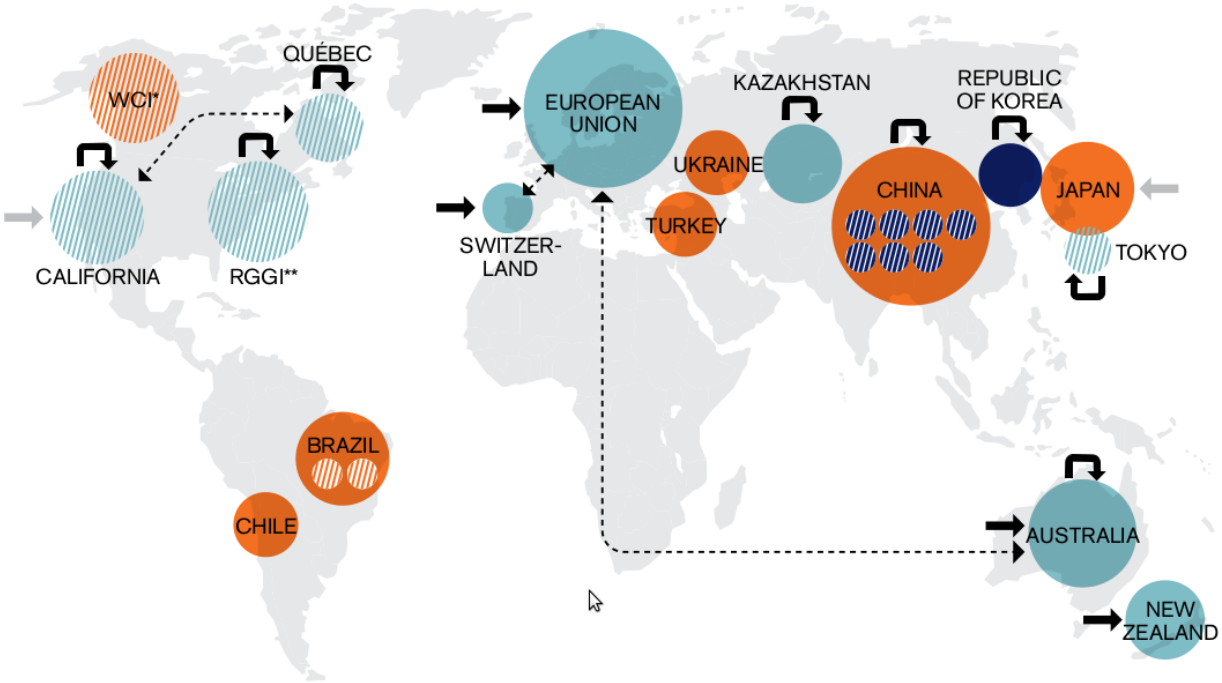
- Outlook: Emerging dynamic hybrid international climate regime
  - National policies determine level of ambition
  - UNFCCC: important coordination functions (principles, MRV, coordination, GCF, etc.)

- **Will such a regime be able to achieve ambitious mitigation, e.g. in line with 2°C?**

- Key driver: Country's domestic incentives to adopt ambitious climate policies
  - Public good and free-riding problems of protecting global commons
  - Are there other incentives beyond GHG externality?

The emerging landscape of carbon pricing

Figure 1: Map of existing, emerging, and potential emissions trading schemes



Status of implementation

- Implemented (in force with established rules)
- Implementation scheduled (mandate agreed, start date communicated, rules in preparation)
- Under consideration*** (government gave public signal towards the development of an ETS)

- National
- Sub-national or regional

Offsetting

- CDM and JI credits
- Bilateral offsets
- Domestic offsets

Linking

- Planned link

Source: World Bank (2013), Mapping Carbon Pricing Initiatives, Carbon Finance at the World Bank, Ecofys

A Multi-Dividend perspective

Carbon pricing (auctioned permits or tax) may generate *multiple dividends*:

1. Reduction of CO_2 emissions
2. Positive synergies with other issues such as air pollution and energy security
3. Taming capital tax competition
4. Improving intertemporal macro-economic efficiency
5. Investment of „climate rent“ revenue in areas with highest social return of investment – e.g. underprovisioned infrastructure, per capita endowments, renewable investments, international climate funds – can enhance welfare

Proliferation of climate policy dividends?

Carefully check the welfare rationale of multi-dividend claims!

