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# State capture from below? The contradictory effects of decentralisation on public spending

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**Abstract:** This study analyses the contradictory effects of decentralisation on public spending. We distinguish three dimensions of decentralisation and analyse their joint and separate effects on public spending in the Swiss cantons over 20 years. We find that overall decentralisation has a strong, significant and negative effect on the size of the public sector, thus confirming the Leviathan hypothesis. The same holds for fiscal and institutional decentralisation. However, the extent to which political processes and actors are organised locally rather than centrally actually increases central and decreases local spending. This suggests that actors behave strategically when dealing with the centre by offloading the more costly policies. The wider implication of our study is that the balance between self-rule and shared rule has implications also for the size of the overall political system.

**Key words:** cantons, decentralisation, government size, Leviathan, Switzerland

## Introduction

What explains why some governments spend more than others? Political science, and in particular the public policy literature, has long sought to answer this question. The enquiry points to the very heart of politics, given the key role of institutions for distributive, competitive and ideological processes such as policy making, elections and rivalling ideas on the role of the state in general (cf. Zubek and Goetz 2010). In short, political conflict often revolves around how much should be spent, when, and on what, to

paraphrase Lasswell (1936). Accordingly, ever since Schmidt's (1993, 2000) exegesis of rivaling theories explaining public expenditure, we can distinguish between socio-economic, partisan, power resources and cultural-historical determinants, next to institutional approaches along the lines of Tsebelis' (2000) veto-player theory.

At the same time, and building on this last point about the role of institutions, various forms of vertical power sharing – regionalism, decentralisation, federalism, etc. – are widely believed to affect both the legitimacy and efficiency of policymaking (e.g. Brennan and Buchanan 1980; Rodden 2006; Treisman 2007). Decentralisation in particular is argued to lead to lower deficits (Busch 1995; Baskaran 2012), lower public spending on education, healthcare, pensions or general welfare (Vatter and Rüeßli 2003; Busemeyer 2008), lower unemployment (Crepaz 1996), more satisfaction due to better tailored service delivery (Oates 1972), lower inflation rates and higher economic growth (Castles 1999; Lancaster and Hicks 2000). The most famous statement emanating from that literature is probably Brennan and Buchanan's "Leviathan hypothesis", according to which "[t]otal government intrusion into the economy should be smaller, *ceteris paribus*, the greater the extent to which taxes and expenditures are decentralized" (1980, 216; emphasis omitted). In other words, the "size of the public sector should vary inversely with fiscal decentralization" (Ebel and Yilmaz 2002, 16; also Rodden 2006, 5).

However, "[s]urprisingly little thought has gone into defining and measuring decentralization and federalism in ways that facilitate empirical analysis" (Rodden 2006, 24) of exactly that connection. Either such measures are carefully designed – or at least skilfully combined – but only selected public policies are assessed (e.g. Biela et al. 2013), or output analyses rely on a simplified understanding of vertical state structures (e.g. Schmidt 1996; Lijphart 2012; cf. Braun 2000a, 2–4) and an operationalisation of fiscal indicators only (e.g. Rodden 2003a). Among the notable exceptions are the studies by Schneider (2006) and O'Dwyer and Ziblatt (2006), who try to study the impact of different forms of decentralisation on social policies and the quality of government, respectively, as well as Braun (2000b), who compares clusters of countries distinguished by the distribution, extent and sharing of political power.<sup>1</sup>

<sup>1</sup> A further difficulty is terminological (Rodden 2006, 24), with decentralisation either referring to a subdimension of federalism (e.g. Watts 2008) or, alternatively, its synonym (e.g. Riker 1964). Although it would probably be more correct to speak of "non-centralisation" (Elazar 1987, 34), that term is not widely used. Hence, because the literature on fiscal federalism essentially deals with expenditure and revenue decentralisation (e.g. Rodden 2003a, 697), we will use this term even when referring to the political and institutional dimensions of the vertical division of power that others have labelled "cartel federalism" (Greve 2012, 4) or "shared rule" (Elazar 1987; Hooghe et al. 2010).

But even these studies may speak of political power only to then *measure* its presence, type and distribution using revenue, expenditure, taxes and fiscal transfer data. As we shall argue below, this neglects both institutions as well as politics in a more narrow sense (actors and processes).

Hence, following Rodden's observation that "normative theories establishing decentralization's promise seem to assume implicitly not only a wide range of local taxing and spending authority, but also some modicum of *political* federalism" (2006, 44; emphasis added), this study also includes legal and political indicators that more closely capture what is intended – namely, the extent to which political power is distributed vertically. We will provide a threefold conceptualisation and measurement of decentralisation and then analyse its impact on government size. More particularly, we shall distinguish between an institutional (*polity*), a functional (*policy*) and a political dimension (*politics*) of decentralisation and analyse whether, controlling for a number of other factors, decentralisation and its three dimensions matter for public expenditure. Taking profit of the opportunity afforded by the Swiss federation as a "laboratory" of 26 subnational political systems (Vatter 2002; Braun 2003), we are able to compare different types and degrees of intracantonal decentralisation to assess their effect on cantonal, local and total (cantonal plus local) spending over 20 years (1990–2009).

We proceed by first discussing the current state of the art in both the public policy and the territorial politics literature. The research design section presents our research design before we explain government size using our own measures of decentralisation and several controls, in the findings section. The discussion and conclusion section discusses our findings in light of the theoretical literature and concludes.

## Theory and hypotheses

The extent, even if not necessarily the type, of public expenditure has traditionally been explained from either one of five perspectives: neo-institutionalism; modernisation; path dependency; power resources; and party competition (Schmidt 1993, 2000). As this study focusses on the effects of decentralisation, we first discuss theoretical arguments pertaining to that causal mechanism in particular. In doing so we distinguish three different types of decentralisation: functional, political and institutional in a narrow sense. We then briefly discuss rivalling explanations – parties-in-government, hard budget constraints, direct democracy and noninstitutional factors – as currently found in the literature.

### *The impact of decentralisation*

At its most general, the impact of decentralisation (our shorthand for vertical power sharing) on government size is conceptualised as the effect of a specific set of “interpersonal, formal or informal rules and norms” (Schmidt 1993, 378, 2000, 28) on political action (cf. March and Olsen 1989; Hall and Taylor 1996; Peters 2011). This effect is commonly hypothesised to operate through three causal mechanisms that all relate to different aspects of decentralisation: competition, local autonomy and veto-players.

First, competition among lower-level units in terms of taxation, and service provision is thought to dampen the size of the overall state, as public entities would only raise and provide the absolute minimum of both to attract wealthy residents (Tiebout 1956, 418; Besley and Case 1995; Oates 1999, 1122; Alesina and Spolaore 2003, 137; Treisman 2007, 58). Such is the famous “Leviathan hypothesis” (Brennan and Buchanan 1980, 216), which rests on several assumptions, namely complete information, unhindered or at least not too costly a resident mobility, and individuals’ rational desires of neither wanting to pay for nor demand more than absolutely necessary (cf. Tiebout 1956, 419).

Given that our subsequent empirical analysis uses the 26 Swiss cantons as a comparative template, confidence in the validity of these assumptions is higher than in a cross-national analysis (see also Monogan 2013; Wasserfallen 2014). The average Swiss canton has 310,000 inhabitants and spans 1,600 km<sup>2</sup> [Bundesamt für Statistik (Federal Office for Statistics) (BFS) 2015]; therefore, complete information and mobility are more likely. Also, moving in our case not only means staying in the same country, but also in the same canton, the level where several important powers are exercised (e.g. police, education, health and environment – thus there are no costs in terms of adjusting to new systems by staying within the same canton) as Switzerland is one of the most federal countries in the world (Linder 2012; Füglistner and Wasserfallen 2014). Finally, the existence of fiscal equivalence in terms of a convergence of decisionmakers, taxpayers and service recipients (Schaltegger and Feld 2003) further enhances the logic according to which “voting with the feet” (Tiebout 1956) indeed leads to service provision matching tax yield.

As the Leviathan hypothesis is concerned primarily with overall government size, it only makes sense to test for the effect of this aspect of decentralisation on total public spending, which is both local and central spending combined (cf. Rodden 2003a, 709). Greve (2012, 7) equally underlines how this competitive logic of federalism would serve to “discipline governments” *tout court*. Hence, a first hypothesis reads as follows:

H1: The more fiscally decentralised a Swiss canton, the lower its total public expenditure.

A second argument why decentralisation would contribute to smaller governments is that much of the overall state activity is “hidden” at lower levels – that is, decided, financed and carried out by subsystem entities *at their own discretion*. But for decentralisation to lower “*central decision costs*” (Greve 2012, 6; emphasis added), local governments must have sufficient legal autonomy to actually deliver the required public services. This is an aspect that pertains not so much to competition or political influence but rather to “self-rule” (Elazar 1987; Hooghe et al. 2010).

