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Climate risks and debt sustainability

A Greens/EFA Study

Read our study on the impact climate change has on debt sustainability. Researchers have applied an analytical model to a highly indebted EU Member State (Italy). Their aim was to investigate the trade-off between increasing deficit, with a faster climate change reduction, and a more conservative approach, with slower adaption to climate change.

The main findings include:

- Fast adaptation to climate can offset most of the negative effects.
- Slow adaptation, with gradual interventions, is less effective.
- The considerable increase in the public deficit under the fast adaptation scenario does not prevent debt sustainability.
- Fast adaption avoids increasing debt dynamics close to the end of the simulation period.
- Tight fiscal rules for highly indebted economies may prevent these countries from taking the necessary actions to improve debt stability in the coming decades.
- However, decisively increasing targeted green public expenditure is a factor for rendering public debt sustainable in the long-term.

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EXECUTIVE SUMMARY

The last IPCC's Report, released few days ago (4th April 2022), underlines the urgency of rapid and drastic interventions to limit the adverse effects of climate change on natural and human life. This calls government and public institutions to use any fiscal policy tool (such as taxes, subsidies and public investments) to contain climate damages. Of course, the issue of fiscal sustainability emerges together with the need to balance the social and the environmental goals. The EU is at the forefront in planning actions to boost the efficient use of resources, by moving to a cleaner energy power generation, and to achieve a

just and inclusive transition, as exemplified by the EU Green Deal. Looking at the scientific literature, the question of the most effective policy mix for climate change adaptation is relatively unexplored also due to the complexity and uncertainties that surround this issue. We aim at shed a light on the relation between public debt and climate risks.

In macroeconomics, there is a significant debate on the conditions to achieve long-term debt sustainability when its interactions with fiscal policy and economic growth are taken into consideration. Recent developments in endogenous growth theory suggest that a rise in the fraction of GDP devoted to public investment can improve debt. The aim of this report is to evaluate how climate change can influence debt sustainability and how adaptation policies can affect the probability of unstable debt dynamics. First, we introduce a simple theoretical framework to clarify the main relationships between alternative adaptation spending strategies. The analytical model results suggest that adaptation policies are expected to increase GDP growth and, also, debt sustainability if the effectiveness of adaptation expenditure is sufficiently high. Second, we employ the Eurogreen macrosimulation model to the Italian economy, to project the impact of climate change damage and adaptation policies on debt sustainability under different hypotheses.

We simulate and compare four scenarios. The first one takes the baseline developed in the Eurogreen model under the assumption of no climate damage to obtain a hypothetical reference scenario. The second scenario quantifies the impact of climate damage at industry level without the introduction of any adaptation policy. The same climate damage is applied to the following two scenarios. The third scenario assumes that, between 2021 and 2023 (3 years), the government intervenes by introducing additional public expenditure in adaptation strategies. The final scenario assumes that the government spends the same budget as in the previous case in a more gradual way, over a time period of 30 years (from 2021 to 2050).

The main results may be summarised as follows. Although the economic damage, in terms of GDP fall, is limited until 2050, following climate damage projections based on the current literature, the impact in terms of debt-to-GDP ratio is larger, thus increasing the risk of insolvency. The main driver of this outcome is the reduction of government revenues (e.g., reduction in value added and corporate income taxes). Although overall climate damage increases with temperature, thus gradually, the risk of extreme events calls for urgent action. The fast adaptation scenario is able to offset most of the negative effects, while the slow adaptation strategy, with gradual interventions, is less effective. The considerable increase in the public deficit under the fast adaptation scenario, for years 2021-2024, does not prevent debt sustainability; rather, it avoids increasing debt dynamics close to the end of the simulation period (2050).

These results suggest that tight fiscal rules for highly indebted economies may prevent these countries to take the necessary actions to improve debt stability in the coming decades, with the paradoxically result of undermining the debt sustainability that those rules are intended to achieve.

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Attached documents

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