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Subnational Patterns of Democracy in Austria, Germany and Switzerland

ADRIAN VATTER and ISABELLE STADELMANN-STEFFEN

This article investigates the main political institutions in the sub-national democracies of Austria, Germany and Switzerland. It applies Lijphart's approach to these German-speaking countries in Western Europe and expands it – following recent advances – by direct democracy. The main finding of the sub-national analysis is that, similar to Lijphart, two dimensions of democracy can be distinguished. While the first can be considered as the 'consensual dimension' of democracy, the second represents the 'rules of the game'. Moreover, and in contrast to analyses at the national level, direct democracy does not constitute a dimension on its own, but forms an important element of consensus decision-making in the sub-national units at hand. Finally, based on cluster analysis three homogenous national clusters were found, but also one cluster with sub-national democracies from Germany and Austria that are more similar to one another than to other Länder within their respective federal states.

Arend Lijphart's (1984, 1999) identification of two ideal types of democracy, namely *majoritarian* and *consensus democracy*, is regarded as one of the most prominent achievements within the field of comparative politics. Although his typology has been criticised by many scholars on conceptual, empirical, and normative grounds (Boogards 2000; Kaiser 1997; Schmidt 2010; Taagepera 2003; Tsebelis 2002), Lijphart's (1984, 1999) ground-breaking distinction between consensus and majoritarian democracies undoubtedly represents the most influential and prominent typology of modern democracies (Mainwaring 2001: 171). Following Lijphart's conception of democracy, this article aims to transfer his principal ideas to the sub-national political systems of German-speaking Europe – Austria, Germany, and Switzerland.¹ Using Lijphart's fundamental distinction between majoritarian and consensus democracy as a starting point, this article aims to further develop it in three respects:

- (1) In methodical terms, we aim for higher comparability and validity of Lijphart's (1999) democratic features. While a significant amount of cross-national research on the relations and determinants of political institutions and democratic patterns has been carried out, systematic

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investigations at the sub-national level remain scarce (Freitag and Vatter 2009; Vatter 2007). Although political scientists working in the field of comparative politics fully agree on the value of the combination of intranational and cross-national comparative analysis, no sub-national analysis of democratic patterns that encompasses not only one but several nation states has so far been conducted. The focus on the Swiss cantons, and the German as well as the Austrian Länder seems to be particularly justified. On the one hand, the 52 sub-national political systems in these three West European countries have a similar cultural background and, on the other hand, these units are entities with different political institutions, socio-economic structures, and historical legacies in typical federal states. Therefore, they constitute an extraordinary research laboratory within a rather small space, providing ideal conditions for intra- und cross-national comparative political analysis, also because it is potentially less difficult to create *ceteris paribus* conditions for a systematic comparison of sub-national systems with a similar cultural background (Snyder 2001).² In this sense, the systematic comparison of Länder and cantons in Austria, Germany, and Switzerland as three of the most federal countries in Europe has the advantage of meeting the requirements of the most-similar-systems research design (Przeworski and Teune 1970). It is therefore not surprising that Lijphart (2008: 10) himself recommends analysing democratic patterns at the sub-national level in federal systems such as Austria, Germany, and Switzerland.

- (2) In conceptual terms, our study encompasses a broader range of democratic institutions than Lijphart (1999). In addition to the horizontal (executive–parties) and vertical (central–decentralised) dimensions of democracy, we also include direct democracy, thus taking into account power relations between the governing elite and the population. This aspect has hitherto been neglected, but is becoming progressively more important (Freitag and Vatter 2009; Vatter 2009; Vatter and Bernauer 2009).
- (3) Empirically, we perform an up-to-date examination of Lijphart’s dimensions of democracy on the basis of the individual political institutions of the sub-national systems under analysis. We examine the period between 1990 and 2005 and in so doing offer a systematic comparison of the German Länder after unification. To reach these goals, a comparative empirical survey of the various patterns of democracy in more than four dozen sub-national political systems of the three German-speaking countries, as well as a comparison of the democratic features found in these member states will be presented. In doing so, we strive to improve and adapt the analysis and research techniques used by Arend Lijphart in his international comparative studies (1984, 1999) to the three countries, and to establish a relationship between national and sub-national patterns of democracy. Our research is based on a *cross-sectional analysis* of the relationships and determinants of political institutions in the sub-national democratic systems of Austria, Germany, and Switzerland between 1990

and 2005. First, we use *factor analysis* to enquire into the most important dimensions underlying the political institutions in the sub-national entities under scrutiny. Second, we investigate the similarities and differences between the nearly 50 sub-national systems and for that purpose form groups of units based on *cluster analysis*. Finally, a *graphic representation of a two-dimensional matrix* of the sub-national entities ('democratic map') depicts more precisely the political-institutional characteristics of the member states in *German-speaking Europe*.

Research Questions and Hypotheses

When Lijphart (1999) performs his factor analysis on the constitutional features and electoral outcomes of 36 different democracies, two dimensions emerge. He identifies the executive–parties (or joint-power) dimension as the horizontal dimension; the degree of electoral disproportionality, the effective number of parties, the frequency of single-party government, the average cabinet length, and the interest group system all load high on this factor. The vertical dimension, which Lijphart calls the federal–unitary (or divided-power) dimension, encompasses bicameralism, federalism, judicial review, constitutional rigidity, and central bank independence. For our research purposes, Lijphart's approach will be modified whenever certain components of the respective dimensions of democracy cannot be transferred to the sub-national level, or when more specific variables and indicators are needed. While interest groups, bicameralism, judicial review, and central bank independence are therefore not included in our study, close attention will be paid to aspects of direct democracy. We attempt to find answers to the following three questions:

- (1) Do different dimensions of democracy in the sub-national democratic systems of Austria, Germany and Switzerland exist? In particular, we will investigate whether the joint analysis of the three German-speaking countries produces similar results as comparative analysis at the country level (Fortin 2008; Lijphart 1999; Roberts 2006; Vatter 2009; Vatter and Bernauer 2009), or whether the findings of our analysis rather resemble those arrived at in single country studies at the sub-national level for Switzerland (Vatter 2007) and Germany (Freitag and Vatter 2008; 2009).
- (2) Do the sub-national political systems of the German-speaking countries exhibit more characteristics of consensual democracy, or do they tend towards majoritarian democracy? This second question will also help to clarify whether different country-specific types of sub-national democracies exist.
- (3) Where are the sub-national democracies of Austria, Germany, and Switzerland situated on a democratic map in terms of horizontal and vertical power-sharing, and what possible explanations are there for their positions on this democratic map?

Following the last question, we wish to examine the reasons underlying the similarities and differences between the political-institutional configurations in the sub-national systems of the three German-speaking countries in Western Europe. Empirical democracy research offers various approaches to explain the political-institutional development of democracies. Following Lijphart (1999: 250), Kaiser (1997: 422), and Vatter (2002: 414), we will discuss three possible explanations: (1) the importance of country-specific historical heritage; (2) the impact of linguistic and cultural traditions; and (3) the ‘critical junctures’ hypothesis.

