ON THE ECONOMICS OF A GREEN (NEW) DEAL

HOW BROAD THE SCOPE OF A DEAL MUST BE
FOR IT TO HAVE SIGNIFICANT MACROECONOMIC IMPACT ?

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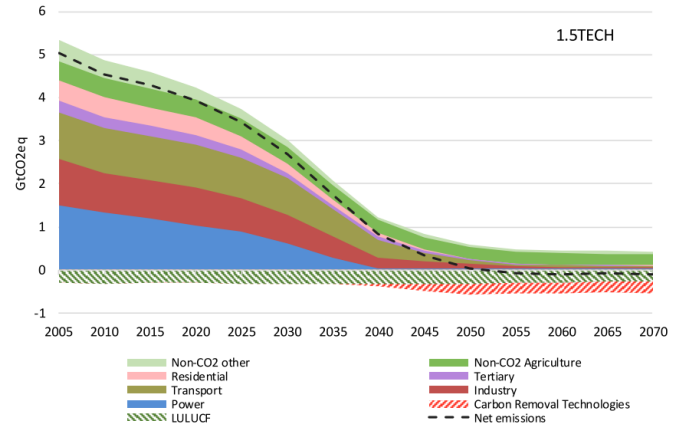
NEW PARADIGM SHIFT
PARIS MEETING 16/9/2019

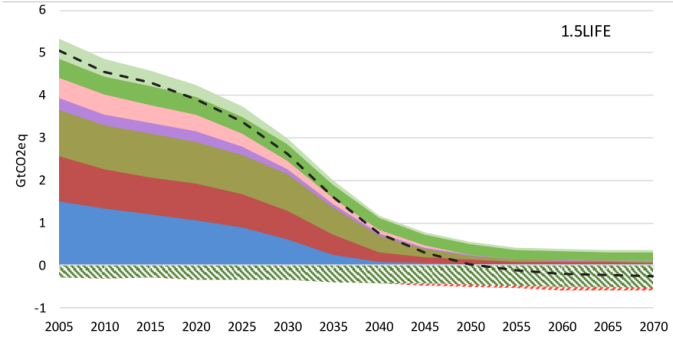
BROAD OUTLINES

- **Transition is not only about an investment plan**
  - « this is on par with winning World War II » Peter Buttigieg @ClimateTownHall
- **It is a deep change in society**
  - Energy system, NE infrastructure, transport, housing, agriculture, behaviors
- **At a high cost, partly underestimated, and largely « distributional »**
- **Macro evaluation shows keynesian co-benefits**
  - But limited
- **From green growth to green new deal**
  - Reframe the green problem
- **New deals or comparable historical mobilisation experience are inspiring but can't be duplicated**
  - This time is different
- **5 pillars for a true Green New Deal**

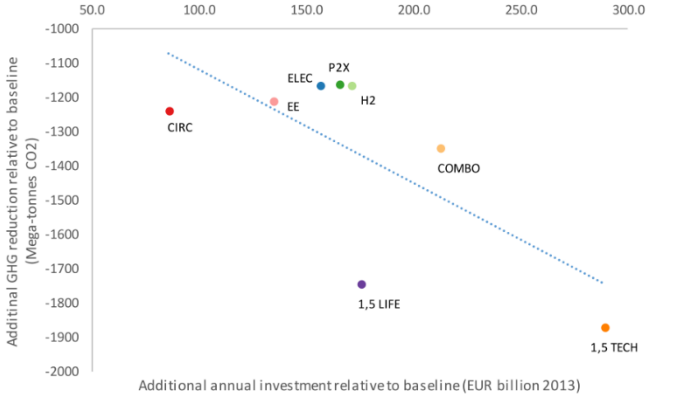
TRANSITION : WHAT IS IT?

