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Federico Revelli

Effective Climate Change Adaptation Needs Accountability

Earth's surface temperature in the past decade has exceeded the average temperature of the second half of the 19th century by more than 1°C (IPCC 2022). Besides causing irreversible losses to Earth's ecosystems, climate change represents a direct threat to human life: more than three billion people are highly vulnerable to climatic hazards.

Despite accelerating efforts to address climate change at multiple levels of governance, there remains a large degree of uncertainty about future changes in temperature. In all currently modeled pathways, global warming will continue. Adaptation to climate change is a necessity.

Thanks to a generally higher adaptive capacity, Europe's current vulnerability to climate-related events is lower than the rest of the world's (EEA 2022; EEA 2023). In addition, public awareness of climate change – as shown by recent Eurobarometer surveys – is high. Still, the past decades have seen increasing mortality and morbidity of people due to heat waves, large agricultural losses due to water scarcity, and devastating floods. In addition, average warming during the 21st century is predicted to be greater than the global mean across all of Europe, with projected escalating risks of coastal erosion (50 million Europeans live within 10 meters above mean sea level), transport infrastructure failures, air pollution, and the spread of infectious diseases.

In what follows, drawing on widely employed indicators of quality of policymaking institutions, progress in climate change adaptation strategies and plans, and recent cross-country empirical research, we will show some suggestive evidence of correlation between government quality and European countries' performance in adaptation to those climate risks and discuss its policy implications.

THE CLIMATE RISKS FOR EUROPE

In its latest Assessment Report, IPCC (2022) identified four climate risks for Europe. The first relates to mortality and morbidity of people due to heat. Europe – a continent characterized by ageing population, high urbanization rates, and a high incidence of chronic diseases – is warming at a rate twice as fast as the global average. Southern and Eastern Europe have suffered the most severe consequences and are projected to experience rising levels of heat stress risk by the mid-21st century. The heat-related mortality burden during the summer of 2023 was estimated

at 50,000, raising doubts about the effectiveness of the prevention plans devised after the early 2000s heat-related disasters, and the temperatures reached during summer 2022 exceeded all-time national records. Italy, Greece, Spain, and Portugal registered the highest heat-related mortality rates.

The second risk refers to the impact of climate change on crop production. The compound hazards of drought and heat have been responsible for increased production costs and have caused large losses in forest productivity, annual and permanent crops, and livestock farming. Also in this case, there are substantial regional differences. While positive impacts are expected in cold areas of Central and Northern Europe and at higher altitudes, drought stress will prevail in the rest of the continent. Large-scale forest mortality, output reduction in agriculture, falling profitability of farmland, and abandonment of rural areas in the most severely affected parts of Southern Europe are predicted even under the less pessimistic warming scenarios.

The third risk refers to water scarcity. In Southern Europe, the risk of water scarcity is expected to be high even at the 1.5°C global warming level, and very high at the 3°C global warming level. Water scarcity is the combined effect of intensive and increasing water use and dry climatic conditions. The current practices of adaptation to water scarcity from the supply side center on increasing the availabil-

KEY MESSAGES

- **Europe is warming at a rate twice as fast as the global average**
- **Climate adaptation policies vary considerably between and within European regions**
- **Quality and integrity of governments across Europe are correlated with adaptation performance**
- **Information on progress toward adaptation targets, including subcentral governments, is key**
- **Performance scores and yardstick comparisons foster competition, innovation, and accountability**



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ity of freshwater through improved storage, diversification of sources, and water diversion. From the demand side, the introduction of water pricing schemes and water saving incentives might effectively reduce demand in the short run.

The fourth and final risk concerns the occurrence of floods. Sea level rise represents an existential threat for coastal communities and their cultural heritage, with coastal flood damage being projected to force inland migration in the UK, the Netherlands, and the Northern Mediterranean. Due to the projected increase in the intensity and frequency of heavy rain-fall events, pluvial flooding and flash floods will constitute a substantial risk through all European regions.

THE ADAPTATION PERFORMANCE OF EUROPEAN COUNTRIES

Since the definition of the global goal on adaptation of “enhancing adaptive capacity, strengthening resilience, and reducing vulnerability to climate change” (Paris Agreement 2015, Article 7) and the launch of the EU strategy on adaptation in 2013, progress in adaptation policy across Europe has been substantial.

For the first time in 2021, following the provisions of Article 17 and Article 19 of Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action, EU member states were required to report their adaptation goals in integrated National Energy and Climate Plans (NECPs). The iterative process of adaptation to climate change comprises the following steps:

1. Assessment of vulnerability, risk, impacts, and resilience
2. Identification and assessment of adaptation options
3. Implementation of adaptation actions and measures
4. Monitoring and evaluation

The first and key element of the national adaptation policy cycle is the formulation of the national climate risk assessment (CRA), where member states list current and future acute (fast-onset) and chronic (slow-onset) climate hazards. Actual CRAs differ substantially between countries along a number of dimensions, including whether they foresee periodic and systematic updating, whether they are sector-based, and whether they have a centrally coordinated or bottom-up structure.