A first possible explanation for the development of different political-institutional patterns is the *idea of country-specific political heritage* which focuses on the states’ common historical and constitutional background. For example, one can primarily trace the prevalence of the Westminster model of democracy in the Caribbean and Oceanic countries back to the fact that they once were British colonies (Lijphart 1999: 250). According to this approach, the specific patterns of democratic techniques of conflict settlement can be reduced to a common legacy and to specific past constitutional traditions of each of the three countries under consideration. In the context of Austria (Dachs *et al.* 2006; Pelinka and Rosenberger 2007), Germany (Schmidt 2003, 2011) and Switzerland (Linder 2010; Steiner 2002), it might be particularly interesting to consider the extent to which the patterns of democracy and the political-institutional configurations observed between 1990 and 2005 in the nearly 50 sub-national member states reflect a strong impact of their national constitutions. Hence, the positions of the Swiss cantons and the Austrian and German Länder should show distinctive features that may correlate directly with the national constitutional and historical traditions of the three countries. According to this first hypothesis, we should expect three consistent country clusters of sub-national democracies.

A second analytical approach focuses on *cultural and linguistic traditions*. Switzerland’s federal structure has led to a diversity of different political systems in the cantons. Until recently, the – at first glance – greatest institutional differences were to be found between the French-speaking cantons of Western Switzerland and the majority of Swiss-German speaking cantons (Germann 2004; Linder 2010; Vatter 2007). Popular rights (initiative and referendum) that first originated in the German-speaking cantons have prevailed especially in German-speaking Switzerland over the model of parliamentary and representative democracy that has greater weight in the French-speaking cantons. Even today, the barriers for the use of referendums and initiatives are significantly lower in German-speaking Switzerland than in Latin Switzerland. Furthermore, until a few years ago, electoral thresholds for the prevention of party fragmentation were unknown in German-speaking Switzerland, whereas this institutional rule has existed for a long time in almost all French-speaking cantons. Led by the guiding assumption that due to the cultural contrast between the Latin and the German-speaking culture (Germann 2004) the Swiss cantons differ in their liberal as well as in their radical democratic tradition (Bühlmann

et al. 2009), they provide a formidable opportunity to test whether different cultural–linguistic traditions of more direct democratic or more representative forms of democracy lead to two different clusters of democracy. According to our second hypothesis, we should expect different linguistic clusters of sub-national democracies in Switzerland, namely a ‘French’ model of democracy in contrast to Swiss-German forms of democracy.

A third explanation exemplifying the ‘critical junctures’ hypothesis relates directly to a particularity of the development of democratic structures in the new German Länder during the early 1990s following German reunification: the *introduction of democratic institutions in the new East German Länder*. After the collapse of the German Democratic Republic, each new Land tried to rapidly introduce a new electoral system, a new system of government – in particular configuring a new power relationship between the executive and legislative branch – and to define the rules needed to change the constitution (Schmidt 2003). The institutional reforms in the early 1990s in East Germany may be a consequence of the specific historical circumstances, and they also may define the configuration of an institutional regime. For example, the various provisions for direct democracy at the level of the new German Länder can be attributed to a growing mistrust towards the government during the 1970s and 1980s as well as the prominent and active role of the people during the German reunification process (‘Wir sind das Volk’). Accordingly, we could suggest that there are many institutional similarities concerning the electoral, party, and government system between the new German Länder. In short, we assume that the East–Westdivide in Germany should be reflected in two different sub-national clusters of German democracies.

Research Design and Measurement of Variables

The following analysis is based on Lijphart’s (1999) well-known typology of democracies that has successfully established itself in comparative politics. In this sense, our analytical concept centres not only on the classic ‘rules-in-form’ (or ‘institutional inputs’), but equally on the ‘rules-in-use’ (or ‘institutional outputs’) which have crystallised over time (Flinders 2005; Rhodes *et al.* 2006; Rothstein 1996; Taagepera 2003). Therefore, and in accordance with Lijphart’s terminology (1999: 3), the ‘institutional rules and practices’ of the sub-national democracies of the German-speaking countries lie at the heart of our research interests. Table 1 shows the seven political institutions that we will consider in depth. As our point of departure, we will now briefly introduce these institutional features, which are the foundation of our empirical analysis. In light of the high (and increasing) importance of direct democracy in the Swiss cantons (and to some degree in the German Länder), we pay special attention to these institutions of citizen law-making (see also Lijphart 1984: 197; Vatter 2009). A detailed overview of the operationalisation of our variables is found in Appendix 1.

TABLE 1
CORRELATION MATRIX OF THE SEVEN INDICATORS

	Electoral disprop.	Numb. of parties	Cabinet type	Decentral- isation	Consti- t. rigidity	Exec. dominance
Electoral disprop.	1					
Numb. of parties	0.20	1				
Cabinet type	-0.27	0.48	1			
Decentralisation	-0.26	-0.08	0.13	1		
Const. rigidity	0.24	0.11	-0.18	0.09	1	
Exec. dominance	-0.07	-0.62	-0.40	-0.32	-0.47	1
Direct democr.	0.18	0.74	0.53	0.02	0.06	-0.63

Note: Correlation matrix (Pearson's r); bold = correlations are significant at least on the 5% level; italic = correlations are significant at least on the 10% level.

Electoral System

Simple plurality rule, proportional representation, and mixed procedures can all be found in the sub-national entities under consideration at parliamentary elections. Possible indicators are thus either an electoral disproportionality index (Gallagher Index), which specifies the voter–seat difference, or the ‘effective threshold’, which indicates the minimum proportion of electorate votes necessary in order to obtain a seat in the parliament. Both indicators correlate rather strongly (0.30; significant on the 5 per cent level). For the empirical analysis, we follow Lijphart (1999: 162) and use Gallagher’s index of electoral disproportionality. The Gallagher Index has the advantage that it takes into account the degree of over- and underrepresentation of all parties, whereas the level of the effective threshold only indicates the size of the hurdle that is encountered by small parties.³ Low values of electoral disproportionality thereby stand for a consensual political system.

Party System

In line with Lijphart (1999), the Laakso–Taagepera Index (Laakso and Taagepera 1979) is used to measure the effective number of parliamentary parties. The index N is computed by taking the inverse of the sum of the squared seat shares s of the parties i in parliament:

$$N = \frac{1}{\sum_{i=1}^n S_i^2}$$

It therefore weighs the parties according to their strength in terms of seats. Conceptually, with an increase in the number of effective parties in parliament, the degree of consensus democracy rises.

Cabinets

Lijphart (1999: 91) describes single-party minimal winning cabinets as the most majoritarian type and oversized multi-party cabinets as the most consensual. In between those two forms of government, there are multi-party minimal winning cabinets. Our cabinet type indicator is similar to Lijphart's operationalisation and measures the proportion of time during which oversized multi-party cabinets were in power. The definition of oversized cabinets used by us therefore takes into account the special case of the common two-party grand coalition of SPD and CDU in Germany, and ÖVP and SPÖ in Austria. In these cases, the distinction between minimal winning coalitions and oversized cabinets is not appropriate, as Lijphart (1999: 106) himself points out:

Since each of the parties had fewer than half of the seats, however, their cabinets were technically minimal winning because the defection of either would have turned the cabinet into a minority cabinet. In substantive terms, such broad coalitions should obviously be regarded as oversized.

