



Insights from the JRC on modelling of climate policies in the Green Deal

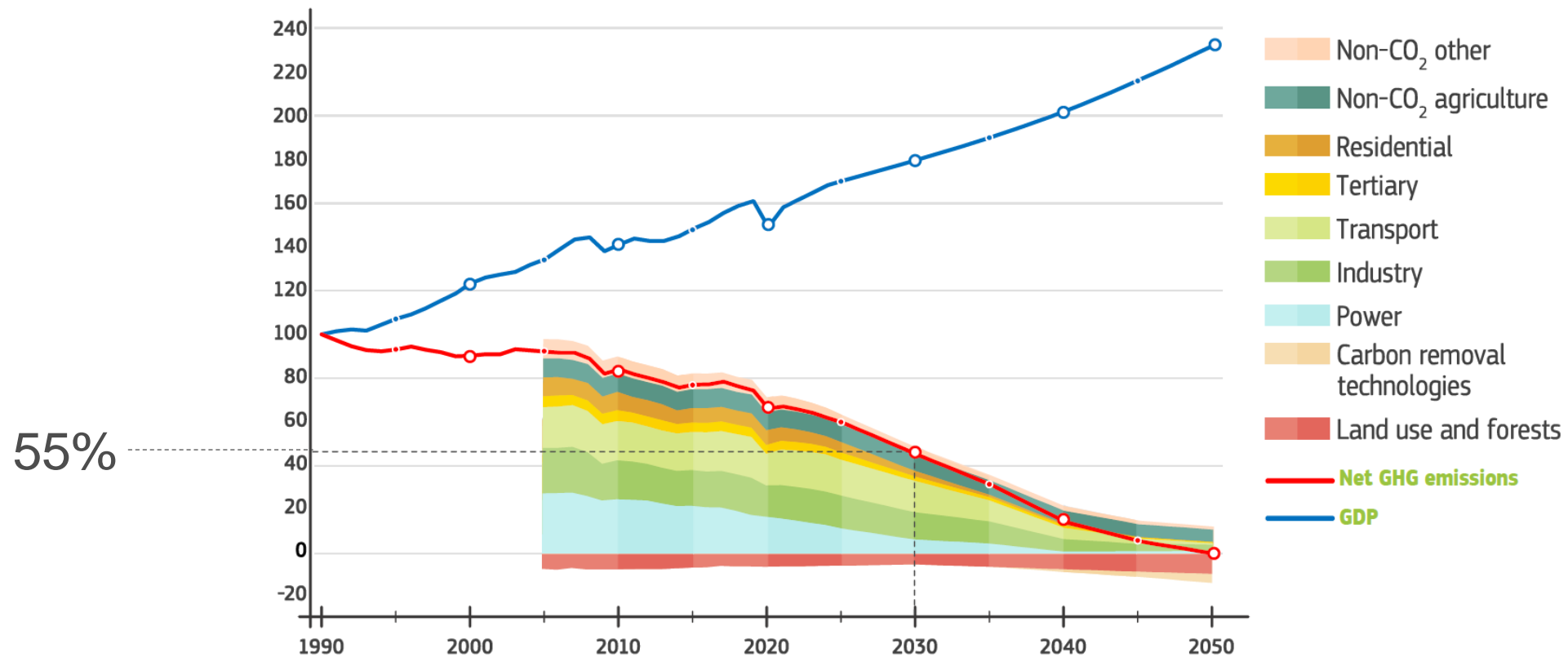
Pre-EAERE OECD Workshop

Toon Vandyck

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Green Deal: 2030 Climate Target Plan



Source: Based on EC (2020). SWD(2020) 176 final

Economic impacts

- Macro impacts across policy design options
- Overall, GDP is hardly affected.
- Reducing pre-existing distortions further limits economic impact.

EU impacts on key variables vs. baseline, 2030						
	- Tax recycling - Imperfect labour market - Free allocation ETS - Market share maximisation ETS			- Lump sum transfers - No labour market imperfections - Free allocation ETS - Profit maximisation ETS		
	REG	MIX	CPRICE	REG	MIX	CPRICE
Real GDP	-0.30	-0.27	-0.24	-0.23	-0.25	-0.25
Private consumption	-0.53	-0.71	-0.79	-0.41	-0.46	-0.44
Investment	0.49	0.57	0.86	0.50	0.56	0.83
Employment	-0.09	0.06	0.15	0.00	0.00	0.00
“Fuels and power” prices	-1.62	4.55	9.96	-1.92	3.47	8.07
“Housing and water charges” prices	2.67	1.77	0.14	2.68	1.82	0.19

Source: JRC-GEM-E3 model

Source: EC (2020). SWD(2020) 176 final

Social impacts: Jobs across sectors

- Employment impacts across a range of scenarios depending on
 - Non-EU action
 - Labour market flexibility
 - Tax recycling
 - Pass-through of grandfathered permits
 - Extent of auctioning in ETS
 - Auctioning in non-ETS yes/no
- Consistent result of job losses in fossil fuel industry, which calls for policy attention.