Next, of fundamental importance in the climate change adaptation process is the adoption of a National Adaptation Strategy (NAS) and of a National Adaptation Plan (NAP). A NAS lists a country’s climate-related risks and vulnerabilities and identifies areas and sectors of action. The actual content of a NAS tends to vary significantly from country to country in terms of levels of governance, degree of political commitment, time horizons, and the information and guidance they provide on implementation, with some countries developing their NAS and NAP in parallel or even into a single document.

In most instances, following the adoption of a NAS is the adoption of a NAP, a document that articulates how, when, and by whom a country’s NAS is to be implemented. A NAP has a shorter time horizon than a NAS and ideally provides specific information on the steps, responsibilities, and deadlines by which the NAS objectives are to be achieved. Here, too, there can be substantial differences, particularly with respect to information on the costs and sources of adaptation finance.

Finally, monitoring and evaluation (M&E) is a critical step in the process of adaptation, in that it should allow policymakers to learn from, adjust (abandon maladaptation practices), and eventually conclude whether their adaptation policies are achieving their stated objectives.

The above illustration of the adaptation policy cycle makes it clear that adaptation is a complex, multi-faceted, and dynamic issue. As a result, reducing it to a single dimension along which the performances of European countries can be evaluated is far from straightforward. However, it is possible to tentatively construct an adaptation score based on the status of national climate change adaptation strategies and plans at the end of the past decade as reported by IPCC (2022) and summarized in columns (b) and (c) of Table 1.

In column (a) of Table 1, the lowest score (0) is assigned to the countries where neither a NAS nor a NAP has been produced yet. A score of 1 is assigned if either a NAS or a NAP has been adopted and a score of 2 if a country has both. Finally, countries having both a NAS or NAP in place and having already updated either of the two, thus proving they have completed at least one full adaptation policy cycle, get the maximum score of 3. Indeed, by relying on purely procedural compliance with climate adaptation reporting requirements, irrespective of the actual content of

Table 1

European Countries’ Adaptation Progress and Score		
(a) score	(b) IPCC	(c)
3	XXX	Updated climate adaptation strategy or plan Finland, Ireland, United Kingdom, Austria, France, Hungary, Germany, Luxembourg, Netherlands, Romania, Portugal, Spain
2	XX	Climate adaptation plan and strategy in place Denmark, Estonia, Lithuania, Sweden, Belgium, Bulgaria, Czechia, Slovakia, Switzerland, Cyprus, Turkey, Montenegro
1	X	Climate adaptation plan or strategy in place Latvia, Norway, Liechtenstein, Poland, Croatia, Greece, Italy, Kosovo, Malta, Slovenia, Russia
0		No national adaptation plan or strategy adopted Iceland, Belarus, Moldova, Ukraine, Albania, Andorra, Bosnia & Herzegovina, North Macedonia, Serbia

Source: Author’s compilation.

the national documents, this score can be taken as capturing necessary rather than sufficient conditions for effective public adaptation policy.¹

EXPLAINING ADAPTATION PERFORMANCE DIFFERENCES

Recent research shows that government quality can play a crucial role in moderating the consequences of climate change, particularly as far as migration is concerned (Revelli and Tsai 2024). The idea is that high-quality governments put in place effective adaptation policies in the face of climate change. In turn, this avoids the transformation of natural hazards into disasters and prevents climate-induced migration, as the evidence from cross-country panel data in Revelli and Tsai (2024) shows.

To what extent can we ascribe the score differences in Table 1 to the quality of those countries' policymakers? Consider two indicators of government quality that have been frequently employed in the literature.

The first one is the corruption perceptions index developed by Transparency International based on the levels of public-sector corruption perceived by experts and businesspeople from over a dozen independent sources (transparency.org). Across Europe, the index has a median value of around 55 on a zero to 100 scale, where zero is omnipresence of corruption and 100 is its virtual absence. Denmark turns out to be the least corrupt country (>90) and Belarus the most corrupt one (<30).

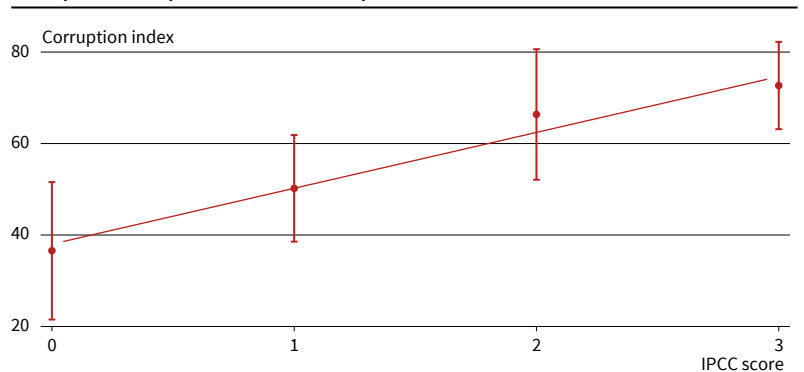
The second one is the governance effectiveness index from the World Bank Worldwide Governance Indicators. The index is meant to reflect "perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies" (Kaufmann et al. 2010, 4). It is constructed from several distinct sources including regional development banks and civil society initiatives. The index ranges between -2.5 and +2.5, the most efficient country in Europe being Finland (+2.1) and the least efficient one being Belarus (-1.0).

