

Conceptualizing, Measuring, and Mapping State Structures—with an Application to Western Europe, 1950–2015

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This article addresses long-standing challenges in conceptualizing and measuring de/centralization in unitary and federal systems. It first outlines a novel conceptualization of de/centralization and its relation to the unitary/federal distinction and a/symmetry, from which it derives static and dynamic typologies of state structures. Building on a critical review of the Regional Authority Index, the article develops a scheme for measuring de/centralization and applies it to map state structures in Western Europe from 1950 to 2015. This mapping exercise shows that the proposed scheme yields more accurate measures of de/centralization than existing indices and that de/centralization differs in kind, rather than merely in degree, between unitary and federal states. By enabling a more effective classification of cases in comparative analysis, the article offers a tool on which theoretical and empirical advances in understanding the causes and effects of state structures can be built.

“We should also know over which matters several local tribunals are to have jurisdiction, and in which cases authority should be centralized”¹

—Aristotle

As the above quotation illustrates, interest in the vertical structuring of political systems and the distribution of power within them is as old as the study of politics itself. Attention to these questions has deepened in the last few decades as many states have undergone processes of decentralization² and constitutional restructuring (e.g., Rodden 2006, 1–2). Such processes have been particularly prominent in Western Europe, where in some countries, such as Belgium, decentralization has gone as far as entailing a constitutional transformation of the state from unitary to federal. In other European countries, e.g., France, however, decentralization has been much more modest and has not changed the constitutional nature of the state.³

A substantial literature has developed seeking to establish both the causes of these decentralization reforms as well as the political and economic effects of

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different state structures. Despite significant advances, however, neither question has been satisfactorily answered. We still do not fully grasp, for instance, why decentralization has gone further in some countries than others. As regards the question of whether federalism and decentralization make a difference to governance and public policy outcomes, findings have also been inconclusive. Although decentralization is widely praised as leading to better governance, and has been strongly promoted as such by organizations such as the World Bank (e.g., Treisman 2007, 3–4), Gerring, Thacker, and Moreno (2005) find that centralization, a core component of which is whether a polity is unitary or federal, leads to superior outcomes, whereas Biela, Hennl, and Kaiser (2012) argue that the unitary/federal distinction does not matter much but the degree of de/centralization does. According to Treisman (2007, 5), “almost no robust empirical findings have been reported about the consequences of decentralization” (see also Yeung 2009, 22).

An important reason why political science has made only limited progress in tackling these questions is because long-standing challenges in conceptualizing and measuring de/centralization in unitary and federal systems, and classifying cases, are still unresolved.⁴ As sound conceptualization, measurement and classification are pre-conditions to description, theorizing, and causal analysis (e.g., Sartori 1970, 1038; Bailey 1994, 1, 15), invalid measurement and/or selection bias due to the misclassification of cases are significant obstacles to progress.⁵

This article seeks to help overcome these obstacles by developing static and dynamic conceptualizations of de/centralization and applying them empirically. The article is organized as follows. The next section briefly reviews the literature, highlights the divide between qualitative typologies and quantitative indices, and offers an assessment of the Regional Authority Index (RAI). A subsequent section develops a new conceptualization of de/centralization, derives from it static and dynamic typologies, and develops a measurement scheme. The following section applies these conceptual and methodological tools to measure de/centralization in Western Europe from 1950 to 2015 and classify cases into different categories of state structures. The concluding section summarizes the contributions the article seeks to make and points to their potential to facilitate empirical and theoretical advances.

Conceptualizing and Classifying State Structures: A Brief Review of the Literature

The distinction between unitary and federal systems has been at the forefront of attempts to conceptualize and classify state structures since the early days of modern comparative politics (e.g., Bryce 1921, 435–445; Finer 1932, 243–244). Although the notion of subcentral autonomy vis-à-vis central governments has been explicitly or implicitly at the heart of these attempts, fully specifying how de/centralization differs across the unitary/federal divide has proven difficult. [Whare](#)

(1946, 1–15) put forward a legalistic distinction between unitary states, in which local government is subordinated to central government, and federal states, in which two orders of government coexist, coordinated with, but autonomous from, each other. On this basis, he considered only four countries to be federal. From a political science perspective, Riker (1964, 11) defined a federation as a state in which power is divided between two levels of government in such a way that “each level has at least one area of action in which it is autonomous.” Elazar (1987, 33–79) described a federal system as one combining “self-rule” and “shared rule” but did not further specify the characteristics of a federal state. Reviewing conceptualizations of federalism in the early 2000s, Filippov, Ordeshook, and Shvetsova (2004, 5–11) argued that no one was fully satisfactory and adopted a working definition of a federal state as one in which policy-makers at different levels of government are directly elected. In a recent review of the field, Hueglin and Fenna (2015, 16–17) restate the familiar claim that the defining feature of a federal state is that its regional governments, as constituent units of the federation, enjoy constitutional protection unlike subcentral units in unitary states. Yet local governments do enjoy constitutional protection in many unitary states (e.g., Baldersheim and Ståhlberg 2002, 87; Sellers and Lidström 2007, 617); hence constitutional protection in itself is not an effective discriminatory feature between unitary and federal systems.

On the specific question of how the unitary/federal distinction relates to de/centralization, authors have taken widely different positions. At one end of the spectrum, Kelsen ([1945] 1961, 316) stated: “Only the degree of decentralization distinguishes a unitary State divided into autonomous provinces from a federal State.” At the other end, King forcefully rejected this conceptualization, claiming instead that the defining feature of a federation is the “representation of regional units in the national legislature,” not the degree of de/centralization (King 1982, 19, also 77, 146). Lijphart (1999, 188–189) and Biela, Hennl, and Kaiser (2012, 451) argue that unitary/federal and de/centralized are orthogonal dimensions because some unitary states are decentralized and some federal ones are centralized. Thus, over two hundred years since the publication of *The Federalist* we still do not have a satisfactory conceptualization of how de/centralization differs across the unitary/federal distinction.

State structures also vary in terms of their degree of a/symmetry, meaning whether or not the units of subcentral government all have the same constitutional status and powers, defined, respectively, as a symmetrical or asymmetrical system (e.g., McGarry 2007; Requejo and Nagel 2010). A/symmetry, though, has rarely featured in the efforts to conceptualize and classify state structures.

Qualitative and Quantitative Approaches

Mirroring the debate in the literature on democracy (e.g., Collier and Adcock 1999; Bogaards 2012), these unresolved conceptual issues are reflected in different

approaches to classification and measurement. On the one hand, there are qualitative typologies that retain the largely dichotomous distinction between unitary and federal systems. On the other hand, several quantitative indices of de/centralization have been developed, at the root of which there is a conceptualization of de/centralization as a continuous variable. To my knowledge, only one attempt to combine the two approaches has been conducted.

