Discussion of "Environmental subsidies to mitigate transition risk"

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Goal and results

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- Solved under perfect foresight with extended path.

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  - 60% to startups;
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- The subsidy will save nearly US $2.9 trillion in world GDP each year by 2060.

In a nutshell

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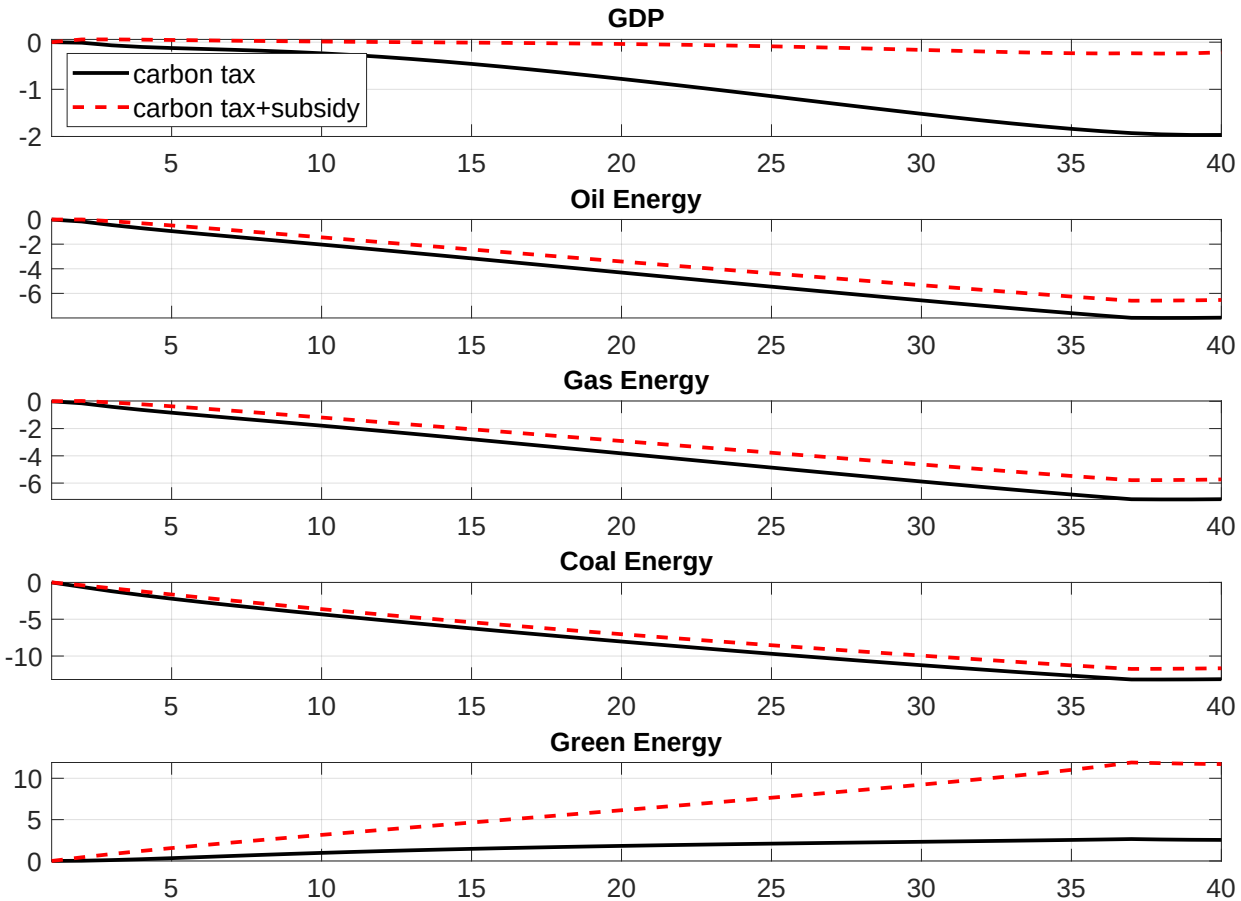
- Subsidies to firms' entry into the abatement goods market favor green transition.