Therefore, our definition follows those of Schniewind (2008: 125) and Jun (1994), who consider a coalition that consists of only CDU and SPD and that controls a two-thirds majority in parliament as oversized. This definition of substantially oversized coalitions was arrived at because in most German Länder a two-thirds majority in parliament is necessary in order to change the constitution of the Land. In addition, Schniewind (2008: 157) could empirically show that this measure is strongly correlated with other indicators of consensus, such as inclusion and proportionality of the government. In short, the ratio of consensual government types stands for the type of cabinet.

Executive–Legislative Relations

Lijphart's (1999) measurement of executive dominance vis-à-vis the legislative branch of government, using the average cabinet duration in days, has received much criticism (De Winter 2005; Tsebelis 2002). Lijphart (2003: 20) himself expresses serious reservations about the appropriateness of the indicator. First, the logical connection between the variable and its operationalisation is lacking. Cabinet stability can follow from mere loyalty of the government to the parliamentary parties supporting it, and while strong parliaments may provoke short-lived cabinets, it is neither a necessary nor a sufficient condition (De Winter 2005: 11). Furthermore, Lijphart (1999: 134) is forced to assign values 'impressionistically', as the indicator has shortcomings in its empirical application. To avoid the severe shortcomings of cabinet durability, an index of formal executive dominance on the basis of Döring (2001) and Siaroff (2003) is used. Döring (2001) measures the power relation between the executive and legislative via three factors. Our additive index of executive dominance is quite

similar and encompasses two important aspects of the executive–legislative relationship: the election mode of government (by the parliament or the people), on the one hand, and the possibility to remove a government through a no-confidence vote by the parliament as well the right of the executive to ask for a vote of confidence, on the other. Low index values correspond to a pronounced executive dominance and thus a majoritarian type of democracy.

Direct Democracy

While there has been a long tradition of strong direct democracy in the Swiss cantons, several direct democratic institutions were introduced into the process of political decision-making at the sub-national level in Germany and Austria within the last few years. For example, popular initiatives had gradually taken root in all German Länder by 1997 (Eder *et al.* 2009), and forms of direct democratic institutions exist in all Austrian Länder (Poier 2010). We measured (consensual) direct democracy in the 49 sub-national units under consideration according to Vatter (2009), focusing first on the formal character of direct democratic institutions. The differing degree of development of the direct democratic institutions in the Swiss cantons and the German and Austrian Länder is evident in the existence of, as well as in the different obstacles to the use of popular initiative and optional referendum. The main differences exist regarding the number of signatures required, proportionally to the voting population, for a popular initiative or an optional referendum to take place, and in the period of time available for the collection of signatures (Eder *et al.* 2009). In order to determine whether the institutional rules of direct democracy effect the concentration or sharing of power, we constructed an index of direct democracy that measures the degree of power-sharing of direct democratic instruments in the Länder on the basis of their regulatory framework.⁴ The compiled index contains points for the degree of direct democratic provisions in the constitution and embodied in the decision rules and is similar to Stutzer's direct democracy index. Stutzer (1999) has calculated an additive index on a scale of one to six, representing the formal means of access to the institutions of direct democracy in the Swiss cantons.

In line with Lijphart's 'institutional rules and practices' approach, we will not only examine the constitutional provisions, but also the practical significance of direct democracy. Whether a popular right is prescribed by the constitution but never exercised, or whether initiatives and referendums are actually held and the population is able to regularly directly influence governmental constitutional and legislative decisions is an important distinction to make. It therefore makes sense to integrate both aspects into a measure of direct democracy (for a further discussion see Vatter 2007, 2009). We therefore use an indicator that is constructed using the number of optional referendums and initiatives submitted to the voting population during the research period. In other words, the indicator measures the average numbers of bottom-up initiated ballots per year between 1990 and 2005 initialised by the people. Based on

these two aspects of direct democracy, we merged the data and constructed an additive index, thus measuring both ‘the rules in form’ and ‘the rules in use’ of direct democracy in the sub-national units.

Decentralisation

Lijphart (1999: 185) describes the attribution of competences to different levels of government as an important method of power-sharing. As an indicator of decentralisation we use the proportion of municipal income of the total revenue of the respective Länder and Cantons (see also Vatter 2007, 2009), analogously to Lijphart (1984: 178).⁵ Financial transfers from the Länder (cantons) to the municipalities, which are destined for a specific purpose (conditional grants from sub-national level), were not taken into account since such payments frequently aim at influencing municipal decisions. High values of the indicator thus mean a pronounced degree of decentralisation.

Constitutional Rigidity

As far as constitutional rigidity is concerned (the institutional barriers to the amendment of a constitution), the German and Austrian Länder as well the Swiss cantons form quite homogeneous groups for each country. For example, in Germany no Länder constitution can be amended by a simple majority vote. Most German Länder require the approval of two-thirds of the members of their parliament. Nevertheless, there are some small variations within the countries. Following Lijphart (1999) and Lorenz (2005), we develop an index to measure constitutional rigidity that takes into account the majorities needed to amend a constitution and the number of ballots to be taken. High index values mean that constitutional rigidity is high, thus being an element of consensual decision-making.

Table 1 initially illustrates that the seven variables measuring the institutional rules and practices are highly and significantly interrelated.

Empirical Results: Dimensions of Sub-national Democracies in Austria, Germany, and Switzerland

In a first analytical step we ask whether the institutional variables presented above can be concentrated into different dimensions of democracy for the sub-national units of Austria, Germany, and Switzerland. The main question that arises here is whether the joint analysis of these three countries produces similar results as comparative studies at the national level (Lijphart 1999) or rather resembles those arrived at in single-country studies at the sub-national level for Switzerland and Germany (Freitag and Vatter 2009; Vatter 2007). The period under investigation is limited to the years 1990 to 2005, as data cannot be uniformly obtained for all variables and all Länder for the period prior to German reunification. The units of analysis are the nine Austrian Länder, the 16

German Länder, and the 24 Swiss cantons (excluding the two small half-cantons of Appenzell).⁶ The indicator values are summarised in Appendix 2.

The appropriate method to investigate a set of variables with an ordering structure is factor analysis, which allows individual variables, by virtue of their correlations, to be classified into independent groups. This statistical procedure allows us to tease out one or several dimensions underlying the different variables (Backhaus *et al.* 2006; Kim and Mueller 1978). Following earlier studies (Freitag and Vatter 2009; Lijphart 1999; Vatter 2007, 2009), we apply a principal component analysis, using promax rotation.⁷ As the data used in the context of these studies typically do not fulfil the preconditions for factor analysis, we bootstrap both the eigenvalues and the factor loadings, which helps the problem (see Shikano 2006). In terms of the Kaiser–Meyer–Olkin criterion, which amounts to 0.63, the data is suited to apply principal component analysis.⁸

Table 2 presents the results of a principal component analysis with the seven variables, in which all components exhibiting an observed eigenvalue of at least 1.0, i.e. three factors, are extracted.⁹ It can be seen that four out of seven variables load on factor 1, while two variables load on the third factor. Two other indicators, namely the electoral disproportionality and the degree of decentralisation, load on none of the factors in a significant way. Moreover, in more than 500 out of 5,000 replications the bootstrap algorithm fails to estimate some of the parameters.