From a review—summarized in [table A1](#) in the Supplemental Online File—of eight of the most prominent typologies ([Rokkan and Urwin 1983](#), 181; [Elazar 1987](#), 33–79; [Keating 1998](#), 114–115; [Keman 2000](#), 205; [Woldendorp, Keman and Budge 2000](#), 32–38; [Lijphart 1999](#), 188–189; [Swenden 2006](#), 11–18; [Watts 2008](#), 8–18), three main points emerge. First, there is noticeable variation in the number of categories employed, from two to five, and in how they are conceptualized. In most cases, the boundaries between categories are only loosely specified, which makes it difficult to reach a scholarly consensus on the empirical classification of cases. Second, none of the authors takes into account the extent to which there is a/symmetry in the system nor whether particular regions are constitutionally incorporated or not (see below). As a result, third, there is considerable disagreement over how Western European states should be classified.

Although they approach the challenge from a very different methodological basis, some of the most prominent quantitative indices (e.g., [Arzaghi and Henderson 2005](#); [Brancati 2006](#); [Lane and Ersson 1999](#), 187) display similar limitations to those of the qualitative typologies: (i) the elements taken into account to construct such indices are generally not justified on conceptual grounds; (ii) how quantitative scores relate to conceptual categories such as unitary/federal is rarely discussed; and (iii) asymmetry is not taken into account. The result, as summarized in [table A2](#) in the Supplemental Online File, is that the scoring of actual cases is often perplexing. Denmark, Finland, and Germany, for instance, are all scored 4 by Lane and Ersson whereas the UK is scored 1. Arzaghi and Henderson score France as being more decentralized than Spain and as decentralized as the UK, whereas Brancati scores Switzerland and the UK both as 4.

[Keman \(2000, esp. 205\)](#) is the only one to combine the two methods by using a quantitative scoring scheme to classify cases into the two conceptual categories of unitary and federal. His integrated approach is very much in line with what I propose in this article yet, it does not fully overcome the limitations discussed above in that it is not based on an explicit conceptualization of how de/centralization differs across the unitary/federal distinction and does not take into account a/symmetry. Although most of its scoring of individual cases matches quite closely the assessments prevailing in the qualitative literature, there are some problematic results as well. Italy, for instance, is categorized as being more “federal” than Spain whereas the UK is scored as being almost as centralized as France ([table A2](#) in the Supplemental Online File).

The RAI: Achievements and Limitations

Hooghe et al. (2016) have put forward the most elaborate and comprehensive index in the form of the RAI. The RAI conceptualizes de/centralization as being based on two principal dimensions: self-rule and shared rule. According to the authors, “*Self-rule* is the authority that a subnational government exercises in its own territory. *Shared rule* is the authority that a subnational government co-exercises in the country as a whole” (Hooghe et al. 2016, 23). The first dimension is operationalized through the following variables: institutional depth, policy scope, fiscal autonomy, borrowing autonomy, and representation. As for shared rule, this captures regions’ involvement at the central level in law making, executive control, fiscal control, borrowing control, and constitutional reform (table A3 in the Supplemental Online File). The index also measures the extent of a/symmetry within each of the two main dimensions.

There is little doubt that the RAI is a major achievement in the quest for conceptualizing and measuring state structures, in terms of both sophistication and coverage. Yet, it still suffers from significant limitations that ultimately prevent it from being a fully satisfactory measure of de/centralization and how it varies across the unitary/federal divide. These limitations relate to (i) the conceptualization of shared rule as a dimension of de/centralization, (ii) the procedure for the calculation of the country-level self-rule score, (iii) the weight given to institutional versus policy autonomy in measuring self-rule, and (iv) the lack of a specification of how RAI scores relate to de/centralization across the unitary/federal distinction.

The first is that the RAI conceptualizes shared rule as one of the two principal dimensions of de/centralization. The problem here is that self-rule rests on the underlying notion of *autonomy* whereas shared rule rests on that of *influence*. A fundamental conceptual difference between self-rule as autonomy and shared rule as influence at the center is that the former applies to *individual* subcentral units whereas the latter generally applies to them *collectively*. The only exception is where there are forms of bilateral shared rule between an individual unit and the central government. Therefore, if we understand de/centralization as the autonomy that each subcentral government has vis-à-vis the central government, shared rule—unless bilateral—is not a component of de/centralization. Rather than being two dimensions of the same concept, they are two different concepts. It follows that a system with high self-rule and low shared rule should be considered much more decentralized than a system with low self-rule and high shared rule. Hooghe et al. (2016, 24) recognize that “Self-rule and shared rule are distinct domains of regional governance,” but do not acknowledge the problem of conceptualizing shared rule as a dimension of de/centralization, arguing (Hooghe et al. 2016, 19): “If the RAI is aggregated to the country level it can be interpreted as a measure of decentralization.”

The measurement problems generated by this conceptualization can be clearly seen in the scoring, for example, of Germany versus Switzerland. For 2010, Germany scores 37 on the total RAI versus Switzerland's 26.5 (Hooghe et al. 2016, Appendix–Country Scores). On this measure, then, Germany should be considered much more decentralized than Switzerland is. Yet, this is difficult to reconcile with the general consensus among scholars that Germany is a *less* decentralized federal state than Switzerland (e.g., Braun 2011; Hesse 1962; McKay 2001).

The second limitation is constituted by the fact that the RAI's self-rule scores are a sum of the scores attributed to each intermediate level of government between the local and the central level so that a country scores more highly the more tiers it has (Hooghe et al. 2016, 107fn27). The RAI, moreover, employs an absolute population criterion to decide what constitutes a “regional” government as opposed to a local government, with the consequences that functionally equivalent tiers are included for some countries but not for others.⁶ This methodological choice appears to rest on the ground that the more subcentral tiers in a country the higher its level of regional self-rule, but it is highly debatable whether this is actually so. Consider one system in which a higher tier of subcentral government decides on school curricula and a lower tier maintains school buildings and another system in which a single intermediate tier is responsible both for setting the curricula and for maintaining the buildings. Is self-rule really higher in the former than the latter? Like the addition of self-rule and shared rule, this methodological choice produces awkward scorings. For example, not only Germany, but Italy and even France are scored as having higher regional self-rule than Switzerland (Hooghe et al. 2016, Appendix–Country Scores).

