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Coping With Turbulence and Safeguarding Against Authoritarianism: Polycentric Governance as a Resilience Resource

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Abstract

Crisis management during the pandemic stimulated a bulk of analyses and debates on how states and societies coped with this challenge. In many countries, authority migrated temporarily from parliaments to executives and from the subnational to the national level, involving even violations of democratic and individual rights. Such reactions are motivated by the assumption that crisis management requires prompt, decisive, and uniform responses best delivered by a strong and centralised leadership. In contrast to this widespread assumption, crisis and disaster management research compellingly stresses the virtues of polycentric governance and processes based on flexibility, decentrality, and dispersed information in coping with turbulence. In this article, a framework is proposed for analysing empirically the question of what makes states and societies resilient. Core to this framework is the notion of resilience resources. In linking resilience resources to properties of socio-ecological systems and their reactions to turbulence, the resilience concept becomes accessible to empirical analyses. The potential of the framework is illustrated by an empirical example of the coordination of decentralised pandemic management by the German Minister-Presidents' Conference. This example shows how the resilience resource of polycentric governance is put into practice. The results of the analytical, as well as the empirical part of the article, underpin the claim that resilience is fostered by coordinated decentrality, flexible adaptation, and bricolage instead of centralisation of authority. Fostering resilience in this sense provides also a safeguard against authoritarian tendencies.

Keywords

authoritarian liberalism; coordinated decentrality; crisis management; polycentric governance; resilience resources

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1. Introduction

Crisis management during the pandemic stimulated a bulk of analyses and debates on how states and societies coped with this challenge, what the appropriate institutional settings and management strategies were, and which systems ultimately emerged more successfully from the crisis than others (see e.g., Altiparmakis et al., 2021; Grogan & Donald, 2022; Steytler, 2022). Empirically, in many countries, we observed temporary authority migration from parliaments to executives and from the subnational to the national level (Bolleyer & Salát, 2021; Hegele & Schnabel, 2021), involving violations of democratic and individual rights (Kolvani et al., 2021). Such reactions were motivated by the assumption that crisis management requires prompt, decisive, and uniform responses best delivered by a strong and centralised leadership. To be sure, centralisation does not necessarily mean authoritarianism. However, in crises in particular, the centralisation of powers and violation of basic democratic and individual rights, even motivated by the goal to fight a crisis and to protect the population, is a slippery slope bearing the risk of progressing authoritarian tendencies in liberal states (Bruff & Tansel, 2020). While there is some evidence that centralised systems react faster in crises (Toshkov et al., 2022) and hierarchy fosters government capacity (Christensen et al., 2016), crisis and disaster management research recurrently stressed the virtues of polycentric institutional arrangements and processes based on flexibility, decentrality, dispersed information, and teamwork. Disaster research convincingly points out the role of local communities (Kapucu et al., 2013; Kapucu & Sadiq, 2016; Norris et al., 2008). Similarly, Boin et al. (2016, Chapter 1), while advocating leadership as an essential element of crisis management, explicitly deny the idea of the one strong person able to change the fate of history. In contrast, they make it perfectly clear that leadership hinges on teamwork, a diversified input of information, and coordination of decentralised action.

Insights from crisis and disaster management on how best to deal with turbulence (the rationale and meaning of this notion is convincingly introduced by Ansell et al., 2023) are all the more important as crises are becoming ever more frequent and follow quickly upon each other. In a situation of permanent crisis, the question of what makes states and societies resilient in the long term in coping with recurrent or nearly permanent turbulent changes in their environment becomes central. Based on those considerations, the article introduces a framework for analysing resilience. It is developed by combining concepts and insights from ecosystem resilience, crisis management, organisational decision-making, public administration, and multilevel governance theory. As resilience is a systemic notion, encompassing state actors, civil society, and the economy, as well as their interactions and interrelations embedded in their natural environment, this ensemble is captured by using the term "socio-ecological system" (SES). Ecological resilience research uses this notion to emphasise the interrelationship between man-made and environmental conditions and changes (R. Biggs et al., 2015, p. 8). A system's resilience is not a measurable quantity. To begin with, it is unclear whether system resilience relates to a system's endowment with capacities or resources *before* meeting turbulence; the procedures and strategies by which it *reacts* to turbulence; or its integrity or strength when *exiting* a turbulent situation. What is more, measuring resilience would require an independent standard or criterion against which different systems can be compared. It is, however, unclear what such a criterion or standard might be. During and after the pandemic, in some publications, the number of deaths was counted and compared as a measure of a system's resilience (Cameron, 2021). However, this criterion stresses only *one* potential dimension of resilience. With hindsight, resilience during the pandemic affected not only the health of the population but also economic factors, societal cohesion, psychological well-being, and the legitimacy of political actors and institutions.

