Title

State capacity and varieties of climate policy.

Journal

Nature Communications, 15(1)

Authors

Meckling, Jonas
Benkler, Ari

Publication Date

2024-11-16

DOI

10.1038/s41467-024-54221-1

Peer reviewed

Comment

https://doi.org/10.1038/s41467-024-54221-1

State capacity and varieties of climate policy

Jonas Meckling & Ari Benkler

Countries vary in the adoption of sticks and carrots in climate policy. Differences in institutional capacity and fiscal space shape national policies. This matters for the effectiveness of national mitigation efforts and the extent of international conflict over climate policy.

Countries vary widely in how much they seek to decarbonize their economies and in the approaches they take. Much research points to how "political will" differs across countries. The public, politicians, and interest groups support climate action to varying extent across countries[1]. Hence, in some places powerful climate coalitions emerge, in others they do not. While political will is an important driver of national climate ambition, a country's capacity to undertake climate policies matters as well—in particular its institutional and fiscal capacity.

A focus on state capacity helps us to understand why countries pursue different types of climate policies. In the broadest sense, climate policy entails sticks and carrots, and national climate policies vary in the relative composition of sticks and carrots. Sticks increase the cost of carbon-intensive economic activity, either via command-and-control regulations or market-based policies. Familiar examples include renewable energy mandates, fuel economy standards, and carbon taxes. By contrast, carrots incentivize the use and production of clean energy at lower costs. Subsidies, tax credits, and grants are common tools—and the basis of the Inflation Reduction Act (IRA) in the United States. While policy carrots have long played a role in climate policy mixes, the rise of green industrial policy has given them greater prominence in climate policymaking. Given different capacities to pursue fiscal climate policy, differences across national climate policies are becoming more pronounced. This has implications for the success of individual nations' decarbonization efforts and for how national climate policies interact in the global low-carbon transition.

Institutional capacity and fiscal space

Institutional capacity shapes countries' ability to adopt and enforce policy sticks, while fiscal space constrains their ability to finance policy carrots. Figure 1a shows how the combination of the two capacity dimensions can lead to four ideal types of climate policy approaches: no climate policy or low-cost policies, only policy carrots, only policy sticks, and a policy mix of carrots and sticks (Fig. 1).

In policy adoption, institutions condition politicians' ability to overcome opposition to climate policy sticks—either by insulating policymakers from political backlash or by enabling them to negotiate bargains with target industries to preempt political backlash[2–4]. Proportional electoral rules, for example, are thought to insulate politicians from voter backlash, providing them with institutional cover to adopt policy sticks like gas or carbon taxes[5]. Another key institution is corporatist state-business relations under which government, industry, and labor negotiate mutually acceptable policy settlements that often include compensation payments[6]. A range of other institutions, such as independent environmental agencies, play a role in countries' ability to pursue climate policy sticks[2,7]. In policy implementation, bureaucratic capacity to monitor and enforce policy compliance is critical. Research on institutional capacity for climate policy is nascent, and more scholarly attention to interactions and combinations of institutions is needed as national climate strategies typically unfold across multiple governance venues.

Fiscal space, meanwhile, constrains how much governments can provide climate carrots. It refers to both the ability to raise revenue through taxes and/or borrowing. Global decarbonization requires a massive scale-up of climate finance. Due to market failures driving inadequate deployment of private capital, public investment needs to induce private investment[8]. Fiscal space depends largely on a country's level of economic development. The climate policy debate has long understood differences in fiscal capacity between rich and poor nations. But even among wealthier economies there is variation in policymakers' ability to go on climate spending sprees. One explanation centers around the relationship between national growth models and the sustainability of large public debts[9]. For example, Germany's export-led growth model relies on cheap wages at home. It is thus limited in its ability to go on big domestic public spending sprees which would raise domestic wages. Institutions, such as public debit limits, also matter for fiscal capacity. More research is needed to fully understand the sources of variation of green fiscal capacity and spending across countries.