That distinction between fiscal and legal autonomy (or between policy- and polity-decentralisation, see below) is often overlooked but has been made before. Watts, for example, distinguishes between the “the *scope of jurisdiction* exercised by each level of government, and the *degree of autonomy* or freedom from control by other levels of government with which a particular government performs the tasks assigned to it” (2008, 65–66; original emphasis). To determine the latter, he assesses the “formal allocation by the constitution of legislative powers to each level of government” as well as “the extent to which each field of jurisdiction is exclusively assigned to one level of government, concurrent or shared” (Watts 2008, 66). Rodden equally cautions that “it is difficult to know what to make of expenditure decentralization data without additional data on the regulatory framework for subnational finance” (2004, 484), such as what type of taxes can be raised or how much local discretion there is in determining the tax base (cf. Ebel and Yilmaz 2002, 4–5). Such rules are usually fixed in the constitution, although political practice and/or legal adjudication thereof might change over time (Gibson 2004, 2; Greve 2012, 8). The testable assumption arising from this is that, given local autonomy, a central government can afford to do less since lower-level entities will both provide a safeguard for assuring a minimal service provision as well as act as the first entry points for citizen demands. We thus hypothesise that:

H2a: The more constitutionally decentralised a Swiss canton, the lower its central expenditure.

A corollary from this is that, through increased proximity of decisionmakers to service beneficiaries, also the monitoring and sanctioning abilities of taxpayers are strengthened; thus, not only central but also local governments will spend less – and total government size decreases as in H1. However, as Rodden (2003a, 701) speculates, it might well be that vested interests operate even better at the local level and/or that citizens are more demanding precisely because of better oversight abilities (cf. Oates 1985). In both scenarios, polity-decentralisation would lead to more local spending. Hence:

H2b: The more constitutionally decentralised a Swiss canton, the higher its local expenditure.

Third, there is the already mentioned political aspect of de- or rather *non*-centralisation. The argument here is that the existence of noncentral loci of decisionmaking provides for a check on policy change and, through that, functions to curb excessive expenditure (Brennan and Buchanan 1980, 26–28; Obinger 1998, 46; Good et al. 2012, 455). As veto-players (Tsebelis 2000), local governments may block attempts by the centre to encroach upon their policy areas by centralising functions otherwise provided by them and/or through the acquisition of new powers (Schmidt 1998, 223; Braun 2000b, 50–51; Vatter and Freitag 2002, 59–60; Freitag and Vatter 2008, 275). Schmidt (1996, 177) also provides evidence that “countermajoritarian constraints [...] have stopped or reversed the trend towards big government” (cf. also Samuels and Mainwaring 2004, 86–88). But this means that, to have an effect on policymaking, decentralisation must not only capture expenditure and revenue discretion (the policy dimension) or constitutional autonomy (the polity dimension), but also actual local political influence at higher levels (Braun 2000b, 36) – that is, the ability to block or initiate policy change.

Most often this aspect of territorial politics is captured by the notion of “shared rule”, which measures the extent and way in which regions codetermine national decisionmaking (cf. Rodden 2006, 38; Hooghe et al. 2010). However, we prefer the term “political decentralisation” because it better conveys both the *nature* of central-local relations (political) and the *direction* of influence (bottom-up) (cf. Riker 1964, 10). Thus, subnational governments codetermine central decisionmaking using different channels – for example, through representatives in central political organs, such as elected senators or the appointed delegates of minister-presidents (Rodden 2003b, 165). Alternatively, in the absence of upper chambers, noncentral entities might also resort to bargaining directly with the federal government (Bird and Tassonyi 2003, 94), act through political parties (Riker 1964, 137ff.) or both (Samuels and Mainwaring 2004, 88–90). The point here is that the more powerful these territorial veto-players, the more successfully they can object to enlarging the scope of public activity. Hence, a third hypothesis reads as follows:

H3 a: The more politically decentralised a Swiss canton, the lower its total expenditure.

However, it may also happen that lower-level entities use their influence to shift public costs upwards and/or force the centre to take on new responsibilities, thus increasing the size of the central government. Rodden (2006, 5, 41) argues along similar lines when emphasising central-local bargaining dynamics and possible solutions to vertical coordination problems. Thus, “local governments, working on behalf of resident taxpayers, may shift the production costs of local services onto nonresidents through federally funded transfers” (Inman 2003, 36) that increase central spending. This very much resembles the so-called

“flypaper effect” (Rodden 2006, 78; Freitag and Vatter 2008, 276) but in an opposite direction – that is, bottom-up instead of top-down. Specific examples involve the Brazilian governors “forc[ing] the central government to assume their debts”, in the early 1990s (Samuels and Mainwaring 2004, 106), or the positive effect of legislative overrepresentation on a state’s share in federal funds in Argentina and Mexico (Diaz-Cayeros 2004, 315; Gibson et al. 2004, 181).

In other words, giving noncentral politicians a direct say over central policymaking will enable them to have the most expensive policies centralised or, in more technical terms, to “externaliz[e] the costs to others, turning public revenue into a ‘common pool’ that is overfished by provincial governments” (Rodden 2006, 6; cf. Freitag and Vatter 2008). Hence, our final hypothesis on the effect of decentralisation reads as follows:

H3b: The more politically decentralised a Swiss canton, the higher its central expenditure.

Details on how these three different dimensions of decentralisation are measured are provided in the Operationalisation section, below, and in the Appendix. Table 1 summarises our hypotheses. Note that, in principle, interactions between the three dimensions are very well imaginable too. For example, local governments might need to possess a minimum degree of constitutional self-rule for shared rule to be operating efficiently. However, the point of our three-dimensional measurement strategy is precisely to *disentangle* the mere availability of resources from the power to decide on their use (self-rule dimension: policy and polity) as well as from political influence at the centre (shared rule dimension: politics). But the point about possible interaction effects will be taken up in the concluding section. We next turn to rivalling explanations.

### *Rivalling explanations*

There are several rivalling explanations that could explain government size better than decentralisation. The first is *direct democracy*: as an opportunity

Table 1. Expected impact of decentralisation on spending

Decentralisation	Government Size		
	Cantonal Spending	Local Spending	Total Spending
Policy	(-)	(+)	- [H1]
Polity	- [H2a]	+ [H2b]	?
Politics	+ [H3b]	?	- [H3a]

Note: “+” = positive, “-” = negative influence expected; secondary hypotheses in brackets; “?” = no relationship specified *ex ante*.



structure with relatively low entry costs, it offers a veto instrument of a particular kind – namely, one for societal groups sufficiently well organised to collect the required number of signatures to initiate or block policy change (Wagschal and Obinger 2000, 469; see also Wagschal 1997, 226). But as with political decentralisation above, opening up the space of political decisions to the nonelite (i.e. not necessarily elected politicians) and the nonpolitical (moral, economic, etc.) elite could lead in both directions – that is less *or* more public intervention than would otherwise be the case (Freitag et al. 2003, 355; Linder 2012, 287). It all depends on the purpose and strength of these organised interests (cf. Funk and Gathmann 2011, 1258). However, because from the point of view of the people’s final decisions no strategic points are to be scored in direct-democratic votes, their vote will tend to be longer term than that of politicians who want to be reelected in a few years (cf. Eichenberger 1999). Moreover, direct democracy regularly practised makes for better informed citizens, raising the bar beyond which a majority of them are convinced that policy innovation is needed (Eichenberger 1999, 268; Feld and Kirchgässner 2000; Kirchgässner 2000). Finally, knowing the threat of a direct-democratic veto to exist, governments will become more cautious as regards the extent of change proposed, all the more so as the default option, the status quo, is always better known and thus inherently favoured by a generally risk-averse demos (Samuelson and Zeckhauser 1988; Funk and Gathmann 2013).

Another institutional variable is *hard budget constraints*. These refer to collectively binding rules on the extent of public expenditure growth and the associated risks of a bailout (Rodden et al. 2003, 4) and are thus institutions par excellence (Schmidt 1993, 379). Such constraints tie further spending to a corresponding surplus in generated revenue, a favourable debt-per-gross domestic product (GDP) ratio (e.g. Maastricht’s Growth and Stability Pact), and/or satisfactory economic performance in general. Switzerland and most of its cantons have chosen yet another way to ensure balanced budgets, using an instrument called “debt break” (*Schuldenbremse*), whereby the government is authorised to run deficits during recessions and to run surpluses during booms. Over the whole business cycle, however, it has to ensure that the budget is balanced. Thus, starting with a given level of debt, the debt should not have increased after the completion of a full cycle (Müller 2004, 2).