In developing the analytic framework in Section 2, I thus resort to *resilience resources* as an empirical proxy for systems resilience, distinguishing systemic and action-related resources. The framework elaborates on which resources can be meaningfully distinguished, how they impact system resilience, and how they are fostered by institutional, procedural, or cultural properties of SESs. In a causal model, systemic properties are linked to resilience resources and resilience resources are linked to systemic reactions that can be interpreted as manifestations of resilience. In empirical investigation, it is hence possible to test the first link, the second, or both.

While all resources are important, probably the most challenging resource to put into practice is polycentric governance. To illustrate how the framework can be used to empirically assess the resilience of various socio-economic systems, in Section 3 an empirical example shows how polycentric governance was enacted in crisis management and how its effects can be measured empirically. I take the processes of intergovernmental coordination in Germany during the pandemic as an example, as Germany is a most likely case (Rohlfing, 2012, pp. 84–85) for illustrating polycentric governance. Being a federal state with a strongly decentralised power distribution, Germany has at its disposal an unusually strong cooperative culture and long-established institutions fostering horizontal coordination among the subnational units as well as vertical coordination between the subnational level and the central government. Most notably, the Minister-Presidents' Conference (MPK), an informal coordination arena between the heads of the subnational governments, evolved during the pandemic into the core coordination forum. The analysis shows how the seemingly contradictory exigencies of polycentric governance can be reconciled in practice.

Jointly, the analytic framework of resilience resources and the empirical example of enacting polycentric governance provide a strong argument against the risk of authoritarianism that comes with centralisation. Power can be centralised by curbing the separation of powers either between branches of government (from parliament to the executive) or across levels of government (from subnational to the national level). Where parliaments and subnational governments keep or re-gain independent powers, they have a chance to act as important checks on the executive, enhance the transparency of decision processes and protect democratic and individual rights (Chiru, 2024; Gardner, 2021, p. 1104). In strengthening decentralised decision-making, polycentric governance, and the individual responsibility for flexible reactions as resilience resources, the system's resilience can be enhanced not only against turbulence but also against the risk of sliding towards centralisation, personalised leadership, and ultimately authoritarianism (Ward & Ward, 2021).

2. Conditions for Fostering Resilience in an SES

When crises tend to become a permanent situation, resilience as "the capacity of a system to absorb disturbance and reorganise while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks" (Walker et al., 2004, p. 5) gains importance. A resilient system does not fight a situation but adapts to it; it does not primarily aim at ending this situation to return to the status quo ante; rather it transforms itself to a new state which is better adapted to the turbulent and constantly changing environmental conditions. In order not to jeopardise its adaptive abilities in the long run, a resilient system must be able to use its resources sustainably. Typically, a resilient reaction to turbulence is described as a three-step process of shock absorption, adaptation, and transformation (Norris et al., 2008, p. 130; Walker et al., 2004).

In this sense, preparedness (Kapucu & Sadiq, 2016) and robustness (Ansell et al., 2023; Capano & Woo, 2018; Carstensen et al., 2023) can be seen as elements of resilience linked to the phase of shock absorption, rather than as competing concepts. Adaptation stresses the aspects of flexibility and dynamic change over the more traditional status quo orientation based on equilibrium theory (de Bruijne et al., 2010, p. 17). Adaptation can be furthered by systemic properties, but also by adaptation management (Woods, 2019, p. 53). It is important to understand that system resilience means the survival of the system as a whole, not necessarily the preservation of its elements and structural relations as they were. Survival by adaptation may come with substantial changes in the relations among the system's elements. In SESs, this may also mean creating or increasing inequalities, where some elements profit from new structures while others are threatened by them (R. Biggs et al., 2015).

Whether a system is more or less resilient cannot be measured empirically, as resilience manifests only in the long-term adaptation to changing environments and is hence hardly accessible to experimental manipulation. It is, however, possible to determine conditions that enhance an SES' resilience. Following Norris et al. (2008, p. 130, esp. fig. 1), those conditions are referred to as *resilience resources*. Applied to SESs, where adaptation is not a mere systemic reaction but follows from purposive decisions of political actors, it is useful to distinguish systemic resilience resources from action-related resilience resources. This distinction is implied in many elaborations of principles or strategies for enhancing resilience (R. Biggs et al., 2015, pp. 21–23.; Woods, 2019). As an overlapping core in various literatures, systemic resilience resources are distilled here as diversity, polycentricity, and redundancy, and action-related resilience resources as flexibility, adaptation, and bricolage.