We now turn toward examples for each of the four types of climate policies in Fig. 1. One set of countries has both the institutions and fiscal space to pursue sticks and carrots (upper right quadrant). In the case of the European Union, the European Commission has high levels of bureaucratic autonomy in environmental policymaking, allowing it to set the pace for the adoption of climate policy sticks, such as the EU Emissions Trading System, greenhouse gas emission standards, and various climate and renewable energy targets. The European Union also uses policy carrots: the 2020 European Green Deal included the $300 billion in renewable investment supports made available through the REPower EU investment program. Its ability to provide carrots, however, is limited, but member states have—to varying extent—the fiscal space to invest in the green transition. Key member states also have institutions—such as proportional electoral rules and corporatist state-business relations—that enable them to adopt climate policy sticks. The combination of policy carrots and sticks is the most effective variety of climate policy[10]. For example, sticks often help phase out fossil fuels, while carrots and sticks drive clean energy deployment. A second group of countries has robust fiscal capacity but limited institutions that support regulatory sticks, and thus may focus primarily on carrots (upper left quadrant). The United States is the prime example. Its federal climate policy has centered around public investment—tax credits for solar and wind projects have existed for decades. The IRA has scaled this approach substantially. By contrast, attempts to adopt carbon pricing or a national clean energy standard have failed, though large subnational

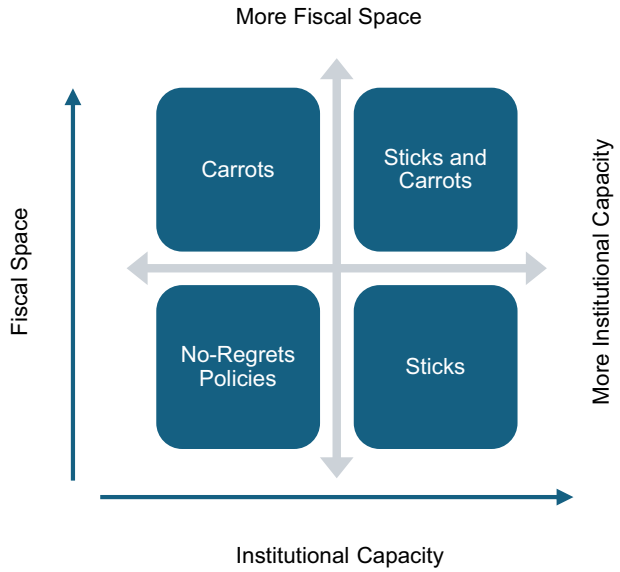

Fig. 1 | State capacity and climate policy approaches. No-regrets policies are measures that come at low cost and have big benefits.

cap-and-trade programs show that some subnational jurisdictions exhibit an institutional capacity for policy sticks. Other countries in this group include Australia, Canada, Japan, and the United Kingdom. An important research question for this group of countries is to what extent large-scale policy carrots—as in the case of the IRA—can compensate for the lack of policy sticks. A third group has limited fiscal space but institutions that support climate regulation (lower right quadrant). Such jurisdictions are rare. California may come closest to this ideal type, pursuing a technocratic approach to climate policy that emphasizes a broad range of mandates and pricing schemes[11]. These include an economy-wide pricing scheme, a renewable portfolio mandate, the Zero Emission Vehicle mandate, and an energy storage mandate. The California Air Resources Board, a technocratic and relatively autonomous agency, is the key institution enabling the adoption of climate policy sticks[12,13]. By contrast, as a subnational entity, the state has limited tax authority and fiscal space—another reason why the state pursues a regulatory approach.

Finally, a set of countries has limited capacity to impose sticks or spend on carrots, absent international climate finance (lower left quadrant). Developing countries often fall into this category. They are likely to adopt no-regrets policies—measures that come at low cost and have big benefits—such as efficiency programs. Or they may adopt low-cost symbolic policies, which are aimed at signaling the seriousness of a nation's interest in decarbonization despite the lack of capacity to adopt and implement effective policy. Unsurprisingly, most green industrial policies—many of which are public spending programs—are adopted by OECD members, rather than developing countries[14].