- **+1.5°C target**
  - COP21 plus SP1.5 by IPCC
  - Global zero net GHG economy by 2070
  - Negative GHG [-20GtCO2eq, 0] emissions after 2070
  - « geophysically » feasible, limiting damages (from +2°C) but implying rapid and decisive movement into transition
  - Differentiated responsability
- **+2°C target likely, demanding anyway**
  - Global zero net economy by 2100
- **Current (COP21) INDCs hitting over +3°C** *(Climatetracker, IPCC)*
- **EC nov. 2018, "Clean planet for all"**
  - Update of the roadmap to meet +1.5°C: znCO2eq in 2050 (from 4.3GtCO2eq in 2017)
  - 1.5TECH
    - Decarbonization of energy supply (RNW); electrification (H2 ; biofuel as well); demand management; electricity storage
    - Transport and building electrification (or RNW) and efficiency
    - CCS (and other similar techs)
  - 1.5LIFE – a revolution
    - Change in behaviour (diet, plane to train shift, car to bike shift, improved city planning, lower heating and cooling demand, widespread recycling)
    - Incentives to land sinks (as opposed to CCS) – forest, biomass, agriculture SCS





Source: PRIMES, GAINS, GLOBIOM.



Source: PRIMES.

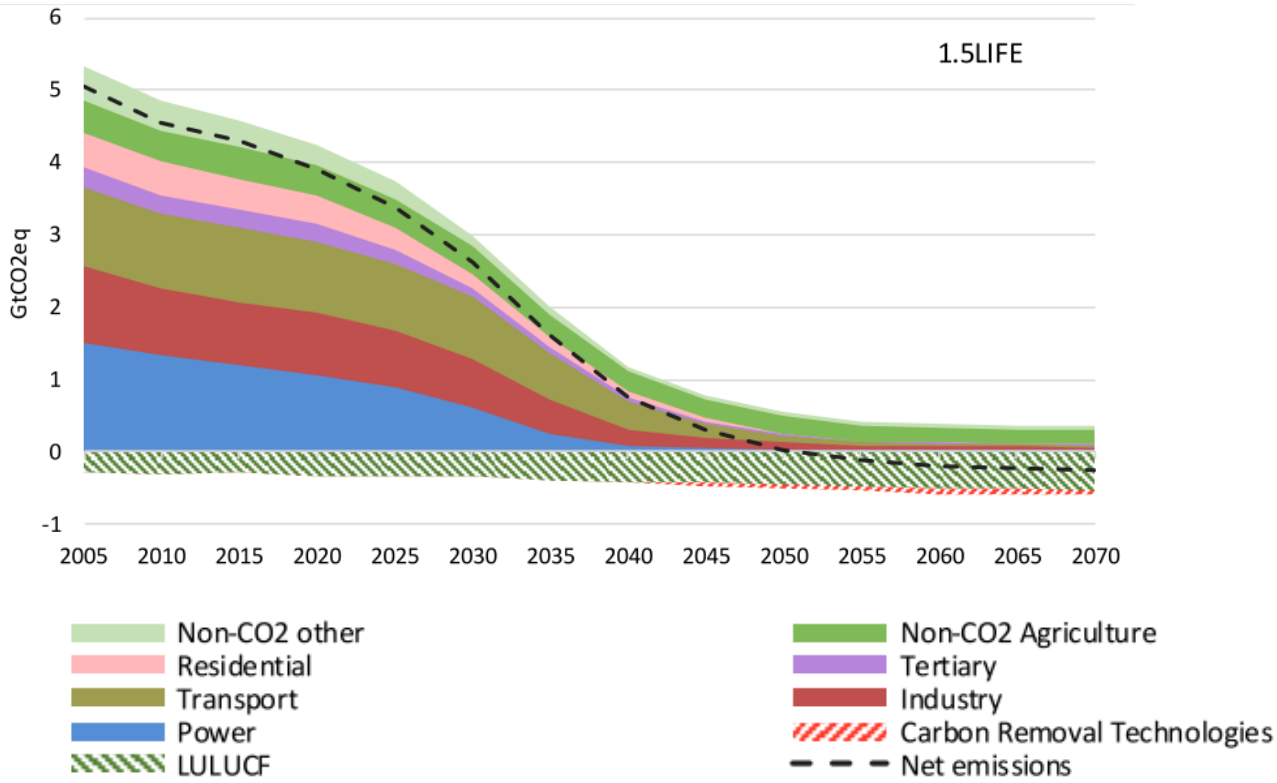
THE COSTS

EU WIDE	+1.5°C	+2°C	*Source*
MACRO MONETARY COSTS			
Additional investment (to baseline*)	$180 - 300b€/y$	$150 - 200b€/y$	*EC « Clean planet for all » (2018)*
Damages • Exclude habitat losses	*(well below +2°C damages)*	$140b€/y$	*PESETA III study report (2019)*
International transfers	$100b€/y$	$50 - 100b€/y$	*COP21 pledges+US retractation*
Stranded assets • Personal cars • Coal	*(increases with delayed transition)* $300b€$ as a capital loss, $10b€/y$ $5 - 10b€/y$	*(well below +1.5°C stranded assets)*	*Authors' evaluation*** *EC 2019*
Migration	Well below +2°C	$10b€/y$ per million migrants	*Authors' evaluation***
BEHAVIOR CURBING			
Deadweight loss carbon pricing	$80b€/y$		*Authors' evaluation***
Distributional cost	Carbon price of $300€/tCO_2$ fully compensated for the lower half income bracket → $\sim 500b€/y$ initial transfer $50b€/y$ from 2050		*Authors' evaluation***
CO BENEFITS			
Air pollution health effect	Based on SLV	equivalent or lower	*PESETA III SR 2019*
Diet and chemicals health effect	No monetary evaluation	lower	
Ease of eco anxiety	No monetary evaluation	equivalent	
Sense of Justice	No monetary evaluation	equivalent or higher	
Macro stimulus benefits	Next section		*Authors' review*

*pathway udpated (EU REF 2016). June 2018 2030 targets are supposed to be met.
