

Federalism and Climate Governance: opportunities and challenges

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Climate Governance Policy Paper



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Climate change is one of the great challenges of our time, but is it more so or less so for federal systems? Federalism could be an asset, thanks to its more numerous sites for action and different governance scales. On the other hand, its division of powers and number of governments could well complicate and undermine climate governance through conflict, shirking, or poor coordination. Examining a diverse range of country experiences, as has been done in *Climate Governance and Federalism: a Forum of Federations comparative policy analysis*, helps to provide some insights into that question.

That diversity reminds us, though, that federalism is a generic term for a broad type of government and, as discussed later in this paper, each federation embodies the federal principle in its own way. Each federation also has its own underlying social and economic character that determines the way it operates. And the institutional structures of federalism are likely to have varying and often contradictory effects with complex interactions depending on the issue at hand and the political dynamics at the time.

The Challenges of Climate Change Governance

Climate governance has two “fundamentally different” components: *mitigation* and *adaptation* (Biesbrook and Lesnikowski 2018, 306). Mitigation efforts address the causes of anthropogenic climate change through measures that either reduce carbon and other greenhouse gas (GHG) emissions or remove carbon dioxide currently in the atmosphere. Adaptation measures address the effects of climate change through adjustments to infrastructure and practices. Both have been the subject of international negotiations and agreements, and both are affected by the way a system of federal or devolved governance operates.

The *Paris Agreement* of 2015 did two major things:

- It set a goal of limiting the increase in global average temperatures to well below 2 degrees Celsius by 2100.
- It committed to efforts at limiting this increase to 1.5 degrees Celsius.

For the world to achieve the latter objective, the Intergovernmental Panel on Climate Change (IPCC) estimated that global anthropogenic carbon emissions need to decline by about 45 percent from 2010 levels by 2030 and reach net zero by 2050.

To limit global warming to below 2 degrees Celsius requires reductions of 20 percent by 2030 and the achievement of carbon neutrality around 2075. To that end, the Paris Agreement requires participating governments to prepare and communicate emissions reductions commitments known as Nationally Determined Contributions (NDCs) every five years, with a view to a progressive increase in their mitigation efforts.

Three quarters of the world’s GHG emissions result from electricity and heat production, industrial processes, and transportation. The remaining quarter are produced by deforestation; the conversion of land for agriculture and human settlement; the degradation of soils; and agricultural activities (IPCC 2014). While the measures needed to limit global warming can yield significant co-benefits, such as improved air quality and human health from reductions in carbon emissions, the costs may be substantial. Industrialized economies must re-make themselves, developing countries must find a different path to the future they seek. In the industrialized countries, greenhouse gas emissions are embedded in the basic structures of production, consumption, and everyday life. To break this cycle, disruptive change of these locked-in patterns is required. This is being tackled on a variety of fronts (e.g., Fekete *et al.* 2021; IPCC 2022).

The costs of this energy transition are upfront and the intended benefits are down the track — although any co-benefits would have more immediate effect. Costs, furthermore, may well be unevenly distributed, underpinning a clash of interests alongside ideological divisions. In addition, the uncertainties that characterize complex social and ecological systems and our imperfect ability to predict their future dynamics and effects adds further challenges to policy making in this domain. For low-income countries, instead of developing energy infrastructure based on fossil fuels, there is some opportunity to “leapfrog” straight to cleaner low-carbon technologies, the potential for which in the electricity sector is rapidly increasing with the steep fall in the cost of renewables (Arndt *et al.* 2019).

There are a range of policy instruments governments may use to decarbonize' their economies, many of them complementary. The simplest, and in some ways first-best, option is to change the economic incentives by altering the pricing structure: imposing a cost on carbon emissions through the creation of a tax or cap-and-trade system (Nordhaus 2013; OECD 2019; Rabe 2018). However, taxes that will potentially terminate valuable industries and drive up costs for consumers are not going to be popular, especially in jurisdictions with carbon-intensive industries. A carbon tax sufficiently punitive to be effective is unlikely to be politically feasible (Rabe 2018; Jenkins 2014; Mildenerger 2020, 24; Dolphin, Pollitt, and Newbery 2020). The more politically-viable alternative has often been *de facto* or surrogate carbon taxes of one form or another (Rabe and Borick 2012). Beyond such market-based instruments, governments have introduced a variety of other mitigation policies, such as subsidizing the development and adoption of low-carbon forms of energy and transportation; banning certain carbon-intensive products; and investing in efforts to enhance carbon sequestration in forests and soils (Fekete et al. 2021).