The third issue is that the measurement scheme for self-rule overestimates the importance of institutional and fiscal factors and lumps together different forms of authority over policy. Out of a maximum of eighteen points, seven are allocated to both the institutional and the fiscal dimensions against four to the policy dimension.⁷ On the policy dimension itself, points are allocated for the range of policy responsibilities a subcentral government has without distinguishing whether this is, for instance, an exclusive primary lawmaking power or merely an administrative responsibility. This once again leads to scorings that are difficult to square with most qualitative assessments. The British counties, for instance, are scored as having the same self-rule as the Northern Ireland parliament between 1950 and 1972 (Hooghe et al. 2016, Appendix—Regional Scores), which experts consider as having had “many of the characteristics of an independent state” (Birrell and Murie 1980, 28).

Last, but not least, although the RAI is based on the notions of self-rule and shared rule that are often considered to be at the heart of the concept of federalism, it does not define how its measures of “regional authority” relate to the conceptual distinction between de/centralization in unitary and federal states. Does a high level

of regional authority make a state federal? Hooghe and her collaborators touch upon the question but ultimately leave it unanswered (Hooghe et al. 2016, 18).

Given these problematic aspects, the RAI, as we have seen, produces scores that, if used as conceptualized by Hooghe et al. (2016), are at odds with a broad consensus among country experts and qualitative comparative scholars. This undermines its validity for it limits its ability to “meaningfully capture the ideas contained in the corresponding concept” (Adcock and Collier 2001, 530; also Goertz 2006, 27–67; Miller 2007, 86). Moreover, it does not clarify the relationship between “regional authority”—or de/centralization—and the unitary/federal distinction. Despite marking a major step forward, thus, the RAI still falls short of providing a measurement scheme able to successfully address these conceptual questions.

Summary

To sum up, there are four main issues with the state of the art. First, qualitative typologies and quantitative indices have developed largely in isolation from each other and little effort has been made to combine their strengths and minimize their limitations. Second, qualitative typologies are often based on vague categories and would benefit from more rigorous conceptualization, whereas quantitative indices also tend to be under-conceptualized and do not generally address the question of how continuous measures of de/centralization relate to the unitary/federal dichotomy. Third, both qualitative typologies and quantitative indices often produce classifications/scorings that are at odds with prevailing assessments in the literature and contradictory with each other. As a result, fourth, how de/centralization varies across the unitary/federal divide is still weakly specified and the classification of cases uncertain. These issues represent a major obstacle to scholarly progress in this subfield of political science. The framework I propose in the next section intends to overcome these problems.

Conceptualizing and Classifying State Structures: A New Integrated Approach

The conceptualization and classification proposed here rest on a belief in the value of integrating qualitative and quantitative approaches. On the one hand, quantification can provide a degree of precision that adds rigor to qualitative categories. On the other hand, the latter are still helpful in identifying distinct forms of state that are more than mere points on an unbroken continuum. A way of integrating the two approaches is to think of the underlying conceptual dimension as a continuum divided by a threshold beyond which differences of degree become differences of kind.⁸ For our purposes, as argued below, we can conceptualize de/centralization⁹ as the underlying continuum, and unitarism/federalism as sections or segments of that continuum divided by a threshold.¹⁰

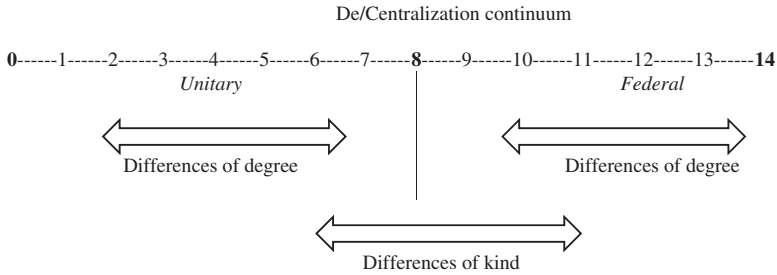


Figure 1 Conceptualization of the unitary/federal dichotomy on a de/centralization continuum.

Cross-sectional and cross-temporal differences in de/centralization within one section should be considered differences of degree whereas differences between points located across sections should be considered differences of kind. In other words, depending on whether a difference crosses a threshold or not, it should be considered a difference of kind or, respectively, of degree (figure 1).

Conceptualizing State Structures

The conceptualization of state structures I am proposing draws its foundation from Wheare’s and Riker’s definition of a federal state.¹¹ As we saw above, both authors based it on the notion of autonomy for the federal level of government as well as for the constituent units. Given that the central government is autonomous in both a unitary and a federal system, these definitions imply that the discriminating feature between the two state structures is that in a federal system regional units—as constituent units of the federation—also enjoy autonomy in at least one policy field while this is not the case in a unitary system. The notion of autonomy for the constituent units is so central to most conceptualizations of federalism that over sixty years ago Livingston (1956, 10) observed: “That the real key to the nature of the federation is in the distribution of powers seems to be agreed upon by nearly every writer who addresses himself to the question.”

Autonomy is also at the heart of most conceptualizations of de/centralization (e.g., Fesler 1965; Oates 1972, 19fn20; Hutchcroft 2001; Schneider 2003; Dubois and Fattore 2009). As both federalism versus unitarism and decentralization versus centralization revolve around the notion of subcentral governments’ autonomy vis-à-vis the central government, we can say that they are based on the same underlying concept. Following Adcock and Collier (2001, 531), autonomy can be considered the “background concept” and de/centralization the “systematized concept.” De/centralization can be defined as the degree to which each subcentral government is autonomous vis-à-vis the central government at any given point in time. The more autonomous each subcentral government is, the more decentralized (or less centralized) the system is. Autonomy in this case is

understood as the degree to which each subcentral government unit is able to take binding decisions on public policy unconstrained by the central government or other subcentral governments.¹²

If we understand de/centralization in both unitary and federal states as being fundamentally based on the underlying dimension of autonomy, we can appreciate how shared rule—understood as codecision at the center—is a different dimension, additional to autonomy rather than a component of it. This is particularly the case where multilateral shared rule is concerned, given that it is exercised by the constituent units collectively, whereas bilateral shared rule may be construed as an additional element of regional autonomy or at least providing some protection for it. As such, multilateral shared rule is not an aspect of the degree of de/centralization of a state. To illustrate the point, Germany's *Länder* have much more extensive shared rule rights than Canada's provinces but that does not make Germany more decentralized than Canada; the opposite is true. In essence, a system with high autonomy for its regional units and zero shared rule would still be federal, whereas a system with zero regional autonomy and high shared rule should not be considered federal. On these grounds, we can leave multilateral shared rule out of our conceptualization of de/centralization across the unitary/federal distinction.