The debt break, in other words, represents a specific kind of self-imposed budget constraint (cf. Rodden et al. 2003, 23). The idea to apply this rule to Swiss policymaking dates back to 1919, when Canton St. Gall first introduced it into its legislation (Stalder and Röhrs 2005, 12; Kirchgässner 2010, 8). Over the 1990s and 2000s, several other cantons followed suit (BAK Basel 2012), but variations on the theme exist in terms of both the constraints imposed and the sanctions to be applied in case of rule violation (Stalder and Röhrs 2005, 3; BAK Basel 2012, 20–28). Building on a substantive body of

prior evidence relating debt breaks to lower budget deficits (Feld and Kirchgässner 2000, 2008; Schaltegger 2002; Krogstrup and Wälti 2008; Chatagny 2013; Lüchinger and Schaltegger 2013; Yerly 2013; see also Burret and Feld 2014 for an overview), we would expect that stricter debt break rules lead to lower cantonal expenditures.

Finally, we include the share of voters for cantonal government parties into our empirical analysis to account for *collusion*. According to Lijphart (2012), consensual decision-making procedures encourage the magnitude of state intervention as minority interests have to be considered (Vatter and Freitag 2002, 58; Baskaran 2013). The more inclusive a policy-making process, the more distributive policies are pursued for which the cost bearers are less obvious (Braun 2000a, 13; Schniewind et al. 2009). Thus, increased government spending might simply be a reflection of a broad governing coalition.

## Research design

The research design chosen for this study is a subnational comparison of Switzerland's 26 regional entities, the cantons, and the relations between cantonal (central) and municipal (local) governments. This kind of analysis, advised amongst others by Lijphart (1971, 689ff.), King et al. (1994, 219) and Snyder (2001), assumes cantonal-local relations to be functionally equivalent to central-local relations. This has the advantage of strengthening some of the assumptions that have to be made (such as full information and resident mobility; see above) and holding other variables (such as the overall constitutional framework, defence spending or democratic stability) constant. Although the usefulness of this approach for fiscal matters has been proven by, amongst others, Wallis and Oates (1988), Schaltegger and Feld (2003) and Freitag and Vatter (2008), we discuss limitations to our research design in the concluding section. We next explain the operationalisation of our variables and then present our method.

### *Operationalisation*

Our dependent variable is cantonal, local and total (cantonal+local) public expenditures, measured on a per capita basis to facilitate comparability. However, per capita spending has increased in all the 26 cantons between 1990 and 2009; thus, instead of estimating absolute levels of annual per capita spending for each canton we subtract the mean of all cantons' per capita spending for each year. In other words, we estimate the deviation from the mean cantonal per capita public spending to control for time-dependent error terms (cf. Stadelmann-Steffen and Bühlmann 2008, 36–37).<sup>2</sup>

<sup>2</sup> We also specified multilevel models with year-fixed effects that do not demean the dependent variable in this way, which did not substantially alter our results (see also footnote 8).

Turning to our key independent variables, *policy-decentralisation* is measured using fiscal, personnel and administrative decentralisation within every Swiss canton, understood in turn as the extent to which local governments raise and administer public money (cf. Fiechter 2010; Rühli 2012). However, full centralisation in one area (e.g. tax-raising capacity) can easily be offset by decentralisation in another (e.g. personnel), which is to say that simply averaging their values would not render an accurate picture. In Goertz's (2006, 115) terms, therefore, all three components are necessary, and together they are jointly sufficient conditions for a canton to be decentralised in its policy dimension. We therefore multiply general revenue decentralisation with administrative (the share of local from total public expenditures for administration only) and personnel decentralisation (the share of local staff and local staff salaries from their respective total numbers; cf. Treisman 2002, 13; Chhibber and Kollman 2004, 234).<sup>3</sup>

*Polity-decentralisation* is defined by the extent of freedom guaranteed by cantonal constitutions (Giacometti 1941) and expert perceptions of the actual realisation thereof (Ladner et al. 2013). This takes into account possible discrepancies between “rules-in-form” and “rules-in-use” (Rothstein 1996; cf. Rodden 2004, 492). In practice, we average the standardised values of the Giacometti index (cantonal constitutions are either centralised, decentralised or balanced; Giacometti 1941) and the results of the local government secretary surveys [Gemeindegliederschreiberbefragung (GSB)] of 1994, 2005 and 2009 (cf. Ladner et al. 2013).<sup>4</sup> Averaging is possible because the two subdimensions are “substitutable” (Goertz 2006, 108).

Finally, *politics-decentralisation* captures the degree to which political decisionmaking is decentralised (i.e. local) rather than centralised (i.e. cantonal). There are seven indicators that are assessed here (cf. Mueller 2011, 2014, 2015):

1. *Cantonal political party organisation* measures the local influence over candidate selection for cantonal parliamentary elections, from purely local discretion to cantonal delegate assemblies without any attachment to local politics.

<sup>3</sup> Data are from BADAC (2012). Cronbach's  $\alpha$  for fiscal, personnel and administrative decentralisation is 0.813; if run with the four indicators individually, it is 0.880 (both times  $n = 26$ ). We omit expenditure decentralisation to avoid endogeneity problems with our dependent variable, but our results do not change if this indicator is included.

<sup>4</sup> In these surveys, the secretaries of local governments, considered experts on everything local, were asked to rate the extent of local autonomy from 1 (no autonomy) to 10 (very high autonomy).  $n$  (GSB<sub>1994</sub>) = 1,549;  $n$  (GSB<sub>2005</sub>) = 2,003;  $n$  (GSB<sub>2009</sub>) = 1,317 (cf. also Appendix). Cronbach's  $\alpha$  for the four measures, “Giacometti Index”, “GSB<sub>1994</sub>”, “GSB<sub>2005</sub>” and “GSB<sub>2009</sub>”, is a high 0.885 ( $n = 26$ ).

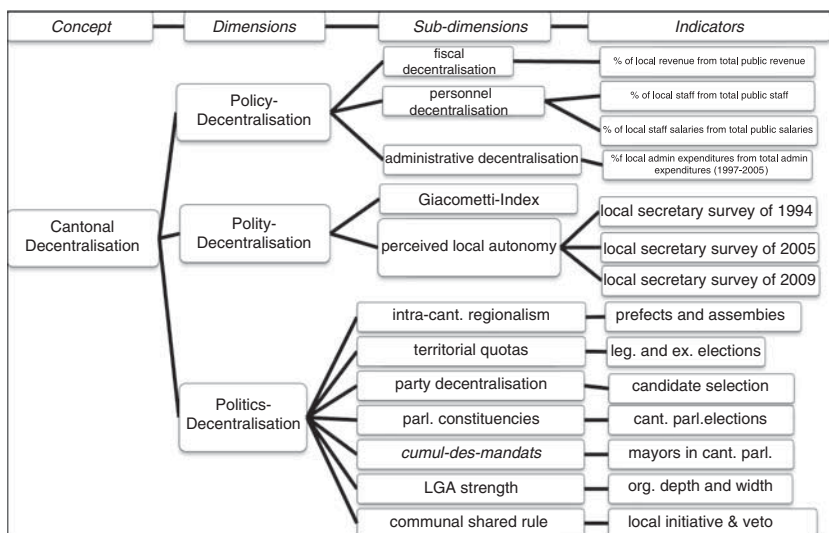
2. *Regionalism* assesses the degree to which regional assemblies and/or prefects exist in a canton – that is, whether there are additional noncentral loci situated between cantonal and local governments.<sup>5</sup>
3. *Territorial quotas* take into account the fact that electoral competition for the cantonal executive and/or the legislative branch might be restricted using fixed quotas, such as those for the Bernese Jura region (guaranteed one out of five government seats).
4. *Electoral system organisation* measures the territorial congruence between local governments and the electoral districts used for cantonal parliamentary elections.
5. The *direct representation of mayors in cantonal parliaments* is assessed using the self-declarations of Members of Cantonal Parliaments.
6. The *organisational strength of local government organisations* captures the existence, cohesiveness and public presence of Local Government Associations (LGAs).
7. Finally, the *existence of direct-democratic instruments for local governments* measures the extent to which local governments *qua* municipalities can veto a cantonal bill and/or initiate cantonal constitutional change.

All these indicators have in common the fact that they – at least potentially – bring local interests to bear on central decisionmaking (cf. Tarrow 1977; Page 1991; Rodden 2004; Stepan 2004). To arrive at a single measure of politics-decentralisation, we rely on the results of a factor analysis of these seven indicators that searches for a single factor only (see Table A.1, in the Appendix). A reliability test of policy-, polity- and politics-decentralisation thus constructed reveals a sufficiently large commonality; therefore, to arrive at a single measure of *overall decentralisation*, we have calculated their arithmetic mean.<sup>6</sup> The conceptual structure of decentralisation so defined is visualised in Figure 1, while summary statistics and an empirical distribution of the mean values across the whole period are presented in the Appendix.

