MACRO-FINANCE CHALLENGES OF THE GREEN, POST-COVID TRANSITION

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MEASURES FOR FINANCING GREEN RECOVERY

• Credit market imperfections: soft and easy-to-access loans
• Part subsidy to internalise learning-by-doing externalities and to get things going (“social tipping”)
• Government as launching customer and finance facilitator, especially cities
• Spatial planning: central government, provinces, cities
• Golden Covid-19 opportunity: do not keep living zombies from the fossil era alive, but invest in the inevitable companies that are going to make the green transition possible (“never waste a crisis”)


WHAT TO LOOK AT?

• Low emissions per unit of value added
• Low emissions per job
• Value creation per green project
• For whom: shareholders, pensioners, workers, consumers, society at large?
• Green firms are newcomers: most affected by crisis
• Often good ESG factors imply good financial returns but danger of “green washing”
• Impact investing (cf. launching customer role for the government) – demonstrate that it can work
• Diversification: may need brown assets to diversify, but increasingly green assets add to a diversified portfolio
• See Dirk Schoenmaker and William Schramade for a nice background paper
SECTORS OF THE ECONOMY

• If a carbon-intensive sector cannot adapt or change, it is doomed to fail
• There will be shifts of labour and capital from carbon-intensive to green sectors of the economy
• There will be winners and losers
• At least make sure, policies do not hinder the green transition (e.g. prevalence of fossil fuel subsidies)
• Sectors: mobility/transport (air, ports, roads, cycle paths, rail), shift to electric vehicles, homes and buildings (get off the gas, energy-efficient retrofitting), power generation (moratorium on coal), agriculture (shift to sustainable agriculture), industry (circular manufacturing)
THESE MEASURES CAN ONLY BE TAKEN IF CARBON EMISSIONS ARE PROPERLY PRICED

• Get rid of all explicit and implicit fossil fuel subsidies
• First best is to put a uniform price on all emissions at home and those imported from abroad: carbon tax + BTAs
• Carbon price floor with gradual rising carbon price path (on top of ETS)
• Independent carbon central bank: carbon reductions are important to leave to the discretion of politicians (and lobby groups)
• If this is infeasible, one could tax those industries with the highest risk of import leakage somewhat less and give them a subsidy in line with their production (i.e. carbon tax plus output-based rebates for firms that suffer most from leakage)
• If carbon pricing is not feasible either, we must look at efficiency of implicit carbon prices in all aspects of the policy menu …
EQUALISE CARBON REDUCTIONS PER BUCK

• Make a check list for every policy measure, for every sector of the carbon reduction per buck, i.e. the CRB’s (cf. QUALY’s in health care)
• If they differ per measure and per sector, then there are efficiency gains to be made by equalising them
• Take account of how tax revenue is recycled and include deadweight losses and gains
POLITICAL ACCEPTABILITY OF CARBON PRICING (BASED ON VDP, REZAI AND TOVAR, 2020 – GERMAN HOUSEHOLDS)

• Avoid “yellow vests”: use revenues from carbon tax to lower income tax and hand out carbon dividends to get it across the line in most efficient manner

• Easier when trust is high

• One can only get majority support for green tax reform if part of revenue is used to lower income taxes and boost economic activity and the tax base

Table 3: Percentage of households benefitting (with positive equivalent variation)

<table>
<thead>
<tr>
<th></th>
<th>All HH</th>
<th>Rural HH</th>
<th>HH head male</th>
<th>HH with children</th>
<th>Single HH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon tax of € 100/tCO₂</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Lowering public debt</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Carbon dividend, lump-sum</td>
<td>32%</td>
<td>45%</td>
<td>18%</td>
<td>12%</td>
<td>64%</td>
</tr>
<tr>
<td>Lowering income taxes</td>
<td>55%</td>
<td>52%</td>
<td>60%</td>
<td>77%</td>
<td>46%</td>
</tr>
</tbody>
</table>
Figure 6: Recycling options of pricing carbon at €100/tCO₂ and their aggregate effects

(a) Recycling options for politicians

- Reduction in income tax rates
- Transfer (lump-sum, annual)

(b) Aggregate effects across recycling options

- Hours worked (annual, bn hrs)
- Carbon emissions (MtCO₂, annual)
Figure 7: Approval of recycling schemes across household types and income groups

(a) Approval across household types

(b) Equivalent Variation across income groups
NEED FOR CARBON ACCOUNTING

• Already taking place at firm level: True Cost and True Price initiatives
• And many companies have internal carbon pricing
• Need business model: more long-term, more emphasis on circular, less polluting
• Avoid stranded assets (clarity about future climate policies; forward guidance)
• Continuing the work of James Meade and Richard Stone on the U.N. System of National Accounts:
  – Rutger Hoekstra in his *Replacing GDP by 2030* has broader perspective: environmental, societal, economic, distributional and quality accounting
  – World Bank building on Arrow, Dasgupta and Weitzman: genuine accounting & “true” income, comprehensive wealth – allow for resource depletion and environmental degradation
• Need to work on connecting the micro (firm and household) level and macro (based on U.N. S.N.A.) of integrative reporting
NEED TO LEARN FROM EACH OTHER

• Firms in a particular sector can learn from each other
• But they can also create synergies: if they all go green, there is less incentive to stay dirty
• Cities and regions can learn from each other (e.g. C40 and R20) and governments can learn from each other
• Let many different flowers blossom: preferably in a controlled experimental setting so we can really measure and learn what works best
• Experiment and roll out: as gains from scale and learning by doing kick in, subsidies can be phased out
• Role of disruptive technologies
Learning Curve: Cost of Solar Panels drops 20% for every doubling of cumulative shipped volume. Similar gains for Wind Turbines and Batteries. So technological progress is an important driver.
GREEN DEAL, COVID-19 AND MACRO RECOVERY

• Covid-19: both a negative supply shock and negative demand shock
• Poorest with no buffers in frontline jobs and vulnerable get hit hardest
• Mary Robinson: need to link recovery plan and Covid-19
• Boris Johnson: “build back better”
• Keynesian multiplier effects: lower or bigger for green investments
• High multiplier and climate improvement potential: clean physical infrastructure, building efficient retrofits, investment in education and training, natural capital investment, and clean R&D (Hepburn et al, 2019, OXREP)
• Non-conditional airline bailouts have the worst climate and multiplier effects!
• Pre-existing levels of green skills matter (Popp et al., 2020) and also green capabilities matter in economic complexity (Mealy and Teytelboym, 2020)
• Co-benefits of green investment: for economy and health
• Golden rule for green investments?
• Green investments by governments and cities might unlock private investments
• Do not bailout carbon-intensive firms unless they fundamentally reform
• Invest in clean infrastructure, efficient retrofitting of buildings, investment in education and training, natural capital investment, and clean R&D
• Also invest in control of pandemic (test, track and contain), vaccines, border checks & safe travel and trade, food security and shorter local supply chains including sanitary standards, renewable energy (batteries, solar, wind, electric vehicles), circular economy, ad secure ICT networks
• Make sure new jobs and sectors are wherever possible Corona-proof:
  – part-time in office, part-time at home, less commuting – win-win
• “Let's create an army of zero carbon workers, retraining and redeploying those who can't work into different industries, from home insulation to wind turbine manufacture to tree planting”
• Be aware: fossil fuel incumbents time and time again frustrate any green plan (witness Netherlands)