Most social science concepts are multidimensional (e.g., Lazarsfeld 1966, 188–189; Adcock and Collier 2001, 533) and autonomy, as defined above, is no exception. It can be thought of as having three components: institutional autonomy, policy autonomy, and fiscal autonomy. This is because to be able to act with a degree of autonomy a subcentral government in a modern state needs to have an institutional set up conducive to the formulation of its own policy preferences, the legal competence to enact binding policy decisions on those preferences, and a degree of fiscal autonomy to finance such policy decisions. All three components of autonomy are best thought of as gradations, thus leading to conceptualizing de/centralization as a continuum.

Yet, as we move along the continuum of de/centralization and bear in mind the traditional conceptions of autonomy in unitary and federal states, we can see that the continuum is not a completely “fluid” one and that it is meaningful to apply qualitative categories to different sections of it. The difference between a regional government with no directly elected institutions, policy execution responsibilities only, and fiscal dependence on central government conditional grants, at one end, and a regional government with directly elected institutions, extensive primary law-making powers, and high fiscal autonomy, at the other end, is one of kind, not just of degree. The former would be unthinkable in a genuine federal system whereas the latter would be incompatible with a unitary structure of government. In other words, somewhere along the continuum there is a threshold that divides unitary from federal systems and differences that cross the threshold are of kind rather than merely of degree. As discussed in the measurement and mapping sections

below, the differences in de/centralization between unitary and federal systems are sufficiently “neat” to constitute two, rather three or more, categories.¹³ On this basis, I conceptualize unitary/federal as being a qualitative dichotomy anchored on a de/centralization continuum (figure 1).

If we accept the above, a difficult subsequent step is, as Bogaards (2012) has pointed out, to decide where to “draw the line,” first in terms of conceptualization and then in terms of measurement. We can approach this task by reasoning about the attributes the regional governments of a state need in order for it to be meaningfully conceptualized as a federal state in de/centralization terms. Following the three-part disaggregation of the concept of autonomy outlined above, we can say that such a government needs at a minimum:

- (a) an assembly directly elected by the people of the region¹⁴ and an executive either accountable to the assembly or directly elected by the people of the region.
- (b) primary law-making powers in at least one of the key areas of government action in a modern state—that is, economic policy, cultural-educational policy, and welfare policy—even if concurrently with the central government.
- (c) not being dependent on conditional fiscal transfers for the majority of its revenues. This can take various forms—e.g. through revenue-sharing, block grants, autonomous taxation powers—but all of them can be considered to confer a sufficient degree of fiscal autonomy to enable a government to put into practice the policy decisions it chooses.

The three minima can be considered individually necessary and jointly sufficient for a regional government to be considered to be in a federal relationship with the central government. The point on the de/centralization continuum marked by their aggregate presence (I discuss aggregation below) can thus be seen as the threshold between unitarism and federalism. They are not, however, necessary to the same extent. Employing Goertz’s (2006, 135–139) notion of “degrees of substitutability,” we can say there is asymmetrical substitutability across them. Regional units’ possession of primary law-making powers is the defining property (e.g., Sartori [1984] 2009, 109, 126) of a federation. Its presence breaks the unitary character of government within a polity, for it allows for a portion of its territory to be governed by different laws, while its absence deprives a system of its federal quality. Hence, nominally federal states in which regional units do not possess meaningful primary law-making powers cease to be genuine federal systems.

The other two dimensions, by contrast, are not exclusive to federal systems. The direct election of a regional assembly, though necessary for the formulation of regional preferences consistent with the concept of autonomy, is not, by itself, sufficient to make a system federal. The fact that it is widely present in unitary states illustrates the point. In a similar vein, regions’ absence of high dependence

on conditional fiscal transfers does not make a system federal either. Around their minimal values, substitutability between them is low, because a system needs a minimum level of all three forms of autonomy to be considered federal. At higher levels, though, substitutability increases, particularly between policy and fiscal autonomy. High fiscal autonomy, for instance, can be said to be able to substitute for limited primary law-making powers and vice-versa. As discussed below, the asymmetrical nature of substitutability between the three dimensions of autonomy has significant operationalization implications.

So far I have focused on de/centralization across the unitary/federal distinction and have not addressed the question of a/symmetry. Although in some systems all regional governments can be considered to be in a federal relationship with the central government, in others only some are so. Although we have a well-established label for the former, that of federal state, how should we characterize the latter? I propose to adopt a population criterion, whereby I consider the percentage of a state's population that live under "strong," as defined above, regional government. On this basis we can draw a distinction between systems in which only a small proportion of the population is in this situation and systems in which a substantial proportion—but not the totality—live under "strong" regional government. Although percentages are inevitably arbitrary, 10 percent is probably a convenient cut off point.¹⁵ Systems in which less than 10 percent of the population live under "strong" regional government can be thought of as being essentially unitary states with a special exception. I refer to them as *unitary with special autonomy*. If "strong" regional government concerns more than 10 percent of the population, by contrast, I argue that the constitutional character of the state can no longer be accurately described as unitary. I refer to them as *partially federal*.¹⁶

Another aspect we need to consider is whether the regional government in question is "constitutionally incorporated" or not. Borrowing from US constitutional terminology (Van Dyke 1992; Statham 2002), I distinguish between incorporated and unincorporated territories as follows. The former are territories that are constitutionally an integral part of the state whereas the latter are under the sovereignty of the state but are not constitutionally considered an integral part of it. If the areas enjoying special autonomy are "non-incorporated," that is, they are considered to be separate from the main constitutional body of the state, they are best described as "federacies" (Elazar 1987, 54–57; Watts 2008, 10) but the federacy label is less appropriate for constitutionally incorporated regions. This distinction matters because regional governments possessing high autonomy are often unincorporated territories.

The last relevant aspect is where the subcentral government is geographically located. I distinguish between the mainland (the main landmass of the state), offshore (physically separated but within Europe), and overseas (outside Europe). Like the previous aspect, this one matters too because subcentral governments

located overseas often have high autonomy. Because of their distance from the mainland, their autonomy is arguably less consequential for the constitutional structure of the state and should thus be treated differently. In the remainder of this article I focus on incorporated territories located either in the mainland or offshore only. Table A4 in the Supplemental Online File provides a cross-tabulation of the Western European states' territorial units by constitutional status (incorporated/unincorporated) and geographical location (mainland/offshore/overseas).

Static and Dynamic Classifications

On the basis of the above conceptualization, we can classify static state structures into the following four-fold typology:

- (a) *Unitary state*: no subcentral government reaches the autonomy threshold defined above so should be considered “weak.”
- (b) *Unitary state with special autonomy*: there is one (or more) constitutionally incorporated “strong” regional government/s—that is, reaching the above autonomy threshold—but such autonomy only concerns up to 10 percent of the country's population.
- (c) *Partially federal state*: more than 10 but less than 100 percent of the population live under “strong” regional government.
- (d) *Federal state*: the entire population live under “strong” regional government.