Figures 1 and 2 show the binned scatter plots of European countries' indices of corruption and governance effectiveness against the scores from Table 1 along with a linear regression fit. In both cases, the quality of government indicators are positively correlated with the adaptation performance score.

The average quality of government in terms of control of corruption for the highest score category is about twice as great as the average quality in the lowest score category (Figure 1). In Figure 2, the average

Figure 1

Corruption Perceptions Index and Adaptation Performance Score



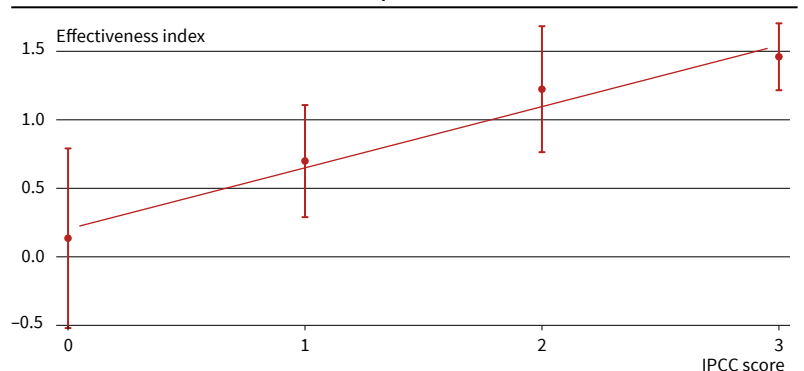
Notes: Binned scatter plot; vertical segments around the bins' means are 95% confidence intervals.

Source: Author's calculations.

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Figure 2

Governance Effectiveness Index and Adaptation Performance Score



Notes: Binned scatter plot; vertical segments around the bins' means are 95% confidence intervals.

Source: Author's calculations.

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governance effectiveness index goes from close to 0 for the lowest score to almost 1.5 for the highest one.

The above descriptive evidence suggests that, as far as climate adaptation policy is concerned, government quality matters.

POLICY CONCLUSIONS

As forcefully put forward by Transparency International (transparency.org), two of the biggest challenges humanity faces are profoundly interconnected: corruption and climate change. The links between the two range from the misuse and embezzlement of climate funds that arise in environments with poor information, lack of transparency, and low accountability, to undue external influences and conflicts of interest that slow down or impede ambitious climate action.

Facing the challenges of climate change requires integrity and discipline on the part of government. In turn, a successful process of selection (→ integrity) and an effective design of incentives (→ discipline) require an impartial flow of information on countries' climate policies and the creation of a clean competitive environment where the performances of governments can be comparatively and candidly evaluated.²

¹ Carleton et al. (2024) review the potential risks and inefficiencies of public provision of climate adaptation.

² As far as climate mitigation is concerned, the independent Climate Change Performance Index (CCPI) compares and ranks over 60 countries in terms of their climate mitigation performance (ccpi.org).

Indeed, the local specificity of climate risks and of the resulting adaptation needs might make comparisons difficult and, more importantly, controversial. However, credible and convincing rankings can be created with reference to areas sharing common climate risks and by developing suitable synthetic indicators that are relevant to measuring progress toward adaptation targets, in line with the UNFCCC Adaptation Committee's work on adaptation indicators (<https://unfccc.int/Adaptation-Committee>).

Finally, subcentral governments are bound to play an increasing role in the future, as witnessed by the spirit of the EU Mission on adaptation to climate change. The EU Climate-ADAPT platform (climate-adapt.eea.europa.eu), an established reference tool and knowledge resource for the exchange of information and best practices, might constitute an ideal hub for comparative evaluation of regional adaptation performances. Developing local indicators of success in meeting adaptation targets can represent an important instrument not only for stimulating the “league table” type of competition, but also for promoting innovative forms of inter-governmental, cross-border, and public-private cooperation to improve performance in climate change adaptation.

REFERENCES

- Carleton, T., E. Duflo, B. Jack and G. Zappalà (2024), “Adaptation to Climate Change”, *NBER Working Paper* 3362.
- European Environment Agency (EEA, 2022), *Advancing Towards Climate Resilience in Europe. Status of Reported National Adaptation Actions in 2021*, Report 11.
- European Environment Agency (EEA, 2023), *Is Europe on Track with Climate Resilience? Status of Reported National Adaptation Actions in 2023*, European Topic Centre on Climate Change Adaptation Technical Paper 2.
- Intergovernmental Panel on Climate Change (IPCC, 2022), *Climate Change 2022: Impacts, Adaptation, and Vulnerability*, Cambridge University Press, Cambridge.
- Kaufmann, D., A. Kraay and M. Mastruzzi (2010), “The Worldwide Governance Indicators: A Summary of Methodology, Data and Analytical Issues”, *World Bank Policy Research Working Paper* 5430.
- Revelli, F. and T. S. Tsai (2024), “Climate Change, Quality of Government, and Migration”, *CESifo Working Paper* 11493.