ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

Costs and effectiveness of the pledges for emission reduction for Annex I Parties

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Assessing the 'Copenhagen pledges'

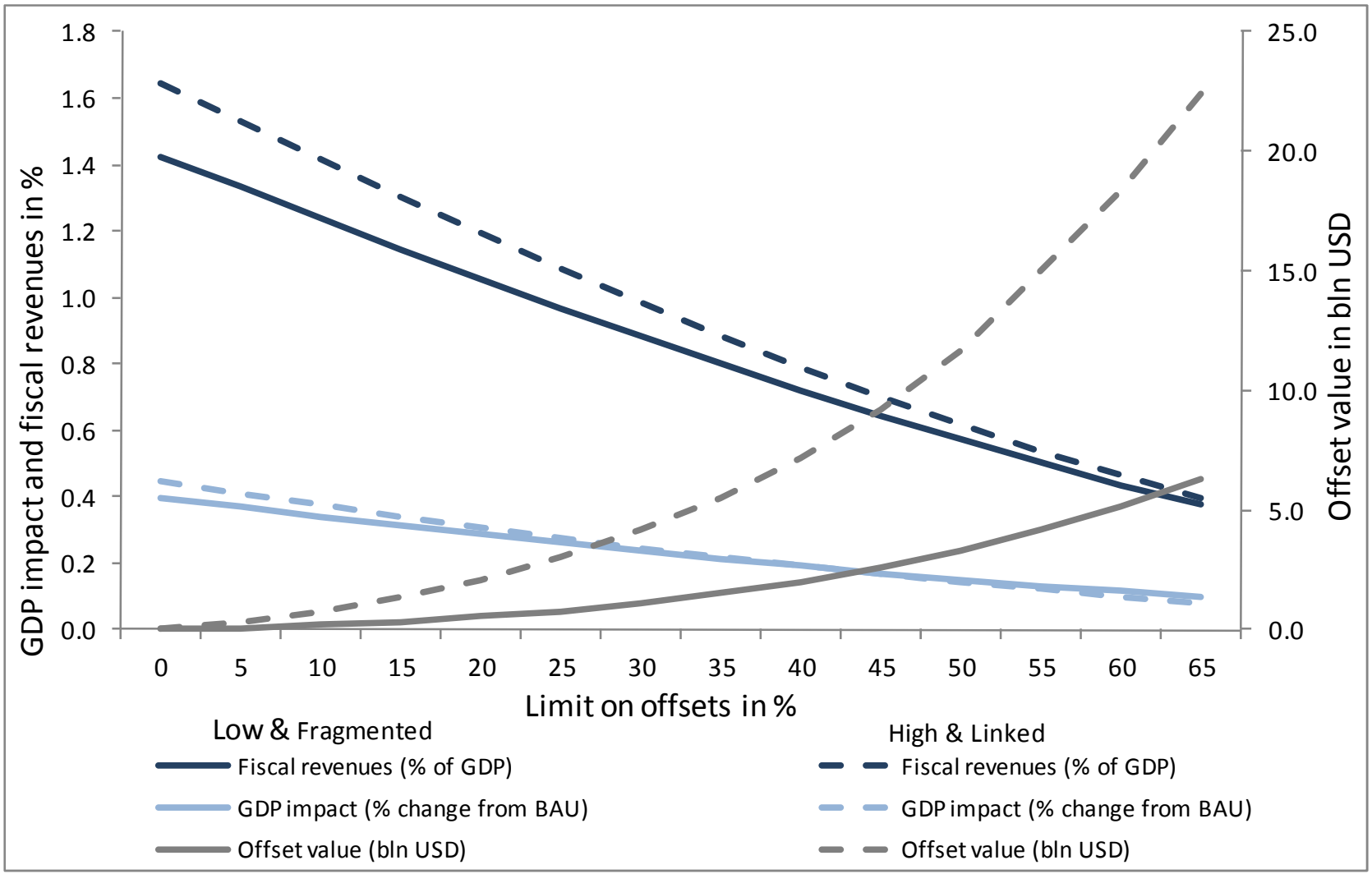
- **Model-based assessment of pledges**
  - Dynamic computable general equilibrium model (ENV-Linkages) links economic activities and calculates associated emissions: sectoral and economy-wide total costs of action are calculated
  - Simplifying assumptions are necessary for economic assessment: grouping to 12 regions, default level of offsets, no emissions from LULUCF, no banking of AAUs
  - All pledges implemented through domestic action and limited use of offsets, targets implemented through domestic cap & trade
- **Two main scenarios**
  - Low & Fragmented scenario: low end of pledges, no linking
  - High & Linked scenario: high end of pledges, with Annex I linking