To measure direct democracy, we use Stutzer's (1999) index as updated by Schaub and Dlabac (2012). It is composed of the mean values of four dimensions, each coded from 1 meaning few direct-democratic rights to 6 equalling extended direct-democratic rights. For debt breaks, we rely on Feld and Kirchgässner's (2008) ordinal variable on the strictness of

<sup>5</sup> Although it may seem counterintuitive at first sight to code the presence of prefects as an instance of *decentralisation*, in the Swiss context this makes sense as in many cantons prefects are elected locally, in their districts, and thus also function as bottom-up channels for influence.

<sup>6</sup> Cronbach's  $\alpha = 0.682$  (three items); see also Table A.2. Alternatively, we have run a factor analysis, where it was specified that only one component should be extracted, but the results of all subsequent analyses do not change if these factor scores are used in place of the much more intuitive and transparent aggregate.



**Figure 1** Conceptual structure of cantonal decentralisation. LGA = Local Government Association

cantonal debt breaks (0 equals no debt break, 3 indicates the strictest debt break). The strictest debt breaks tie expenditure directly to budget planning, foresee no exceptions, and provide for sanctions in case of nonobedience. For each of these elements missing, strictness is downgraded to 2 or 1, while 0 signifies the absence of a debt break altogether. For the years from 1990 to 2005, we use the coding by Lüchinger and Schaltegger (2013, 789–790, 804) and Stalder and Röhrs (2005, 28–30), for 2006–2007 that by Chagny (2013, 34), and for 2008–2009 we have calculated the corresponding cantonal values ourselves based on information from the *Année Politique Suisse* (2009). The resulting measure does not significantly correlate with any other indicator in our dataset. Finally, as an indicator of the size of the governing coalition we use the summed share of voters for parties in a cantonal government (cf. Vatter and Freitag 2002, 63; data source for our purposes: BFS 2015).

As further control variables we shall use various socio-demographic, economic, cultural and structural indicators. To capture modernisation and market failure (Wagner 1958 [1883]; Verner 1979), we assess urbanisation and unemployment (cf. Schmidt 2000, 23; Schaltegger 2001, 4; Kellermann 2007, 48). To measure those aspects of political culture potentially related to more demand for state intervention (Davis and Robinson 1999; Schmidt 2000, 30; Loughlin 2001), we assess the share of Catholics and German-speakers

(Kriesi et al. 1996; Stadler 1996; von der Weid et al. 2002, 63–65; Zürcher 2006; Linder et al. 2008). To assess party competition and power resources (Schmidt 1996, 2000, 25–27), we measure the strength of left-wing parties and trade unions (cf. Hibbs 1977; Schmidt 1996; Wagschal 2005, 38), because to (re)distribute across social strata is politically desirable for them and their electorate or members. To assess mobility and demographic structure, we measure the share of residents older than 65 years, the share of pupils in secondary education, the share of social benefit recipients and real median income (cf. Funk and Gathmann 2011, 1260). Finally, to control for the impact of changing macroeconomic conditions (Schmidt 1996, 167), we measure the performance of a canton using total federal corporate tax yield per canton, divided by that canton’s population, for each year of our analysis.<sup>7</sup>

For unemployment and urbanisation, the share of Catholics and French-speakers, the strength of left-wing parties in cantonal parliaments (rather than in cantonal governments, as it is the overall strength of parties and not so much the number of government seats that the theory highlights), socio-demographics and federal tax yield, we rely on data from the BFS (2015). To measure the strength of trade unions, we rely once more on data by Schaub and Dlabac (2012) (cf. Vatter and Freitag 2002, 63), whereas income data are gathered from federal income tax statistics (Schaltegger and Gorgas 2011). Further details on each variable, its measurement, sources and summary statistics are listed in the Appendix.

### *Method*

To test which of the aforementioned explanations and specifications best match the empirical reality of the Swiss cantons as 26 unit-independent cases, we estimate time-series cross-sectional (TSCS) models as our units are canton-years. We have checked that our time series is stationary using the Augmented Dickey-Fuller Unit Root Test. Models are estimated using the R package “panelAR”. The package estimates linear models on panel data structures in the presence of AR(1)-type autocorrelation that are addressed via a two-step Prais-Winsten feasible generalised least squares procedure, allowing for common correlation coefficients across all panels (Kashin 2014), and panel-corrected standard errors (PCSEs) that are robust to both heteroskedasticity

<sup>7</sup> Unfortunately, cantonal GDP data are only available from 2008 onwards, and, for reasons of tax autonomy, cantonal income tax yield is not directly comparable, especially not if we want to capture economic conditions. Hence, in relying on federal tax yield, we assess the economic *potential* of a canton, thus loosely applying the official method used for fiscal equalisation across Switzerland since 2008. Data are available for legal entities and natural persons separately. However, for natural persons some data are missing for some cantons in some years. This is why we rely on the data for legal entities. However, our results do not change if we use the tax yield from natural persons instead.

and contemporaneous correlation across panels. Such PCSEs allow for more valid significance estimations. Note that this method of estimating is rather conservative; hence, if significant correlations are obtained, these can be accepted with even more confidence than if another method had been chosen.<sup>8</sup>

## Findings

Table 2 displays the results of our nine TSCS models. For each dependent variable, we first include overall decentralisation and all controls (model 1), then the three dimensions of decentralisation and all controls (model 2), and finally, in model 3, the three dimensions of decentralisation plus all control variables with a generalised variance-inflation factor (GVIF) below 5 in any of the first two models.<sup>9</sup> The different number of cases (487 instead of 520) is due to missing values for some variables (cf. Appendix). Additionally, to avoid “collider bias”, that is collinearity between the independent variables – which is expected, as each forms one dimension of the same overarching concept – Table A.5 provides for a step-by-step inclusion.<sup>10</sup>

We can see that *overall decentralisation* (the mean of the standardised values of polity-, policy- and politics-decentralisation) has an effect on all three types of spending. What is more, this effect is strongly significant: the more a cantonal political system is decentralised overall, the lower its *total and central* per capita expenditure, controlling for several other institutional, socio-economic, cultural and political variables. The effect of overall decentralisation on *local* expenditure, on the other hand, is significantly positive (see also Table A.5). However, as we turn to decentralisation’s three dimensions, the picture becomes more varied.

For *policy*-decentralisation, a concept that most closely resembles the standard way decentralisation is measured to test the “Leviathan hypothesis”, the hypothesised negative effect on both total (model T3) and central (model C3) expenditures can indeed be shown to exist. In other words, as the revenue and administrative capacity of local governments increases, central government spending decreases to such an extent that this also leads to an overall decrease in spending. This finding withstands the inclusion of various controls and is robust to both outlier analyses (not shown) and a step-by-step inclusion to account for collinearity between the independent

<sup>8</sup> Alternatively, we have calculated nonnested multilevel models (cf. Gelman and Hill 2007, 244) and multilevel analyses with year-fixed effects. All of those broadly confirm our findings (detailed results available on request).

<sup>9</sup> The variance-inflation factor, or GVIF in the presence of variables with more than 1 degree of freedom (the debt break, in our case), measures the extent to which the impact of one variable (more particularly, the variance of its coefficient) is inflated because of multicollinearity.

<sup>10</sup> We thank the anonymous reviewer of the *Journal of Public Policy* for this advice.