**more or less back of the enveloppe evaluation, order of magnitude only. See paper for hypothesis and calibration.

THE TIME FACTOR

- **The transition has to be achieved by 2050**
  - Acceleration in the next 20 years
  - long (+30 years) and then stand (for ever)
- **All techs are neither available nor scale nor cost proven**
  - From electric/H2 cars, CCS or NET
- **Failure is not an option, mistakes are inevitable: likely to push cost up**
  - Delays will translate in stranded assets value (and distributional issues)
  - 1.5LIFE+1.5TECH more likely to be necessary



THE COSTS: LIKELY UNDERESTIMATED, MOSTLY DISTRIBUTIONAL

- **Investment cost range is $180 - 300b€/y$ $(1 - 1.5\%GDP)$ for 1.5°C**
  - Other macro cost can push the macro cost up to $450b€/y$ $(2.5\%GDP)$
  - Large scale migration could push it further
  - Delays will translate in stranded assets, with a possible order of magnitude of investment cost
  - Deadweight costs are not negligible
  - Transfers, for generous scheme, can be huge

- **Costs/benefits of the transition is undisputable**
  - Full augmented cost is low when compared to climate change ($> +3°C$) costs
  - Behavior curbing is necessary
  - Public debt increase is justified (what we leave to the next generation)

- **For individuals, reference is now, not a catastrophic future**
  - At the individual level, counterfactual is not going to be a hypothetical catastrophic scenario
  - Reference will be current situation with risk of entrenchment and call for strict rules of burden sharing

- **Compensation scheme are to be large scale**
  - Around $2.5 - 3\%GDP$, depending on efficiency to compensate and generosity (i.e. which share is compensated)

MACROECONOMIC IMPACTS OF THE ENERGY TRANSITION

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- **Transitioning to a low carbon economy has an impact on several macroeconomic dimensions:**

  - Sectoral structure of the economy, with an impact on:
    - Employment, due to different labor intensity
    - Investment, due to different capital intensity
    - Energy consumption, due to different energy intensity
    - Trade balance, due to different propensity to import and export

    - e.g.: growth of renewable electricity production while fossil electricity production decreases leads to an increase in employment since renewables are more labour-intensive, and a reduction of fossil fuel imports.