The reason for these somewhat peculiar results may be that the analysis includes one variable that is problematic in our context.¹⁰ While decentralisation has in fact proved to be strongly related to the dimensions of democracy in Lijphart's (1999) and similar studies (Vatter 2007) at the national level, this is obviously not the case when the sub-national units of Germany, Austria and Switzerland are compared. This variable is on the one hand barely correlated with the other indicators (see Table 1), and on the other hand also the very low KMO value of 0.29 illustrates that it should be excluded from the principal component analysis.

TABLE 2
BOOTSTRAPPED PRINCIPAL COMPONENT ANALYSIS WITH THREE FACTORS

	Factor 1		Factor 2		Factor 3	
	Coeff.	s.e.	Coeff.	s.e.	Coeff.	s.e.
Electoral disproportionality	-0.14	0.14	-0.52	0.47	0.53	0.46
Number of parties	0.94	0.07	-0.20	0.17	0.05	0.17
Cabinet type	0.69	0.13	0.08	0.32	-0.33	0.24
Decentralisation	-0.17	0.11	0.97	0.65	0.14	0.68
Constitutional rigidity	0.10	0.14	0.12	0.42	<i>0.90</i>	<i>0.42</i>
Executive dominance	<i>-0.72</i>	<i>0.13</i>	-0.26	0.34	<i>-0.50</i>	<i>0.29</i>
Direct democracy	<i>0.92</i>	<i>0.05</i>	-0.12	0.10	0.02	0.12

Note: Principal component analysis, promax rotation, based on 4,482 bootstrap replications of the rotated factor loadings, observed coefficients and bootstrap standard errors. *Italic:* Variables significantly (at the 10% level) loading on the respective factor.

Table 3 presents the results of a factor analysis including the six remaining variables and shows the emergence of two largely unrelated factors,¹¹ the first of which encompasses four variables, while the second contains three variables. The strongest variables in factor 1 are the number of parties, direct democracy, and the executive dominance with factor loadings higher than 0.8. Moreover, the cabinet type is also part of this factor. Most interestingly, this factor is thus made up of rather ‘typical’ power-sharing elements that distinguish majoritarian and consensus democracies, like the number of parties, the cabinet type and the executive–legislative relationship, but also of the indicator measuring direct democracy. Accordingly, we call this first factor the *consensus democracy dimension*. This first factor, all in all, explains 46.8 percent of total variance.

The second factor comprises the two remaining variables, namely the electoral system as well as constitutional rigidity, both exhibiting high factor loadings.¹² Typically, constitutions and ‘electoral laws define the rules of the game’, which heavily influence the strategic behaviour of the political actors in the democratic process (Massicotte *et al.* 2004: 3). In other words, the constitution and the electoral system ‘can be understood as a set of rules designed to construct the actions of its players’ (Massicotte *et al.* 2004: 158; see also Boix 1999). Therefore we call the second dimension which includes constitutional rigidity and disproportionality of the electoral system ‘the rules of the game’ dimension. This factor explains another 24.5 percent of total variance.

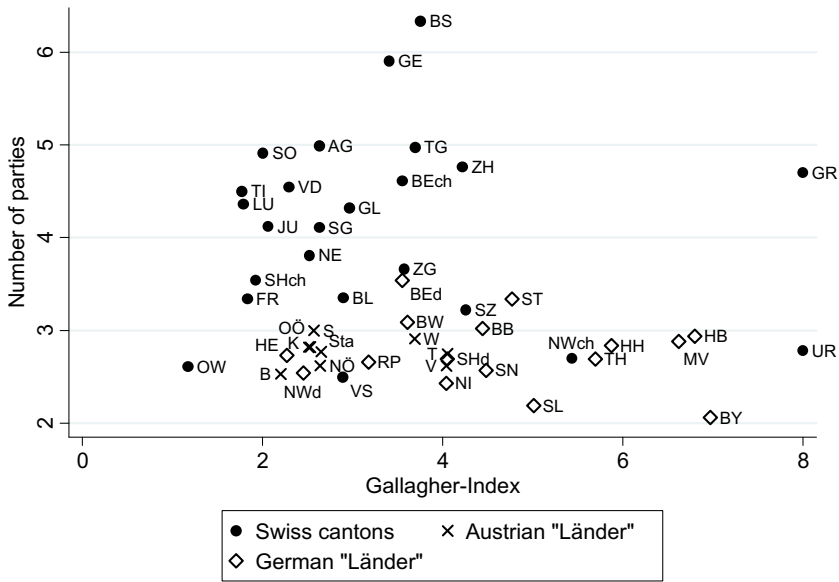
One of the most surprising findings is that the electoral system does not load on the same dimension as the number of parties and the cabinet type, while in the literature these variables are typically seen as closely associated (Duverger 1962; Lijphart 1999). This relationship is obviously much more limited when comparing the sub-national democracies of the three German-speaking countries.¹³ While the electoral system and the cabinet type are somewhat correlated (see Table 1) and indeed load on the same factor, Figure 1 illustrates that the number of parties is rather unrelated to the electoral threshold. In particular, at the bottom left we find a group of sub-national units from all three countries that exhibit very few parties, even though their electoral system is highly proportional.¹⁴

TABLE 3
BOOTSTRAPPED PRINCIPAL COMPONENT ANALYSIS WITH TWO FACTORS

	Consensus democracy		Rules of the game	
	Coeff.	s.e.	Coeff.	s.e.
Number of parties	<i>0.87</i>	<i>0.06</i>	0.04	0.13
Cabinet type	<i>0.68</i>	<i>0.15</i>	-0.37	0.24
Direct democracy	<i>0.88</i>	<i>0.06</i>	0.00	0.11
Executive dominance	<i>-0.84</i>	<i>0.10</i>	<i>-0.43</i>	<i>0.16</i>
Electoral system	-0.26	0.18	<i>0.62</i>	<i>0.22</i>
Constitutional rigidity	0.23	0.18	<i>0.88</i>	<i>0.22</i>

Note: Principal component analysis, promax rotation, based on 5,000 bootstrap replications of the rotated factor loadings, observed coefficients and bootstrap standard errors. Italic: Variables significantly (at the 5% level) loading on the respective factor.

FIGURE 1
DISPROPORTIONALITY OF THE ELECTORAL SYSTEM AND EFFECTIVE NUMBER OF PARTIES



Notes: Dots = Swiss sub-national units; x = Austrian sub-national units; hollow diamonds = German sub-national units. Pearson's $r = -0.20$, p -value = 0.18.