Table 2. Results of time-series cross-sectional models

	DV1: Cantonal Spending, 1990–2009			DV2: Local Spending, 1990–2009			DV3: Total Spending, 1990–2009		
	Model C1	Model C2	Model C3	Model L1	Model L2	Model L3	Model T1	Model T2	Model T3
Intercept	-2,634.95 (-2,734.4)	-853.66 (-2,112.14)	-2490.95 (-1,726.89)	2,651.70*** (-715.65)	1,604.52** (-653.74)	386.95 (-583.22)	-616.82 (-2,699.49)	1,005.48 (-2287.13)	-2,132.76 (-1,971.1)
Decentralisation	-2,283.73*** (-316.43)			950.61*** (-144.13)			-1,347.56*** (-323.34)		
Policy dimension		-1,445.62*** (-181.35)	-1,402.93*** (-170.83)		692.08*** (-73.47)	640.47*** (-67.43)		-752.33*** (-163.16)	-831.86*** (-157.55)
Polity dimension		-749.46*** (-287.45)	-597.31** (-238.75)		49.97 (-84.23)	-38.59 (-72.93)		-704.57** (-296.07)	-610.67*** (-225.77)
Politics dimension		745.49*** (-212.2)	576.83*** (-221.04)		42.22 (-114.41)	-218.22*** (-66.92)		778.95*** (-255.11)	279.63 (-200.08)
Control variables									
Direct democracy	71.55 (-231.13)	-456.51** (-197.84)		-480.30*** (-117.81)	-397.57*** (-116.77)		-309.95 (-232.97)	-822.37*** (-256.06)	
Weak debt break <sub>t-1</sub>	136.91 (-185.41)	193.32 (-209.06)	175.97 (-200.97)	205.02* (-118.43)	290.23** (-122.17)	341.91*** (-127.3)	338.48 (-240.37)	413.96 (-262.63)	541.25** (-274.74)
Moderate debt break <sub>t-1</sub>	-210.98 (-235.29)	-153.04 (-193.27)	-128.85 (-189.21)	-39.84 (-99.97)	-105.5 (-87.97)	-188.05** (-83.14)	-341.81 (-226.59)	-247.32 (-203.32)	-379.12* (-199.97)
Strong debt break <sub>t-1</sub>	-68.71 (-258.19)	-798.49** (-352.91)	-677.75** (-319.56)	-569.43*** (-176.04)	-454.98*** (-147.01)	-265.83* (-140.65)	-664.11* (-344.45)	-1,174.17*** (-371.8)	-1,019.00*** (-317.31)
Government coalition	-0.02 (-5.19)	-4.34 (-5.78)	-4.04 (-5.49)	5.64** (-2.59)	7.69*** (-2.64)	7.32*** (-2.65)	5.18 (-5.56)	2.99 (-5.85)	3.06 (-5.79)
Urbanisation	59.26*** (-20.88)	72.69*** (-15.23)	79.1*** (-14.94)	-2.66 (-3.48)	-7.38*** (-2.86)		56.57*** (-19.98)	66.92*** (-16.34)	71.40*** (-14.27)
Unemployment	32.66* (-18.06)	37.87** (-15.86)	34.81** (-15.37)	0.58 (-6.76)	-1.96 (-6.42)	1.61 (-6.87)	33.07* (-17.41)	36.47** (-16.51)	37.32** (-16.57)
Catholic canton (dummy)	508.13 (-442.96)	63.75 (-295.9)		-588.48*** (-150.91)	-335.66*** (-123.15)	-110.58 (-109.08)	-61.7 (-429.32)	-285.71 (-325.36)	-385.46* (-206.81)
German-speaking (dummy)	1,829.28*** (-691)	1,507.79*** (-559.52)		-552.08** (-273.35)	-202.18 (-253.91)		1,087.06 (-666.78)	1,289.83* (-665.01)	
Left-wing parties	-3.08 (-17.38)	-9.76 (-17.58)		4.19 (-5.38)	5.85 (-5.07)	2.66 (-5.21)	-0.43 (-17.62)	-3.04 (-17.57)	
Trade unions	35.58* (-20.82)	27.22 (-18.41)	11.69 (-18.04)	0.96 (-8.62)	4.35 (-7.16)	7.37 (-7.15)	33.94 (-21.73)	30.84 (-20.16)	19.1 (-18.48)



Table 2. (Continued)

	DV1: Cantonal Spending, 1990–2009			DV2: Local Spending, 1990–2009			DV3: Total Spending, 1990–2009		
	Model C1	Model C2	Model C3	Model L1	Model L2	Model L3	Model T1	Model T2	Model T3
Age	186.42** (-80.92)	70.28 (-58.41)	89.72 (-60.38)	-70.57** (-27.83)	-29.31 (-21.59)	-51.86** (-24.5)	127.15 (-86.55)	45.91 (-72.75)	31.28 (-74.86)
Education	-1,003.8*** (-277.65)	-444.57* (-258.72)	-283.15 (-251.46)	172.94* (-100.67)	38.31 (-84.03)	-74.28 (-75.67)	-793.08** (-280.96)	-479.45* (-267.21)	-232.78 (-253.31)
Social benefits	212.86 (-177.1)	169.23 (-143.9)		-150.84* (-79.05)	-112.89* (-67.18)		84.68 (-163.62)	43.79 (-140.22)	
Median income	-37.96* (-19.83)	-4.06 (-20.73)	-0.3 (-18.91)	12.85 (-8.76)	8.28 (-7.91)	-0.23 (-7.91)	-23.08 (-21.44)	-0.45 (-22.35)	2.99 (-20.76)
Federal tax yield	0.12* (-0.07)	0.12* (-0.07)	0.12* (-0.06)	0 (-0.03)	0.01 (-0.02)	0.01 (-0.02)	0.13* (-0.07)	0.12* (-0.07)	0.14* (-0.07)
R <sup>2</sup>	0.27	0.46	0.42	0.22	0.42	0.33	0.21	0.31	0.32
Rho	0.91	0.84	0.86	0.88	0.82	0.85	0.9	0.86	0.84
Number of observations	487	487	487	487	487	487	487	487	487

Notes: Nonstandardised regression coefficients, standard errors in brackets. For generalised variance-inflation factor values, see Table A.6.

\*p < 0.1, \*\*p < 0.05, \*\*\*p < 0.01.

variables (Table A.5). As expected, policy-decentralisation also has a positive effect on local spending (model L3).

That pattern is almost the same for *polity*-decentralisation, which measures the degree of constitutional and perceived local autonomy. Such a type of decentralisation equally decreases central and total spending, but does not seem to affect local spending: the correlation coefficient in model L3 is negative, yet fails to reach statistical significance (see also Table A.5). In other words, a locally perceived and constitutionally codified ability to deviate from cantonal standards has the expected (H2a) negative effect on central spending – local freedom in this sense breeds both central and overall efficiency.

The most interesting to highlight, however, are the results for *politics*-decentralisation – that is, the extent to which political processes and actors are organised locally rather than centrally. Here, the effect is *positive* and significant for cantonal spending. What is more, the effect of politics-decentralisation on local spending is *negative* – hence, we are quite possibly witnessing a deliberate shift of the most costly policies (health, welfare, education) from the local to the cantonal level.<sup>11</sup> A look at Table A.5 confirms that in seven out of eight cases, politics-decentralisation has a positive effect on cantonal and a negative effect on local spending (but a significant effect on total spending only in one out of four cases, when included with polity-decentralisation).

What this means is that where mayors are directly represented in cantonal parliaments, where parties select their candidates for cantonal parliamentary elections at the very local level (in matching the constituencies), and where local governments *qua* local governments can make use of direct-democratic instruments to veto cantonal decisions, there the cantonal level can be brought to spend more rather than less. The interpretation of this finding would argue that this is so because local political actors are strategically interested in shifting costs “upwards”, to the cantonal level, so that their own polities appear to be in better fiscal shape than if they had to spend the money from their own budgets – and raise their own, local taxes correspondingly (Horber-Papazian and Soguel 1996). The result is a sort of state capture from below.

In assessing the relative impact of each of the three dimensions, we can see from Table 3 that in each column overall decentralisation has the biggest effect, that policy-decentralisation clearly tops the other two as regards central and local spending, and that politics-decentralisation is almost as important as policy-decentralisation with regard to cantonal spending – but in the opposite direction, that is leading to more rather than less spending.

<sup>11</sup> This central finding is robust to the use of other models (see footnote 8) and to using absolute rather than mean-corrected values of spending (see footnote 2).

Table 3. Relative impact of decentralisation on spending

Decentralisation	Government Size		
	Cantonal Spending	Local Spending	Total Spending
Overall decentralisation	-0.515**	0.582**	-0.347**
Policy	-0.428**	0.531**	-0.290**
Polity	-0.169*	-0.030	-0.197**
Politics	0.167**	-0.172**	0.092

*Note:* Entries are the standardised  $\beta$ -coefficients from models 1 (for overall decentralisation) and 3 (for its three dimensions) of Table 2.

\* $p < 0.05$ , \*\* $p < 0.01$ .

Of the remaining significant effects, the strongest impact is that by polity-decentralisation on total spending and by politics-decentralisation on local spending, both in a negative direction.

Turning to our control variables, the debt break has a strong curbing effect on all three types of spending, which is in line with previous findings (e.g. Vatter and Freitag 2007, 365). Unemployment, urbanisation and federal corporate tax yield (our measure of economic performance) all have positive and significant effects on both central and total spending.<sup>12</sup> Whether a canton has a catholic majority also matters for total spending, seemingly disconfirming Catholic-inspired statism (cf. Davis and Robinson 1999). Local spending, in turn, seems to be positively driven by consensual politics (Vatter 2014) and negatively by the age structure. Finally, all three types of spending are also driven by language, which, however, had to be excluded from model 3 because of collinearity problems. Only inconsistent effects can be discerned as regards education, left-wing parties and the strength of trade unions.