From a dynamic perspective, state restructuring can be defined as a significant change in the way a state is structured, which can occur by constitutional and/or nonconstitutional means. We can distinguish two broad categories of state restructuring: “strong” and “weak.” Strong state restructuring occurs when changes in the way the state is vertically structured entail a transition from one category to another, leading to a difference of kind. An example is a transition from a unitary to a partially federal state. Weak state restructuring, by contrast, is constituted by changes that do not entail a transition from one category to another, that is, changes of degree rather than kind. This would be the case, for example, of a unitary state introducing a tier of weak regional governments. In conceptualizing state restructuring, it is useful to distinguish between macro-local and regional tiers of subcentral government. The former is the upper tier of local government and typically represents the traditional intermediate level of government in unitary states.¹⁷ Regional governments, on the contrary, cover a larger geographical area, are clearly distinct from local government, and in federal states are considered constituent units of the federation. Taking into account all the possible changes relating to these two tiers of subcentral government, we can identify 32 specific categories of state restructuring. Twelve of them can be grouped under the “strong restructuring” heading whereas the remaining 20 are forms of “weak restructuring.” Table 1 details the classification.

Table 1 Typology of state restructuring

A Strong—change of kind between categories			
A1.1	Unitary to federal: creation of strong regional governments or strengthening of existing regional governments covering the entire state population to a score ≥ 8 .	A1.2	Federal to unitary: abolition or weakening of strong regional governments covering the entire state population to a score ≤ 8 .
A2.1	Unitary to partially federal: creation of strong regional governments or strengthening of existing regional governments covering $>10\%$ but $<100\%$ of the state population to a score ≥ 8 .	A2.2	Partially federal to unitary: abolition or weakening of strong regional governments covering $>10\%$ but $<100\%$ of the state population to a score ≤ 8 .
A3.1	Unitary to unitary with SA: creation of strong regional governments or strengthening of existing regional governments covering $<10\%$ of the state population to a score ≥ 8 .	A3.2	Unitary with SA to unitary: abolition or weakening of strong regional governments covering $<10\%$ of the state population to a score ≤ 8 .
A4.1	Unitary with SA to federal: extension of strong regional governments to the entire state population.	A4.2	Federal to unitary with SA: abolition or weakening of strong regional governments to a score < 8 , covering $>90\%$ but $<100\%$ of the state population.
A5.1	Unitary with SA to partially federal: extension of strong regional governments to $>10\%$ but $<100\%$ of the state population	A5.2	Partially federal to unitary with SA: abolition or weakening of strong regional government to a score < 8 covering $>90\%$ but $<100\%$ of the state population
A6.1	Partially federal to federal: extension of strong regional governments to the entire state population.	A6.2	Federal to partially federal: abolition or weakening of strong regional government to a code < 8 covering up to 90% of the state population.
B Weak—change of degree within categories			
B1.1	Introduction of macro-local governments	B1.2	Abolition of macro-local governments
B2.1	Introduction of weak regional governments (score ≤ 8)	B2.2	Abolition of weak regional governments (score ≤ 8)

(continued)

Table 1 Continued

B		Weak—change of degree within categories	
B3.1	Replacement of macro-local governments with more autonomous but still weak regional governments (score ≤ 8)	B3.2	Replacement of weak regional governments (score ≤ 8) with macro-local governments with lower autonomy
B4.1	Replacement of weak regional governments (score ≤ 8) with more autonomous macro-local governments	B4.2	Replacement of macro-local governments with regional governments with lower autonomy
B5.1	Increase in the autonomy of macro-local governments	B5.2	Decrease in the autonomy of macro-local governments
B6.1	Replacement of an existing tier of macro-local governments with a new tier of macro-local governments with higher autonomy	B6.2	Replacement of an existing tier of macro-local governments with a new tier of macro-local governments with lower autonomy
B7.1	Increase in the autonomy of weak regional governments, to a score ≤ 8	B7.2	Decrease in the autonomy of weak regional governments (score ≤ 8)
B8.1	Replacement of an existing tier of weak regional governments with a new tier of regional governments with higher but still weak autonomy (score ≤ 8)	B8.2	Replacement of an existing tier of weak regional governments (score ≤ 8) with a new tier of regional governments with lower autonomy
B9.1	Increase in the autonomy of regional governments in federal and (for regions already possessing an autonomy score ≥ 8) partially federal or unitary with special autonomy states	B9.2	Decrease in the autonomy of regional governments in federal and (for regions already possessing an autonomy score ≥ 8) partially federal or unitary with special autonomy states, to a score ≥ 8
B10.1	Strong autonomy (score ≥ 8) granted to more but not all regions in a partially federal state	B10.2	Some but not all regions in a partially federal state lose strong autonomy (score ≥ 8)

Measuring Autonomy

To ground these classifications in a numerical scale, in this section, I develop an index to measure the autonomy at the heart of the notion of de/centralization as conceptualized above. On the basis of the disaggregation of autonomy into three dimensions, the index is made up of three components (table 2).¹⁸

The first component, *institutional autonomy*, seeks to measure the degree to which subcentral governments have an institutional set up conducive to acting

Table 2 Measurement of regional and macro-local autonomy**Institutional autonomy (0–3)**

- 0: no general-purpose macro-local or regional administration
- 0.5: a general-purpose administration without an assembly and with a central-government appointed executive
- 1: a general-purpose administration with an indirectly elected assembly and a central-government appointed or dual executive (one appointed by central government, the other appointed by the regional assembly)
- 1.5: a general-purpose administration with a directly elected assembly and a central-government appointed or dual executive (one appointed by central government, the other appointed by the regional assembly)
- 2: a general-purpose administration with an indirectly elected assembly and an executive responsible to the latter
- 2.5: a general-purpose administration with a directly elected assembly and an executive elected by the assembly or directly elected
- 3: a general-purpose administration with a directly elected assembly, an executive elected by the assembly or directly elected, and constitutive autonomy and/or veto over its constitutional status

Policy autonomy (0–7)