Acting on the assumption that anthropogenic climate change is unlikely to be arrested, and to cope with changes that may already be occurring, there must be a second string to the bow: adaptation¹. In general, adaptation planning must contend with both slow-onset alterations in ecological systems (such as gradual increases in temperatures or decreases in the availability of water) and rapid-onset events (such as floods, hurricanes, or forest fires). This requires the development of adaptive processes and pathways to predict and assess the risks and consequences that come with these different types of change and increase resilience to their direct and indirect effects. These risks and consequences will naturally vary in their nature and extent from region to region and thus adaptation has a more inherently local character. Nonetheless, it will frequently require or benefit from learning and collaboration between governments. Under the *Paris Agreement*, states have committed to developing and implementing adaptation plans and actions and to provide the UNFCCC with periodic updates on their efforts in doing so.

1 Adaptation policy is defined by the IPCC as “adjusting to the effects of both anthropogenic and natural climate change through initiatives that prevent or minimize harms as well as exploit opportunities generated by changes to the climatic system.”

Varieties of Federalism and other Variables

One of the great challenges of talking about climate governance and federalism is that the real world is made up of a range of *federations* or federal systems each with its own characteristics, style and underlying realities (Fenna 2019). Federations differ in several important ways, all of which have an impact on the way they are likely to function in climate change governance. *Climate Governance and Federalism: a Forum of Federations comparative policy analysis* showcases a good part of that diversity. Moreover, not all the cases explored in that book are unambiguously federations and some are not federations at all.

The key is whether the constituent units enjoy a degree of genuine autonomy (Fenna and Schnabel 2024). Spain does not formally describe itself as federal, though it is regarded by many observers as being so. The European Union, meanwhile, must be seen as only proto-federal — still more confederal in the degree to which its constituent units retain sovereignty and exercise the bulk of policy making responsibility. It is also a meta-federation of sorts, since some of its members are themselves federations. At the other extreme, neither China nor Indonesia are federations at all, although they have systems of devolved governance through which their climate change policies are implemented. With its extraordinary degree of societal and geographical diversity, Indonesia would seem a natural home for federalism, but a deep “aversion” to such a divided form of government has prevailed since independence (Kingsbury 2013; Reid 2007). Those diversities were given recognition, though, in the devolutionary program of 2001 whereby provinces and municipalities now jostle for roles and resources with the central government. Finally, as an authoritarian — indeed, in several ways totalitarian — regime, China is a particularly distinctive case.

2.1 Varieties of federalism

Dividing powers. Canvassed in this survey are federations where powers are divided in a dualist fashion and those characterized by what is known as “administrative federalism.” In dualist federations such as Australia, Canada and the United States, the two orders of government exercise full powers of policy making, implementation and administration within their assigned areas of jurisdiction. In federations where an administrative approach prevails, the central government exercises a broad policy-making power but responsibility for implementation and administration rests with the constituent units. Administrative federalism originated in Germany, but is characteristic of Austria, Switzerland and the EU as well. It also influenced the design of the 1996 South Africa constitution (Choudhry 2020).

The distinction between the two models is not a pure one, with administrative federations dividing some powers in the dualist fashion and the dualist federations increasingly taking on characteristics of administrative federalism; however, it remains an important one (Mueller and Fenna 2022).

Decentralized/Centralized. The division of powers is also one of degree as well as one of type, with federations varying considerably in their degree of centralisation or decentralisation. This can be evident in either or both the kinds of powers available to the constituent units and the fiscal resources they have at their disposal (Dardanelli, *et al.* 2019). While the established

federations have generally undergone considerable centralisation over the years, Canada and Switzerland remain relatively decentralized (Dardanelli, *et al.* 2019). India and South Africa have notably centralized features — accentuated in the South African case by one-party rule (Tapscott 2015).

In some federations, the division of powers regarding climate change policy is largely a settled issue, but in others it remains a live one. There is also always the possibility that jurisdictional conflict will arise and have to be resolved by the courts as they do in almost all federations for the constitutional division of powers more generally (Aroney and Kincaid 2017).