## Discussion and conclusion

What explains why some governments spend more than others? This study has centred on decentralisation as a key institutional variable to understand why this is the case. Overall, we have been able to confirm the “Leviathan hypothesis” with new, original data at the Swiss subnational level: where there is overall decentralisation, there is less government, and this despite controlling for a number of other institutionalist as well as socio-economic,

<sup>12</sup> In a broader sense, our empirical results thus seem to be in line with Wasserfallen’s (2014) findings that Swiss cantons compete more strongly with their competitors the closer a canton is located to an urban region with a comprehensive set of public goods on offer.

cultural and partisan factors. The commonly hypothesised effects of unemployment, urbanisation, income, demographics, political culture and direct democracy have also more or less been found in our data on 20 years of cantonal, local and total public expenditure.

However, that overall picture becomes more complex – and interesting – once we look at different types of decentralisation. The availability and careful combination of fine-grained fiscal, administrative, constitutional, electoral, direct-democratic, parliamentary, party-politics and survey data has enabled us to conceptualise and measure three different types of decentralisation. For each dimension, we hypothesised and found different effects: *policy*-decentralisation, that is the extent to which revenues and administrative staff are local rather than central, has the clearest negative effect on central and total public spending while boosting local spending. *Polity*-decentralisation, which pertains to constitutional freedom and local perceptions thereof, also reduces the size of the central and total state sector. However, for *politics*-decentralisation, which captures the strength of local political influence at the central level, we have shown a positive relation to exist with central expenditures and a negative effect on local spending.

The significance of these findings beyond the Swiss case is that decentralisation does not equal decentralisation. If the availability of tax-raising and administrative power is referred to (*policy-decentralisation*), a straightforward competition logic was shown to happen. The ensuing “race to the bottom” means that public services are provided at a level deemed optimal by both decisionmakers and consumers alike, as ideally these two overlap. If local autonomy refers to constitutionally guaranteed self-rule (*polity-decentralisation*), then that link is less straightforward, especially as regards local spending – a possible reason being that the same degree of local autonomy can be used for different purposes depending on dynamics taking place *within* the local entities. Finally, if by decentralisation we mean *political* aspects such as the extent to which political actors (parties, mayors) and processes (elections, direct democracy) function locally rather than centrally, more power at the lower level can mean more burdens placed on the higher level. In fact, the lower institutional echelons may try to delegate the provision of expensive and/or new public services to higher levels whilst maintaining all of their decisional capacities (Horber-Papazian and Soguel 1996).

This last phenomenon is what we refer to as state capture from below. Its reasoning draws partly on Greve’s (2012) notion of “cartel federalism” and the observation that, were the component States to draw up the federal constitution and not individual citizens, they would try “not to discipline Leviathan but to empower government” (Greve’s 2012, 178). As “revenue maximizers” (Greve’s 2012, 189), subnational governments are interested

in federal transfers as much as in broadening their own sources of income. Consistent with this is the observation that the Swiss Association of Cities has repeatedly called for a revision to the federal equalisation scheme introduced in 2008 to channel more funds to the urban regions as opposed to the countryside.<sup>13</sup> What is more, to better lobby for their financial interests at both cantonal and national levels, cities even created a special Conference of Urban Finance Ministers in August 2014.<sup>14</sup> But local governments also function as a break to further expenditures, as when 19 municipalities in Canton Grisons challenged a reform of the intra-cantonal equalisation scheme that, as it eventually passed, increased central spending – as well as their own contributions.<sup>15</sup>

For further research into both territorial politics and public finance, this signifies, first, that a more nuanced understanding (and measurement) of decentralisation is worth pursuing, as not all types of decentralisation lead to the same outcome. Overcoming the divide between federalism and decentralisation studies is also necessary if all three dimensions of collective decisionmaking – policy, polity and politics – are to be included: there is nothing, neither at the conceptual nor at the theoretical level, that would justify treating local-cantonal relations as *prima facie* different from regional-national or local-national relations. Nevertheless, although it is quite plausible to think that well-organised local or regional actors are able to block policy changes that burden them with excessive costs but are quite happy to support policies paid for by the central state alone, this finding would of course have to be verified using more qualitative data, such as structured-focussed comparisons or process tracing, and in other contexts.

A second point of reflection concerns possible interaction effects, which we have alluded to above. In fact, exercising influence at the central level may require a certain minimum degree of self-rule for actors to be taken seriously. In the same vein, local discretion over the level of public service delivery remains symbolic if most of the revenue stems from earmarked transfers. These mutual conditioning effects are somehow controlled for by our subnational research design: all Swiss municipalities can levy at least some taxes autonomously; all have some basic legal protection (Art. 50.1 of the Federal Constitution); and almost everywhere we find local party sections, mayors in

<sup>13</sup> Cf. *Neue Zürcher Zeitung* of 19 August 2010, p. 11, and of 25 January 2011, p. 11, as well as, most recently, the press release of the Association of Swiss Cities of 27 June 2014, [http://staedteverband.ch/cmsfiles/140627\\_mm\\_nfa-vn.pdf](http://staedteverband.ch/cmsfiles/140627_mm_nfa-vn.pdf) (accessed 12 May 2015).

<sup>14</sup> Cf. *Neue Zürcher Zeitung* of 23 August 2014, p. 12, and Art. 2(1) of the Conference's bylaws, [http://ksfd.ch/cmsfiles/statuten\\_ksfd\\_def.pdf](http://ksfd.ch/cmsfiles/statuten_ksfd_def.pdf) (accessed 12 May 2015).

<sup>15</sup> Cf. *Neue Zürcher Zeitung* of 23 September 2014, p. 13, and of 29 September 2014, p. 9. A similar use of direct-democratic means by local governments can be observed in Zurich (2010 and 2015) and Solothurn (2004 and 2014), for example (cf. also Mueller 2014).

cantonal parliaments and LGAs. Nevertheless, future studies ought to theorise and test possible interaction effects more explicitly.

Hence, although Switzerland may be unique in the scope of autonomy accorded to both cantonal and local polities and its extremely noncentralised politics, this study has profited from this fact by comparing the 26 cantons as unit-independent political systems. And despite these limitations, the above cited evidence on Latin America, Canada, the US and Germany is broadly consistent with our conclusions that fiscal decentralisation hampers general government growth while political decentralisation favours increased central spending. We would expect these conclusions to apply to other federal political systems, too. There are, on the one hand, many regions within federal systems that similarly accord their local governments autonomy and influence over public policy. The German *Länder*, for example, are equally likely to fall prey to capture from below, as are the Swiss cantons. On the other hand, the mentioned “overfishing of the pool” (Rodden 2006, 6) might also travel to the national and even European level, as when the Canadian provinces bargain with Ottawa (Simeon 1972) or when regions open embassies in Brussels (Callanan and Tatham 2014) to influence “Who Gets What from Whom” (Schneider 2006). It is, however, unlikely that local governments or even regions without any constitutionally protected autonomy and/or a minimum level of fiscal autonomy are able to systematically exercise meaningful influence at higher levels.

A further avenue for future research might also be to distinguish between the effects for spatial, nonspatial, identity and welfare policies (Braun 2000b; Wälti and Bullinger 2000), rather than overall spending. Here, one could assume the absence of territorial effects for nonspatial policies, unless coupled with the defence of territorially concentrated minorities, and take into account the ideological orientation and socio-economic attributes of lower-level entities themselves. Also, the effects of politics-decentralisation should be strongest for distributive policies from which all lower entities eventually profit. Here again, a distinction of types of decentralisation might prove useful, for, once given (symbolic?) institutional autonomy, some lower-level entities might be quite happy to renounce fiscal capacity, whereas others might be more pressed for being able to raise money at the expense of constitutional guarantees, and a third group (e.g. cities) might be most inclined towards shifting costs upwards, regardless of both the politics of symbols and own-source income.

To conclude, the wider implication of our study is that the balance between self-rule and shared rule has implications also for the size of the overall political system. Decentralisation, like many social science concepts, contains multiple dimensions. What our study has found is that political influence and local autonomy (both legal and fiscal) may have contradictory effects, with the former boosting but the latter reducing government spending.