Resilience resources are assumed to promote resilient reactions when an SES meets turbulence. If resilience resources are available, then ceteris paribus an SES will better be able to absorb shocks and adapt to new circumstances than it would be without those resilience resources. At the same time, an SES may display institutional, procedural, or cultural properties that foster the existence of resilience resources. Basically, resilience resources are thus linked to an SES both as a dependent and as an independent variable in a two-step causal connection (see Figure 1).

Analytically, according to this framework, resilience resources can be described, and used as a dependent variable (in the first causal link) or as an explanatory factor (in the second causal link), both with respect to individual cases and in a comparative perspective. Empirically, it is possible to discern whether and to what extent resilience resources exist in an SES. Regarding the first causal link, it can be argued which system properties foster resilience resources (and how). An empirical trace would be, for example, if discourses of institutional reform refer to the aim of enhancing resilience resources. Regarding the second link, it is possible to analyse which resilience resources are available in a situation of meeting turbulence and how they were activated. In the next two subsections, the six resilience resources are described concerning both causal connections, i.e., the mechanisms by which they impact resilient reactions and those systemic properties that foster or hinder their existence.

Institutions, processes, and culture of an SES → foster existence of → resilience resources (systemic and action-related resources) → promote → an SES' resilient reaction (shock absorption and adaptation)
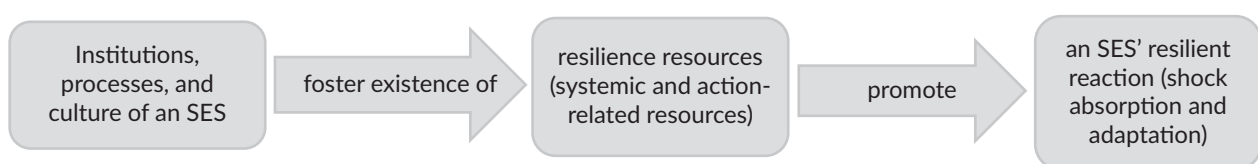
Figure 1. Causal connections between an SES and resilience resources.

2.1. Systemic Resilience Resources: Diversity, Redundancy, and Polycentricity

Research on the resilience of ecological systems highlights the importance of diversity. The progressive loss of biodiversity poses one of the major challenges for our global ecosystem (Levin, 1999). Diversity as a natural consequence of evolution is an essential resilience resource in the sense that different elements of a system fulfilling similar functions or filling similar niches provide a set of potential solutions for similar problems (Kotschy et al., 2015). Plants, for example, have developed various mechanisms to cope with drought. This variation of potential solutions proves valuable when environmental situations change or problem pressure increases. Then some solutions work better or can be more easily adapted, hence providing a template for others. In SES, diversity of institutional and policy solutions to environmental challenges is best promoted by a decentralised state structure. If regional and local units are endowed with high autonomy, then they develop individual and potentially diverging solutions which are (in theory at least) optimally adapted to the specific time- and space-bound manifestation of environmental challenges, to local settings and needs, and grounded in local values and experience.

Redundancy is closely related to diversity and complements it. According to Nowell et al. (2017, p. 125), redundancy can be created either by having more of the same elements within the system (duplication), outside the system (backup), or by having polyvalent elements that can serve as functional equivalents if other elements in the system fail (cross-functionality). A fourth manifestation of redundancy is cross-checking, i.e., the "four eyes principle" in organisations. Diversity is a necessary condition to enable cross-functionality, which is also the most robust and efficient form of redundancy, securing the survival of important functions when the system is under stress (C. R. Biggs et al., 2020, p. 18). Duplication and back-up on the other hand are resource-intense forms and hence more difficult to implement when resources are scarce. An example is public service personnel. Having more public service personnel enhances the capability of an SES to act under stress. It is, however, cheaper to reallocate personnel to the most stressed parts of an organisation (cross-functionality) than to keep a permanent stock of personnel able to cope with peak strains. Redundancy can be promoted in an SES by a stock of elements ready to be used. In this sense, decentralised state structures automatically create redundancy of functions and elements. Having slack in money, time, and personnel in critical aspects of an SES provides redundancy. Also, the intelligent linkage of parts of a system fosters redundancy, e.g., when data, information, decision-making power, and other functions are replicated between elements, creating relay structures, data hubs, or personnel pools, to give but a few examples.