While we here argue that institutional and fiscal capacities explain varieties of climate policy to a large extent, politics matters, too. Research needs to better understand how politics intersects with capacity constraints in shaping national climate policy approaches. For instance, some countries have substantial fiscal space, but do not use it for climate investment. This extends to the question of the role of politics in building greater capacity over time.

Policy lessons

Our analysis of capacity constraints for climate policy sticks and carrots offers two sets of lessons: one on domestic measures to build capacity for climate policy, and one on navigating the international dynamics of diverging climate policy approaches.

First, if national fiscal and institutional capacities are important determinants of climate policy ambition and efficacy, it becomes vital to understand how limiting capacity constraints actually are and how nations can build capacity to support future policy ambition. Institutional constraints are weaker than fiscal constraints. Political institutions like corporatist bargaining relations have mediating effects on politics, but they do not determine outcomes. Research is only beginning to understand which institutions matter in climate policymaking, and how[15]. The lack of institutional capacity is an indicator of where political investment needs to occur to build the foundations for stronger climate policy. Recent research shows that jurisdictions can develop ad hoc institutional substitutes to facilitate climate policy development, even when overall institutional capacity is limited[16]. By contrast, fiscal capacity is more structurally determined by relatively durable factors, most obviously national wealth.

Targeted domestic policy measures can help relax institutional capacity constraints. Specifically, policymakers can leverage greater institutional capacity at the subnational level or develop climate institutions, such as scientific advisory bodies or climate framework laws. Such special-purpose institutions provide public information and collective action mechanisms that substitute for macro-political institutions incapable of sustaining climate policy sticks[7]. There is some evidence from climate leaders such as California or the European Union that if countries use policy carrots, they may build constituencies that will later support climate policy sticks—a path that countries with high fiscal capacity may take to get policy sticks, even when they lack strong institutional capacity[17]. As for fiscal capacity, policymakers can create more green fiscal space under fixed fiscal constraints by shifting the composition of spending. Fossil fuel subsidy reform is one such option. In the longer term, the relationship between fiscal capacity and climate policy ambition suggests that growth-oriented monetary and economic policies may be key tools for expanding both national and global climate policy possibilities frontiers.

Second, the international interplay of different policy approaches can lead to a clash of climate policies. For example, the EU is in conflict with other countries over its Carbon Border Adjustment Mechanism (CBAM), because the mechanism imposes equalizing costs on imports from countries with weak or no climate policies. Meanwhile, China and the United States are facing pushback against their large-scale public investment in clean energy technology out of concerns that aggressive carrots-only policies will hoard opportunities in green growth industries. Developing countries especially are balking at the idea of fiscal climate policy for which they lack the fiscal space[18], while China and the US offer increasingly attractive subsidy environments designed to capture a growing share of the economic benefits of the green transition.

The road ahead requires international measures to build capacity in third-party countries while navigating the divergence of climate policy approaches. Technical assistance can support national ambitions to develop climate institutions. For instance, the adoption of CBAM is leading some of the EU's trading partners to develop domestic pricing schemes to escape the carbon tariff. This raises questions about institutional capacity for implementation. The EU has

launched efforts to provide technical assistance to countries adopting pricing systems. Such assistance needs to understand the scope for climate institutional capacity-building and the deeper sources of institutional capacity constraints in developing countries if it is to enable new state capacity for meaningful policy sticks.

International climate finance is, of course, a central mechanism to relax fiscal capacity constraints, though the history of development aid suggests that the political constraints for scaling international financial transfers are strong. Therefore, measures that facilitate economic development and increase fiscal space through long-run growth in developing countries are vital. For instance, to accelerate the global energy transition, green investment pushes in China and the United States must integrate emerging and developing countries in clean energy supply chains, as opposed to hoarding green industrial opportunities and exporting final products to partner countries. Foreign direct investment and technology transfer create long-run growth opportunities.

Building capacity is a long-run game and divergence in climate policy capacities and approaches will persist. Avoid a clash of climate policies requires not just building capacity but also navigating sustained differences in climate policy approaches—specifically between those that pursue primarily carrots and those that combine carrots with sticks.