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Appendix

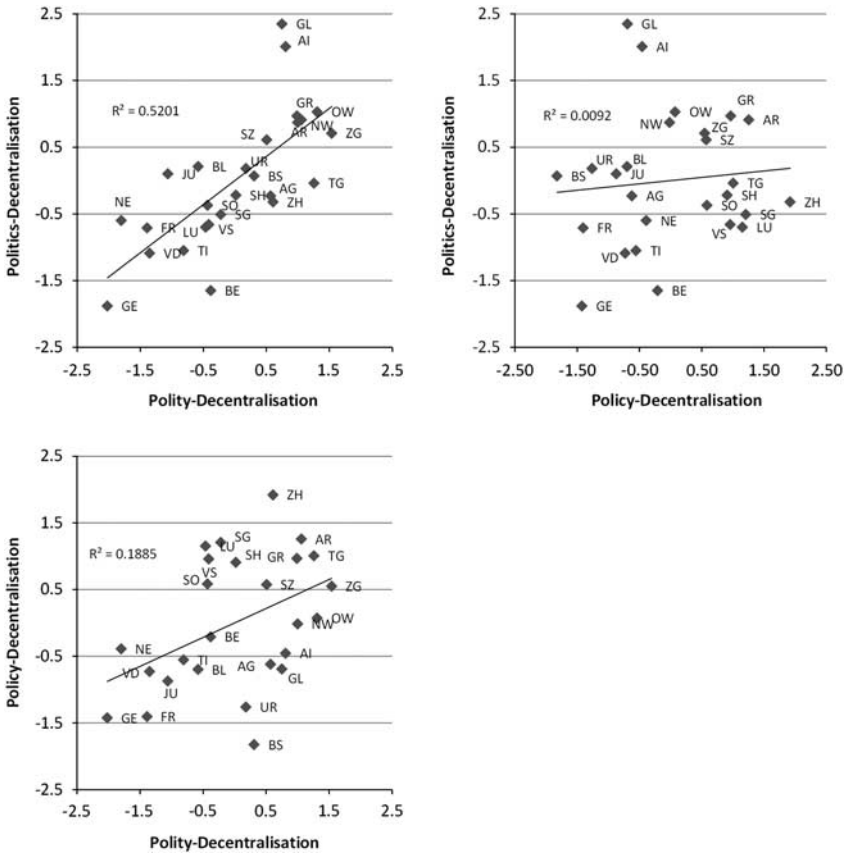


Figure A.1 Empirical distribution of cantonal decentralisation dimensions  
 Note: Mean values over the entire period are used for the sake of simplicity.

Table A.1. Two factor analyses for politics-decentralisation

Measures	Three-Component Solution			Single-Component Solution
	1	2	3	
LG constituencies	0.794	0.293	-0.281	0.832
Regionalism	0.727	-0.081	0.195	0.371
Strength of LGAs	-0.640	-0.085	0.574	-0.709
Direct democracy	-0.116	0.818	-0.069	0.457
Mayor MCPs	0.159	0.750	-0.204	0.654
Party decentralisation	0.493	0.619	0.120	0.677
Territorial quotas	0.054	-0.107	0.884	-0.366

*Notes:* Principal component analysis, rotation using the Varimax Kaiser Normalisation method (converged in five iterations). Bartlett's test of sphericity:  $\chi^2 = 39.793$  ( $p < 0.01$ ).

LG = Local Government; LGAs = Local Government Associations; MCP = Member of Cantonal Parliament.

Table A.2. Factor analysis for overall decentralisation

Indicators	Components		
	1	2	3
Fiscal decentralisation (2005/2008)	-0.085	0.936	-0.092
Personnel decentralisation (2008)	0.407	0.792	0.079
Administrative decentralisation (1997-2003)	-0.213	0.863	0.012
Giacometti index	0.747	0.298	0.353
Perceived local autonomy (1994, 2005 and 2009)	0.885	0.173	-0.069
Regionalism index (2011)	0.478	0.003	-0.102
Types of territorial quotas (2011)	-0.080	0.219	-0.551
Party decentralisation (2011)	0.507	0.614	0.292
Constituency index	0.824	-0.084	0.274
Mayor MCPs (2011)	0.249	0.168	0.696
Strength of LG Associations (2011)	-0.768	0.331	-0.258
Direct-democratic decentralisation (2011)	-0.095	0.127	0.827

*Notes:* Principal component analysis, rotation using the Varimax Kaiser Normalisation method (converged in four iterations). Bartlett's Test of Sphericity:  $\chi^2 = 162.665$  ( $p < 0.01$ ).

LG = Local Government; MCP = Member of Cantonal Parliament.

Table A.3. Variable description

Variables	Operationalisation	Data Source
Expenditure	Own calculations based on absolute capital expenditures divided by the permanent resident population, less the annual mean of all cantons that year. Data for cantonal, local and total (cantonal + local) expenditures	Federal Finance Administration and Federal Office for Statistics
Decentralisation	Own calculations for the policy-, polity- and politics dimension: <i>Policy dimension:</i> local governments' share of the public money raised and administered within a canton (on annual basis) <i>Polity dimension:</i> index of Giacometti (1941, for 1990–2009) and local government secretary survey results [Gemeindeschreiberbefragung (GSB)] of 1994 (for 1990 to 1999), 2005 (for 2000 to 2005) and 2009 (for 2006 to 2009) <i>Politics dimension:</i> index including cantonal political party organisation, regionalism, territorial quotas, electoral system organisation, direct representation of mayors in cantonal parliaments, the organisational strength of local government organisations and the existence of direct-democratic instruments for local governments (cf. Mueller 2011, 2014, 2015) For all dimensions we calculated $z$ -standardised values. The mean of those three values equals the overall value for the variable “Decentralisation”	BADAC (2012), Giacometti (1941), GSB (1994, 2005 and 2009), cantonal party statutes, cantonal constitutions and electoral laws, cantonal parliamentary websites and cantonal Local Government Association websites
Direct democracy	Index of Stutzer (1999) with mean values from 1990 to 1999 and from 2000 to 2009 for the following four dimensions: the right to launch a legislative initiative, the right to launch a constitutional initiative, the right to veto a legislative initiative, and the right to veto a financial decision. Scale: 1 = few direct-democratic rights,	Schaub and Dlabac (2012)



Table A.3. (*Continued*)

Variables	Operationalisation	Data Source
	6 = extended direct-democratic rights. The overall index equals the mean of the values for the four dimensions	
Debt break	Index of Feld and Kirchgässner (2008). Scale: 0 = no debt break, 1 = weak debt break, 2 = moderate debt break, 3 = strong debt break	Lüchinger and Schaltegger (2013, 789–790, 804), Chatagny (2013, 34), Stalder and Röhrs (2005, 28–30)
Government coalition	Own calculations based on the vote share of the parties in government. For cantons <i>Uri</i> , <i>Graubünden</i> and <i>Appenzell-Ausserrhoden</i> , we rely on the percentage of seats in parliament, as data on the vote share are unavailable. <i>Appenzell-Innerrhoden</i> is excluded because it has too peculiar a system	Federal Office for Statistics/ <i>Année Politique Suisse</i> , several years
Urbanisation	Percentage of urban population	Federal Office for Statistics
Unemployment	Unemployment rate	State Secretariat for Economic Affairs and Federal Office for Statistics
Catholic	Indicates whether canton has 1 = majority that is Catholic, 0 = otherwise	Federal Office for Statistics
German-speaking	Indicates whether canton has 1 = majority that is German-speaking, 0 = otherwise	Federal Office for Statistics
Left-wing parties	Own calculations based on the share of seats in the cantonal parliament of the following parties: Social-Democratic Party, Green party, Labour Party (formerly Communist Party), other small left parties. No data are available for the canton of <i>Appenzell-Innerrhoden</i> from 1990 to 2009 and for the canton of <i>Appenzell-Ausserrhoden</i> from 1999 to 2002	Federal Office for Statistics/ <i>Année Politique Suisse</i> , several years
Trade unions	Share of members of trade unions of the working population	Schaub and Dlabac (2012)
Age	Percentage of residents who are above 65 years old	Federal Office for Statistics

Table A.3. (Continued)

Variables	Operationalisation	Data Source
Education	Share of people in secondary education; data are available for the time period from 1999 to 2009; for the other years mean values were used. No data are available for the canton of <i>Appenzell-Innerrhoden</i> from 1990 to 2009	Federal Office for Statistics
Social benefits	Share of people receiving social benefits; data are available for the time period from 2005 to 2009; for the other years mean values were used	Federal Office for Statistics
Median income	Median income of cantonal residents (real)	Schaltegger and Gorgas (2011)
Federal tax yield	Total annual tax yield from federal corporate taxation by canton, divided by a canton's permanent resident population	Federal Office for Statistics