- 0: the administration is advisory only
- 1.5: the administration has executive responsibilities only
- 2: the administration has the power to enact secondary legislation in one of the following areas: economic policy, cultural-educational policy, welfare state policy
- 2.5: the administration has the power to enact secondary legislation in at least two of the following areas: economic policy, cultural-educational policy, welfare state policy
- 3.5: the administration has the power to enact primary legislation in one of the following areas—economic policy, cultural-educational policy, welfare state policy—concurrently with central government
- 4: the administration has the power to enact primary legislation in at least two of the following areas—economic policy, cultural-educational policy, welfare state policy—concurrently with central government
- 5: the administration has the exclusive power to enact primary legislation in one of the following areas—economic policy, cultural-educational policy, welfare state policy
- 6: the administration has the exclusive power to enact primary legislation in at least two of the following areas—economic policy, cultural-educational policy, welfare state policy
- 0.5: subject to central government veto
- +0.5: the administration has control over one or more of the following: civil and criminal law, a police force, the judiciary, local government
- +0.5: the administration has a veto on central government policy affecting the region

(continued)

Table 2 Continued

Fiscal autonomy (0–4)

-
- 0: the administration is primarily financed from conditional transfers from a higher or lower level of government
 - 0.5: the administration is primarily financed from a mix of conditional transfers and own revenues, without rate discretion
 - 1: the administration is primarily financed from a mix of conditional transfers and own revenues with rate discretion
 - 2: the administration is primarily financed from a mix of unconditional transfers—including revenue-sharing—and own revenues, without rate discretion (+0.5 if with veto over central transfers)
 - 2.5: the administration is primarily financed from a mix of unconditional transfers – including revenue-sharing—and own revenues, with rate discretion (+0.5 if with veto over central transfers)
 - 3.5: the administration is primarily financed from own revenues whose rate but not base is set by itself
 - 4: the administration is primarily financed from own revenues whose rate and base are set by itself
-

autonomously. The aspects taken into account are whether an assembly—when present—is directly elected or not, whether the executive is accountable to the assembly or directly elected as opposed to being appointed by the central government, and whether the government has autonomy over its own institutional set-up (constituent autonomy). The scores range from 0–3.

The second component, *policy autonomy*, intends to measure the degree to which a subcentral government has control over public policy. A key distinction here is whether a government has executive responsibilities only (i.e., it implements policies set by the central government), secondary law-making powers (i.e., it can modify state laws to an extent) or primary law-making powers (i.e., it sets the primary legal framework for a given policy area)¹⁹ in at least one of the three main areas of government policy: economic, cultural-educational, and welfare.²⁰ A subsidiary distinction is whether such powers—typically of execution and secondary legislation but occasionally of primary legislation too—are subject to central government veto or not. Additional aspects taken into account are whether the government also controls important functions such as policing and the judiciary. The scores range from 0–7.

The third component, *fiscal autonomy*, is meant to capture the discretion a subcentral government has in raising the revenues necessary to finance its operations. The key distinction here is three-fold: whether its revenues come primarily from conditional transfers, or from forms of revenue-sharing (with or without rate discretion), or from taxes of which it controls both base and rate.²¹ The scores range from 0–4. Table 2 details the scores attributed.

The weighting given to each of the three components and the scores attributed to the various forms they take are intended to capture their relative importance for the notion of autonomy, as I have conceptualized it.

Aggregation

With all multi-dimensional concepts, a key challenge in devising a measurement scheme is what rules to adopt to aggregate the measures for each of the components into a measure for the concept as a whole (e.g., Bogaards 2012; Goertz 2006, 95–127). Goertz (2006) points out that this involves two choices: i) the weight to give to each component; and ii) the aggregation method itself. As regards the latter, he outlines three main procedures—the sum, the product, and the minimum—and discusses how they relate to the structure of the concept at hand. He argues that the sum is appropriate for a “family resemblance” type of concept, in which one component can compensate for another, whereas the product or the minimum are more appropriate for a “necessary and sufficient conditions” concept. The distinction between the two types of concept, however, should be thought of not as a dichotomy but as a continuum defined by different degrees of substitutability.

As seen above, the unitary/federal distinction proposed here, that is, grounded in the “background concept” of autonomy and the “systematized concept” of de/centralization, is closer to the “necessary and sufficient conditions” end of the spectrum but is also characterized by a non-negligible degree of substitutability among its three components and by the fact that policy autonomy is conceptualized as being much more important than both institutional and fiscal autonomy. In addition to aiming to distinguish unitary from federal systems, moreover, I am also interested in the degree of de/centralization within *each* of these categories. Given the properties of the concept and the objectives of the measurement exercise, giving equal weights to the three components and aggregating their scores on the basis of their minimum would not be appropriate. The aggregation method I have chosen instead consists in weighting the components differently to try to capture their relative importance and to aggregate them on a sum basis.²² As discussed below, I believe this method delivers the highest “content validity” for the overall measure.

On this basis, the aggregate scores range from 0–14 and a government needs to score at least 8 to have sufficient autonomy to be considered “strong.” The aggregate score of 8 is arrived at as follows:

- (a) possessing a general-purpose administration with a directly elected assembly and an executive elected by the assembly or directly elected (2.5 on the institutional autonomy component)
- (b) possessing the power to enact primary legislation in at least one major area of government action—economic policy, cultural-educational policy, welfare state

policy—even if concurrently with the central government (3.5 on the policy autonomy component)

- (c) being financed primarily from a mix of unconditional transfers—including revenue-sharing—and own revenues, without rate discretion (2 on the fiscal autonomy component).

As discussed above, while the three components are individually necessary, they are not necessary to the same extent and there are different degrees of substitutability between them. Hence, the three individual minima should be considered the “hard” thresholds and the aggregate score of 8 a “pragmatic” rather than a “hard” threshold.²³ On this basis, an aggregate autonomy score of 8 can thus be treated as the threshold between a subcentral government, being in a unitary, as opposed to a federal relationship vis-à-vis the central government (figure 1).

Validation

Miller (2007, 89–91; also Seawright and Collier 2014, 113) discusses three validation methods: “content,” “criterion,” and “construct” validation. Content validation evaluates the measures against qualitative expert judgment, criterion validation is based on a comparison with similar measures that are available in the existing literature, whereas construct validation entails employing the measures as an independent variable representing the concept of interest in a causal analysis and assessing the extent to which they provide a more plausible explanation of a given outcome.

When new measures of a given concept rest on a different specification of the concept compared to existing measures—as is the case here—construct and criterion validation face significant obstacles. Therefore, I have opted for content validation, which, according to Miller (2007, 91; also Bowman, Lehoucq, and Mahoney 2005, 964), is the most robust validation test in the case of measures based on a new conceptualization. I have pursued content validation in two ways. First, as detailed in Section A1 of the Supplemental Online File, I sought to build validity in *ex ante* by basing the scores on a detailed and extensive reading of the qualitative literature on each case. Second, as shown in Table A6 in the Supplemental Online File, by assessing *ex post* the resulting typology against the expert judgment of the qualitative literature in the field. In the light of this two-step procedure, the measures and the typology put forward in the present article appear to have high content validity.