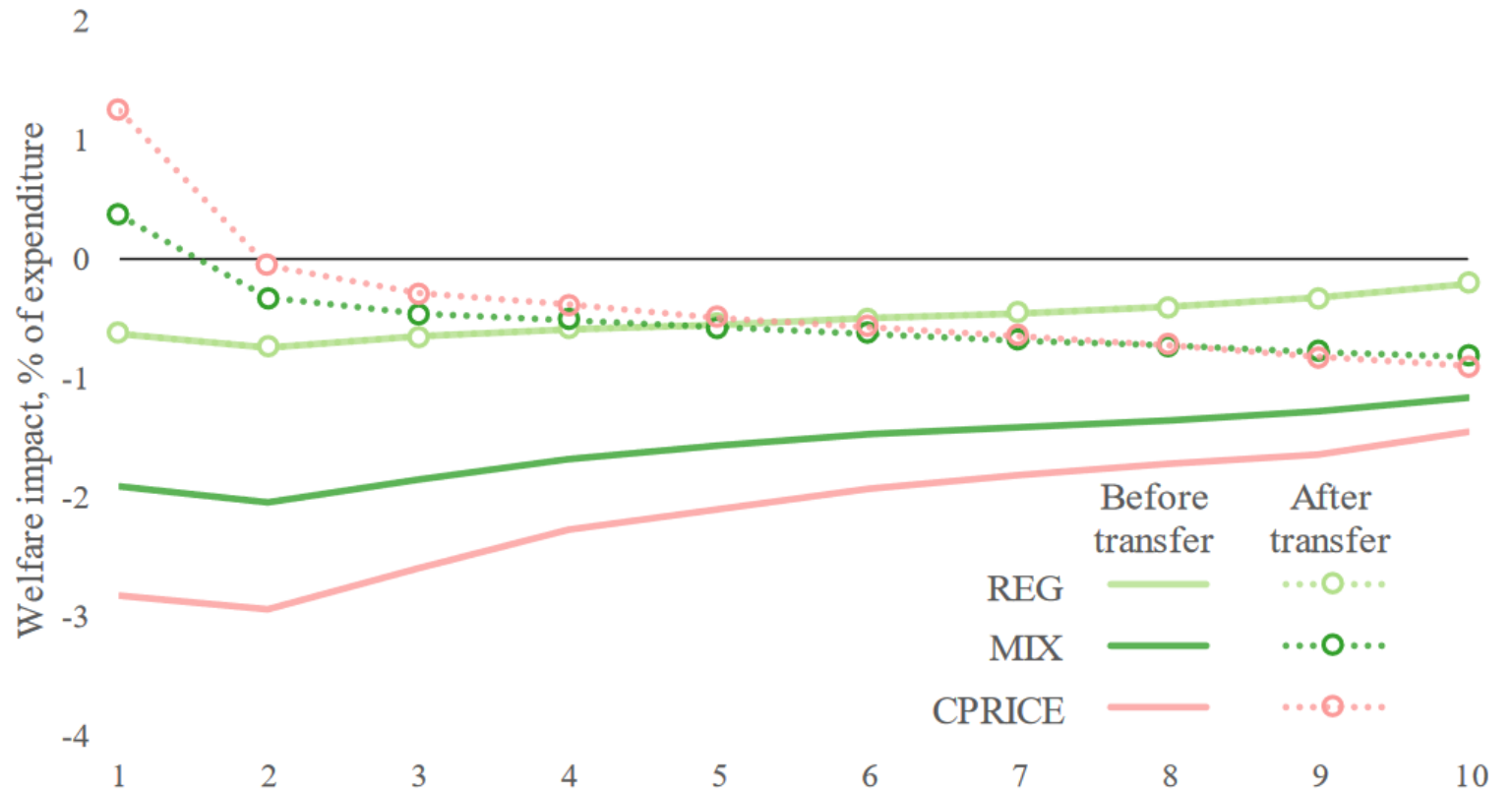
Employment vs. baseline, 2030 (MIX scenario)

	55%	
	<u>Fragmented action</u>	<u>Global action</u>
Coal	-49.1 -48.3	-47.1 -46.3
Crude Oil	-8.1 -4.8	-10.5 -8.6
Oil	-5.2 -3.1	-7.9 -5.7
Gas	-11.2 -8.5	-7.9 -5.8
Electricity supply	2.8 3.3	5.7 6.6
Ferrous metals	-4.1 0.1	2.2 7.0
Non-ferrous metals	-2.2 -0.1	3.6 6.3
Chemical products	-0.8 -0.1	0.6 1.4
Paper products	-0.4 0.1	0.0 0.7
Non-metallic minerals	-2.1 0.3	-0.1 2.7
Other equipment goods	-0.3 0.4	2.0 2.8
Consumer goods	-0.6 0.3	-0.6 0.4
Construction	0.3 0.6	-0.1 0.4
Transport (air)	-3.7 0.5	-3.8 1.5
Transport (land)	-0.5 0.0	-0.7 0.1
Transport (water)	-0.3 0.2	-4.1 -2.9
Market services	-0.3 0.1	-1.4 -0.7