Diversity alone cannot secure resilience if the various elements are not linked by polycentric governance. A polycentric organisation of diversity means that a multiplicity of autonomous elements (e.g., local or regional governments), while acting independently of each other, are at the same time interlinked in relations of competition, cooperation, and conflict (Carlisle & Gruby, 2019; E. Ostrom, 2010; V. Ostrom et al., 1961). Polycentric governance in this sense combines the advantages of diversity (dispersed information, experimentation, quick reactions, learning, etc.) with those of joint action (pooling powers and making a greater impact). To achieve polycentric governance, it is important to coordinate the decentralised units and their actions and decisions (Behnke & Hegele, 2024). This presupposes arenas in which units are loosely coupled in horizontal and vertical directions, and negotiation and decision processes deeply rooted in a cooperative culture. Complex state architectures and decision processes are better equipped to achieve polycentric governance than simple structures (Benz, 2019). For example, consensus democracies in

Lijphart's diction are better equipped to reflect and deal with complexity than majoritarian systems, because different perspectives and more information are integrated into the decision process, externalities are more systematically taken into account, and results are supported by a broader consensus. Similarly, while both the United States and Germany are federal states with a decentralised structure and high autonomy of subnational units, the dense network of cooperative bodies and interlocked decision processes in Germany as a typical proponent of cooperative federalism is better equipped to mirror and handle complexity than the more antagonistic decision structures in the dual or interstate type of federalism represented by the United States (Mueller & Fenna, 2022).

2.2. Action-Oriented Resilience Resources: Flexibility, Adaptation, and Bricolage

SESs are complex adaptive systems able to self-organise and adapt based on experience (R. Biggs et al., 2015). In this sense, the resilience of SESs is amenable to purposive action as opposed to ecological systems which adapt in evolutionary mode. Political decision-makers, crisis managers, and street-level bureaucrats analyse a crisis situation and make decisions to react adequately. Hence, action-related resilience resources are distinguished from systemic ones. Crisis management literature and organisation theory overlap in their recommendations that the institutional, procedural, and cultural conditions in a political system must be organised such as to enable and encourage the flexibility, adaptation, and bricolage of decision-makers.

Flexibility means that actions must be tailored to a situation. While contingency plans may be an important element of crisis preparedness, they must leave leeway for interpretation depending on the specific circumstances. Those actors entrusted to make binding decisions and to initiate crucial action must have the possibility to deviate from routines and do what they deem necessary (Ansell et al., 2021, p. 953). Crucial premises for flexibility are hence rules and regulations providing leeway for interpretation as well as sufficient resources (personnel, money, time) that can be used flexibly in multiple ways (Seibel et al., 2022). What is more, a political culture that encourages autonomy and responsibility, and embraces mistakes as opportunities for learning and improvement enhances flexibility for decision-makers. Risk aversion, path dependency, hierarchy, and a legalistic culture, in contrast, inhibit flexible responses to changing situational requirements.

Flexibility is a condition for *adaptation*. Decision-makers must be able to react to feedback, learn, and change their course of action as they get updated information. Organisation theory has been dealing with the problem of adaptive decision-making for nearly 80 years already, suggesting local satisficing instead of global optimising to economise on decision resources (Simon, 1997) and stepwise changes of the status quo to allow for course corrections and reduce the risk of fatal errors (Lindblom, 1959). To allow for learning and error correction, feedback loops must be systematically established, and organisations must develop a culture that openly acknowledges errors and welcomes them as an opportunity to improve. Again this presupposes a diversity of actors providing critical input, questioning decision-making, and making suggestions for improvement. Heterogeneity of perspectives and an informed public discourse are crucial aspects of a political system to foster adaptation. On the other hand, institutions that have evolved in a path-dependent manner and decision processes that are overly complex and involve many veto players inhibit adaptation and foster instead a strong status-quo orientation. Legal structures and a cultural mindset that encourage experimentation (e.g., sunset legislation) or even competition for best solutions (e.g., benchmarking) and the availability of different solutions (see diversity above) enhance the chances for adaptation and learning.