  - Overall level of investment
    - Achieving the Paris goals require a significant increase in investments in energy-related infrastructure
    - Depending on the funding source, this need not result in the crowding out of other investments
    - With limited crowding out, the increase in aggregate investments yields a direct keynesian impact

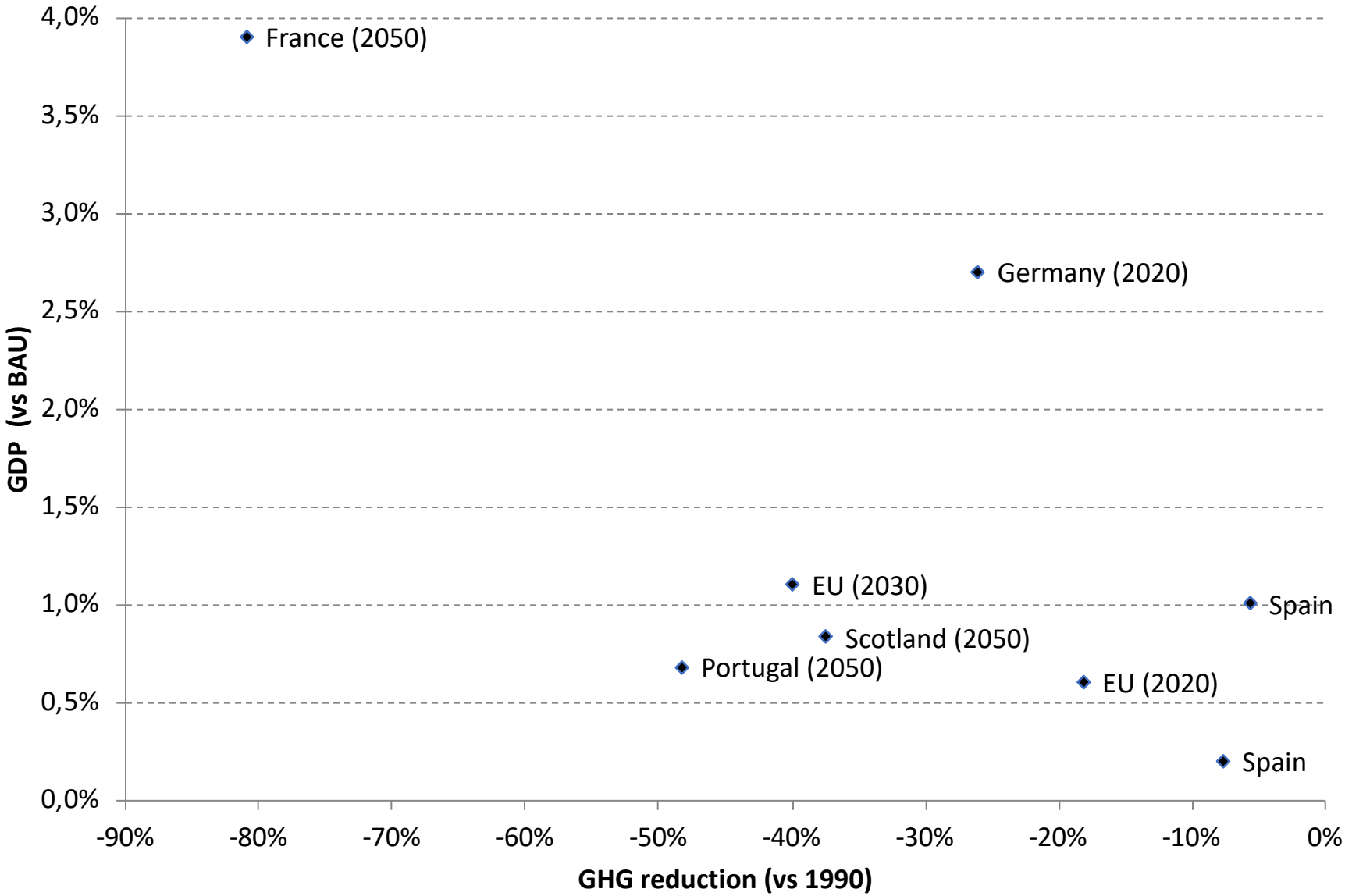
  - Tax system
    - Environmentally motivated taxation (e.g. carbon tax) can substitute for existing tax on labor, production or consumption
    - Environmental taxation can be less distortionary than the existing taxes it replaces