Multiple dividends, old and new

The „old“ double dividend argument

A „new“ multi-dividend perspective

The traditional „Double Dividend“ argument

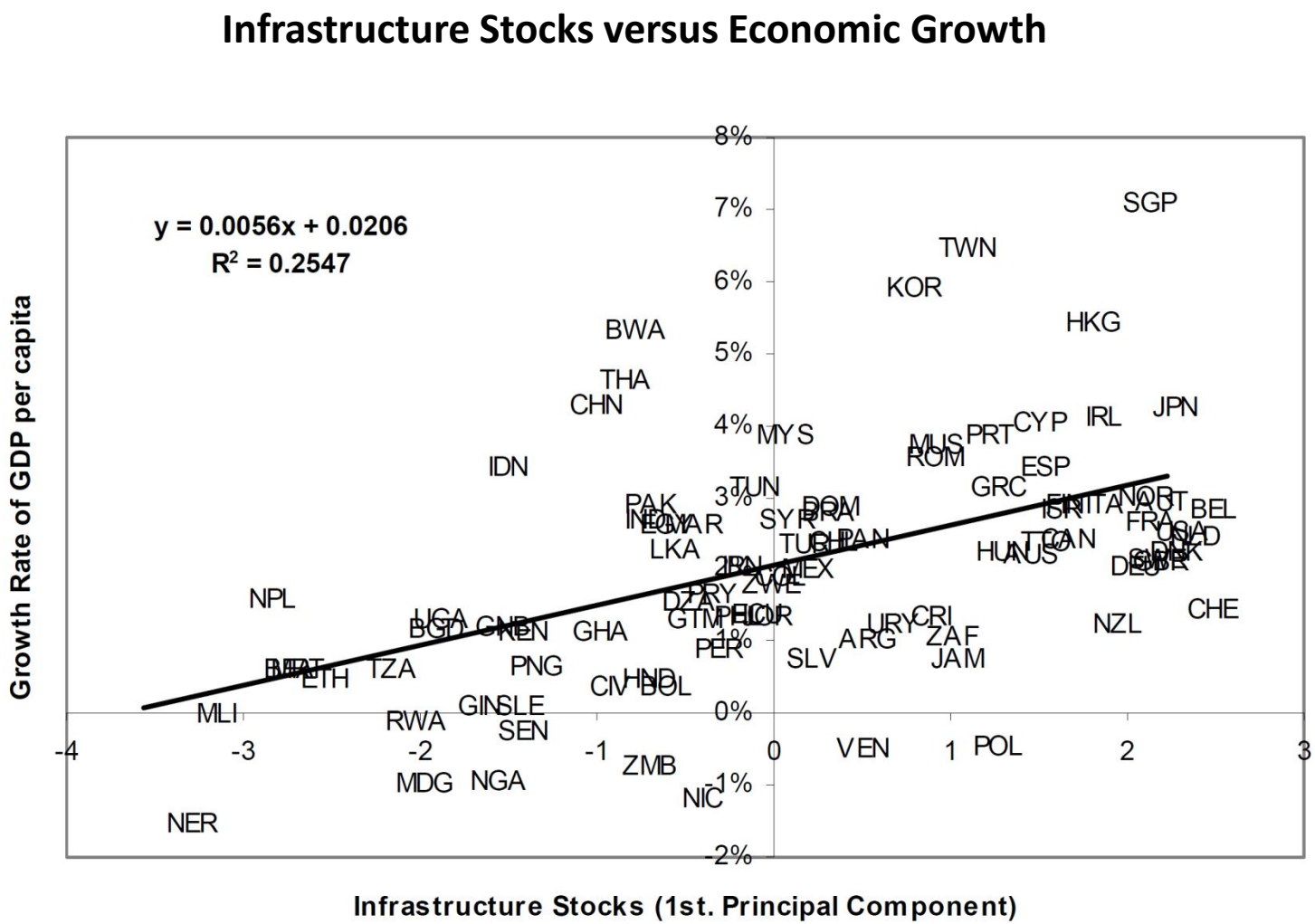
- Impose CO_2 tax and reduce labor and capital taxes
- Some indicate net benefit of this policy (e.g. Goulder 1995, Parry 1995)
- The problem:
    1. Upshot of scientific debate inconclusive
    2. Challenge for governments to deal with tax competition and maintain international competitiveness omitted
    3. Productivity enhancing infrastructure investments out of scope