Bicameralism. In both the German and EU cases, the administrative division of powers is complemented by arrangements whereby the constituent units enjoy direct representation in the central government and thus a degree of co-determination over that process of central government policy making. In Germany's system of integrated federalism, the Länder exercise their co-decision power through the second chamber of the federal parliament, the Bundesrat (Federal Council). In the EU, members states exercise their direct influence through the Council of Ministers. While Switzerland does not have an equivalent chamber, the country's powerful system of direct democracy plays an important role in regulating the respective roles of the federation and the cantons. The interlocking structure of German and EU federalism have been accused of creating conditions for a "joint-decision trap" (*Politikverflechtungsfalle*), imposing a high threshold for policy change and thus entrenching the status quo or biasing the system toward lowest-common-denominator policy making. Switzerland's system of direct democracy has been accused of having the same effect (e.g., Mueller 2020).

Constituent units do not enjoy council-style representation in other federations and so federal bicameralism is not a significant factor outside Germany and the EU (Hueglin and Fenna 2015, 205–237). However, there are other federations with strong second chambers — Australia and the United States, for instance — so even if not meaningfully federal, bicameralism can still represent a significant veto point.

Conflict and cooperation. All federations have had to develop mechanisms and processes of intergovernmental relations (IGR) through which governments can work together (Poirier and Saunders 2015; Schnabel 2020; Hueglin and Fenna 2015, 238–74). These practices of cooperative federalism have become a crucial feature of systems where overlap between orders of government and degree of policy interdependence means an increasing need for coordination, even if they vary in how, and how well, they work from one policy area to another as well as from one country to another.

In parliamentary federations, IGR takes the form of "executive federalism," typically structured in two tiers: a layer of portfolio-defined councils comprising the relevant cabinet ministers; and, at the peak level, a heads-of-government meeting. In a presidential system with its separation of powers such as the United States, the head of government cannot speak for the whole government, but only what Americans call "the administration," and thus peak intergovernmentalism tends to be absent.

Presidential or parliamentary? As the above suggests, the way a federation functions is influenced by the mode of representative democracy in operation. While Australia, Canada and the United States are all similar in being dualist federations, the United States is distinctive in its

presidential, separation-of-powers, system of government. By contrast with parliamentarism, which concentrates authority in the executive, presidentialism disperses it between the executive and legislative branches. In addition to affecting the style of intergovernmental relations, this makes policy making subject to more “veto points” where a law or a policy can be blocked. As a number of studies (e.g., Greer 2010, 181) have noted, what can look at first blush like a policy-retarding effect of federalism in the United States, “is mostly due to a federal government riddled with internal veto points.”

2.2 Societal and economic factors

Federations differ in manifold other ways, including their level of political and economic development; their degree of federal diversity; and their economic base and resource structure. The cases here encompass countries across a wide range of economic and political development; as well as ones with deep diversity and those with a single national identity. Canada’s bicomunal nature is intrinsic to the operation of its federal system, for instance, while Ethiopia is an extreme form of ethno-federalism (Gagnon and Simeon 2010; Fiseha and Habib 2010). Australia and Germany are far more homogeneous.

Some such as Australia and Canada have a strong basis in the resource sector, including in hydrocarbons. At the other extreme are countries such as Switzerland without any significant petroleum or coal resources. Germany’s high level of industrialisation was made possible historically by its coal reserves and it still relies on coal for a quarter of its electricity generation. Not only does a substantial endowment of high-emissions resources affect the approach a country might take to climate change, but it is rare for such resources to be equally distributed within any federation, and thus the political geography of their resource economy will have significant consequences for the operation of federalism when it comes to climate governance (Brown 2012, 324). Similarly, not only do countries vary significantly in the range of renewable energy sources they can tap, but such potential often varies substantially within those federations.

The Intersection of Federalism and Climate Governance

Much has been written about climate governance as a multi-level enterprise spanning everything from the local village to the global community (*e.g.*, Jänicke 2017). Here we are interested more specifically in climate governance in federal systems. These are characterized by the co-existence of two (or occasionally three) constitutionally entrenched orders of government, each accountable to, and acting upon, its population. Federalism thus has two lines of division: vertically between the central government and the constituent units, and horizontally between each of the latter. There are always local governments as well, but these generally have a distinctly subordinate or ambiguous status (Steytler 2024).