Costs of implementing pledges in 2020

	Emissions target (change from 1990)	Gross Domestic Product (change from baseline)		Real income (EV) (change from baseline)	
		Low & Fragmented	High & Linked	Low & Fragmented	High & Linked
Australia & NZ	+10.5% to -11.5%	-0.4%	-0.6%	-0.9%	-1.2%
Canada	3%	-0.4%	-0.3%	-2.3%	-2.2%
EU27 & EFTA	-20% to -30%	-0.2%	-0.3%	-0.3%	-0.5%
Japan	-25%	-0.4%	-0.1%	-0.4%	-0.2%
Non-EU E Europe	-16% to -16.5%	-0.3%	-1.5%	-1.4%	-1.7%
Russia	-15% to -25%	-0.2%	-1.9%	-1.8%	-2.7%
US	-3.5%	-0.2%	-0.2%	-0.4%	-0.4%
Brazil	-36% to -39% from BAU	-1.5%	-1.9%	-4.4%	-5.5%
China	-0.2% to -8.5% from BAU	-0.2%	-0.3%	-0.3%	-0.5%
India	+45% to +36% from BAU	+0.1%	0.0%	+0.3%	+0.2%
Oil Exporters	-8.5% from BAU	-0.9%	-0.9%	-2.8%	-2.8%
ROW	-6% from BAU	0.0%	-0.1%	-0.2%	-0.2%
Annex I	-12.5% to -17.5% from 1990	-0.3%	-0.3%	-0.5%	-0.5%
non Annex I	+42% to +48% from 2005 *(-11% to -7% from BAU)*	-0.2%	-0.3%	-0.7%	-0.8%
World	+13% to +18% from 2005	-0.3%	-0.3%	-0.5%	-0.6%

Source: OECD, 2010, 'Costs and effectiveness of the Copenhagen pledges', and Dellink et al., forthcoming, *OECD ENV Working Paper* 22.

Varying the ceiling on offsets: results for Annex I in 2020



Source: OECD, 2010, 'Costs and effectiveness of the Copenhagen pledges', and Dellink et al., forthcoming, *OECD ENV Working Paper* 22.

Assessment of the pledges

- **Pledges for 2020 are not ambitious enough for the long-term goal of remaining below 2°C average global temperature increase**
  - Emissions may stabilise, but concentrations will not
  - Significantly more action is required after 2020, at higher costs
- **Using market-based policy instruments helps to keep costs as low as possible and creates fiscal opportunities**
  - Linking can reduce costs by 20%-25% for Annex I
  - Revenues could be more than 1% of GDP (~400 bln USD) – for domestic priorities and/or climate financing
- **Crucial and uncertain assumptions:**
  - Allowing more offsets leads to lower costs and less fiscal revenues
  - International financing of mitigation action
  - No banking of AAUs, no emissions from LULUCF

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Key features of the ENV-Linkages model

- Computable General Equilibrium (CGE) model: full description of the economy and equiilibrium on all markets
- World divided into 12 regions
- Economy divided into 22 sectors (incl. 5 energy-intensive industries) plus 5 electricity technologies
- Recursive-dynamic structure: horizon 2005-2050; vintages of capital
- Greenhouse gas emissions (CO_2, CH_4, N_2O, HFCs, PFCs & SF_6) linked to economic activity, excluding emissions from LULUCF
- Impacts of climate change not assessed: model only assesses the costs of policies, without valuing their environmental benefits
- Baseline projection based on conditional convergence hypothesis and includes short and long term effects of economic crisis
- No existing climate policies except EU-ETS