Multiple dividends, old and new

The „old“ double dividend argument

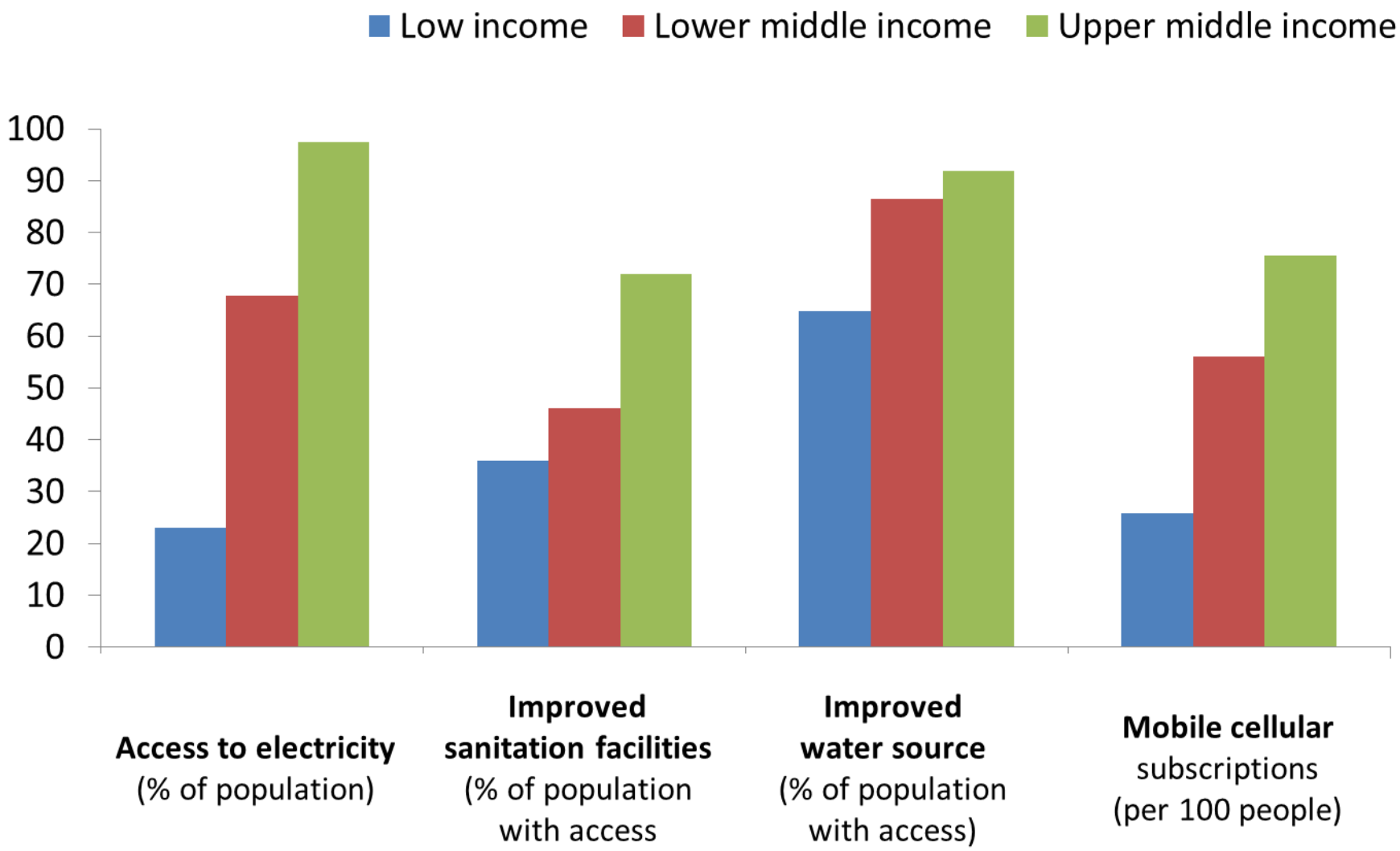
A „new“ multi-dividend perspective

Empirical insights I: Under-investment in infrastructure?