  - Competitiveness
    - In a non-cooperative setting, increasing energy costs can degrade competitiveness, particularly in the industry
    - This can be mitigated by implementing border carbon adjustments

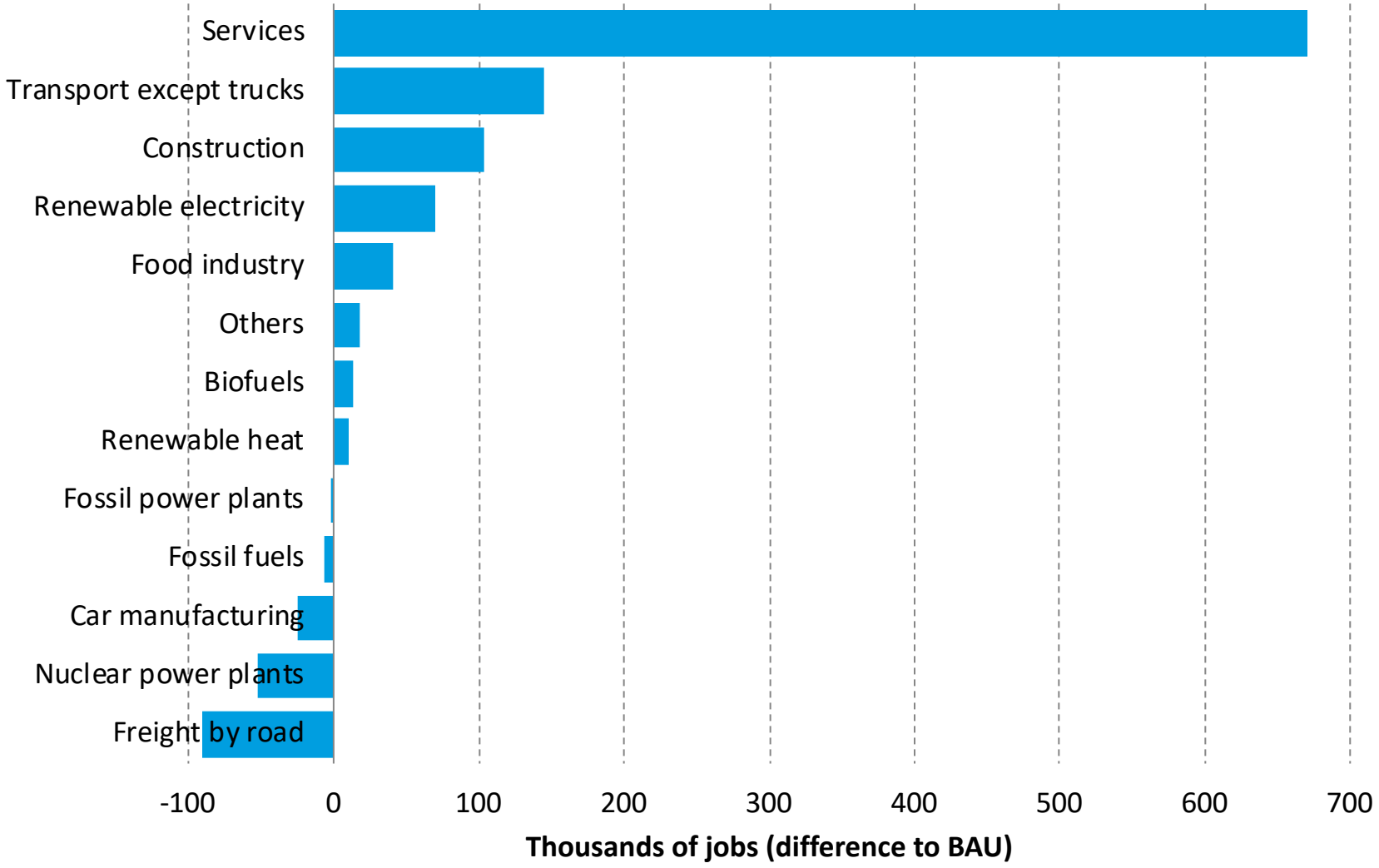
CAN REDUCING GHG EMISSIONS YIELD A DOUBLE DIVIDEND?