One of the major challenges of decision-making in situations of turbulence is the necessity to prepare for that which cannot be foreseen. Contingency plans and routines speed up decision-making, which may be essential in a crisis. However, they help to prepare only for known situations. Unknown situations typically require more time and resources to collect information and elaborate an adequate answer (Heiner, 1983). One way to accommodate the two contradictory needs of making speedy decisions and yet creating innovative solutions to unknown and turbulent situations is the concept of "bricolage." Bricolage, as a notion, dates back to Claude Lévi-Strauss who developed it in his book *The Savage Mind* as a way of "doing things with whatever is at hand" (Duymedjian & Rüling, 2010; Levi-Strauss, 1966). The notion was taken up by—among others—organisation theorists such as Karl Weick and public administration researchers such as Martin Carstensen, Eva Sørensen, and Jacob Torfing (Carstensen et al., 2023; Weick, 1988). Basically, it describes a way of perusing the inventory of available building blocks, bits, and pieces of problem solutions and assembling them in new ways, thereby developing creative solutions. Bricolage is the basic mechanism by which experimental science produces scientific progress. The ingenuity of the authors of solutions lies

Table 1. Indicators for analysing resilience empirically.

Properties of SESs fostering resilience resources	Resilience resource (systemic and action-related)	Impact on SESs' reaction to turbulence (shock absorption and adaptation)
Regional and local units endowed with high autonomy	*diversity* Multiplicity of elements unrelated from each other in relevant respects	Locally tailored reactions; experimentation and competition; mutual adaptation and learning
Availability of resources; Polyvalence of elements; Controlled connectedness or separation of elements in a system	*redundancy* Back-up, cross-functionality, duplication, or cross-checking	Malfunction or failure of elements can be compensated
Governance structures and processes that enable coordinated decentrality (either horizontally or vertically) in a loosely coupled manner	*polycentricity* Independent units interacting in modes of competition, cooperation, and conflict	Interaction between elements promotes experimentation, the dispersion of information, learning, harmonisation of reactions
Resources/redundancy; Norms granting leeway in decisions; A political culture valuing autonomy and responsibility more than the rule of law and due process; Constructive error culture	*flexibility* Actions and decisions are tailored to the situation; deviation from routines is possible	Decision-makers react appropriately to the demands of a situation; speedy and necessary decisions can be taken
Information and feedback loops; resources and leeway for changing courses of action; political culture embracing dynamic change	*adaptation* Actions and decisions are adapted in response to updated information	Learning from experience or competition can be implemented, hence improving the quality of the reaction to turbulence
Toolbox solutions; Culture of experimentation and creativity	*bricolage* "Doing things with whatever is at hand"	Creative new solutions are invented quickly

not in inventing something totally new but in intelligently adapting or re-assembling known parts to create new functionalities. Bricolage can be fostered by a culture of entrepreneurship, experimentation, and responsibility to encourage people to think out of the box and try out new solutions. Also, the inventory of available knowledge and expertise should be organised in a modular and toolbox-like manner rather than listed encyclopaedically. Ultimately, flexibility, adaptation, and bricolage as action-oriented resources strongly depend on the corresponding mindset of decision-makers but can, of course, be encouraged or inhibited by the respective structures and institutions.

3. Coordinated Decentrality in Federal Crisis Management

The framework developed in the preceding section offers categories and indicators to empirically investigate and analyse the resilience of SESs beyond the dominant metaphorical use of the notion. The causal links are derived mainly from plausible assumptions and existing theories. Empirical studies are needed to test whether and how the resilient reaction of an SES under stress can be fostered, focusing on one or more elements of the framework. As an illustration of such a study, an example is presented that focuses primarily on the resilience resource of polycentricity. Polycentricity presupposes a connectedness of the individual elements in various relationships of competition, cooperation, and conflict. It is unclear, however, how to achieve cooperation in practice under conditions of competition and conflict (Carlisle & Gruby, 2019, p. 928). In my view, this is best illustrated by coordinated decentrality as practised in federal countries.

Coordinated decentrality optimises two seemingly contradictory principles: decentralisation and coordination. It overlaps with the notion of "loose coupling," originally introduced by Karl Weick (Benz, 2015; Orton & Weick, 1990). Coordinated decentrality does not necessarily presuppose a strong centre; rather it can also be reached by voluntary horizontal cooperation. Decentralised action provides dispersed information and enables local and quick reactions, while coordinated decision-making contributes to pooling, distributing, and channelling relevant information, agreeing on common paths of action, and balancing potentially divergent interests. Decentrality is coordinated in structures and decision processes that are, on the one hand, interlocked to mirror the complexity of real decision situations, yet, on the other hand, leave room to act independently to a certain degree. In German federalism, the core institutions of federal coordination—the *Bundesrat* as the second parliamentary chamber and the intergovernmental councils, sectoral ministerial conferences, and the MPK as peak council—exemplify this practice of coordinating, balancing, and harmonising decentralised action (Behnke & Hegele, 2024; Hegele & Behnke, 2017).