Depending on the division of powers, constituent units may well be an important component in the implementation of national climate change commitments. The fact alone that climate change is “inherently multilevel” suggests that federalism provides for an appropriately dispersed range of actions and may be well suited to the task (Brown 2012, 324). This underpins the recognition given by the 2015 Paris Agreement to “the importance of the engagement of all levels of government and various actors, in accordance with respective national legislations of Parties, in addressing climate change”. It is also consistent with the subsidiarity principle that underlies federalism — tasks should be carried out as locally as practicable — and the associated notion that broad scope for territorial diversity in policies should thereby exist. However, there are also reasons to think that federalism may also create impediments to effective climate governance.

3.1 Cutting both ways

Federalism often seems like a “double-edged sword” in this regard: capable of exerting quite contrary effects (Karapin et al. 2020). Which one dominates in any given situation will be determined by the prevailing circumstances. In addition, the effects of federalism often cross-cut and neutralize each other (Weaver 2020). Drawing on work by a number of scholars, we suggest three possible ways in which federalism might prove favourable for climate change governance, and, conversely, three ways in which it might prove less so (Hueglin and Fenna 2015, 41–46; Weaver 2020; Jordaan et al. 2019; Balthasar, Schreurs, and Varone 2020).

Federalism’s vertical and horizontal divisions can **facilitate governance** by providing scope for:

1. Locally-appropriate and responsive measures;
2. A fail-safe degree of redundancy whereby the constituent units can step in and compensate for failure or inaction by the central government;
3. Policy experimentation and inter-jurisdictional learning.

On the other hand, the divisions and fragmentation of a federal system may **impede governance** in any or all of the following three ways:

1. The existence of multiple veto points may obstruct policy making or lead to blame-shifting;
2. Federalism may result in a patchwork of policies with varying effectiveness, poorly coordinated either vertically or horizontally;
3. Constituent units may be constrained by collective actions problems and a race-to-the-bottom competitive dynamic.

3.2 Federalism as facilitator

One of the very earliest advantages claimed for federalism was the way it allows policy making to vary in accordance with the differences in conditions and preferences from region to region (de Tocqueville 1848, 262). In regard to climate change, there may be significant differences between the regions of a country in economic structure and associated carbon intensity; natural resource endowment; exposure to different climate risks; public institutions and capabilities; expertise on climate issues; and political dynamics and cultures. In federations, relevant powers such as those over land-use planning, natural resources, transportation, electricity supply, water management, and emergency preparedness are typically assigned to the constituent units. They are thus able to craft policies most aligned with their context, interests, and disposition.

A second possible virtue of federalism lies in the redundancy of two orders of government (Landau 1973, 188). Federalism is thus an “opportunity structure” with the potential for constituent units to take up the slack by launching their own mitigation or adaptation programs in what has been labelled “compensatory federalism” (Derthick 2010). One way this occurs is through venue shopping by activists targeting the most receptive and relevant government (Pralle 2003). This can be expected to reflect partisan differences when the two orders of government are in ideologically different hands (Bulman-Pozen 2014) — differences reflective of the alignment between environmental attitudes and the traditional Left–Right ideological spectrum. For such compensatory action to be possible, the constituent units must, of course, have the requisite powers and financial resources.

Conceivably, the collective effort of individual jurisdictions could even amount to much the same as what would have been achieved by an effective national program. Even if it falls short, that collective effort could be a reasonable surrogate, with a diversity of initiatives having an incrementally additive nature (Ostrom 2012). Furthermore, constituent unit action may play an instigating role whereby a dynamic process of “multilevel reinforcement of policy action” generates momentum that drives action at the national level (Balthasar, Schreurs, and Varone 2020, 6). In turn, constituent units may continue to advance overall policy goals with programs that complement and augment those implemented by the central government (Buzbee 2015).

Finally, the existence of multiple jurisdictions creates the potential for governments to learn from each other. It was long ago identified as an advantage of federal as distinct from unitary government that it provides multiple sites for “a people to try experiments in legislation and administration” (Bryce 1893, 353). In what thus came to be called the “laboratory federalism thesis,” if these experiments prove worthy of emulation, they will diffuse in either the horizontal or the vertical plane. In the latter event, the experiments can be seen as playing a “catalyzing role” for central government action (Bernstein and Hoffman 2018). We can distinguish here between lessons about which solutions are effective or efficient, and lessons about which are politically feasible or practicable — “instrumental policy learning” and “political learning” (May 1992).