- **A double dividend occurs when implementing the energy transition both:**
  - Reduces GHG emissions (environmental dividend)
  - Increases economic activity (economic dividend)
- **Mostly associated in the literature with the substitution of distortionary taxation with environmental taxes**
- **However, other macroeconomic channels can bring about double dividend. For example, an increase in renewables investments:**
  - leads to an aggregate increase of investments (if crowding-out is partial)
  - which drives employment and consumption growth
  - which in turn leads to production increases
  - and a reduction in unemployment (if there was involuntary unemployment initially)
- **The double dividend is an important selling point of most Green New Deal proposals**

When it exists, the double dividend remains small



YET, AGGREGATE IMPACTS MASK SIGNIFICANT SECTORAL HETEROGENEITY



100% renewable electricity scenario in France (ADEME/OFCE, 2016)

THE GREEN NEW DEAL IS NOT MEANT TO ACHIEVE A LARGE BOOST TO GROWTH

- **The energy transition can yield macroeconomic co-benefits, yet these will be modest**
  - Over a fairly large band of GHG emissions reduction magnitudes, macroeconomic impacts remain limited below 4% impact on GDP
  - Over the periods considered, this is less than 0.1% annual growth
  - Deep decarbonization can now be achieved without a loss to GDP
- **All instances of double dividend result from the full recycling of the environmental taxation proceeds**
- **More importantly, macroeconomic impacts are highly heterogeneous across sectors**
  - How to compensate losing sectors?
  - How to help workers from losing sectors to transition to a new activity?
- **As such, the Green New Deal should not be construed as a tool to boost economic growth significantly**
- **This is also what is required to achieve the Paris agreement targets: resuming fast-paced growth would only make the 1.5 or 2°C goals even harder to attain**
- **Therefore, the Green New Deal cannot simply rely on economic growth to handle the heterogeneous impacts of the energy transition both across sectors and households – which is the real challenge**

VARIETIES OF GREEN RATIONALES (1/2)

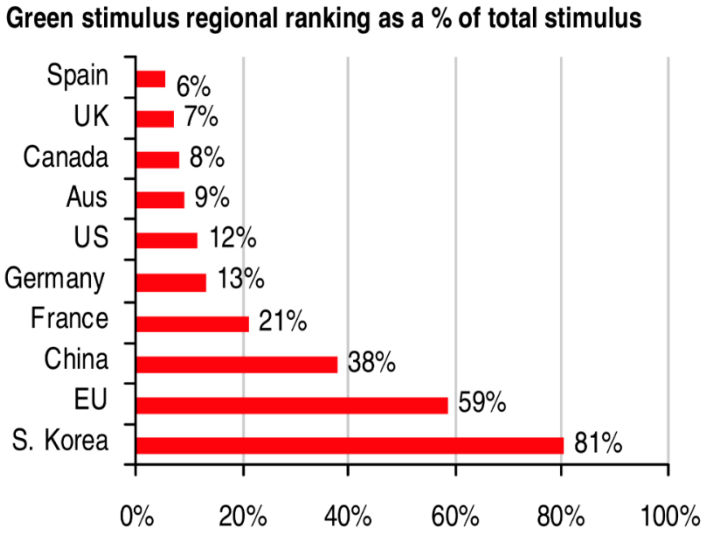
- **Term first appeared just before the 2008 global financial crisis and at the time of the AR4 from the IPCC**
  - Thomas L. Friedman, « A warning from the garden », NYT – January 2007
  - Many re-uses