Hence, the activities of the MPK as the German intergovernmental peak council are taken as an example to empirically uncover patterns of coordinated decentrality in decision-making during a crisis. In the MPK, the heads of government of the territorial units (*Länder*) meet regularly to discuss matters of legislation and implementation and to agree voluntarily on harmonised paths of action. Decision-making in the MPK relies on negotiation and discussion. It was founded as an informal horizontal coordination body in 1954, meeting four times a year. While two annual meetings are purely horizontal, the other two involve the federal chancellor. Meetings are prepared over three to six weeks by the *Land* that currently holds the presidency. Coordination requirements are met, first, by sequencing the process in a highly routinised way, and second by dealing with all "technical" matters at the level of civil servants, shifting only highly contentious political conflicts up the ladder to the minister-presidents (Behnke, 2021a). The meetings are held behind closed doors for intense discussion with no formal requirement to find a solution. In practice, resolutions are taken by a qualified majority (Scherer,

2009, p. 111). Although resolutions are not legally binding, they narrow the political scope of transposition or implementation at the *Länder* level. Despite its lack of formal powers, the MPK has become a politically highly influential institution and a successful coordinator of positions and actions of the *Länder*.

During the pandemic, the MPK transformed into the major coordination body for crisis management. Its routines and scope changed dramatically under increasing public scrutiny and pressure of expectations (Person et al., 2022). Instead of every three months, beginning in March 2020, the MPK met roughly every fortnight. Federal Chancellor Angela Merkel took the lead in the meetings and brought with her a large group of federal ministers and ministerial bureaucrats, transforming it into a predominantly vertical body. The elevated role of the MPK during the pandemic may itself be interpreted as an instance of bricolage, using a coordination body already at hand for extended purposes and profiting thereby from established coordination routines. The example analyses whether, how, and to what extent the MPK succeeded both in coordinating decentralised decision-making and in curbing attempts to centralise powers. If polycentric governance of pandemic management was achieved, then we would expect decision-making to expose the following characteristics:

1. The containment measures enacted in a decentralised manner in the German *Länder* are visibly based on a common concept, but allow for regional variation to adapt to specific conditions or circumstances.
2. Over time, containment measures converge towards successful solutions.
3. Attempts of the central government to encroach on subnational powers are successfully averted.

To test the first expectation, formal MPK resolutions between March 2020 and March 2021 are analysed using data collected in a former research project (see extended explanations on research design, data collection, and coding in Person et al., 2022, 2024). During these 12 months, the MPK met 26 times and issued 111 resolutions. In those resolutions, 10 subject areas were coded covering the entire bandwidth of state intervention in individual freedom rights. Those codes were compared with their transposition into executive orders of the *Länder*. The comparison was coded along four categories of implementation: "none," "partial," "full," and "more restrictive." Full transposition means that the decision taken in the MPK was transposed identically in the executive order of a *Land* that was issued after the resolution. Partial transposition means, accordingly, that parts of the resolution were retained but the *Land* executive order is less restrictive than the MPK decision. If it was even more restrictive, we coded "more restrictive." If the decision was not mirrored in the executive order, we coded "none." The resulting distribution of frequencies is shown in Table 2.

The descriptive results shown in Table 2 confirm the first expectation: All in all, the pandemic measures in the German *Länder* followed a similar pattern, yet with variation across the territory. Nearly 80% of all MPK resolutions were implemented identically, another 10% in part (Table 2). Still, regional political cultures are visible. E.g., Baden-Wurttemberg and Bavaria most often implement stricter measures (10% and 13.5% respectively). This corresponds to their values on the restrictiveness index (Table 3), where they show the highest values most of the time. On the other side of the spectrum, those *Länder* which deviated in over 20% of the cases (no or partial implementation) tend to have also lower values on the index.

The second expectation is tested by relying on another dataset that was collected in the same project. There, we coded the restrictiveness of containment measures in every *Land* over the same period (see the

Table 2. Relative frequencies of implemented MPK resolutions, by Länder (percent).