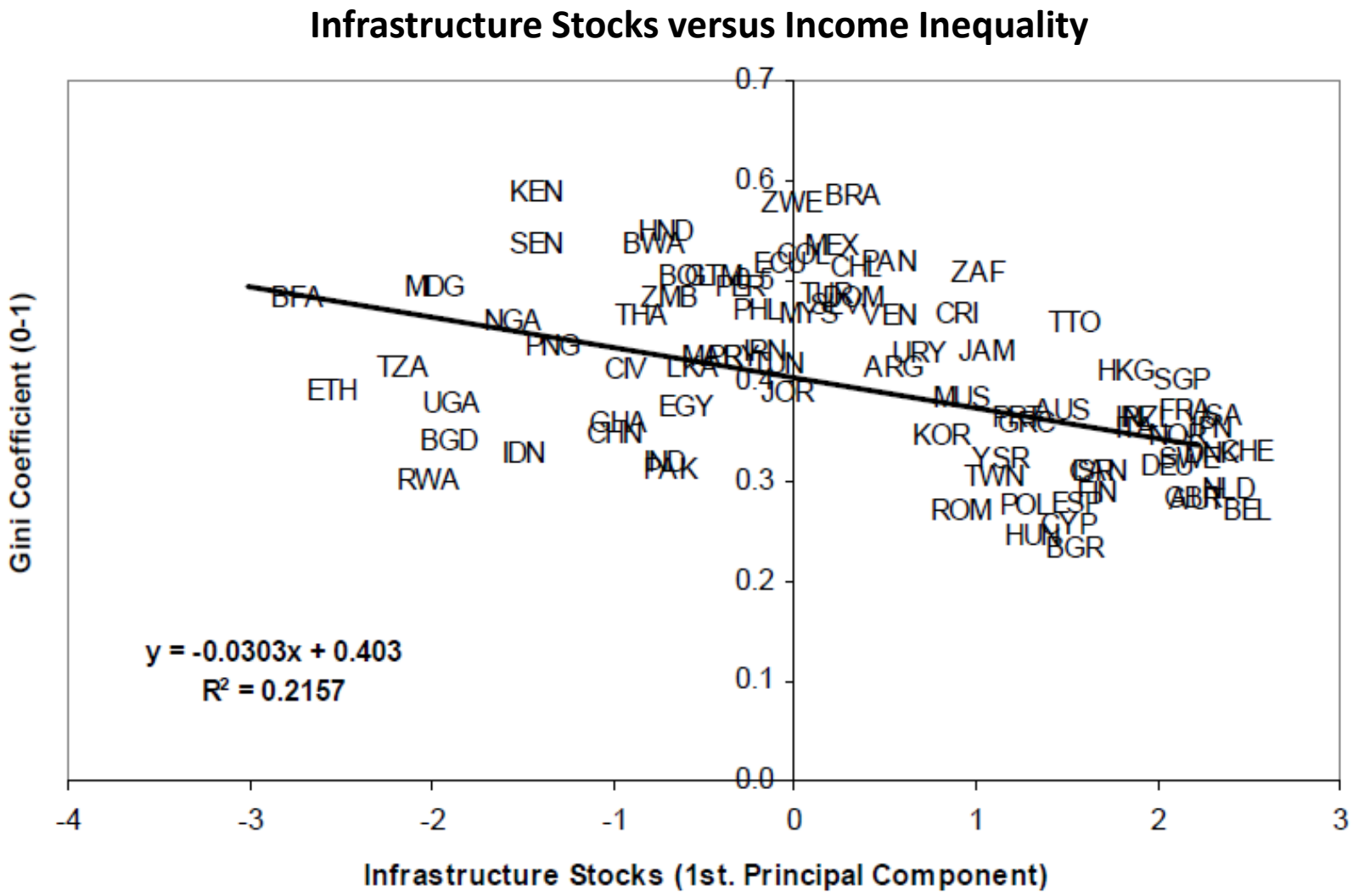
Calderón & Servén 2004

Empirical insights II: Infrastructure and well-being



Jakob and Edenhofer, submitted

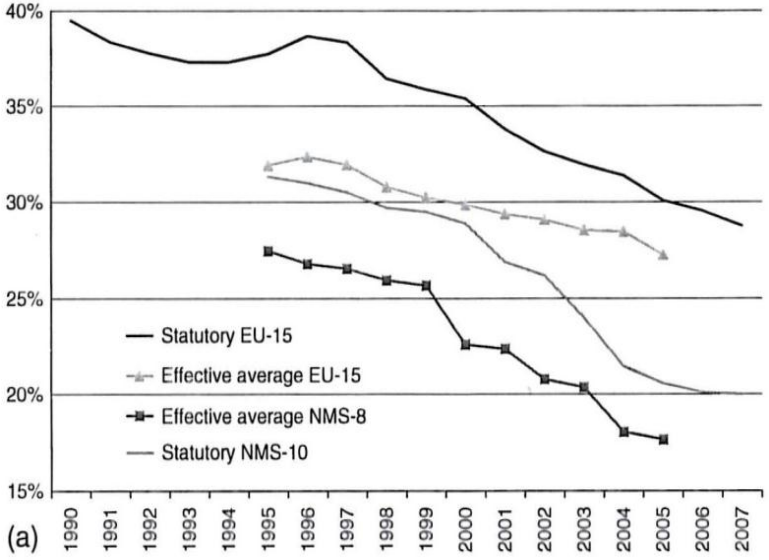
Empirical insights III: Infrastructure tends to reduce inequality



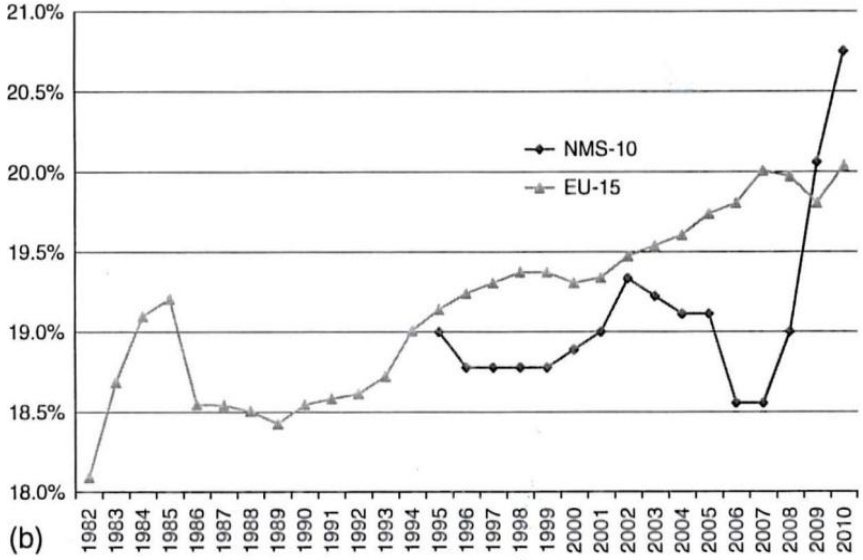