A Green New Deal

Joined-up policies to solve the triple crunch of the credit crisis, climate change and high oil prices

The first report of the Green New Deal Group

- Green New Deal Group report (2008)
  - Triple crunch credit, climate, high oil prices
  - Long-term restructuration of financial, tax, energy systems
- Used by international organizations (UN)
- A lot of countries implemented green policies by 2008
  - Study by HSBC - February 2009
    - « The Green Deal gets real »
    - South Korea has the greenest stimulus
  - Macro green washing ?
- Great variety of green capitalisms (Tienhaara, 2014)
  - Disputable accountability
  - Mostly green « bail-outs »



Source: HSBC estimates

- **A Green (New) Deal should go beyond green capitalism or green stimulus**

VARIETIES OF GREEN RATIONALES (2/2)

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	GREEN CAPITALISM	GREEN STIMULUS	GREEN NEW DEAL	POST-GROWTH ECONOMY
BACKGROUND	Incremental mitigation	Economic crisis and environmental concerns	Climate emergency	Collapse
MACROECONOMIC TRAJECTORY	Green growth Focus on GDP	Green growth Focus on GDP	Low growth Includes well-being	No growth/degrowth Focus on well-being
ENVIRONMENTAL OUTCOMES	Decoupling	Decoupling	Deep decarbonization	Full sobriety
MECHANISMS	Free enterprise, free markets and innovation	Public intervention, innovation, redistribution	Behavioural change, public intervention, innovation, redistribution	Behavioural revolution
ECONOMIC TOOLS	• Carbon pricing	• Carbon pricing • Targeted public investment (”green” vs. “brown” sectors)	• Carbon pricing • Targeted public investment (“green” vs. “brown” sectors)	• Relocation • Trade tariffs • Technological downgrade
CONSUMPTION PATTERNS	Free choice	Mild norms	Stronger norms (*e.g.* plane, meat)	Rationing (*e.g.* no foreign goods)
COLLECTIVE MOBILISATION AND SOCIAL PRESSURE	No	No	Yes	Yes
GOVERNMENT INTERVENTION	No	Yes	Yes	Not necessarily centralized
ATTEMPTS	-	Obama 2008	AOC 2019	-

Green New Deal inspirations

	Green New Deal	FDR's New Deal	Arsenal of Democracy	Bretton Woods System
Main goal	+1.5°C	Bring America back to its own people	Win the war	Make democracy thrive
Geographic scope	Global	National (US)	Global	Global
Temporal scope	Long transition	Temporary	Temporary	Permanent
Efforts	Society-wide mobilisation with international settlements	Society-wide mobilisation until growth comes back	Short, intense and total mobilisation	International institutional settlements
Enemies	Ourselves	Big business	Nazi regime	Totalitarianisms

- **FDR's New Deal legacy**
  - Stimulus package : relief and recovery programs
  - Government intervention in the economy (*yardstick*)
  - Moral approach : reforming the society, bringing specific values (*e.g.* social justice, moral value of work)
  - Democracy (*e.g.* fireside chats)
- **However, it seems important not to rely too heavily on this comparison.**
  - often mixed up with the war mobilisation period
  - part of the Green New Deal spirit is also inspired from the Bretton Woods system