	Full	None	Partial	More restrictive
Baden-Wurttemberg	78.4	2.7	9.0	9.9
Bavaria	80.2	3.6	2.7	13.5
Berlin	75.7	8.1	10.8	5.4
Brandenburg	86.5	4.5	5.4	3.6
Bremen	76.6	8.1	10.8	4.5
Hamburg	74.8	9.0	11.7	4.5
Hesse	73.9	10.8	12.6	2.7
Mecklenburg-West Pomerania	85.6	5.4	8.1	0.9
Lower Saxony	86.5	6.3	3.6	3.6
North Rhine Westphalia	79.3	4.5	13.5	2.7
Rhineland Palatinate	75.7	9.9	12.6	1.8
Saarland	81.1	6.3	9.9	2.7
Saxony	79.3	5.4	9.9	5.4
Saxony Anhalt	74.8	6.3	18.9	0.0
Schleswig-Holstein	74.8	12.6	11.7	0.9
Thuringia	74.8	10.8	8.1	6.3
Germany	78.6	7.2	10.0	4.3

Note: The total amount of possible adoptions of MPK resolutions is 1,776; 111 per *Land*.

description on data collection and coding in Behnke & Person, 2022; or on the project website: https://www.politikwissenschaft.tu-darmstadt.de/institut/arbeitsbereiche_und_nachwuchsgruppen/oeffentliche_verwaltung_public_policy/forschung_oev/Corona-VerordnungenimdeutschenFderalismus.en.jsp). The results are displayed in Table 3.

The data show again a pattern of connectedness, yet with regional variation. While the shades of red co-variate loosely over time, mirroring the number of newly infected persons, they still show that some units persistently implement stronger measures than others. As we have shown elsewhere (Behnke & Person, 2022), indeed the correlation over time with new incidents is robust, but not across units. Across units, a weak correlation could be shown with the party-political composition of regional governments. Jointly, this comes close to the expected pattern of loosely following the same path of action, yet allowing for regional variation. Also, patterns of learning are exhibited in Table 3. The standard deviation in the first lockdown (CW 17 to 21) is around 6, and in the second lockdown (from CW 46 on) around 5. This results from a more informed assessment of which measures are useful. For example, in the second lockdown in November and December 2020, children were less restricted in their contacts (e.g., playgrounds were kept open), and contact in the public space with enough fresh air was allowed more leniently.

Regarding the third expectation, the above-mentioned data set on the MPK resolutions shows an interesting detail if we disaggregate all resolutions according to subject areas of containment measures. The results are given in Table 4 (see Person et al., 2022, p. 179). They show that deviations from joint decisions were taken more often in matters of severe restriction of civil rights and liberties—curfew and contact restrictions in private spaces. These two measures were implemented in Länder executive orders fully in accordance with

Table 3. Restrictiveness index of pandemic measures in the German Länder from March 2020 to March 2021.

CW / Land	12/20	14/20	17/20	21/20	25/20	29/20	33/20	38/20	42/20	46/20	51/20	02/21	07/21	11/21
BW	40	69	63	67	59	59	56	56	56	63	76	78	72	68
BY	58	72	75	63	55	61	61	58	58	63	76	80	77	80
BE	19	69	66	44	54	46	46	46	52	56	65	69	69	62
BB	19	72	63	62	47	45	45	46	46	54	72	78	78	60
HB	41	60	57	47	43	47	47	47	50	55	59	72	68	68
HH	29	61	61	56	54	47	47	47	53	62	64	68	68	64
HE	55	63	66	60	58	55	53	53	53	64	64	72	72	68
MV	23	63	62	59	57	55	55	55	55	63	61	65	65	61
NI	49	69	71	58	56	58	56	56	53	60	68	72	72	65
NW	33	51	58	61	50	54	54	54	57	70	70	72	72	72
RP	42	49	63	60	49	49	49	49	49	63	63	68	68	62
SL	72	68	58	59	51	53	53	53	56	66	66	66	68	64
SN	42	72	56	51	47	47	47	48	48	58	72	76	76	67
ST	19	65	68	49	41	37	37	37	37	45	56	60	60	53
SH	17	63	54	51	51	51	51	49	47	56	66	70	70	66
TH	35	67	72	54	48	48	48	46	46	50	67	73	67	67
SD	15.54	6.68	5.86	6.16	5.07	6.04	5.61	5.33	5.32	6.09	5.37	5.07	4.46	5.58

Notes: CW = calendar week; the *Länder* are denoted using the official abbreviations in alphabetical order from BW = Baden-Wuerttemberg to TH = Thuringia; *SD* = standard deviation; a darker shade of red indicates a higher value on the restrictiveness index which ranges from 0 to 100.

Table 4. Relative frequencies of implemented MPK resolutions, by type of measure (percent).