Application to Western Europe, 1950–2015

Applying the above framework to the Western European states,²⁴ based on autonomy scores measured at five-year intervals, produces the measures summarized

Table 3 State structures in Western Europe, 1950 and 2015

	State structure, 1950	Restructuring	State structure, 2015
Austria	Unitary ^a (7.5)	No change	Unitary (7.5)
Belgium	Unitary (3.5)	Introduction of strong regional governments for the entire country and formal transformation into a federal state: A1.1	Federal (11.5)
Denmark	Unitary with SA (4 ^b ; 12.5 ^c)	Strengthening of traditional macro-local governments (4>7) followed by replacement of the latter with regional governments with lower autonomy (7>3.5) in the mainland; slight increase in the autonomy of the regional government in the Faroes: B5.1 then B4.2; B9.1	Unitary with SA (3.5 ^b ; 13.5 ^c)
Finland	Unitary with SA (1.5 ^d ; 12 ^e)	Replacement of traditional macro-local units with new macro-local units with slightly higher autonomy: B6.1	Unitary with SA (3.5 ^d ; 12 ^e)
France	Unitary (6)	Introduction of weak regional governments and restoration of the traditional macro-local governments' previous level of autonomy: B2.1 and B5.1	Unitary (6)
Germany	Federal (12.5)	Weakening of the autonomy of strong regional governments: B9.2	Federal (10.5)
Ireland	Unitary (3.5)	Introduction of regional units with weak autonomy: B2.1	Unitary (3.5)
Italy	Partially federal (3.5 ^f ; 8.5 ^g)	Extension of strong regional government to the entire country: A6.1	Federal (9/10)
Netherlands	Unitary (4.5)	Slight strengthening of traditional macro-local governments: B5.1	Unitary (5)
Norway	Unitary (2)	Strengthening of traditional macro-local governments: B5.1	Unitary (7)
Portugal	Unitary (2)	Abolition of traditional macro-local units and introduction of strong regional government for Azores and Madeira: B1.2 and A3.1	Unitary with SA (0 ^h ; 9 ⁱ)
Spain	Unitary (4/6 ^j)	Introduction of strong regional governments for the entire country: A1.1	Federal (10/11.5)
Sweden	Unitary (7.5)	No change	Unitary (7.5)

(continued)

Table 3 Continued

	State structure, 1950	Restructuring	State structure, 2015
Switzerland	Federal (12.5)	No change	Federal (12.5)
UK	Unitary with SA (6.5 ^k ; 11 ^l)	Extension of strong regional government to Scotland and Wales: A5.1	Partially federal ^m (6.5 ^k ; 11.5 ⁿ ; 11 ^o ; 11 ^l)

Notes: See Supplemental Online File for measurement details. ^aScore for 1955; ^bMainland, ^cFaroës; ^dMainland; ^eÅland; ^fOrdinary statute regions; ^gSpecial statute regions; ^hMainland; ⁱAzores and Madeira; ^jÁlava and Navarre; ^kEngland; ^lNorthern Ireland; ^mThe combined population of Scotland, Wales and Northern Ireland was about 16 percent of the UK total in 2011 (ONS 2012); ⁿScotland; ^oWales.

in table 3 and detailed in table A5 in the Supplemental Online File. To avoid the problems generated by adding the scores of more than one tier of subcentral government, discussed above, the scores for each country are based on those of the highest-scored tier, be that a regional or a macro-local one.²⁵ Section A1 in the Supplemental Online File details the scoring decisions and the sources utilized.

The validation of these scores against the qualitative literature shows (table A7 in the Supplemental Online File) that the scheme proposed in this article delivers more accurate measures of de/centralization than the RAI or other existing schemes. As shown in table 4, this is the case even if we use the RAI regional self-rule scores as measures of de/centralization. Consider the following four comparisons. On the RAI measures: (i) Flanders scores equal to the Austrian *Länder*; (ii) the Italian ordinary regions score equal to the German *Länder* and both of them score higher than Scotland; (iii) the Norwegian or Swedish counties score equal to Northern Ireland; and (iv) Wales scores lower than the English counties. On the measures proposed here, and in line with the qualitative literature: (i) Flanders scores significantly higher than the Austrian *Länder*; (ii) Scotland scores higher than the German *Länder* and the latter score higher than the Italian ordinary regions; (iii) Northern Ireland scores significantly higher than the Norwegian or Swedish counties; and (iv) Wales scores higher than the English counties.

Three main substantive implications follow. First, the conceptualization of the unitary/federal distinction as a dichotomy finds empirical validation. States widely considered either unitary or federal cluster into two distinct groups, with the former never scoring above 7.5 and the latter never scoring less than 8. However, two states that are considered unitary from a formal constitutional perspective (Italy and Spain) should be classified as federal in terms of de/centralization

Table 4 Comparison of regional autonomy scores for 2010, RAI^a and author

	RAI—Self-rule RS (range 0–18)	Author (range 0–14)
Austria	14	7.5
Belgium–Flanders	14	11.5
Denmark–Mainland	7	3.5
Denmar–Faroes	17	13.5
Finland–Mainland	6/7	3.5
Finland–Åland	17	12
France	10	6
Germany	15	10.5
Ireland	3	3.5
Italy–Ordinary statute	15	9
Italy–Special statute	15/16	10
Netherlands	10	5
Norway	12	7
Portugal–Mainland	2	2
Portugal–Azores & Madeira	15	9
Spain	14/15	10/11.5
Sweden	12	7.5
Switzerland	18	12.5
UK–England	10	6.5
UK–Scotland	14	11.5
UK–Wales	9	9
UK–Northern Ireland	12	11

^aHooghe et al. (2016).

whereas Austria, a state formally classified as federal, should be treated as *de facto* unitary. This has important consequences for the cross-country analysis of the consequences of different degrees and kinds of de/centralization. Second, the conceptualization of de/centralization across the unitary/federal distinction as a difference of kind, not merely of degree, is buttressed by the presence of consistent patterns: i) subcentral governments in unitary states never have constituent autonomy or primary law-making powers; ii) constituent autonomy and primary law-making powers are almost never associated with indirectly elected assemblies and executives appointed by central government²⁶ nor are they ever associated with a high dependence on conditional transfers; iii) subcentral governments in unitary systems never control both the base and the rate of the taxes from which they draw their revenues. Third, it follows that the claim that de/centralization is not orthogonal to federalism is thus also empirically validated. Although there are

more or less centralized unitary states and more or less decentralized federal states, de/centralization in the two sets of cases differs in kind, not merely in degree.