A Typology of Sub-national Democracies in German-speaking Europe

In the next step, we investigate the similarities and differences between the 49 sub-national systems. Do different country-specific types of sub-national democracies exist? Or are there cantons or Länder that are more similar to units of their neighbouring countries than to those of their 'own' country? In this section we therefore form groups of sub-national units based on cluster analysis.¹⁵

Figure 2 depicts the results and initially shows that four groups of sub-national systems can be distinguished. The most obvious finding is that there are three country-specific clusters, but also one group containing sub-national units from two countries.¹⁶ Moreover, and as can be seen from Table 4, the four groups considerably vary in terms of their institutional characteristics:

Cluster 1: The first cluster comprises 11 Swiss sub-national units, namely the German-speaking cantons Basle-Town (BS), Glarus (GL), Basle-Country (BL), Thurgovia (TG), Solothurn (SO), Argovia (AG), Lucerne (LU), Zurich (ZH), and the multi-lingual canton Berne (BEch), as well as Geneva (GE) and Ticino (TI) from the Latin part of the country. The characteristics of this group show that it unites those sub-national systems that come closest to the ideal of a consensus democracy. Regarding the consensus democracy dimension, these cantons exhibit over-average values (and thus consensual features) on three of

FIGURE 2
FOUR CLUSTERS OF SUB-NATIONAL DEMOCRATIC SYSTEMS IN GERMAN-SPEAKING EUROPE

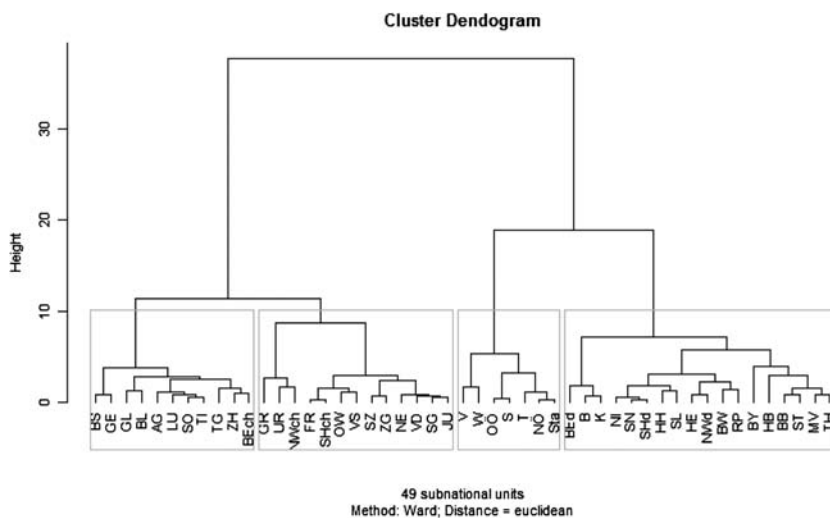


TABLE 4
THE FOUR CLUSTERS AND THEIR CHARACTERISTICS

	Cluster 1 (N=11)	Cluster 2 (N=13)	Cluster 3 (N=7)	Cluster 4 (N=18)
	BS, GE, GL, BL, AG, LU, SO, TI, TG, ZH, BEch,	GR, UR, NWch, FR, SHch, OW, VS, SZ, ZG, NE, VD, SG, JU	W, V, OÖ, S, T, NÖ, STa	BEd, B, K, NI, SN, SHd, HH, SL, HE, NWd, BW, RP, BY, HB, BB, ST, MV, TH
Number of parties	High number		<i>Low number</i>	<i>Low number</i>
Cabinet type	Consensual	Consensual		<i>Majoritarian</i>
Direct democracy	Extensive direct democratic use			<i>Few direct democratic rights</i>
Executive dominance	<i>High executive dominance</i>	<i>High executive dominance</i>	Low executive dominance	Low executive dominance
Electoral				disproportionality
Low Constitutional rigidity (Decentralisation)	disproportionality High const. rigidity	High const. rigidity Highly decentralised)	<i>Low const. rigidity</i>	High const. rigidity

Note: Those characteristics are assigned to a cluster for which the specific cluster exhibits significantly higher or lower values than the mean of all units. Bold: consensual characteristic; italic: majoritarian characteristic.

the four variables: a high number of parties, consensual cabinets, as well as a high degree of direct democracy. Similarly, on ‘the rules of the game’ dimension, this group unites a consensual (i.e. proportional) electoral system with high constitutional rigidity.

Cluster 2: The second cluster is also an exclusively Swiss cluster and consists of the rather rural German-speaking cantons Schwyz (SZ), Uri (UR), Obwalden (OW), Nidwalden (NW), Zug (ZG), St. Gallen (SG), and Schaffhausen (SHch), the multilingual cantons Fribourg (FR), Grisons (GR), and Valais (VS), as well as the French-speaking cantons Vaud (VD), Neuchâtel (NE), and Jura (JU). This cluster is also characterised by consensual features, which, however, are somewhat less pronounced than in cluster 1. The main difference of this cluster compared to the first one is that regarding the first dimension we observe an average degree of direct democracy and party fragmentation. The latter may be related to the ‘rules of the game’ dimension, which is characterised by a less proportional electoral system. It can moreover be mentioned that this cluster is the only one with a non-average, i.e. high, degree of decentralisation.

Cluster 3: The third group is made up of the Austrian sub-national systems Vienna (W) and Vorarlberg (V), Lower Austria (NÖ), Higher Austria (OÖ), Styria (STa), Tyrol (T), and Salzburg Land (S). It is a medium cluster, in the sense that these sub-national democracies reveal average values on most of the indicators. Moreover, on the consensual democracy dimension it combines a low number of parties (i.e. a majoritarian feature) with low executive dominance (i.e. a consensual feature). At the same time, and being the only cluster with an under-average constitutional rigidity, this group exhibits the most majoritarian characteristics on the second dimension.

Cluster 4: The last cluster finally is a mixed country cluster. It comprises the Eastern German ‘Länder’ Saxony-Anhalt (ST), Thuringia (TH), Mecklenburg-West Pomerania (MV), Brandenburg (BB), Saxony (SN), the ‘old’ German Länder Baden-Württemberg (BW), Bavaria (BY), Bremen (HB), Berlin (BE), Hamburg (HH), Hessen (HE), Rhineland Palatinate (RP), North Rhine-Westphalia (NWd), Lower Saxony (NI), Schleswig-Holstein (SHd), and Saarland (SL) as well as the Austrian regions Carinthia (K) and Burgenland (B). Concerning the first dimension, this cluster corresponds most to a majoritarian democracy. In three of the four variables this group exhibits non-consensual values: The number of parties is low, the cabinet type is typically minimal winning, and direct democracy is almost non-existent. In contrast, this group is more consensual than cluster 3 concerning the second dimension, being characterised by a high constitutional rigidity and an average proportionality of the electoral system.

All in all, the cluster analysis affords us more profound insights into the different types of sub-national democracy in the German-speaking countries and conveys much information concerning the latter’s most important characteristics.

FIGURE 3
TWO DIMENSIONS OF DEMOCRACY IN THE SUB-NATIONAL SYSTEMS AUSTRIA,
GERMANY AND SWITZERLAND



Notes: Factor scores of a principal component analysis with promax rotation.

However, the cluster analysis does not yet enlighten us as to the exact location of each system in relation to the other systems on the two mutually independent political-institutional dimensions. Moreover, we can make only limited statements regarding the homogeneity of the individual clusters. A suitable procedure in order to answer precisely these as yet open questions is to graphically represent the two basic political-institutional dimensions in a two-dimensional map of democracy, as Lijphart (1999: 248) did for his cross-national analysis.