Calderón & Servén 2004

Empirical insights IV: Evolution of tax systems

Taxation of mobile and immobile factors of production in the EU



a) Corporate tax rate

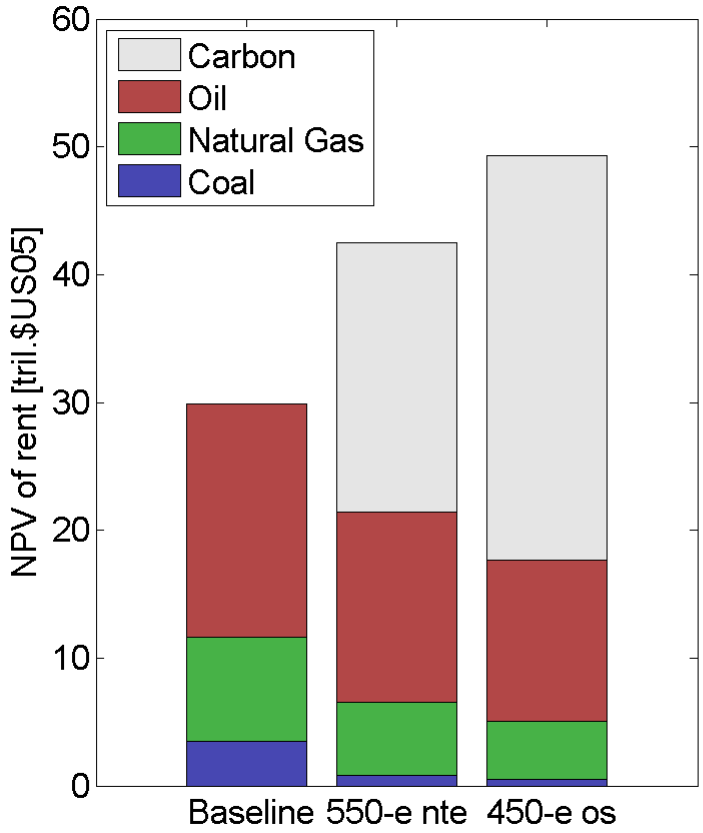


b) Standard VAT rate in the EU

Source: Benassy-Quere (2010)

→Rent taxation as alternative?

Empirical insights V: Magnitude of carbon rent



Bauer et al. (2013)

- **Fossil resource rents decrease with climate policy ambition**
- **Over-compensation by carbon rent** (=permit price or tax * emissions)
- **Carbon rent appropriated domestically via auctioned permits or tax**

Multi-Dividend perspective – Taming tax competition (I)

I. Fundamental theoretical insights:

- When capital is mobile, tax competition leads to inefficiencies
  (Wilson 1986; Zodrow and Mieszkowski 1986)

- Optimal tax theory: Preferable to tax fixed factors

- Public spending is productivity enhancing
  (Barro, 1991; Glomm and Ravikumar, 1994)

Multi-Dividend perspective – Taming tax competition (II)

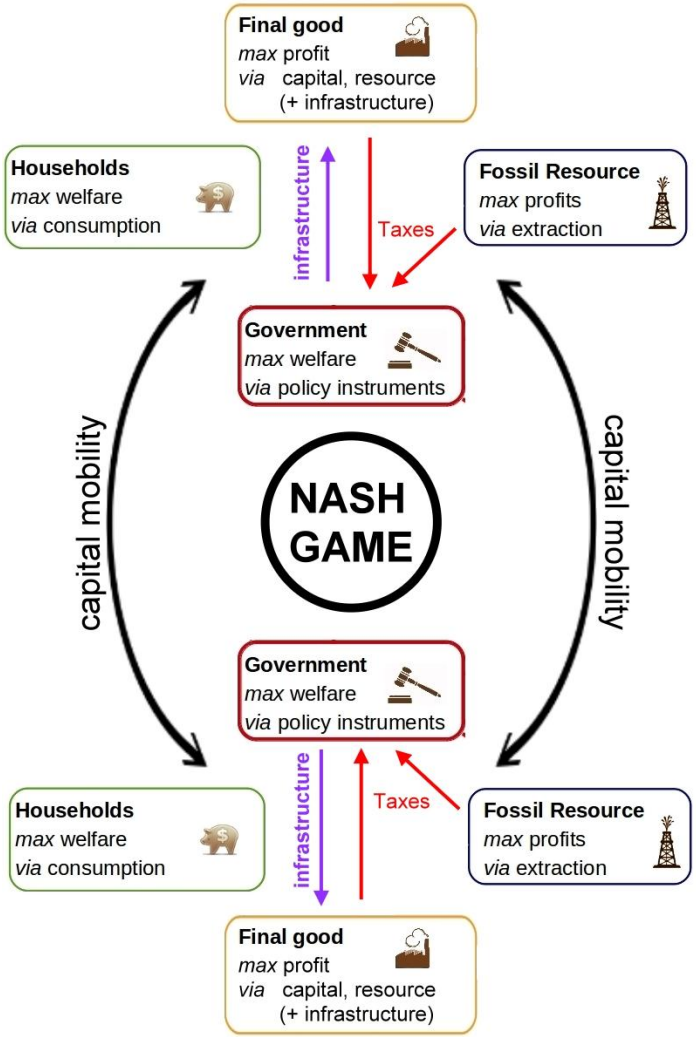
II. The current situation:

- Capital taxation is inefficient and harms international competitiveness
- Labor taxation is socially problematic
- Social returns on infrastructure investments are much larger than private returns

Multi-Dividend perspective – Taming tax competition (III)

III. Model mechanisms

- Substitution elasticity determines „relative fixedness“ of fossil resources
- Factor taxes distort the *intertemporal* allocation
- Capital mobility distorts the *interregional* allocation through tax competition
- Capital tax more prone to tax competition



Franks, Edenhofer and Lessmann (in preparation)

Multi-Dividend perspective – Taming tax competition (IV)

IV. The argument:

- Compared with corporate taxes, CO_2 price is the better option to finance infrastructure investment (*even if there is no interest in climate policy*), because
- the high social return on infrastructure investment attracts international private capital investments, and
- capital flight is tamed, even under high degrees of capital mobility, by reducing the tax burden born by capital.

➔ Shifting taxation to CO_2 pricing provides *substantial benefits* from *public finance perspective*!

Multi-Dividend perspective – Enhancing macro-economic efficiency

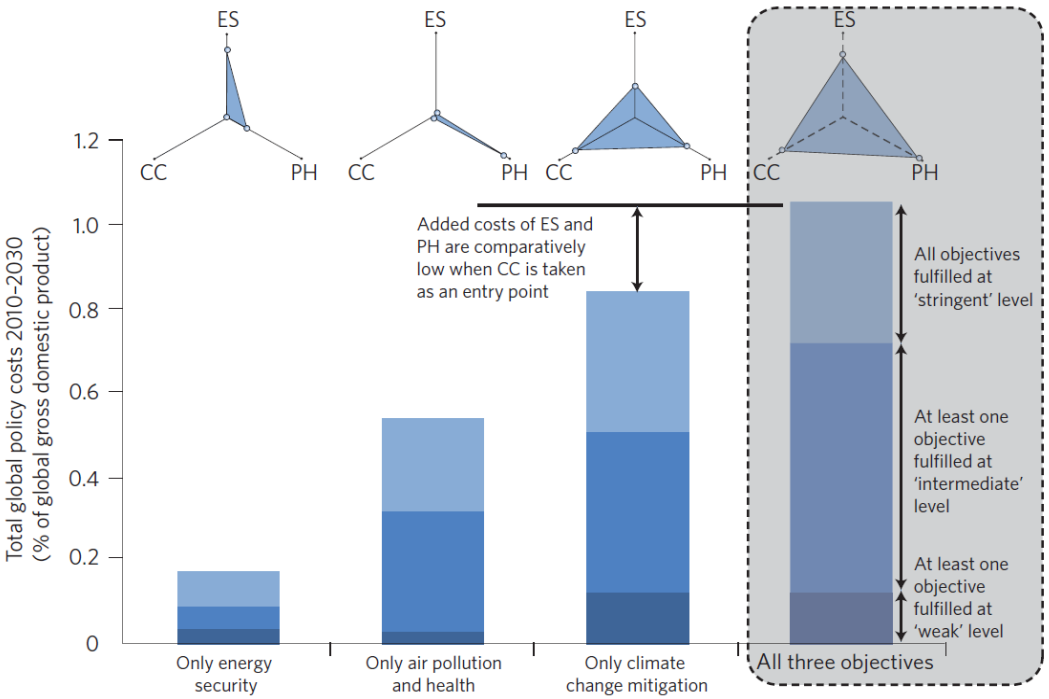
Climate policy may create beneficial macroeconomic distortions:

- Fossil resources and capital are revenue-generating assets in investors' portfolios
- Taxing resource rents – e.g. via carbon pricing – makes capital investment more attractive than buying shares in resource stocks (portfolio effect)
- If capital accumulation was initially lower than optimal, the resulting *increase in the capital stock* is a beneficial distortion

This is *additional* to beneficial spending options of climate policy revenues (infrastructure, reduction of taxes, debt, or poverty, …)

Sources:
Siegmeier, J., L. Mattauch and O. Edenhofer (2013). Portfolio effects and stock instruments in climate policy, *mimeo*.
Edenhofer, O., L. Mattauch and J. Siegmeier (2013). Hypergeorgism: When rent taxation is socially optimal, *submitted*.

Multi-Dividend perspective – Synergistic policies



McCollum, et al. (2013)

- Multiple objectives, e.g. climate change (CC), fiscal benefits, energy security (ES), pollution/health (PH)
- Synergistic relationships
- Reduced added costs of supplementary policies for other objectives
- Climate mitigation is strategic entry point to achieve an array of goals

Conclusions

- **Ambition of international climate policy rooted in domestic ambitions**
- **Domestic climate policy embedded in broader public policy concerns**
- **Multi-Dividend perspective:**
  - Reduction of CO_2 emissions mitigates climate change
  - Positive synergies with other issues such as air pollution and energy security
  - Taming capital tax competition
  - Improving intertemporal macro-economic efficiency
  - Investment of „climate rent“ revenue in areas with highest social return of investment – e.g. underprovisioned infrastructure, per capita endowments, renewable investments, international climate funds – can enhance welfare
- **Carefully check the welfare rationale of multi-dividend claims!**
- **Properly considering multiple dividends might enhance domestic rationales to adopt ambitious climate policies**