3.3 Federalism as hindrance

On the other hand, the inhibiting effects of federalism are potentially substantial. First, it is possible that federalism’s division of powers may itself act as an obstacle to policy making. Historically, this often seemed to be the case, as captured by Dicey’s (1915, 167) declaration that “Federal government means weak government”. One way to express this is in terms of the multiple veto points through which federalism may stymie policy making. These could lie in the way the division of powers denies either order of government jurisdictional authority

to act or creates a misalignment between responsibilities and capabilities. One set of studies, for instance, concluded that mitigation action by the central governments of both Austria and Switzerland in one particular policy domain was hamstrung by constituent unit non-compliance (Casado-Asensio and Steurer 2016). And vice versa, it is possible that constituent units are constrained by jurisdictional limits.

A quite separate veto point exists if the constituent units enjoy input into central government decision-making through their representation in second chambers. In such circumstances, it is quite possible that a number of them could impose a lowest-common-denominator policy.

Second, mitigation or adaptation efforts may take varying forms and be implemented to varying degrees between constituent units and between orders of government, even working at cross-purposes. This can substantially reduce both the efficacy and the efficiency of measures. Intergovernmental coordination is an important component of policy making and implementation in modern federalism, where the division of powers and responsibilities has become less and less clear. Furthermore, if responsibility is carried in large part by the constituent units, advances made in some jurisdictions where conditions and attitudes are more conducive may well do little to compensate for inaction in others more closely tied to high-emissions industries. “Attempts to reduce greenhouse gas (GHG) emissions by one jurisdiction are meaningless if others allow emissions to increase by an equal (or greater) amount”, argues Gordon (2015, 122–123). If that is the case, it is quite possible that an “effective response ... requires vertical coordination” — which in this case seems to be a euphemism for central government control.

Third, constituent units in general may tend to under-invest in environmental protection. Simply put, the incentives are not there for them to take action in a broader public interest that they perceive as being contrary to their material self-interest (Engel and Rose-Ackerman 2001; Weibust 2009). By taking action, they would carry the full cost of any measure they implement while others would share the benefits. And, if there is any environmental issue where the gulf between local costs and collective benefits is a yawning one and the incentive to free ride or shirk responsibility compelling, surely climate change is it (Adler 2008). At the extreme, this might induce an environmental “race to the bottom,” where jurisdictions minimize actions perceived as deterring inward investment and growth (Woods 2021). At the very least, there are reasons we might expect foot-dragging by constituent units, and, again, top-down policies would seem to be required. These dynamics represent “a substantial risk for success of a national policy if the focus is mitigation, but that risk is significantly reduced if the focus is adaptation”, since benefits of the latter are much more likely to be retained locally (Fowler 2020, 153).

Has Federalism Facilitated Climate Governance?

Climate change governance could have particular advantages by the potential outcomes identified above, since this type of governance encompasses a range of possible measures that can be implemented and operate at very different scales. In some cases, this has indeed been the case.

4.1 Locally-tailored policy making

A virtue of federalism is often seen as being the way it invites policy making that is customized to local circumstances, needs and preferences — the “*decentralization theorem*”, as Oates (1972, 35; italics in original) called it. Federal systems provide scope for such customisation to a degree unlikely in a unitary state, where “one-size-fits-all” approaches may prevail.

This requires, of course, that the constituent units enjoy sufficient jurisdictional authority — and the case studies in *Climate Governance and Federalism* suggest that in climate change policy they generally do. Such a degree of autonomy unsurprisingly exists in the European Union’s (EU) supra-national proto-federal system, as Alberton emphasizes. Even in Germany, though, with its administrative division of powers where the constituent units have more of an implementational role and less policy autonomy than in dual federations, it seems that the Länder have had considerable scope to choose their own climate policy direction (Eckersley et al. 2023).

However, this is not the case everywhere. The highly centralized nature of India’s federal system reduces the scope for independent action by the constituent units. Although India’s states control several important areas of climate policy, financial and capacity constraints limit prospects for bottom-up action (Pillai and Dubash 2023). Meanwhile, South Africa’s “quasi-federal” system leaves the provinces with very little policy role at all, and the cities are left without the resources to pursue the climate action they contemplate (de Visser and du Plessis 2023). The Indonesian case is similar: with a lack of the constitutional guarantees provided by federalism, the local role in forestry management there has been assumed by central government authorities, with adverse implications for outcomes (di Gregorio and Moelino 2023).