Figure 3 represents the sub-national systems' locations on a democratic map, along with the two basic institutional types. The 'rules of the game' dimension is located on the abscissa, the consensual dimension on the ordinate. High positive values correspond to the consensus democratic prototype, negative values to the majoritarian prototype.

Regarding our hypotheses, the following results can thus be obtained from the analysis:

- (1) Not very surprisingly given that our sample comprises 49 sub-national units from three countries, we largely find consistent country clusters. However, there is one exception in that two Austrian Länder seem to be more similar to German regions than to regions of their own country.

Furthermore, we can roughly conclude that the consensus democracy dimension mainly distinguishes the more consensual Swiss cantons from the more majoritarian German and Austrian regions. Moreover, the second dimension, i.e. what we call ‘the rules of the game’, helps us to distinguish between the two latter countries. While the German sub-national units (including the Austrian Carinthia and Burgenland) have high constitutional barriers, it is the (other) Austrian Länder that exhibit low constitutional rigidity.

- (2) While the Swiss cantons still seem to be set apart (mainly due to direct democracy) and form two purely Swiss clusters, the linguistic border, which is often perceived as a frontier between different types of political systems (e.g. Stadelmann-Steffen and Freitag 2011), is not what divides cantons into different clusters. In fact, cantons from both the German and the Latin part can be found in both Swiss clusters. In this respect we have to reject our second hypothesis regarding different linguistic Swiss clusters of sub-national democracies.
- (3) Concerning the German regions we cannot at first glance support our hypothesis that the East–Westdivide should be reflected in membership in different clusters. In fact, all German Länder are in the same cluster. However, there are many institutional similarities concerning the electoral, party, and government features between the new German Länder, which is reflected in the democratic map where all East German regions stand close together.

Conclusions

This article set off from the famous work of Arend Lijphart and his politico-institutional variables that form on two distinct dimensions of democracy – one labelled executives–parties and one federal–unitary dimension. We apply this approach to the sub-national units of the three German-speaking countries in Western Europe, Germany, Austria, and Switzerland. Additionally, we incorporate direct democracy into our framework of consensual and majoritarian democracy following recent studies on patterns in national and sub-national democracies (Bernauer and Vatter 2009; Freitag and Vatter 2009; Vatter 2007, 2009) while leaving out central bank independence, interest groups, judicial review and bicameralism. Relying on a self-conducted data compilation, including information on seven politico-institutional variables in 49 sub-national democracies in the three countries for the period 1990–2005, principal component analyses indicates that a two-dimensional solution can be observed for the sub-national level in Austria, Germany, and Switzerland.

The findings of our sub-national analysis have several similarities to Lijphart’s (1999) study of national states. Along the first dimension, and also found by Lijphart, the variables effective number of parties, the type of cabinet, and the executive–legislative relationship are correlated. Going beyond

Lijphart (1999), direct democracy is also part of this factor. These findings are to some degree in line with Vatter's (2007) and with Freitag and Vatter's (2009) results on sub-national democratic patterns and illustrate that direct democracy in the regional systems of mainly Switzerland and Germany is an important element of consensus democracy and power sharing.

Regarding the distribution of sub-national systems on the first dimension, the familiar picture of Switzerland as a prototype of a strong consensus democracy can be re-confirmed. The Swiss cantons are located above the mean on the first dimension, whereas all German and Austrian Länder are situated below the mean.¹⁷ One possible explanation – beside the strong direct democratic and power-sharing culture – could be that Switzerland is less forced to present a clear and coherent position in supra-national organisations than the EU member states Germany and Austria: 'Majoritarianism is essential for the governments of the EU Member States as it enables these governments to make their case more forcefully since it provides the basis for strong leadership recognised as such beyond the borders of the country concerned' (Blondel and Battagazzore 2002: 240).

In sum, our findings confirm that the Swiss cantonal democracies are marked by an extraordinary power fragmentation and different power-sharing elements such as a high number of political parties, oversized multi-party governments, and a strong autonomy of the municipalities. Admittedly, the strength of direct democracy in the Swiss cantons has strongly contributed to the formation of power-sharing democracies with encompassing government coalitions. It is evident, however, that while the French- and Italian-speaking cantons generally have less extensive direct democratic rights than the German-speaking cantons, they nonetheless have stronger power-sharing characteristics than the German and Austrian Länder. Furthermore, the hypothesis of a unique 'Latin' type of democracy within the otherwise German-speaking units has to be rejected. The political-institutional pattern of democracy exhibited by the Canton of Geneva, for instance, has far more in common with the institutional pattern in the German-speaking Cantons of Argovia, Basle Town, and Zurich than with its French-speaking neighbours, and both French- and German-speaking cantons (as well as multilingual regions) can be found in the two linguistically mixed democracy clusters 1 and 2. Due to the strongly developed direct democratic rights as well as power-sharing characteristics such as high party fragmentation and oversized multi-party cabinets, the Swiss cantons therefore constitute two distinct types of direct democratic consensus democracies, but there are no linguistically separate clusters of democracy within Switzerland.

To date, analyses of Austrian and German federalism have mostly adopted a 'top down' perspective of federal politics, paying little attention to the political systems of the Länder. Embedding our present findings regarding the different patterns of democracy in the Austrian and German Länder into the context of current federalism research and the controversy over the centralisation trends in Austrian and German federalism, our results from a comparative 'bottom-up' view show that the heterogeneity of the regional democratic patterns in the three

federal countries has to date evidently been underestimated. The present findings with regard to the democratic patterns in the German and Austrian Länder indicate that the established idea of a uniform federal system in Germany and Austria needs to be revised. This, for instance, can be illustrated by contrasting the different positions on the second factor – the executive power-sharing dimension – of Bavaria with a disproportional electoral system and a low level of constitutional rigidity on the one hand, and Berlin with rather proportional electoral rules and high barriers to change the constitution on the other.

The hypothesis of exclusively nation-specific clusters is also contradicted by the patterns of democracy displayed by the two Austrian Länder Burgenland and Carinthia, which together with some of the German Länder make up the fourth cluster. The two Austrian Länder share a number of political-institutional communalities with their German neighbours, such as a rather majoritarian cabinet type (compared to the Swiss cantons), limited direct democracy, a relatively small number of political parties, and low executive dominance. One possible reason – apart from geographical proximity – is a shared history. The Southern German and Austrian regions in cluster 4 were for a considerable time part of the territory of the Habsburg Monarchy, while most of the Swiss cantons had already become part of the Old Confederacy in the Middle Ages (Ingrao 2003). After Austria's Anschluss or annexation into the German Reich in 1938, the regions in cluster 4 formed parts of the Reichsgaue (administrative sub-divisions) of Nazi Germany, and after World War II they were part of the Allied occupation zones that ran across national borders. Therefore, the thesis of historical path-dependency is plausible here. Finally, Burgenland and Carinthia are the only two Austrian regions with a substantial share of Protestants in Catholic-dominated Austria. Hence, they exhibit some cultural similarities with the East German Länder that also can be found in cluster 4.

For future sub-national democracy research it would be of interest to further extend the present analysis to include other federal systems such as Belgium, the USA, and Canada. Finally, it would be highly useful to make an attempt to answer the crucial 'so what' question: does the type of European regional democracy make a difference for public policies, the effectiveness of government, and the quality of democracy? Providing answers to this question, which is beyond the scope of present research, is what we hope to have sparked an interest in.