	Full	None	Partial	More restrictive	*n*
curfew	33.33	44.79	4.17	17.71	96
limited movement and sojourn in public space	81.82	7.95	9.66	0.57	176
barbers	96.43	2.68	0.00	0.89	112
hotels	87.50	7.29	2.08	3.13	96
hygienic measures	96.13	0.60	2.98	0.30	336
limited contact in public space	80.21	5.90	7.29	6.60	288
limited contact in private homes	60.16	7.81	29.69	2.34	256
duty to wear face masks	76.56	7.81	10.42	5.21	192
professional sports	78.13	6.25	13.54	2.08	96
schooling	76.56	0.00	10.94	12.50	128

Note: Total amount of possible adoptions of MPK resolutions is 1,776; 111 per *Land*.

the resolution in only 33% and 60% of all cases, respectively, while in 45% (30% respectively) of the cases, the Länder refused implementation. The evidence can be interpreted such that in the most contentious matters, decision-makers are sensitive to the potential reactions of their voters and hence willing to protect their citizens' rights even against the collective decision in the MPK. Thereby, they counter potentially illiberal tendencies from the centre.

Still, the potential of the MPK to resist centralising tendencies is limited. In April 2021, after having reached a situation of near inability to act due to strong tensions between several minister-presidents and the chancellor, the heads of government in the MPK decided to voluntarily abdicate parts of their power to decide on the appropriate containment measures and to agree on a quasi-automatic mechanism depending on the incidences of new infections (Behnke, 2021b, pp. 374–375). This regulation, dubbed the "federal emergency brake" was passed as federal law (Staatsanzeiger, 2021). Although it quickly lost practical relevance due to declining incidences, it formally remained in effect for three months. A likely explanation for the "federal emergency brake" is the pressure of electoral competition several heads of government faced in their respective *Länder*. This increased their willingness to shift accountability for unpleasant measures to the central government. The collusion of federal and party-political competition hence poses a serious threat to the power of polycentric governance to counter centralising tendencies.

4. Conclusion

In the face of quasi-permanent crisis and turbulence, the question of how to foster the resilience of modern states and societies gains crucial importance. However, resilience is mostly used as a metaphorical notion. This article proposes an analytic framework for conceptualising resilience of SESs empirically, based on the notion of resilience resources. Drawing from diverse pieces of literature, six resilience resources are developed: diversity, redundancy, and polycentric governance as systemic resources; and flexibility, adaptation, and bricolage as action-related resources. The framework outlines in detail which institutions, processes, and cultural traits of SESs foster resilience resources, and how resilience resources can contribute to attempts of an SES to absorb shocks and to adapt to changing environments, thereby enhancing its resilience. Flexible adaptation in reaction to shocks is furthered by a polycentric power structure, where the elements of the system are diverse and, in part, redundant, providing a variety of potential solutions to be tested in an experimental setting and offering templates for learning and adaptation. Political decision-makers, while expected to exhibit leadership, must be able to act swiftly and flexibly and adapt to the current situation. Flexibility must also be enabled in administrative policy implementation. The principle of bricolage provides a way of reconciling the seemingly contradictory requirements of being prepared for unknown situations and reacting quickly while inventing creative solutions.

Taking the example of the resilience resource of polycentric governance, the article illustrates how the propositions contained in the framework can be tested empirically. Federal systems in general and Germany in particular are more experienced in coordinating decentrality than unitary states. Hence, crisis coordination during the pandemic in one of the central coordination bodies of German federalism, the MPK, is analysed. The analysis shows that the coordination outcome exhibits the expected pattern of polycentric governance: First, reactions were indeed harmonised to a high degree, while leaving room for regional and situational variation; and second, the degree of restrictiveness mildly converged over time, indicating that mutual learning indeed took place. Hence, the MPK provides a good example of how polycentric governance can be managed. Importantly, the analysis also shows that the heads of governments of the German *Länder* were most reluctant to follow the chancellor's lead in matters implying severe restrictions on individual rights and liberties. Still, in a situation of enhanced conflict and under the pressure of electoral competition, the potential of the MPK to counter centralising and potentially illiberal tendencies falters.

Jointly, the analytic framework and the empirical example underpin the fact that resilience strongly relies on diversity and decentralised and flexible action. This insight thereby provides evidence against the conventional assumption that the centralisation of authority and strong leadership are important to fight crises and foster resilience. Quite the contrary, in promoting diversity and decentrality, SESs not only foster their resilience resources but also establish safeguards against authoritarian tendencies to centralise powers under the pretext of fighting crises. Still, there is reason to be cautious about the potential of polycentral arrangements as a safeguard against authoritarianism. It hinges on beneficial situational and contextual configurations (Gardner, 2021). Hence, resilience as a multi-dimensional concept should be promoted along all dimensions and supported by stable democratic institutions and culture.

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Conflict of Interests

The author declares no conflict of interests.

Data Availability

The data presented here can be obtained upon request from the author.

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