The cases reviewed here provide numerous instances of regionally-tailored climate change policy. Constituent units in Australia, Brazil, Canada, Germany, Mexico, Spain, Switzerland, the United States, and other countries, have been able to adopt approaches consistent with their specific circumstances and preferences. Most important is how dependent the different constituent units are upon emissions-intensive economic activity — and therein lies the rub. As discussed below, while such flexibility has long been seen as a virtue of federalism, it has more contentious consequences for climate change governance.

4.2 Compensatory federalism

The “compensatory” potential is something that sets federal states clearly apart from unitary ones. Given, as noted above, that constituent units typically hold a number of mitigation cards, the potential for compensatory federalism undoubtedly exists. We must be mindful,

though, that the question is not whether compensatory action by constituent units is just as effective or efficient as an optimal set of policies implemented across the country by the central government. It is simply whether constituent unit initiatives go some way to filling a void created by central government inaction.

There is evidence of such compensating action occurring across a number of federations. Partisanship has been at the heart of the matter — fiercely so in the United States, but quite evidently so in other federations as well. All policy has its ideological inflection, and climate change is no exception. When central governments have been in the hands of those opposed to climate change action, constituent units have often taken the initiative — typically, those of a different ideological complexion. This has been the case in the United States (Rabe and Smith 2023); in Australia (Fenna 2023); in Canada (Harrison 2023); in Brazil (Seleguim and Rei 2023); and in Switzerland (Kammerer et al. 2023).

For good reason, California is the best-known case of constituent unit environmental activism, but it is anomalous. There are certainly “leader jurisdictions” in other federations — such as the Mexican state of Yucatán (Heredia and Corral 2023) — but these do not exercise the kind of systemic leverage that California has enjoyed. Prominent among the measures adopted at constituent unit level have been policies to encourage investment in renewable energy and to discourage carbon emissions through cap-and-trade systems. Occasionally, constituent units can go further and endeavour to force the central government to act, as a group of US States did via a legal challenge in 2007. However, there is little evidence of this in other cases.

Does this compensatory action have a perverse effect by letting central governments off the hook? There is some suggestion this might be the case in Switzerland (Kammerer et al. 2023), but in general it would seem that it is not the case elsewhere. In the case of the EU, Alberton describes the leadership role played by those more ambitious member states, setting the agenda for the Union as a whole. To what extent has compensatory federalism filled the void created by inaction at the centre? That is a question addressed below.

Institutional realities are also a factor in some of these cases. The presidential separation-of-powers system in the United States has helped ensure that “no major federal environmental legislation has been adopted in the United States since the 1990 *Clean Air Act* Amendments” (Rabe and Smith 2023). Switzerland’s unique system of direct democracy as playing an inhibiting role as far as the federal government is concerned (Kammerer et al. 2023). However, as the Australia case shows, it is quite possible to have inaction prevail at the federal level in a straight parliamentary federation if conservative parties hold office there (Fenna 2023). In India, the central government has taken the position that the country should not have to compromise on economic development for the sake of climate change mitigation and has refused to implement such policies unless there are clear co-benefits. Given that India is the third largest emitter, this is clearly an issue. While the states have compensated somewhat, their ability to do so is limited by the highly centralized nature of India’s federal system.

4.3 Laboratory federalism

Federalism’s greatest promise for policy making lies in the potential provided by the existence of multiple governments for policy innovation and accompanying learning by one jurisdiction from another. Learning can take place either horizontally among the constituent units, or vertically from one or more constituent units up to the central government. In climate change

governance, though, there is little reason to expect a great deal of genuine policy innovation: most of the mitigation measures have been well known for some time and the issue is not coming up with new techniques, but simply making the decision to adopt and implement them (Engel 2015). In that regard, federalism still provides conditions for second order policy learning — or “political learning” (May 1992) — in that pioneering jurisdictions can demonstrate the political and economic feasibility of what might be otherwise eschewed by other institutions as excessively adventurous initiatives.