Notes

1. We limit ourselves to these three countries although the present borders of Austria, Germany and Switzerland by no means demarcate the farthest geographical extent of German culture and its historical influence.
2. It is worth mentioning that the three countries overlap to a large extent what Caramani and Mény (2005) call a specific 'Alpine' political culture with his specific negotiation type of democracy.
3. Here we follow Lijphart's reply (2003: 21) to Taagepera's (2003) criticism on his measurement of electoral disproportionality: '[T]he most appropriate measure is simply the actual

- degree to which elections yield proportional results – regardless of the reasons behind these results (such as the effective threshold and other features of the formal electoral rules, the numbers and relative sizes of the political parties, and various country specific factors). ... Taagepera and I are in agreement on the suitability of the Gallagher index.’
4. We consider those direct democratic instruments as ‘power-sharing’ that are initialised by the people (e.g. by collecting signatures). In contrast, direct democratic procedures that are actuated top-down by the government rather concentrate power in the hands of the latter and are therefore not integrated. Moreover, direct democratic decisions can be binding or not binding. In order to maximise variance (within the Austrian Länder), half a point is assigned if a non-binding instrument is available. The same procedure has been applied regarding the use of direct democracy in that every non-binding ballot counts half.
 5. Lijphart (1984) did use a continuous variable to measure decentralisation, the central government’s tax share.
 6. For the two small Appenzell cantons (AI, AR), there was repeatedly no or insufficient data available regarding the actual characteristics of their political institutions. For this reason, they have been excluded from the following analysis.
 7. In contrast to varimax rotation, this procedure allows factors to be correlated, which seems to be a more plausible assumption for the present analysis. The results demonstrate that the correlation between the factors is actually very small (Pearson’s $r = -0.09$ for the model presented in Table 3) and not statistically significant.
 8. While six variables get a mean KMO value of 0.70, one variable, the degree of decentralisation, obtains an exceptionally low value (0.29), meaning that this variable is not suited to be in a factor analysis with the other variables. We will deal with this problem in the next step.
 9. In further analyses not presented here we bootstrapped the eigenvalues, which reveals that the number of factors that should be extracted is three. While for the first two factors the eigenvalues are undoubtedly higher than one, the third mean observed coefficient for the third factor is 1.21 with a confidence interval of between 0.97 and 1.44. This means that we are sure from the eigenvalues that we should extract three factors. This is also confirmed by further analyses that show that a two-factor solution for these seven variables does not lead to stable results.
 10. See note 7.
 11. See also note 6.
 12. Moreover, executive dominance that is part of the first factor in the first place also has a considerable and significant loading on this factor. However, the loading of the executive dominance variable is significantly stronger on the first than in the second dimension.
 13. We also considered alternative measurements of the electoral system, particularly the electoral threshold. However, this indicator has several disadvantages, such as that it only indicates the size of the hurdle that is encountered by small parties. Empirically, a principal component analysis including the electoral threshold produces a similar factor solution with very similar factor loadings. An exception is that the electoral threshold obtains low factor loadings (below 0.4) on both factors. Moreover, the standard errors of the second factor are much higher, meaning that no variable loads on this dimension in a significant way.
 14. This is also in accordance with the findings by Eder *et al.* (2009), who demonstrate that among the German ‘Bundesländer’ no significant correlation between the electoral system (measured by means of its disproportionality) and the effective number of parties exists.
 15. Hierarchical clustering based on the Euclidean distance is applied using the Ward’s Linkage.
 16. This still holds if three, five or even six clusters are distinguished. In any case one group contains both Austrian and German sub-national units.
 17. Concerning the first dimension the Swiss Canton Uri is a borderline case.

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APPENDIX 1

VARIABLE, OPERATIONALISATION, SOURCES, AND DESCRIPTIVE STATISTICS

Variable	Descriptive statistics	Operationalisation/source
Electoral system		Index of disproportionality (Gallagher Index), i.e. sum of differences between the vote percentages and seat percentages. <i>Sources</i> : CH: Vatter <i>et al.</i> (2010); D: data from Eder and Magin (2008); personal correspondence, A: own calculations based on data from the homepages of the Austrian Länder.
Party system		Effective number of parties (Laakso–Tagepera Index) on the basis of the parties' seat shares in parliament: Effective number of parties = $1/\sum(\text{party } i\text{'s seat share})^2$. Based on data from the statistical offices of the respective sub-national units. Values for the German Länder were taken from Freitag and Vatter (2009).
Cabinet type		The proportion of time during which oversized multi-party cabinets were in power, 1990–2005. The coding differs from Lijphart (1999) in two points (Schniewind 2008: 125ff.): (1) Only <i>minimal winning coalitions</i> are considered majoritarian, since minimal winning parties typically also depend on compromises and negotiations with the opposition. (2) The criterion to distinguish between minimal and oversized coalitions is two-thirds of the members of parliament. <i>Sources</i> : CH: Federal Office of Statistics; D: Schniewind(2008); Freitag and Vatter(2008); A: Statistics Austria, database ISIS.
Decentralisation		Fiscal decentralisation: proportion of municipal income to the total revenue of the respective Länder (cantons) without financial transfers from the Länder (cantons) to the municipalities, which are destined for a specific purpose (conditional grants from sub-national level), 1990–2005. <i>Sources</i> : CH: Federal Office of Statistics; D: Magin and Eder (2008: 214); A: Statistics Austria.

(Continued)

APPENDIX 1

(Continued)

Constitutional rigidity	<p>Additive index measuring constitutional rigidity on two dimensions: the required majorities to amend the constitution of those who vote (e.g. if a single majority is needed the required majority amounts to 0.5) and of those that are entitled to vote (e.g. if two-thirds of the MPs need to be present and approve an amendment with a single majority the required majority of those entitled to vote amounts to $0.667 \times 0.5 = 0.33$) as specified by the sub-national constitutions (Flick 2008). All relevant political arenas are considered. <i>Example Hamburg:</i> (1) Two-thirds of the (present) MPs have to agree on an amendment (0.667). (2) Three-quarters of MPs need to be present for a vote to be valid; the majority needed of those entitled to vote therefore amounts to $0.667 \times 0.75 = 0.5$. As there is no ballot on constitutional amendments, the final value for Hamburg thus amounts to $0.667 + 0.5 = 1.167$. <i>Example Argovia:</i> (1) A single majority of the (present) MPs have to agree on an amendment (0.5), (2) 95 of 130 MPs need to be present for a vote to be valid ($95/130 \times 0.5 = 0.37$); (3) direct democracy as a second arena: a constitutional amendment needs to be approved on the ballot by a majority of the voters (0.5). The final value for Argovia thus amounts to $0.5 + 0.37 + 0.5 = 1.37$. <i>Sources:</i> Flick (2008: 233f.), sub-national constitutions.</p>
Executive dominance	<p>Additive index of executive dominance based on two indicators: <i>a. Election mode of the government</i>, 0 = election by the people; 0.25 = election by the people, but parliaments elects head of government; 0.5 = parliament elects head of government who appoints the other members of government; 0.75 = parliament elects head of government who appoints the other members of government that need to be approved by the parliament; 1 = Election by parliament. <i>b. motion of mistrust by the parliament</i>, 0 = no motion of mistrust; 0.5 = motion of mistrust only regarding the head of government; 1 = motion of mistrust. <i>Source:</i> sub-national constitutions.</p>
Direct democracy	<p>Additive index (based on standardised values) of two indicators: - Number of bottom-up instruments. <i>Sources:</i> CH: Vatter <i>et al.</i> (2010); D: Eder (2009): 122, Eder and Magin (2008: 257ff.); A: Marko and Poier (2006); Poier (2010). - Number of popular initiatives and optional referendums per year, 1990–2005. <i>Sources:</i> CH: Vatter (2002: 226) and own calculations based on <i>année politique suisse</i>; D: Eder <i>et al.</i> (2009); A: Marko and Poier (2006), Poier (2010).</p>