Source: EC (2020). SWD(2020) 176 final

Social impacts: Across income groups

- Coupling macro with micro for inform the Just Transition.
- Revenue recycling is key.
- Instrument choice matters for equity.



Source: JRC-GEM-E3 model

Source: EC (2020). SWD(2020) 176 final

Social impacts: Within income groups

3 SCENARIOS

RICH

POOR



Legend:

- Carbon price
- Mix
- Regulation

Percentile markers: 10th, 25th, 50th, 75th, 90th

Mean

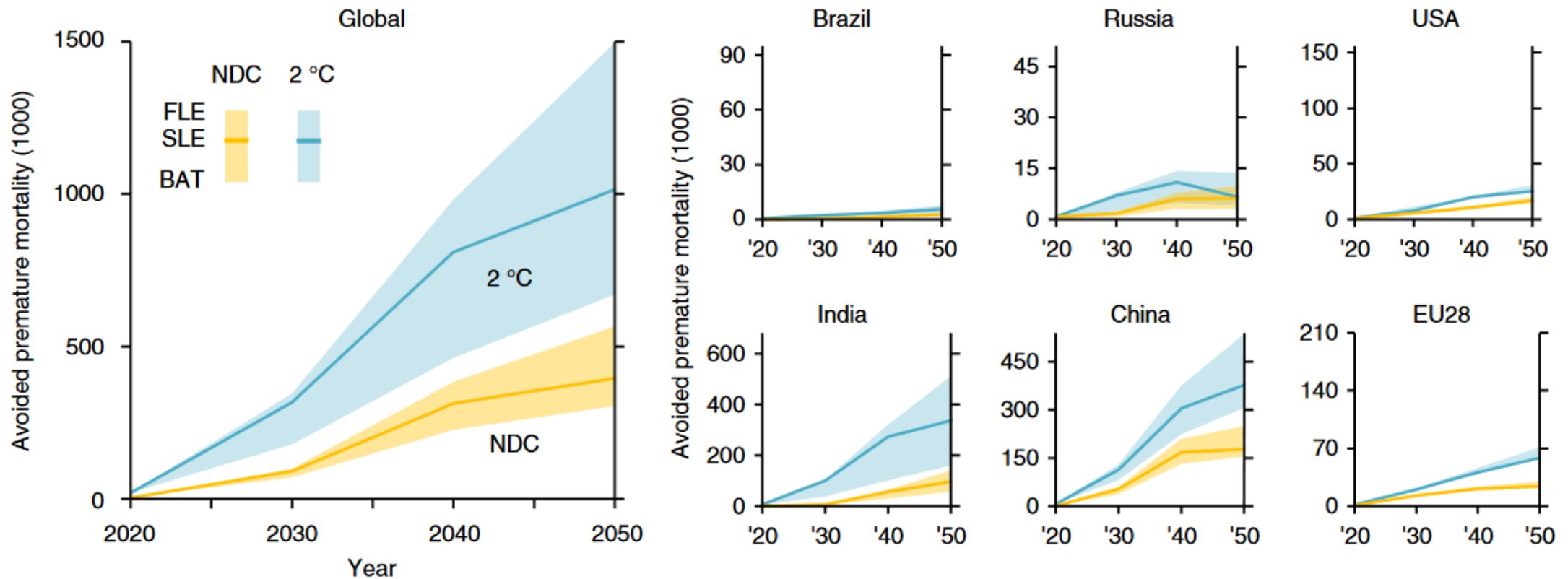
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Temursho, U., Weitzel, M. and Vandyck, T. (2020). Distributional impacts of reaching ambitious near-term climate targets, JRC Report

Environmental impacts: Air pollution co-benefits

- Green Deal scenarios: premature mortality reduced by >100k rel. to 2015
- Major potential on the global level:



Source: Vandyck et al. (2018). Air quality co-benefits for human health and agriculture counterbalance costs to meet Paris Agreement pledges. *Nature communications*, 9(1), 1-11.

Concluding remarks

- Ex ante model-based assessments can inform climate policy.
- Transition to low-carbon economy is consistent with economic growth and can improve human health outcomes.
- Quantifying distributional impacts enables a discussion on social aspects and potential & impact of complementary measures.

Thank you



Toon.Vandyck@ec.europa.eu



@ToonV



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