The accounts provided here are largely consistent with this more modest interpretation of the laboratory federalism idea. There is little mention of genuine policy innovation, but numerous examples of pioneering adoptions that provide a model for other jurisdictions. Even in as centralized a federation as India, there has been some vertical diffusion of state innovations (Pillai and Dubash 2023). However, there are certainly examples of innovations that failed to inspire emulation. British Columbia’s message that a provincial carbon tax can work fell on deaf ears across the rest of Canada. Although Québec joined with California in an emissions-trading scheme, the other provinces were not queuing up (Harrison 2023). In Switzerland, the great variation in circumstances among the cantons discourages interjurisdictional learning as far as climate change policy is concerned (Kammerer et al. 2023). In China, there have been many instances of innovation and leadership but not necessarily an accompanying diffusion (Yi and Cao 2023). Leaders without followers does not make for laboratory federalism.

In general, we can say that the experience here reflects the chronic challenges that generally constrain interjurisdictional policy learning:

- the length of time before the success of a policy becomes evident;
- the absence of an objective measure of success;
- the role of local conditions, circumstances and interests;
- the impact of ideology and partisanship.

To What Extent has Federalism Proven a Hindrance?

On the other side of the coin, there are the potentially debilitating veto points, the potential for a motley collection of local policies (policy patchwork), or competitive pressures dragging policy down (the collective action problem). In the latter two scenarios, vertical coordination is required, one scholar has argued (Gordon 2015, 122–123). It is easy to see how climate change governance may be complicated by any or all of these, particularly given the upfront costs mitigation measures may involve and the degree of ideological conflict surrounding them.

5.1 Veto points

Federalism has been seen as obstructing policy making because either the relevant government has inadequate jurisdictional authority or institutions of constituent-unit representation in the central government have a veto power. These cases have highlighted some instances of such obstruction. In Spain, a high degree of jurisdictional conflict that has characterized environmental issues (Rodrigo, Aide-Fernandez, and Kölling 2023). In the EU, there has been a retarding influence from reluctant member states (Alberton 2023). In Canada, *status quo* provinces have blocked pan-Canadian action because of a convention requiring intergovernmental unanimity (Harrison 2023). And when the federal government did eventually take unilateral action, passing the *Greenhouse Gas Pollution Pricing Act* in 2018, that might have succumbed to constitutional challenge (though it was upheld by the Supreme Court of Canada). Underpinning these dynamics is the degree to which Canada stands out as an unusually decentralized federation — a consequence in the largest part of the degree to which it is a bicommunal federation, with Québec having long played a powerfully centrifugal role (Gagnon and Simeon 2010; Lecours 2019). Other than this and some jurisdictional clashes between the states and the federal government in the US, though, we see little by way of such obstacles to effective climate governance.

Indonesia, though, is a different story. There, two decades of decentralisation have resulted in a misalignment of roles, responsibilities and resources that hamstrings effective action (di Gregorio and Moelino 2023). As emphasized above, though, Indonesia is not a federation and indeed has long evinced an “aversion” to federalism. Its experimentation with decentralized governance is recent and the resulting system must be seen as a work in progress.

While Canadian provinces were able to block central government action because of their power in the federation, they have no formal veto authority through representation in the Canadian parliament. The situation is very different in Germany, where the second chamber, the *Bundesrat* (Federal Council), is made up of delegated representatives of the constituent unit (*Länder*) executive governments. The *Länder* do thus enjoy a formal veto power and a coalition of coal states could stand in the way of national mitigation strategies. To this point, there has been little evidence of the much-discussed *Politikverflechtungsfalle* or “joint-decision trap” being an obstacle to federal climate change policy making in Germany — though it could become so (Eckersley et al. 2023). The *Bundesrat* is, however, a most unusual type of federal second chamber, and we would not expect this kind of veto point to be a factor in other federal systems. The only other case here with German-style council governance is the EU, where similar dynamics can be found (Hueglin and Fenna 2015).

5.2 Policy patchwork

While constituent units may well step up and compensate for central government inaction, quite possibly only some of them will — and to varying degrees. This pattern is evident from the case studies, particularly the US and Canada, where several jurisdictions have taken notable climate change initiatives, but, equally, a number remained steadfastly attached to the *status quo*. This reality is evident in Germany, the EU, Spain, and China — reflecting what in the latter instance has been described as “the conflict between local economic interests and national goals for climate governance” (Yi and Cao 2023).

In many cases the problem goes beyond the mere existence of diverse responses. In Ethiopia, spillover problems between ethnically-defined constituent units jealous of their powers and interests undermine mitigation and adaptation efforts (Adela, Worku, and Nigussie 2023). Oates (1972) noted that the decentralisation theorem is predicated on costs and benefits of a given policy being internalized, and there being no significant external effects, or spillovers. Decentralization becomes more problematic when those externalities are more serious.