APPENDIX 2

DATA

Units	Country	Units	Gallagher index	Number of parties	Cabinet type	Decentralisation	Constitutional rigidity	Executive dominance	Direct democracy
ZH	1	CH	4.22	4.76	1.00	0.51	1.25	0.00	2.95
BE	2	CH	3.55	4.61	1.00	0.45	1.25	0.25	1.81
LU	3	CH	1.79	4.36	1.00	0.51	1.25	0.25	1.59
UR	4	CH	8.00	2.78	1.00	0.35	1.25	0.00	0.04
SZ	5	CH	4.26	3.22	1.00	0.51	1.25	0.25	-0.64
OW	6	CH	1.17	2.61	1.00	0.62	1.25	0.25	0.04
NW	7	CH	5.44	2.70	1.00	0.49	1.25	0.25	0.91
GL	8	CH	2.97	4.32	1.00	0.12	1.25	0.00	4.20
ZG	9	CH	3.57	3.66	1.00	0.49	1.25	0.25	-0.34
FR	10	CH	1.83	3.34	1.00	0.45	1.25	0.25	0.21
SO	11	CH	2.01	4.91	1.00	0.49	1.25	0.00	2.19
BS	12	CH	3.76	6.33	1.00	0.03	1.25	0.00	3.25
BL	13	CH	2.90	3.35	1.00	0.31	1.25	0.25	3.10
SH	14	CH	1.92	3.54	1.00	0.46	1.25	0.25	0.21
SG	15	CH	2.63	4.11	1.00	0.45	1.25	0.25	0.52
GR	16	CH	8.00	4.70	1.00	0.47	1.25	0.25	1.40
AG	17	CH	2.63	4.99	0.75	0.43	1.25	0.00	1.93
TG	18	CH	3.70	4.97	1.00	0.50	1.37	0.25	0.39
TI	19	CH	1.77	4.50	1.00	0.40	1.25	0.00	2.32
VD	20	CH	2.30	4.54	1.00	0.39	1.25	0.00	0.23
VS	21	CH	2.89	2.50	1.00	0.48	1.25	0.00	-0.09
NE	22	CH	2.52	3.81	1.00	0.44	1.25	0.00	-0.47
GE	23	CH	3.41	5.90	0.75	0.22	1.25	0.00	2.86
JU	24	CH	2.06	4.12	1.00	0.47	1.25	0.25	0.00
B	25	A	2.20	2.53	1.00	0.32	1.25	2.00	-1.12
K	26	A	2.51	2.82	1.00	0.33	1.25	2.00	-1.89
NÖ	27	A	2.64	2.62	1.00	0.38	0.67	2.00	0.42

OÖ	28	A	2.53	2.82	1.00	0.36	0.67	2.00	-2.27
S	29	A	2.57	3.00	1.00	0.43	0.67	2.00	-1.87
St	30	A	2.65	2.77	1.00	0.35	0.67	2.00	0.50
T	31	A	4.05	2.75	1.00	0.41	0.67	2.00	0.42
V	32	A	4.04	2.62	0.00	0.47	0.67	2.00	0.03
W	33	A	3.69	2.91	0.00	0.00	0.67	2.00	-2.66
BW	34	D	3.61	3.09	0.30	0.47	1.17	1.75	-1.12
BY	35	D	6.98	2.06	0.00	0.45	1.83	0.75	-1.10
BE	36	D	3.55	3.54	0.74	0.00	1.33	2.00	-0.73
BB	37	D	4.44	3.02	0.33	0.35	1.33	1.00	-0.73
HB	38	D	6.80	2.94	1.00	0.00	1.38	2.00	-0.73
HH	39	D	5.87	2.84	0.00	0.00	1.17	1.25	-1.49
HE	40	D	2.27	2.73	0.00	0.46	1.50	1.25	-1.87
MV	41	D	6.62	2.88	0.53	0.34	1.33	1.00	-1.50
Ni	42	D	4.04	2.43	0.00	0.44	1.30	1.25	-1.51
NW	43	D	2.45	2.54	0.00	0.51	1.33	1.00	-1.51
RP	44	D	3.18	2.66	0.00	0.37	1.33	1.75	0.03
SL	45	D	5.01	2.19	0.00	0.35	1.33	1.75	-1.89
SN	46	D	4.48	2.57	0.00	0.37	1.33	1.00	-1.50
ST	47	D	4.77	3.34	0.52	0.37	1.33	1.00	-1.50
SH	48	D	4.06	2.69	0.00	0.41	1.33	1.00	-1.50
TH	49	D	5.70	2.69	0.32	0.32	1.33	1.00	-1.50

APPENDIX 3
ABBREVIATIONS

A	Austria	B	Burgenland (A)
D	Germany	K	Carinthia (A)
CH	Switzerland	NÖ	Lower Austria (A)
ZH	Zurich (CH)	OÖ	Higher Austria (A)
BEch	Berne (CH)	S	Salzburg Land (A)
LU	Lucerne (CH)	STa	Styria (A)
UR	Uri (CH)	T	Tyrol (A)
SZ	Schwyz (CH)	V	Vorarlberg (A)
OW	Obwalden (CH)	W	Vienna (A)
NWch	Nidwalden (CH)	BW	Baden-Württemberg (D)
GL	Glarus (CH)	BY	Bavaria (D)
ZG	Zug (CH)	BEd	Berlin (D)
FR	Fribourg (CH)	BB	Brandenburg (D)
SO	Solothurn (CH)	HB	Bremen (D)
BS	Basle-Town (CH)	HH	Hamburg (D)
BL	Basle-Country (CH)	HE	Hesse (D)
SHch	Schaffhausen (CH)	MV	Mecklenburg-West Pomerania (D)
SG	St Gallen (CH)	NI	Lower Saxony (D)
GR	Grison (CH)	NWd	North Rhine-Westphalia (D)
AG	Argovia (CH)	RP	Rhineland Palatinate (D)
TG	Thurgovia (CH)	SL	Saarland
TI	Ticino (CH)	SN	Saxony
VD	Vaud (CH)	STd	Saxony-Anhalt (D)
VS	Valais (CH)	SHd	Schleswig Holstein (D)
NE	Neuchâtel (CH)	TH	Thuringia
GE	Geneva (CH)		
JU	Jura (CH)		