Jonas Meckling [1,2] ✉ **& Ari Benkler** [3]
[1]Department of Environmental Science, Policy, and Management, University of California, Berkeley, CA, USA. [2]Harvard Business School, Harvard University, Cambridge, MA, USA. [3]Travers Department of Political Science, University of California, Berkeley, CA, USA. This Comment was deemed appropriate for publication without review.
✉e-mail: meckling@berkeley.edu

Received: 30 July 2024; Accepted: 1 November 2024;
Published online: 16 November 2024

References

1. Hughes, L. & Urpelainen, J. Interests, institutions, and climate policy: explaining the choice of policy instruments for the energy sector. *Environ. Sci. Policy* **54**, 52–63 (2015).
2. Finnegan, J. J., Lipscy, P. Y., Meckling, J. & Metz, F. The institutional sources of economic transformation: insulation and compensation in the politics of energy transition. (2023).
3. Harrison, K. & Sundstrom, L. M. The comparative politics of climate change. *Glob. Environ. Polit.* **7**, 1–18 (2007).
4. Purdon, M. Advancing comparative climate change politics: theory and method. *Glob. Environ. Polit.* **15**, 1–26 (2015).
5. Finnegan, J. J. Institutions, climate change, and the foundations of long-term policymaking. *Comp. Polit. Stud.* **55**, 1198–1235 (2022a).
6. Meckling, J. & Nahm, J. Strategic state capacity: how states counter opposition to climate policy. *Comp. Polit. Stud.* **55**, 493–523 (2022).
7. Guy, J., Shears, E. & Meckling, J. National models of climate governance among major emitters. *Nat. Clim. Change* **13**, 189–195 (2023).
8. Meckling, J. et al. Busting the myths around public investment in clean energy. *Nat. Energy* **7**, 563–565 (2022).
9. Blyth, M. & Driscoll, D. Growth and Decarbonization: National Capacities Meet Global Imperatives. In: *Growth strategies and welfare reforms: How nations cope with economic transitions* (eds Hassel, A. & Palier, B.) (2025).
10. Stechemesser, A. et al. Climate policies that achieved major emission reductions: Global evidence from two decades. *Science* **385**, 884–892 (2024).
11. Vogel, D. *California Greenin': How the Golden State Became an Environmental Leader*. (Princeton University Press, Princeton, 2018).
12. Meckling, J. & Nahm, J. The power of process: state capacity and climate policy. *Governance* **31**, 741–757 (2018).
13. Sabel, C. F. & Victor, D. G. *Fixing the Climate: Strategies for an Uncertain World*. (Princeton University Press, 2022).
14. Juhász, R, Lane, N., Oehlsen, E. & Pérez, V. C. The who, what, when, and how of industrial policy: a text-based approach. *NBER Work. Pap*. (2023).
15. Gazmararian, A. & Tingley, D. The Political Economy of Energy Transitions. Working paper. (Princeton University, 2024).
16. Bolet, D., Green, F. & González-Eguino, M. How to get coal country to vote for climate policy: the effect of a "just transition agreement" on Spanish election results. *Am. Polit. Sci. Rev.* 1–16 https://doi.org/10.1017/S0003055423001235 (2023).
17. Meckling, J., Sterner, T. & Wagner, G. Policy sequencing toward decarbonization. *Nat. Energy* **2**, 918–922 (2017).
18. Buchner, B. et al. *Global Landscape of Climate Finance 2023*. https://www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2023/ (2023).

Acknowledgements

We thank Taryn Fransen for valuable feedback. We gratefully acknowledge support from the National Science Foundation, Grant Number 2224086.

Author contributions

J.M. wrote the manuscript, and A.B. edited it. A.B. conducted data analysis that informed the comment and created the figure.

Competing interests

The authors declare no competing interests.

Additional information

Correspondence and requests for materials should be addressed to Jonas Meckling.

Reprints and permissions information is available at http://www.nature.com/reprints

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.