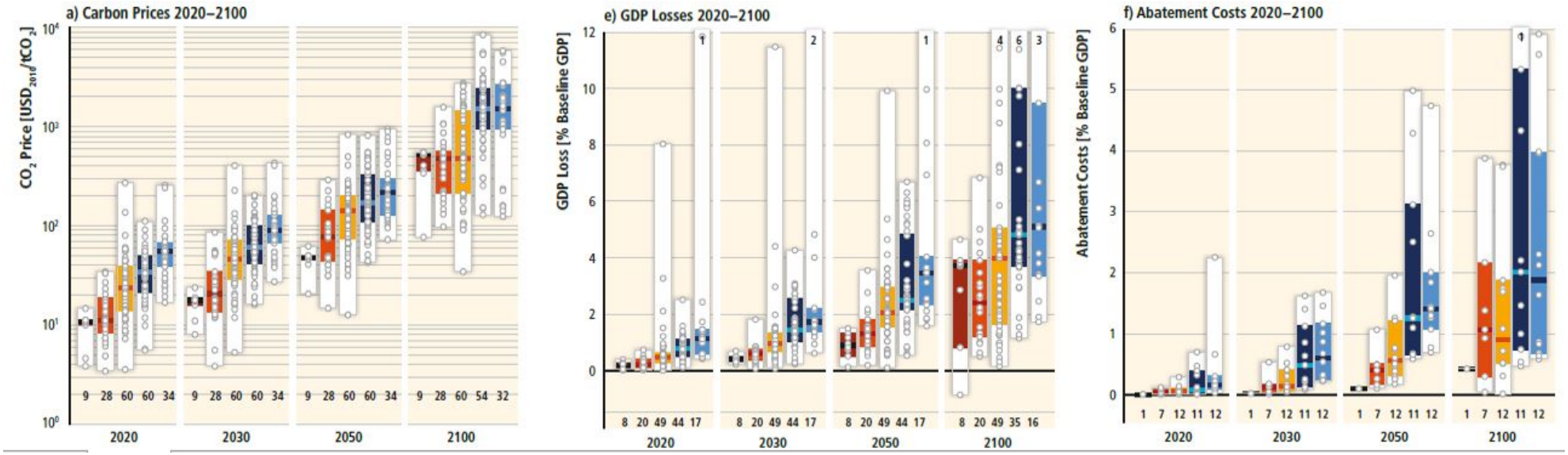
Carbon tax and subsidies to green energy sources



Bartocci et al. (2022) "Green" fiscal policy measures and non-standard monetary policy in the euro area, Bank of Italy Working Papers, n. 1377.

Comments

Uncertainty of policy outcomes and optimal policy



Source: Intergovernmental Panel on Climate Change (2014).

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- Consumption equivalent variation?

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- If so, in the model, should investment appear in the relevant definition of GDP (no double-counting)?

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- Public and private investments seem to be relevant for green transition.

Table 1: Additional Cumulative Investment Needs for the Decade 2021 to 2030

Source	Sectors	Period considered	Public investment need *(percent GDP)*	Total investment need *(percent GDP)*	Climate target
OECD (2017)	All	2016-2030	1. 9	6.3	2.0 °C
McCollum et al. (2018)	Energy	2016-2050	2.1	7.1	1.5 °C
Range of models			0.4 to 4.4	1.3 to 14.6	
IEA (2021b)	Energy+	2021-2030	2.7	9.9	NZE by 2050
EIB (2021)-EU only	All	2021-2030	2. 1	4.7	55% reduction by 2030

Source: OECD (2017), McCollum et al. (2018), IEA (2021b), EIB (2021) and IMF staff calculations.

Note: The investment need is the difference between the investment required for the climate change scenario less investment in the baseline. The share of public investments in total investments is based on the historical average split. The estimate of average GDP for the denominator is taken from the G-Cubed baseline scenario (IMF (2020a)). Percent of GDP for IEA (2021b) are calculated with each year's GDP separately. For the other sources average estimated GDP for 2021 to 2030 is used. (McCollum et al. 2018) compares six Integrated Assessment Models for which the average and, below, the range are reported. EIB (2021) refers to investment needs in the EU; all other publications refer to global investment needs.

Source: IMF (2021), *Reaching net zero emissions*, June.

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  - Would the Kalman filter produce results and have a computational performance dramatically different from the inversion filter?

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- Translog preferences (increasing elasticity of substitution in the number of products)?

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- Ideally, further tests of the suggested theory (e.g., relevance of sunk costs) should be based on:
  - data on product creation, development, and destruction;
  - a fine disaggregation of products.

To conclude

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- Some theoretical and quantitative aspects of the paper deserve further analysis and discussion.

Thanks!