In Canada, the issue is the degree to which those jurisdictions that have not taken action are the ones where action is most needed. No matter how concerted Québec or British Columbia might work to reduce their emissions, those efforts cannot compensate for the large and increasing contribution from Alberta. “With only 12 percent of the population, Alberta contributes over 40 percent of Canada’s emissions”, and its economic welfare is tied to its high-emission industries (Harrison 2023; Macdonald 2020). As a consequence, Canada’s emissions have continued to rise. In much the same fashion, the efforts of the southern states in Brazil cannot compensate for the large and rising emissions of their Amazonian counterparts (Seleguim and Rei 2023).

There is a view that such dynamics are fatal for climate change governance. “Attempts to reduce greenhouse gas ... emissions by one jurisdiction are meaningless if others allow emissions to increase by an equal (or greater) amount. An effective response ... requires vertical coordination” (Gordon 2015, 122–123). This would, however, seem to exaggerate. If emissions increase in some jurisdictions on a business-as-usual basis while other members of the federation are implementing policies to reduce theirs, those reductions are nonetheless reductions in the net federation-wide output, just as they would be if there were no shirkers. While mitigation efforts by BC, Québec and Ontario are overshadowed by Alberta’s large and growing emissions and the leaders cannot compensate for the laggards, Canada’s net emissions are still lower than they would be if those three provinces had also continued to pollute on a business-as-usual path. None of the achieved reductions is “meaningless”. But that’s cold comfort, Harrison (2023) argues: in a federation such as Canada’s, the central government’s heavy hand is required if emissions are to be reduced. This would seem to be the case for any federation where there are jurisdictions wedded to emissions-intensive industries of such scale.

A very different scenario is represented by the Australian case, where states have varied in their commitment but not such that some jurisdictions effectively undo the efforts of the others (Fenna 2023). Because of their coal and LNG exports, Western Australia and Queensland play a role analogous to Alberta’s, but not to the same degree. The difference lies not in the respective federal systems, but in the type and distribution of resources within those systems. Both the fossil fuel resources and the renewable alternatives are more evenly distributed in Australia and none are as dirty as Alberta’s tar sands.

5.3 The collective action problem

Given that no constituent unit “acting alone, is even capable of adopting emission controls that would make a dent in global emissions”, and assuming that mitigation efforts are costly, there is good reason to think that all jurisdictions would be tempted to “free ride” on the efforts of others (Adler 2008, 448). Emission reduction represents a much tougher move to sell in that regard for individual jurisdictions than other environmental policies where benefits are typically internalized to a greater degree (Gómez 2024). The studies reviewed here provide little of evidence, though, of such an effect prevailing. That seems consistent with findings that jurisdictional action on climate change is determined more by internal dynamics than by the external collective action dilemma (e.g., Aklin and Mildenberger 2020; Matisoff 2008).

In Sum

Federalism has undoubtedly enhanced climate change governance in a several of the countries examined here. It has done so primarily through its inbuilt redundancy — providing the opportunity for constituent units to step up and fill the void should the central government fail to act. This compensatory potential has been most evident in the Australian case, but also across other federations canvassed here: Canada, the United States and Brazil. The phrase “fill the void,” however, almost inevitably overstates things. There is no example of the net effect of constituent unit action equalling what a whole-of-federation program equivalent to that undertaken in the more ambitious constituent units would have achieved. The void gets at best only partially filled. The extent to which this occurs is powerfully influenced by the geo-political economy of the federation in question. Constituent units whose economic self-interest is heavily tied to high-emission patterns of economic activity are very unlikely to follow the lead of those with a different resource base and economic profile.

The accounts drawn on here confirm that federalism and federal-type arrangements work in crosscutting ways, facilitating policy action in some respects, hindering it in others. Divided jurisdiction’s effects vary according to a range of institutional, political, social, economic and geographic factors. Some patterns have emerged, though, and not all of federalism’s mooted advantages or disadvantages have been important factors.

Finally, dysfunctionality has been much less a problem of federalism than of *insufficient* federalism. It has been in the highly centralized systems or those in the developmental stage of decentralisation that we have seen the most persistent challenges to climate change governance. In those cases, insufficient autonomy, resources or capabilities at the constituent unit level or a misalignment of responsibilities and incentives have presented significant obstacles.

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