5 PILLARS FOR A GREEN NEW DEAL (1/2)

- **1. Investment plan**
  - plan means planification, coordinating actors, private and public, at different scales, aver the long term (2070 for net zero carbon economy)
  - Sectoral scope is large
    - Energy generation, distribution; Industry – energy efficiency, recycling ; transport (goods, persons, air, road) ; Urbanization (density good for biodiversity and energy efficiency); Agriculture (land intensity is an issue) ; Negative emissions infrastructures (NET&NEI)
  - Innovation is important: not all techs are ready!
- **2. Curbing behavior**
  - Social pressure, ecolife style education
  - Norms, through regulation, education and social pressure
  - Carbon Pricing (taxes, cap-and-trade, subsidies)
    - efficiency calls for unique price, pragmatism not
  - Compensation (temporary and/or permanent), BTA are necessary
  - Supply of techniques and technology; transition and technological path sync ; social treatment of stranded assets
  - Fight against vested interests
- **3. Well balanced decentralization**
  - Most projects incentives are local, behavior change is local
  - Large scale devices exist, thus large scale governance
  - Auditing, monitoring, incentivizing up one or many levels
  - Check and balance for all layers

5 PILLARS FOR A GREEN NEW DEAL (2/2)

- **4. Solidarity**
  - *Beveridgian* system:
    some climate and climate policy related risks are beyond individual responsibility and hence insured
    - Not all climate risks are eligible to insurance: a beach house on the shore?
  - Intra national solidarity, inter EU MS, intra World (EU and RoW)

- **5. Democracy for the transition: Preserving rights, justice and democracy in a world of rationing**
  - Voice, deliberation, sovereignty (avoiding Habermas' lure of technocracy)
  - Information (independant, technical, trustworthy) , assesment (of policies, distribution)
  - Accountability of policy makers
  - Set of rights (fundamentals, way of life, equal burden) and conflict solving (arbitrage) institutions (individuals versus state, individuals versus individuals – limit overexposure of executive branch)
  - Stability of transition vector

- **5.1 International framework for the transition**
  - Adler&Varoufakis Guardian Tribune. OEEC, Green Manhattan Project the BW spirit in a global green new deal
  - Going beyond COP21 framework
    - Or commit to the pledges (100bn$ Climate Fund, 1.5INDCs, policies, …)


Opinion
Climate change

It's time for nations to unite around an International Green New Deal

Yanis Varoufakis *and* David Adler

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Several countries have proposed their own versions of a Green New Deal, but climate change knows no borders. We need a global response

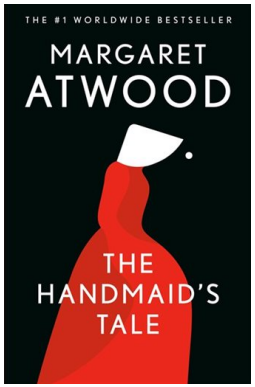
'The stakes of the international Green New Deal are not merely environmental.' Photograph: Craig Easton/Getty Images/Cultura RF

AS A CONCLUSION

- **Bottom up appropriation is critical**
  - Sunrise versus "*alphabet soup*" and technocracy
    – the technocratic plan is providing support to a willing society
  - What about a more ambitious progressive project ?
    - Poor, youngs, women, minorities
    - Risks to overload the project, reduce political support and induce political instability
  - Separating preserving fundamental rights versus improving everybody condition
    – despite possible linkage through thermic capitalism flaws
    - Climate is "governing agenda" (Elisabeth Warren @ClimateTownHall)
    - Nobody left behind

- **What about suspending rights ?**
  - Ecofacism is tempting, would be a failure
  - Failing mitigation would foster ecofacism
  - New deal was built against that perspective (failure to mitigate and failure to respect fundamental rights)

Sunrise at Nancy Pelosi's US Congress Office call for a Select Committee for a Green New Deal



Atwood's ecofacism dystopia (1985)