Table A.4. Summary statistics

Variables	Minimum	Maximum	Mean	SD
Cantonal per capita expenditure (mean-corrected)	-4,123	17,290	0	3,074.38
Local per capita expenditure (mean-corrected)	-3,456	3,285	0	1,168.74
Total per capita expenditure (mean-corrected)	-4,073	13,830	0	2,746.8
Overall decentralisation	-1.83	1.24	0	0.71
Policy dimension	-1.81	2.44	0	0.98
Polity dimension	-1.96	1.57	0	0.88
Politics dimension	-1.88	2.35	0	0.98
Direct democracy	1.74	5.76	4.26	1.17
Debt break	0	3	0.57	1
Government coalition	50.6	100	79.97	10.12
Urbanisation	0	89.27	24.49	19.49
Unemployment	0.03	7.81	2.79	1.7
Catholic canton (dummy)	0	1	0.42	0.49
German-speaking (dummy)	0	1	0.73	0.44
Left-wing parties	6.15	53.08	26.07	11.6
Trade unions	0.83	34.55	9.2	6.35
Age	11.57	22.72	16.22	2.09
Education	1.38	4.26	2.69	0.63
Social benefits	0.8	7.1	2.51	1.43
Median income	43.2	64.67	52.95	4.11
Federal tax yield	85.65	10,430	827.5	1,254.77

Table A.5. Results of step-by-step time-series cross-sectional models

Independent Variable(s)	Dependent Variable		
	Cantonal Spending	Local Spending	Total Spending
Overall decentralisation	Negative	Positive	Negative
Policy-decentralisation	Policy (-)	Policy (-)	Policy (-)
Polity-decentralisation	Polity (-)	n.s.	Polity (-)
Politics-decentralisation	Politics (+)	Politics (-)	n.s.
Policy- + Polity- decentralisation	Policy (-), Polity (-)	Policy (+), Polity (-)	Policy (-), Polity (-)
Policy- + Politics- decentralisation	Policy (-)	Policy (+), Politics (-)	Policy (-)
Polity- + Politics-decentralisation	Polity (-), Politics (+)	Politics (-)	Polity (-), Politics (+)
Policy- + Polity- + Politics- decentralisation	Policy (-), Polity (-), Politics (+)	Policy (+), Politics (-)	Policy (-), Polity (-)

*Notes:* Each cell represents one model to explain mean-corrected public spending between 1990 and 2009, all of which were estimated using the same procedure as for models 3 in Table 2 – that is, including all control variables with generalised variance-inflation factor  $< 5$ . All effects are significant, with “-” = negative, “+” = positive effect (at least  $p < 0.1$ ), otherwise omitted or “n.s.” (not significant).

Table A.6. Results of time-series cross-sectional models including generalised variance-inflation factor (GVIF) values

	DV1: Cantonal Spending (1990–2009)						DV2: Local Spending (1990–2009)					
	Model C1	GVIF	Model C2	GVIF	Model C3	GVIF	Model L1	GVIF	Model L2	GVIF	Model L3	GVIF
Intercept	-2,634.95 (-2,734.4)		-853.66 (-2,112.14)		-2,490.95 (-1,726.89)		2,651.70*** (-715.65)		1,604.52** (-653.74)		386.95 (-583.22)	
Decentralisation	-2,283.73*** (-316.43)	3.5					950.61*** (-144.13)	3.97				
Policy dimension			-1,445.62*** (-181.35)	4.93	-1,402.93*** (-170.83)	3.43			692.08*** (-73.47)	3.22	640.47*** (-67.43)	1.89
Polity dimension			-749.46*** (-287.45)	8.56	-597.31** (-238.75)	4.07			49.97 (-84.23)	3.47	-38.59 (-72.93)	1.83
Politics dimension			745.49*** (-212.2)	6.22	576.83*** (-221.04)	4.08			42.22 (-114.41)	8.6	-218.22*** (-66.92)	1.82
Control variables												
Direct democracy	71.55 (-231.13)	3.81	-456.51** (-197.84)	6.97			-480.30*** (-117.81)	6.31	-397.57*** (-116.77)	14.58		
Weak debt break <sub>t-1</sub>	136.91 (-185.41)		193.32 (-209.06)		175.97 (-200.97)		205.02* (-118.43)		290.23** (-122.17)		341.91*** (-127.3)	
Moderate debt break <sub>t-1</sub>	-210.98 (-235.29)	2.06	-153.04 (-193.27)	4.93	-128.85 (-189.21)	2.83	-39.84 (-99.97)	2.56	-105.5 (-87.97)	3.58	-188.05** (-83.14)	1.82
Strong debt break <sub>t-1</sub>	-68.71 (-258.19)		-798.49** (-352.91)		-677.75** (-319.56)		-569.43*** (-176.04)		-454.98*** (-147.01)		-265.83* (-140.65)	
Government coalition	-0.02 (-5.19)	1.21	-4.34 (-5.78)	1.49	-4.04 (-5.49)	1.26	5.64** (-2.59)	1.19	7.69*** (-2.64)	1.3	7.32*** (-2.65)	1.21
Urbanisation	59.26*** (-20.88)	2.79	72.69*** (-15.23)	4.41	79.1*** (-14.94)	3.19	-2.66 (-3.48)	2.83	-7.38*** (-2.86)	6.06		
Unemployment	32.66* (-18.06)	1.11	37.87** (-15.86)	1.19	34.81** (-15.37)	1.04	0.58 (-6.76)	1.11	-1.96 (-6.42)	1.14	1.61 (-6.87)	1.09
Catholic canton (dummy)	508.13 (-442.96)	4.8	63.75 (-295.9)	5.46			-588.48*** (-150.91)	2.16	-335.66*** (-123.15)	3.09	-110.58 (-109.08)	1.68
German-speaking (dummy)	1,829.28*** (-691)	4.91	1,507.79*** (-559.52)	8.88			-552.08** (-273.35)	5.98	-202.18 (-253.91)	12.02		



Table A.6. (Continued)

	DV3: Total Spending (1990–2009)					
	Model T1	GVIF	Model T2	GVIF	Model T3	GVIF
Intercept	-616.82 (-2,699.49)		1,005.48 (-2,287.13)		-2,132.76 (-1,971.1)	
Decentralisation	-1,347.56*** (-323.34)	4.21				
Policy dimension			-752.33*** (-163.16)	3.21	-831.86*** (-157.55)	3.17
Polity dimension			-704.57** (-296.07)	8.94	-610.67*** (-225.77)	5.42
Politics dimension			778.95*** (-255.11)	8.96	279.63 (-200.08)	5.18
Control variables						
Direct democracy	-309.95 (-232.97)	4.57	-822.37*** (-256.06)	10.31		
Weak debt break <sub>t-1</sub>	338.48 (-240.37)		413.96 (-262.63)		541.25** (-274.74)	
Moderate debt break <sub>t-1</sub>	-341.81 (-226.59)	2.13	-247.32 (-203.32)	4.07	-379.12* (-199.97)	3.14
Strong debt break <sub>t-1</sub>	-664.11* (-344.45)		-1,174.17*** (-371.8)		-1,019.00*** (-317.31)	
Government coalition	5.18 (-5.56)	1.23	2.99 (-5.85)	1.4	3.06 (-5.79)	1.36
Urbanisation	56.57*** (-19.98)	2.86	66.92*** (-16.34)	4	71.40*** (-14.27)	3.19
Unemployment	33.07* (-17.41)	1.1	36.47** (-16.51)	1.15	37.32** (-16.57)	1.09

Table A.6. (Continued)

	DV3: Total Spending (1990–2009)					
	Model T1	GVIF	Model T2	GVIF	Model T3	GVIF
Catholic canton (dummy)	–61.7 (–429.32)	5.22	–285.71 (–325.36)	4.55	–385.46* (–206.81)	2.04
German-speaking (dummy)	1,087.06 (–666.78)	6.67	1,289.83* (–665.01)	10.29		
Left-wing parties	–0.43 (–17.62)	3.51	–3.04 (–17.57)	6.51		
Trade unions	33.94 (–21.73)	1.84	30.84 (–20.16)	2.31	19.1 (–18.48)	1.69
Age	127.15 (–86.55)	1.97	45.91 (–72.75)	2.14	31.28 (–74.86)	1.89
Education	–793.08** (–280.96)	2.27	–479.45* (–267.21)	3.72	–232.78 (–253.31)	3.28
Social benefits	84.68 (–163.62)	3.99	43.79 (–140.22)	5.42		
Median income	–23.08 (–21.44)	1.85	–0.45 (–22.35)	2.68	2.99 (–20.76)	1.93
Federal tax yield	0.13* (–0.07)	1.19	0.12* (–0.07)	1.26	0.14* (–0.07)	1.2
$R^2$	0.21		0.31		0.32	
$\rho$	0.9		0.86		0.84	
Number of observations	487		487		487	

Note: Nonstandardised regression coefficients, standard errors in brackets.

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .