



Cash and Sustainability: Facts, challenges, open questions

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Sustainability: the concept

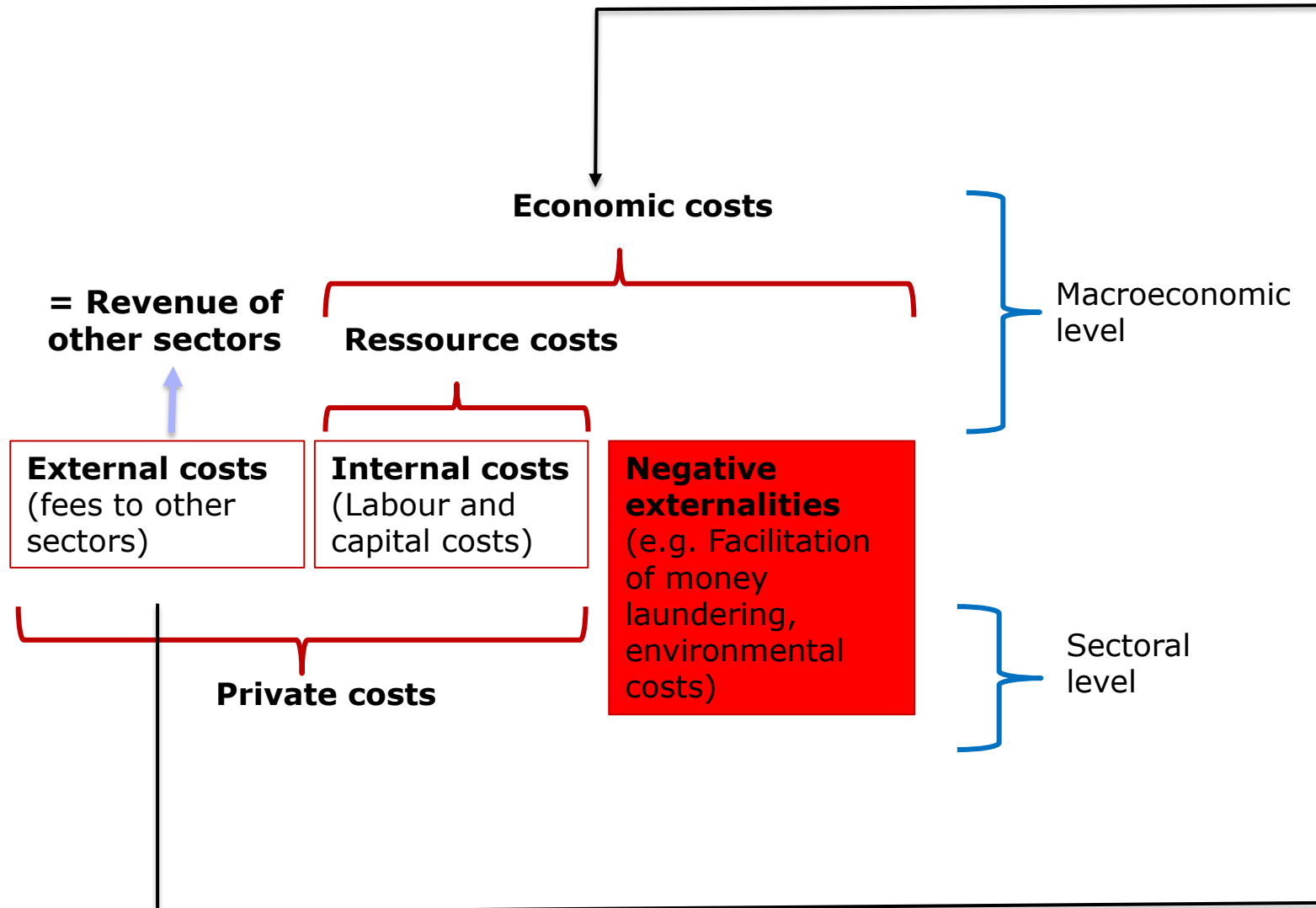
- **"Sustainable development satisfies the needs of the present generation, without endangering the possibilities of future generations to meet their own needs"** (*UN Commission on Environment and Development, Brundtland Commission, 1987*)
- It's the environment, yes, but also
 - resilience and system vulnerabilities ("the cash resilience paradox")
 - stable societies
 - socially balanced development
 - ...
- **Country-wide** perspective
 - E(nvironmental)
 - S(ocial)
 - E(conomic)



Sustainability: a broad concept

- **Long-term** concept
- The notion "sustainability" initially stems from the forestry sector in the 18th century
- **Intertemporal** perspective...
- ...necessitates intertemporal comparisons
- Goals, needs and limitations
- **Market** solution, but **government** support necessary
(→ the role of incentives)

The costs of payments





Environmental costs (ec)

$$ec = p \cdot e \cdot T \cdot c$$

- ✓ p: power consumption per transaction
- ✓ e: greenhouse gas emissions from power generation
- ✓ T: number of transactions
- ✓ c: costs per ton CO₂
- ✓ **High uncertainty**
- ✓ Flow externalities vs. stock externalities



Ecological footprint

► Cash:

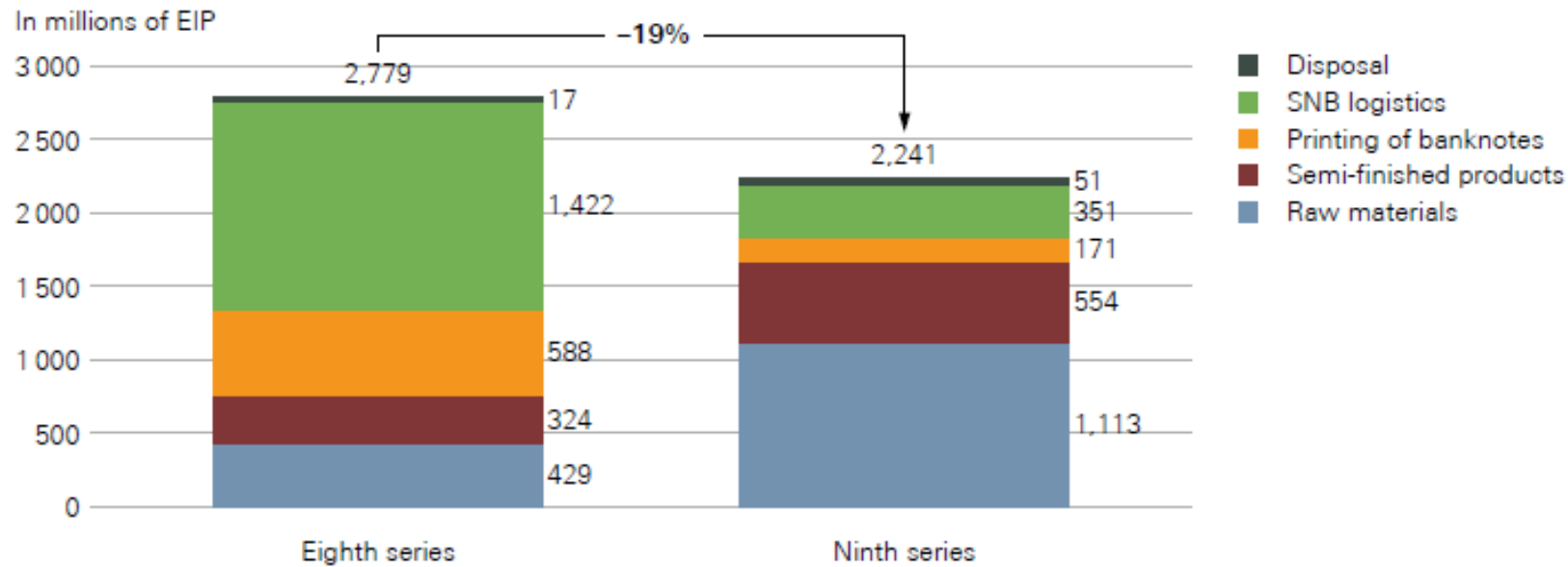
- mostly coins and operational phase (ATM, transport)
- cotton banknotes vs. polymer banknotes (< 10%)
- cash payment system's impact on climate change is of the same order of magnitude than that of the debit card payment system, when scaled with their respective economic values
- **overall rather low** ("while paying cash for a 40g bar of chocolate uses around 4.6g of CO₂e, the CO₂e involved in the production of that bar is 200g")

► Krypto assets, CBDC

- essential: blockchain and blockchain trilemma
- TIPS relative carbon footprint low (trust and credibility!)

Banknotes: The Swiss case

OVERALL ENVIRONMENTAL IMPACT OF EIGHTH AND NINTH-SERIES
BANKNOTES PRODUCED ANNUALLY



Greening the cash cycle



Cash and sustainability: open questions

- ▶ What is the benchmark?
- ▶ What is the socially optimal amount of cash?
- ▶ What is the alternative?
 - Smartphones generate more greenhouse gases than any other consumer electronic devices (*OpenMind BBVA*)
- ▶ Is renewable energy the solution?
- ▶ What about the environmental impact of maintaining and providing the digital infrastructure?
- ▶ Which social discount rate?



Summary and conclusions

- **Cash still heavily in demand** worldwide despite intense competition by cashless payment systems
- Sustainability is more than "only" the environment
- Cash acts as a **public insurance** provided by central banks
- An **efficient and sustainable payment mix**, taking **all costs and benefits** from a **society's** viewpoint into account, **necessarily includes cash**
- Cash is part of successful **sustainability management** as it is the **physical** form of the **safest asset** in a currency area
- **Broader sustainability** analysis especially relevant for developing and unbanked countries



"Paying with cash can help you lose weight and save money"

(<https://www.cnbc.com/2018/01/09/unexpected-benefits-of-using-cash.html>)



Thank you very much for your attention!

Prof. Dr. Franz Seitz



Alliance for Monetary
and Financial Stability

<http://aktionskreis-stabiles-geld.de/>



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