Conclusions

Despite considerable scholarly effort, political science has made limited progress in answering important questions about the causes and effects of state structures. A key reason for this is that we still lack a consensus on how to conceptualize and measure de/centralization. Successfully establishing whether different degrees and kinds of de/centralization lead to superior governance outcomes or why de/centralization has gone further in some states than others rests on being able to correctly measure and classify cases.

Based on a combination of graded measurement and qualitative classification, the framework put forward in this article provides a specification of how de/centralization differs across the unitary/federal distinction as well as more valid measures of de/centralization across cases and over time than those currently available. It thus holds the promise of facilitating theoretical advances in understanding the origins and consequences of state structures, not only in Western Europe but also, in principle, in other regions of the world.

Supplementary Data

Supplementary data are available at *Publius: The Journal of Federalism* online.

Notes

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1. Aristotle ([c.322BC] 1988, 106), quoted in Oates (1972, 1).
2. De/centralization can be approached from both a static and a dynamic perspective. Static de/centralization refers to the vertical distribution of powers at any given point in time whereas dynamic de/centralization refers to change over time. In this article, I

use the term de/centralization to refer to static de/centralization and to dynamic de/centralization in general terms whereas I use centralization or decentralization to refer to a specific direction of change.

3. Throughout the article, I use the term “state” to refer to the political system as a whole, and the term “regions” to refer to the largest subcentral units of government, including the constituent units of federal states.
4. For instance, if we measure de/centralization as proposed by [Gerring and Thacker \(2004\)](#), as well as by [Hooghe et al. \(2016\)](#), decentralization is in a statistically significant positive correlation with corruption in Western Europe whereas if we measure it as proposed in this article, there is no statistically significant positive association between the two. The data are available from the author upon request.
5. Some authors such as [Livingston \(1952, 88\)](#) have questioned the value of trying to identify the boundary between unitary and federal states, arguing that the “differences are of degree rather than of kind.” Although I believe, as conceptually developed and empirically demonstrated in the article, that de/centralization varies in kind, not merely in degree, across the unitary/federal divide, I do so very much in the spirit advocated by Livingston, viz. of going beyond the official constitutional characterization in trying to capture how political systems operate de facto.
6. For instance, the UK counties are included but the Irish counties are excluded ([Hooghe et al. 2016](#), Appendix–Regional Scores).
7. I consider Hooghe et al.’s categories of “institutional depth” and “representation” to be both, in essence, institutional measures while “fiscal autonomy” and “borrowing autonomy” can be considered fiscal measures, broadly understood, in that they pertain to government revenues.
8. On the distinction between differences of degree and of kind, see, among others, [Sartori \(\[1975\] 2009, 77-8\)](#) and [Goertz \(2006, 5\)](#).
9. Some authors (e.g. [Elazar 1971, 99](#)) have argued that federal systems are “non-centralized” as opposed to de/centralized. I do not embrace this claim because it presupposes a dichotomous understanding of de/centralization. From this perspective, federal systems are non-centralized because they constitutionally reserve some powers to the constituent units whereas unitary systems are centralized because central governments possess all powers. As I have sought to explain and justify in the article, I conceptualize de/centralization as a continuum rather than a dichotomy. From this perspective, all systems are more or less decentralized (or less/more centralized). Federations are also more or less de/centralized because they all have a given distribution of power which reserves some important powers to the central government. From this perspective, non-centralization would imply the absence of a central government, which, in turn, would imply no federation.
10. Cf. [Mackenzie and Chapman’s formulation \(1951, 187\)](#) of the distinction between a federal and a regional state: “‘federal’ and ‘regional’ will not lie in opposition to one another, but in continuity, as segments of an unbroken slope.”
11. In this article I focus on the distinction between unitary and federal systems in relation to de/centralization and I do not aim to provide a full conceptualization of the features of a federal system.

12. Such an ability is understood as defined by the body of law in force at a given time, as opposed to the letter of the constitution.
13. This does not deny that some systems, especially during phases of transition, could be genuinely borderline.
14. In certain circumstances, an indirectly elected assembly might also provide a sufficient level of institutional autonomy. In the interest of concision, I do not pursue this point here.
15. The rationale for setting the threshold at 10 per cent is based on the need to capture conceptually the empirical difference we can observe for 2015 between Portugal, where strong autonomy affects approximately five per cent of the population, and the UK, where strong autonomy affects approximately 16 per cent of the population.
16. These categories are similar to what [Stepan \(2013, 234\)](#) calls “federacies.” As I explain below, I think it preferable to reserve the term “federacy” for constitutionally unincorporated territories.
17. While [Hooghe et al. \(2016\)](#) treat it as a lower tier of regional government, I, in line with the prevailing scholarly practice (e.g. [Bertrana and Heinelt 2011](#); also [Tonboe 1991, 21](#); [Hansen 1993, 313](#)), conceptualize counties, provinces, *départements* etc. as the upper tier of local government, hence the label “macro-local.”
18. Table A3 in the Supplemental Online File details where this conceptualization departs from, or follows, that underpinning the RAI.
19. The distinction between primary and secondary legislation can be illustrated with a UK example, where prior to 2006 the Welsh Assembly could only partially adapt (in the form of secondary legislation) an act of parliament, which represented primary legislation. The distinction is akin to that found in many systems between an act of the legislature (as primary legislation) and delegated legislation enacted by the executive (as secondary legislation).
20. The economic, cultural-educational, and welfare policy areas correspond to the first-level categories *Economic affairs; Recreation, culture, and religion* and *Education*; and *Social protection* in the classification of the functions of government developed by the [OECD \(2017, 256–7\)](#). Within each area, as detailed in the Supplemental Online File, I have based the coding on the distribution of specific functions.
21. Subcentral governments typically have access to other forms of revenue besides taxes but the latter generally provide the lion’s share of their revenues hence my focus on taxes.
22. Aggregation by product would also be acceptable but it would produce high-figure scores that would be more difficult to interpret.
23. This is on the ground that it is technically possible for a government to score above 8 by having very high scores on two of the components and a sub-threshold score on a third one but that would be “incoherent” and it is thus unlikely to be observed in practice. The empirical mapping conducted in this article validates such an assumption.
24. Meaning Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom. The mini-states (population below 1m) Iceland, Luxembourg, and Malta, and the micro-states (population below 100,000) Andorra, Liechtenstein, Monaco, San Marino, and Vatican are not included.

25. As the coding does not take into account the lower level of local government (the municipalities), it does not provide a full measure of de/centralization. It does measure, however, the extent of de/centralization that is relevant to identifying the differences of kind in state structures, which is the article's focus.
26. Belgium between 1970 and 1995 was an exception, which can be explained by the provisional nature of the constitutional arrangements in place during that period.

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